

Experiment No: 04

Experiment Name: Routing based on OSPF

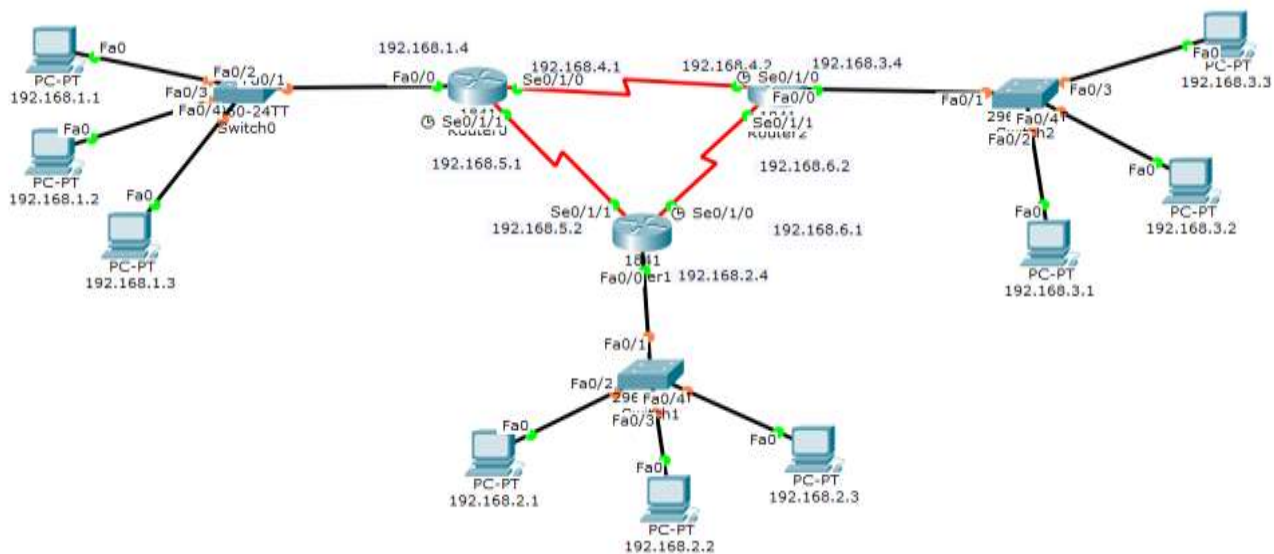
Objective:

Since we're going to transfer packet through Routers. we'll design a simple network diagram using 'CISCO Packet Tracer'.

In this experiment we'll test a simple packet transfer from one PC to another. The circuit contains 3 Routers with delta connection with switch connected to each router & some PCs connected to each switches. We'll configure the routers via command line interface and evaluate packet transfer (ICMP packet) for OSPF routing algorithm.

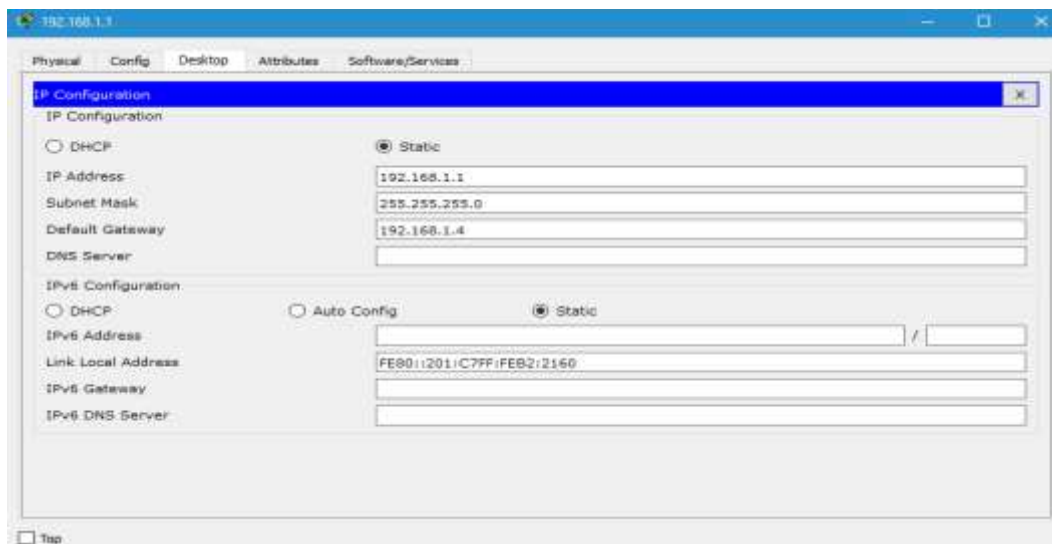
Design procedure:

- Here a simple network connection using Routers connected via a delta connection:



The above figure shows the connection among PCs & routers.

- Details procedure of router, End Device configuration:**
 - End Device IP address configure:** These are sample configuration, not all end-device configuration has shown,



- **Router configuration with CLI:** Each Router requires two step to be fully functional, first step we assign IP-addresses relative to each router. The second step we fix the OSPF area assigning. The router configuration for each router is as follows:
 - **Router:0**

The screenshot shows the CLI window for Router-0. The configuration commands entered are as follows:

```

Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa 0/0
Router(config-if)#ip add 192.168.1.2 255.255.255.0
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#int se 0/1/0
Router(config-if)#ip add 192.168.6.1 255.255.255.0
Router(config-if)#clock rate 64000
Router(config-if)#no shut
Router(config-if)#int se 0/1/1
Router(config-if)#ip add 192.168.8.2 255.255.255.0
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#router ospf 1
Router(config-router)#network 192.168.6.0 0.0.0.255 area 0
Router(config-router)#network 192.168.8.0 0.0.0.255 area 0
Router(config-router)#network 192.168.1.0 0.0.0.255 area 0
Router(config-router)#
  
```

The configuration is successful, and the OSPF process is running.

Illustration 5: Router-1 Configuration

- **Router:1**

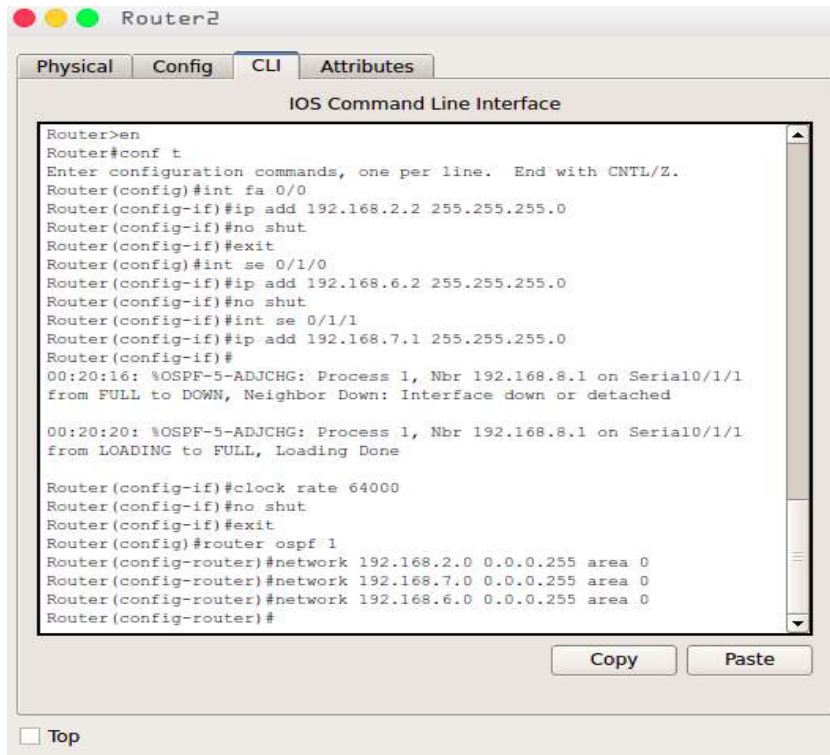
The screenshot shows the CLI window for Router-1. The configuration commands entered are as follows:

```

Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa 0/0
Router(config-if)#ip add 192.168.3.2 255.255.255.0
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#int se 0/1/0
Router(config-if)#ip add 192.168.8.1 255.255.255.0
Router(config-if)#clock rate 64000
Router(config-if)#no shut
Router(config-if)#int se 0/1/1
Router(config-if)#ip add 192.168.7.2 255.255.255.0
Router(config-if)#no shut
Router(config-if)#network ospf 1
Router(config-if)#exit
Router(config)#router ospf 1
Router(config-router)#network 192.168.8.0 0.0.0.255 area 0
Router(config-router)#network 192.168.3.0 0.0.0.255 area 0
Router(config-router)#network 192.168.7.0 0.0.0.255 area 0
Router(config-router)#
  
```

An error message is displayed: "% Invalid input detected at '^' marker." This occurs because the command "network ospf 1" is not a valid OSPF configuration command. The correct command should be "network 192.168.3.0 0.0.0.255 area 0".

- Router:2



- Packet transferring between two Device.

