



Subject: Computer Networks (01CT0503)

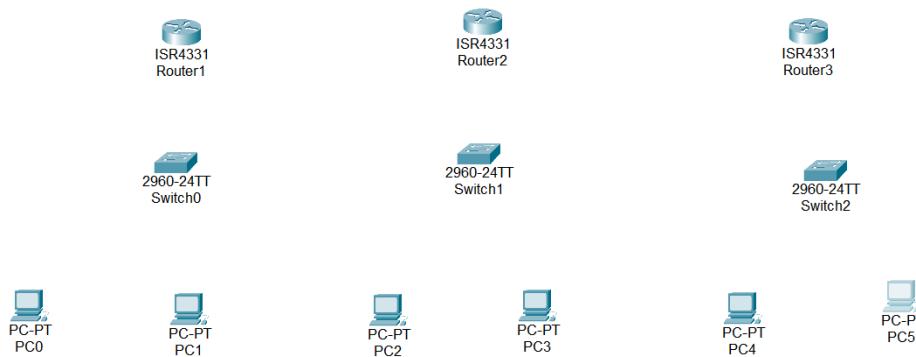
Aim: Perform dynamic routing protocol (OSPF) and analyze the results.

Experiment No: 07

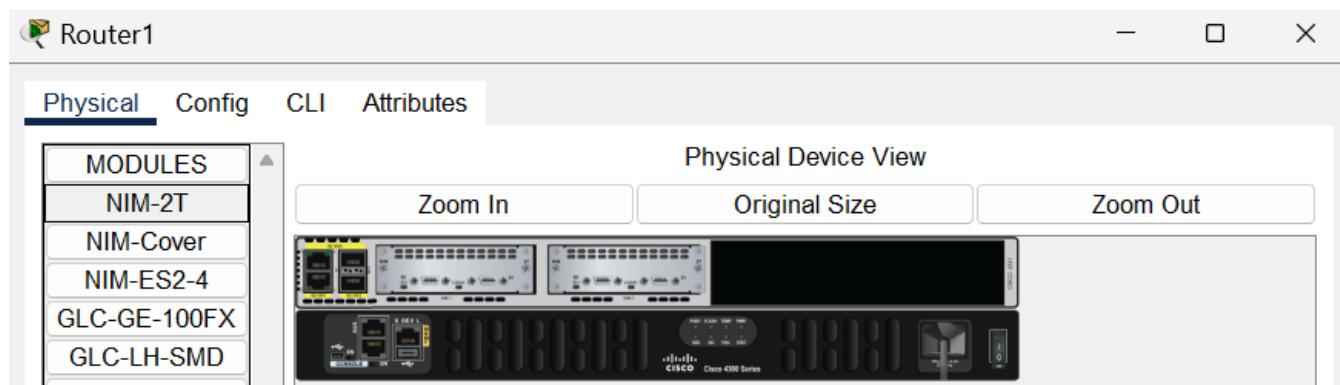
Date: 01-10-2025

Enrolment No: 92301733024

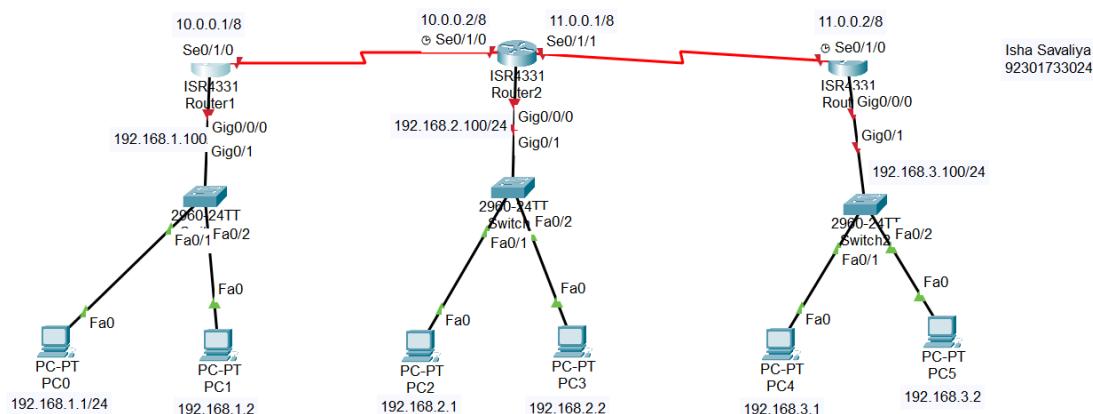
Step – 1:- Open the Cisco Packet tracer and take three routers, three switch and six PC's.



Step – 2 :- To long distance communication we need to connect router using Serial DTE cable. For the serial port we have to open router turn off it and drag and drop NIM-2T on router and turn on router.



Step – 3 :- Now Connect Two Routers Using Serial DTE Cable.





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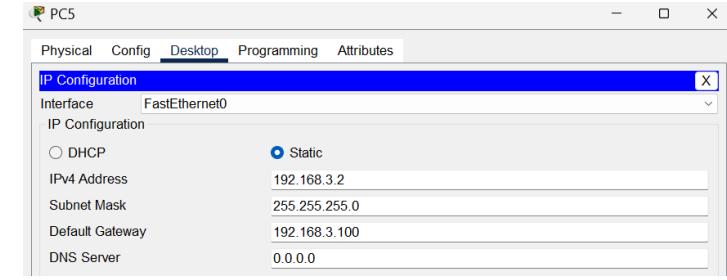
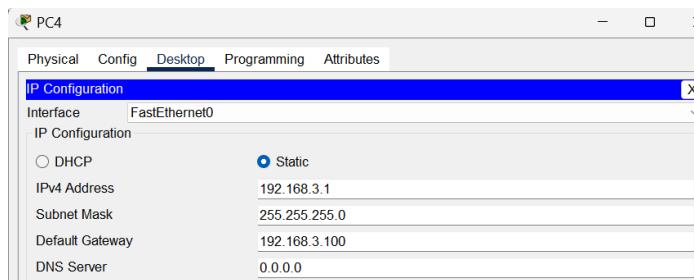
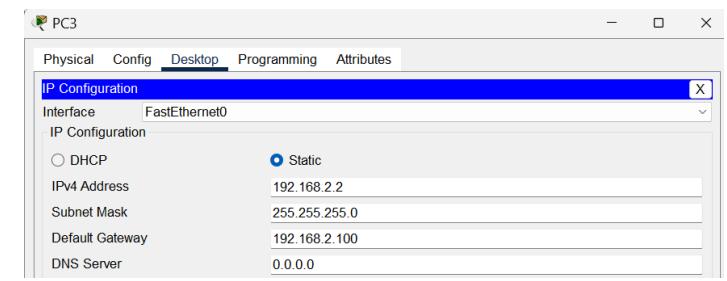
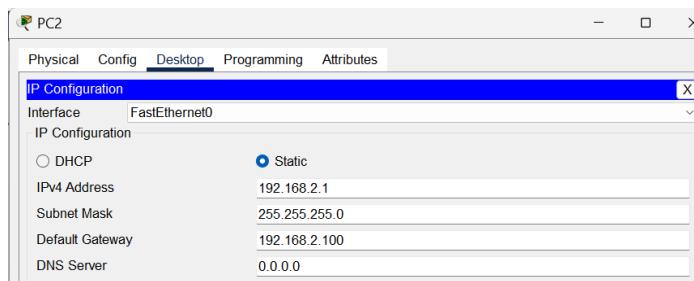
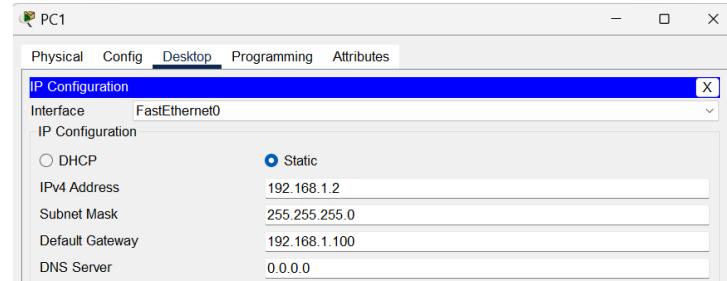
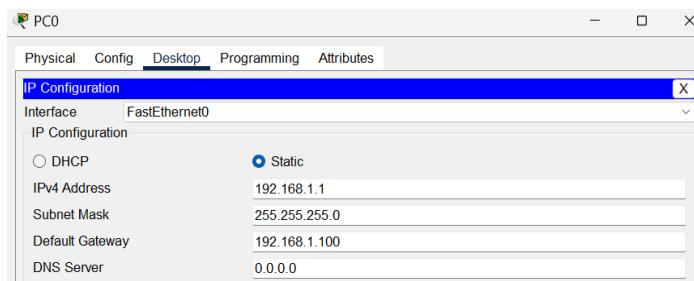
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Step – 4:- Now assign the IP address And Subnet mask and Gateway to all PC's.



Step – 5 :- Assign IP Address to Routers

Router – 0 :-

Router0 Configuration Window:

IOS Command Line Interface

```

% Incomplete command.
Router(config)#interface serial 0/1/0
Router(config-if)#ip address 10.0.0.1 255.0.0.0
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial0/1/0, changed state to down
Router(config-if)#exit
Router(config)#interface gigabit
% Incomplete command.
Router(config)#interface gigabitEthernet
Router(config)#interface gigabitEthernet 0/0/0
Router(config-if)#ip add
Router(config-if)#ip address 192.168.1.100 255.255.255
% Invalid input detected at '^' marker.

Router(config-if)#ip address 192.168.1.100 255.255.255.0
Router(config-if)#no shu
Router(config-if)#no shutdown

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

```



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Router – 1 :-

```

Router>exit
Router#
*SYS-5-CONFIG_I: Configured from console by console

Router#show ip interface brief
Interface          IP-Address      OK? Method Status       Protocol
GigabitEthernet0/0/0 192.168.2.100  YES manual up        up
GigabitEthernet0/0/1 unassigned      YES unset administratively down down
GigabitEthernet0/0/2 unassigned      YES unset administratively down down
Serial0/1/0         10.0.0.2      YES manual up        up
Serial0/1/1         unassigned     YES unset administratively down down
Serial0/2/0         unassigned     YES unset administratively down down
Serial0/2/1         unassigned     YES unset administratively down down
Vlan1              unassigned     YES unset administratively down down

Router#en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial 0/1/1
Router(config-if)#ip address 11.0.0.1 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
*LINK-5-CHANGED: Interface Serial0/1/1, changed state to up
Router(config-if)#exit

```

Router – 2 :-

```

Router#en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial 0/1/0
Router(config-if)#ip add
Router(config-if)#ip address 11.0.0.2 255.0.0.0
Router(config-if)#no shut down
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface giga
Router(config)#interface gigabitEthernet 0/0/0
Router(config-if)#ip add
Router(config-if)#ip address 192.168.3.100
% Incomplete command.
Router(config-if)#ip address 192.168.3.100 255.255.255.0
Router(config-if)#no shutdown

```

Step – 6 :- now we will configure router for OSPF Protocol.

We need to implement routing protocol onto routers so that router can find destination for another network, for that in dynamic routing protocol OSPF we have command “router ospf 1” using that we entered in routers OSPF configuration mode and then we have command “network area 0”.

Router – 0 :-

```

Router>
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#net
Router(config-router)#network 192.168.1.0
% Incomplete command.
Router(config-router)#network 192.168.1.0 0.0.0.255 area 0
Router(config-router)#network 10.0.0.0 0.255.255.255 area 0
Router(config-router)#

```

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Router – 1 :-

```

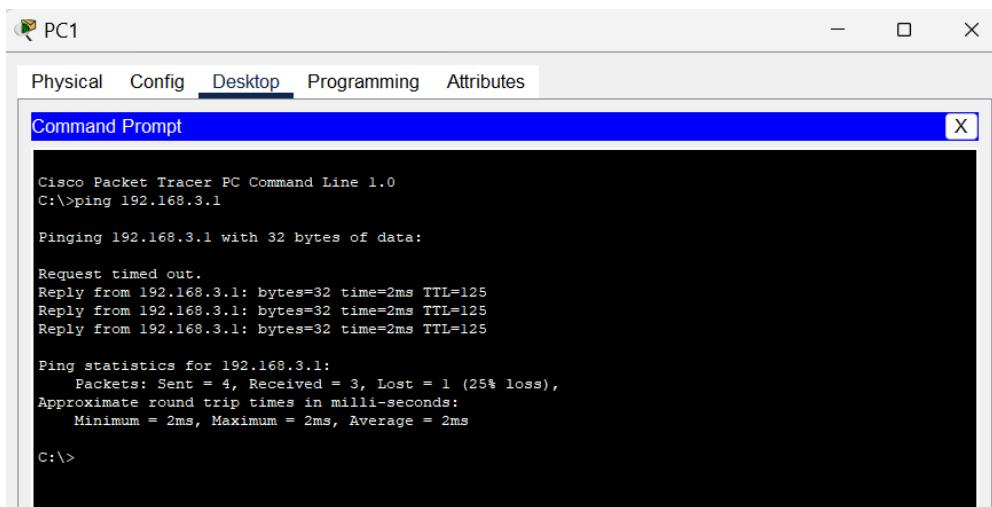
Router>
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#network 192.168.2.0 0.0.0.255 area 0
Router(config-router)#network 11.0.0.0 0.255.255.255 area 0
Router(config-router)#network 10.0.0.0 0.255.255.255 area 0
Router(config-router)#
  
```

Router – 2 :-

```

Router>
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#net
Router(config-router)#network 192.168.3.0 0.0.0.255 area 0
Router(config-router)#network 11.0.0.0 0.255.255.255 area 0
Router(config-router)#
00:07:58: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.2.100 on Serial0/1/0 from LOADING to FULL,
Done
  
```

Step – 7 :- now we will check connection using ping command.



Conclusion :-

In this experiment, we implemented the OSPF dynamic routing protocol. We configured routers to share routing information and automatically update their routing tables. This allowed successful communication between different networks and demonstrated the efficiency of dynamic routing compared to static routing.