Experiment No: 05

Name of the Experiment: To configure Routing Information Protocol(RIP).

Experiment Equipment: PC, Copper Straight cable, Copper cross over, Switch 2950-24, Router 2811, Cisco Packet Tracer.

Procedure:

Step1: Start

Step2: Open Cisco Packet Tracer.

Step3: Take [end device]: PC0, PC1, take [Network device]: Switch,

router and use connection wires to connect the devices (copper straight through and copper cross over).

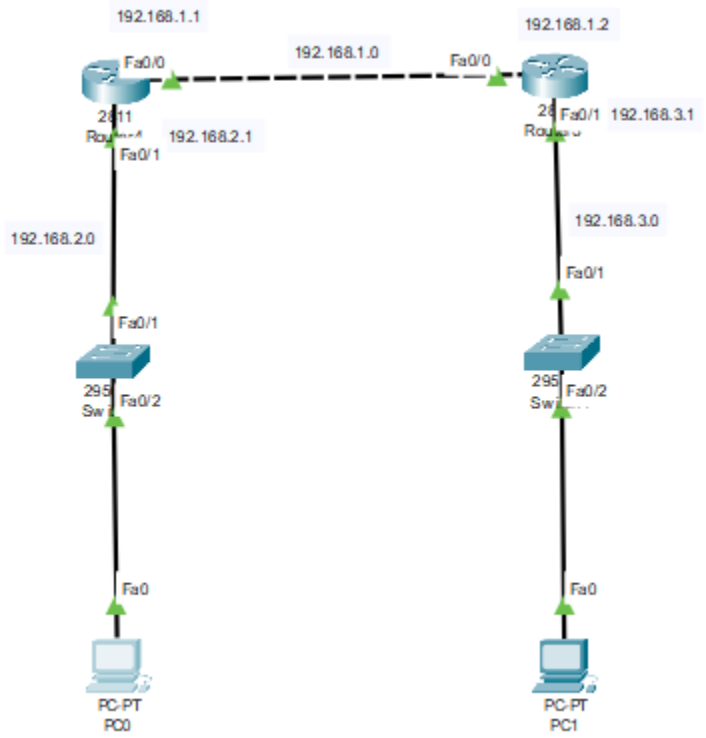

Figure 10: Experimental setup

Step4: IP Configuration for PC0 & PC1. Click PC0 ⟶ Desktop ⟶ IP Configuration.

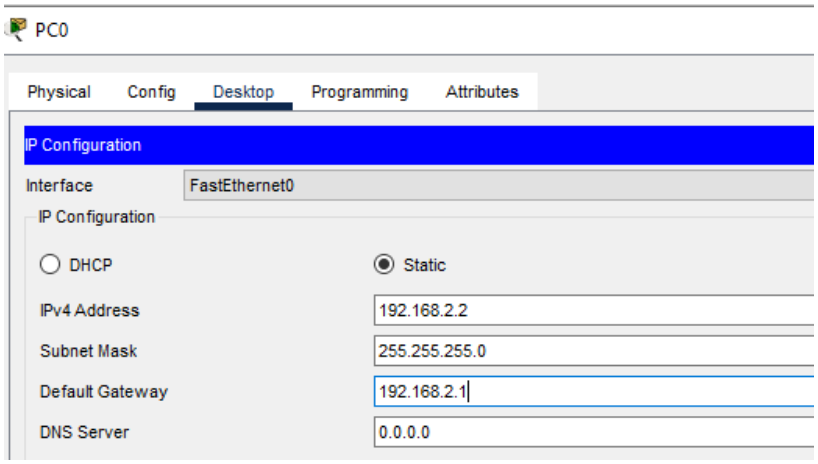

Figure 11: IP configuration

Step5: Router Configuration

Click Router ⟶ CLI, now write command in Configuration dialog.

IP configuration for router4:

Router>en
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastEthernet 0/0
Router(config-if)#ip address 192.168.1.1
% Incomplete command.
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 FastEthernet0/0, changed state to up
Router(config-if)#exit
Router(config)#interface fastEthernet 0/1
Router(config-if)#ip address 192.168.2.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#wr
Building configuration...
[OK]

RIP configuration for router4:

```
Router>en
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router RIP
Router(config-router)#version 2
Router(config-router)#network 192.168.1.0
Router(config-router)#network 192.168.2.0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#wr
Building configuration...
[OK]
```

IP configuration for router5:

```
Router>en
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastEthernet 0/0
Router(config-if)#ip address 192.168.1.2 255.255.255.0
Router(config-if)#no shutdown
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
Router(config-if)#exit
Router(config)#interface fastEthernet 0/1
Router(config-if)#ip address 192.168.3.1
% Incomplete command.
Router(config-if)#ip address 192.168.3.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#wr
Building configuration...
[OK]
```

RIP configuration for router5:

```
Router>en
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router RIP
Router(config-router)#version 2
Router(config-router)#network 192.168.1.0
Router(config-router)#network 192.168.3.0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#wr
Building configuration...
[OK]
```

Output: Transferring packet from PC0

```
C:\>Ping 192.168.3.2

Pinging 192.168.3.2 with 32 bytes of data:

Reply from 192.168.3.2: bytes=32 time<1ms TTL=126
Reply from 192.168.3.2: bytes=32 time<1ms TTL=126
Reply from 192.168.3.2: bytes=32 time<1ms TTL=126
Reply from 192.168.3.2: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.3.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

Experiment No: 06

Name of the Experiment: To configure Open Shortest Path First (OSPF) Routing protocol.

Experiment Equipment: PC, Copper Straight cable, Copper cross over, Switch 2950-24, Router 2811, Cisco Packet Tracer.

Procedure:

Step1: Start

Step2: Open Cisco Packet Tracer.

Step3: Take [end device]: PC0, PC1, take [Network device]: Switch, router and use connection wires to connect the devices (copper straight through and copper cross over).

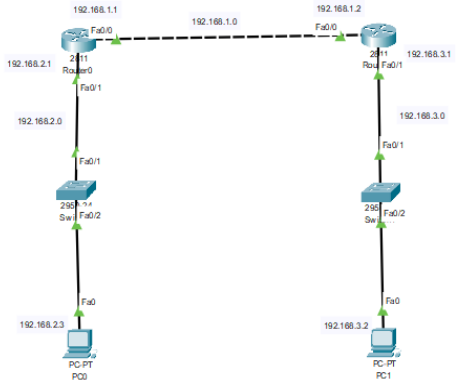

Figure 12: Experimental setup

Step4: IP Configuration for PC0 & PC1. Click PC0 ⟶ Desktop ⟶ IP Configuration.

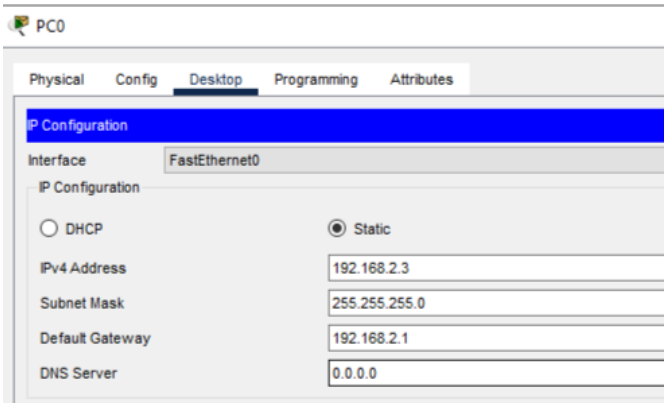

Figure 13: IP configuration

Step5: Router Configuration

Click Router ⟶ CLI, now write command in Configuration dialog.

IP configuration router0:

```
Router>en
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastEthernet 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 FastEthernet0/0, changed state to up
Router(config-if)#exit
Router(config)#interface fastEthernet 0/1
Router(config-if)#ip address 192.168.2.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#wr
Building configuration...
[OK]
```

OSF configuration router0:

```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#network 192.168.1.0 0.0.0.255 area 0
Router(config-router)#network 192.168.2.0 0.0.0.255 area 0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#wr
Building configuration...
[OK]
```

IP configuration router1:

```
Router>en
Router#configure terminal
```

```
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastEthernet 0/0
Router(config-if)#ip address 192.168.1.2 255.255.255.0
Router(config-if)#no shutdown
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
Router(config-if)#exit
Router(config)#interface fastEthernet 0/1
Router(config-if)#ip address 192.168.3.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#wr
Building configuration...
[OK]
Router#
```

OSF configuration router1:

```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#network 192.168.1.0 0.0.0.255 area 0
Router(config-router)#network 192.1638.3.1
Router(config-router)#network 192.168.3.0 0.0.0.255 area 0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
wr
Building configuration...
[OK]
```

Output:

C:\>ping 192.168.3.2

Pinging 192.168.3.2 with 32 bytes of data:

Reply from 192.168.3.2: bytes=32 time=3ms TTL=126
Reply from 192.168.3.2: bytes=32 time=1ms TTL=126
Reply from 192.168.3.2: bytes=32 time<1ms TTL=126
Reply from 192.168.3.2: bytes=32 time=2ms TTL=126

Ping statistics for 192.168.3.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 3ms, Average = 1ms

C:\>

Experiment No: 07

Name of the Experiment: To configure VLAN.

Experiment Equipment: PC,Copper Straight cable, Switch 2960, Cisco Packet Tracer, copper cross over.

Procedure:

Step1: Start

Step2: Open Cisco Packet Tracer.

Step3: Take [end device]: PC0, PC1, PC2,PC3,PC4,PC5,PC6,PC7. [Network device]:

Switch and use connection wires to connect the devices (copper straight through and Copper cross over).

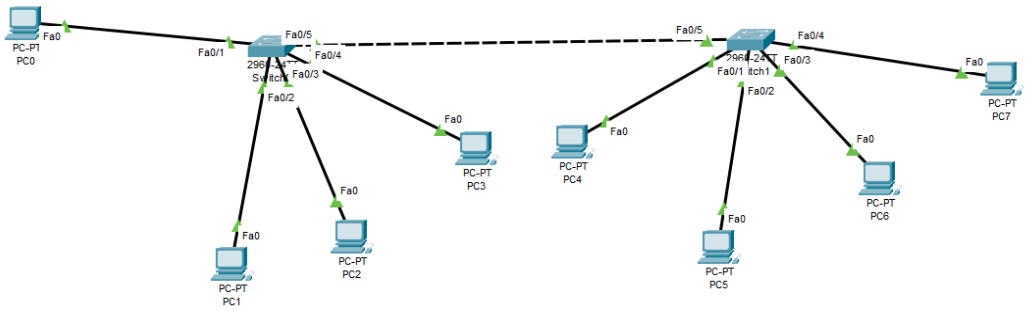

Figure 14: Experimental setup

Step4: IP Configuration for PC0, PC1, PC2, PC3, PC4, PC5, PC6, PC7.

PC0 ⟶ Desktop ⟶ IP Configuration.

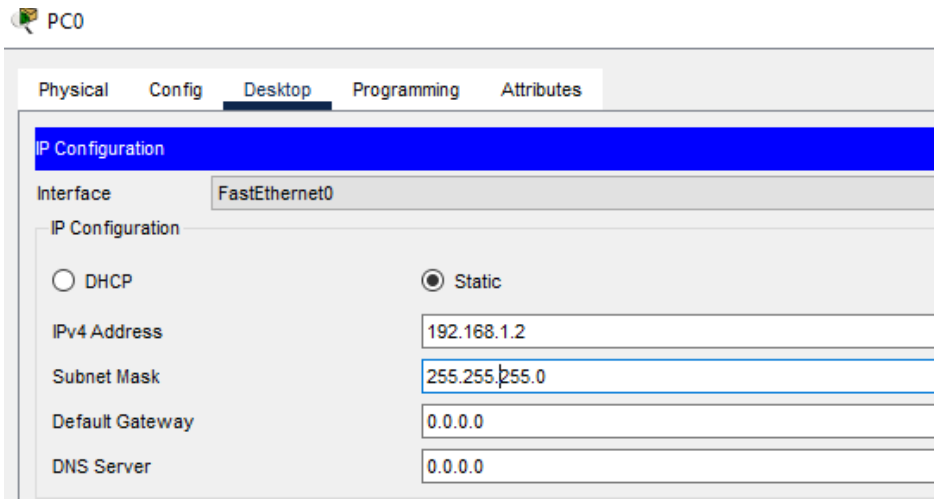

Figure 15: Setup Layout

Step 5: To configure VLAN we have to write the following CLI command on both the switch

CLI Command:

```
Switch>en
Switch #configure terminal
Switch(config)#VLAN 10
Switch(config )#Name IT
Switch(config )#exit
Switch(config )#VLAN 20
Switch(config )#Name HR
Switch(config )#exit
Switch(config )#exit
Switch(config )#show VLAN brief


Switch#configure terminal
Switch(config )#interface fa0/1
Switch(config )#switchport access vlan 10
Switch(config )#exit
Switch(config )#interface fa0/2
Switch(config )#switchport access vlan 10
Switch(config )#interface fa0/3
Switch(config )#switchport access vlan 20
Switch(config )#interface fa0/4Switch(config )#switchport access vlan 20

Switch>en
Switch#configure terminal
Switch(config )#interface fastEthernet 0/5
Switch(config)#switchport mode trunk
Switch(config)#exit
Switch(config )#interface fastEthernet 0/1- fastEthernet 0/4
Switch(config)#switchport mode access
Switch(config)#exit
```

Output:

If we want we send data from PC0 to PC5 then we get

C:\>ping 192.168.1.7

Pinging 192.168.1.7 with 32 bytes of data:

Reply from 192.168.1.7: bytes=32 time<1ms TTL=128
Reply from 192.168.1.7: bytes=32 time<1ms TTL=128
Reply from 192.168.1.7: bytes=32 time<1ms TTL=128
Reply from 192.168.1.7: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.7:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms

If we want to send data from PC0 to PC2 then we get
C:\>ping 192.168.1.12

Pinging 192.168.1.12 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.12:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),