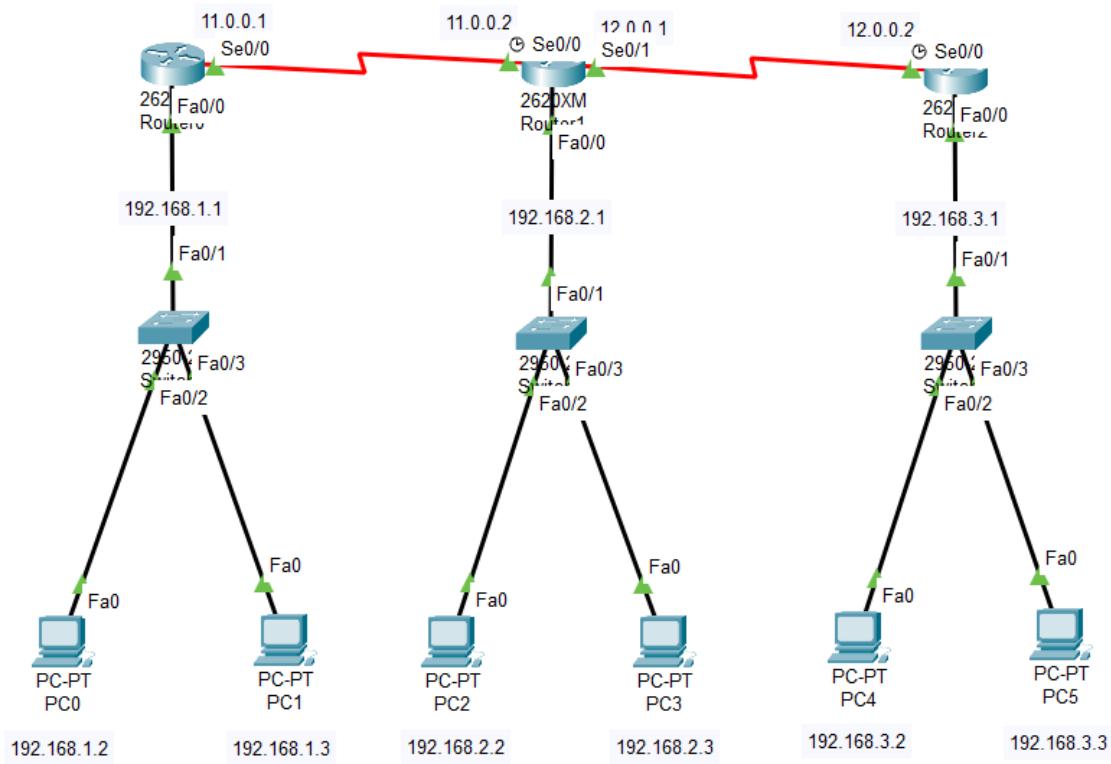


## Practical No : 8

Aim : Configure CISCO routers for two different network.



### Theory: Configuration of Cisco Routers for Two Different Networks

#### Objective:

To configure multiple Cisco routers for interconnecting different networks and enabling communication between hosts in separate LANs using static routing.

---

#### Network Topology Overview:

The network consists of **three routers (Router0, Router1, Router2)** connected in series using **Serial interfaces**.

Each router also connects to its own **local area network (LAN)** through **Switches** and multiple **PCs**.

The main purpose is to configure IP addressing and static routing so that PCs from all networks can communicate with each other.

---

## **Steps -**

### **Network Details:**

<b>Device</b>	<b>Interface</b>	<b>IP Address</b>	<b>Connected Network</b>
<b>Router0</b>	FastEthernet0/0	192.168.1.1	LAN 1
	Serial0/0	11.0.0.1	WAN Link to Router1
<b>Router1</b>	Serial0/0	11.0.0.2	WAN Link to Router0
	Serial0/1	12.0.0.1	WAN Link to Router2
	FastEthernet0/0	192.168.2.1	LAN 2
<b>Router2</b>	Serial0/0	12.0.0.2	WAN Link to Router1
	FastEthernet0/0	192.168.3.1	LAN 3

---

### **LAN Configuration Details:**

<b>LAN</b>	<b>Network Address</b>	<b>Gateway (Router Interface)</b>	<b>Example Host IPs</b>
<b>LAN 1</b>	192.168.1.0/24	192.168.1.1	192.168.1.2, 192.168.1.3
<b>LAN 2</b>	192.168.2.0/24	192.168.2.1	192.168.2.2, 192.168.2.3
<b>LAN 3</b>	192.168.3.0/24	192.168.3.1	192.168.3.2, 192.168.3.3

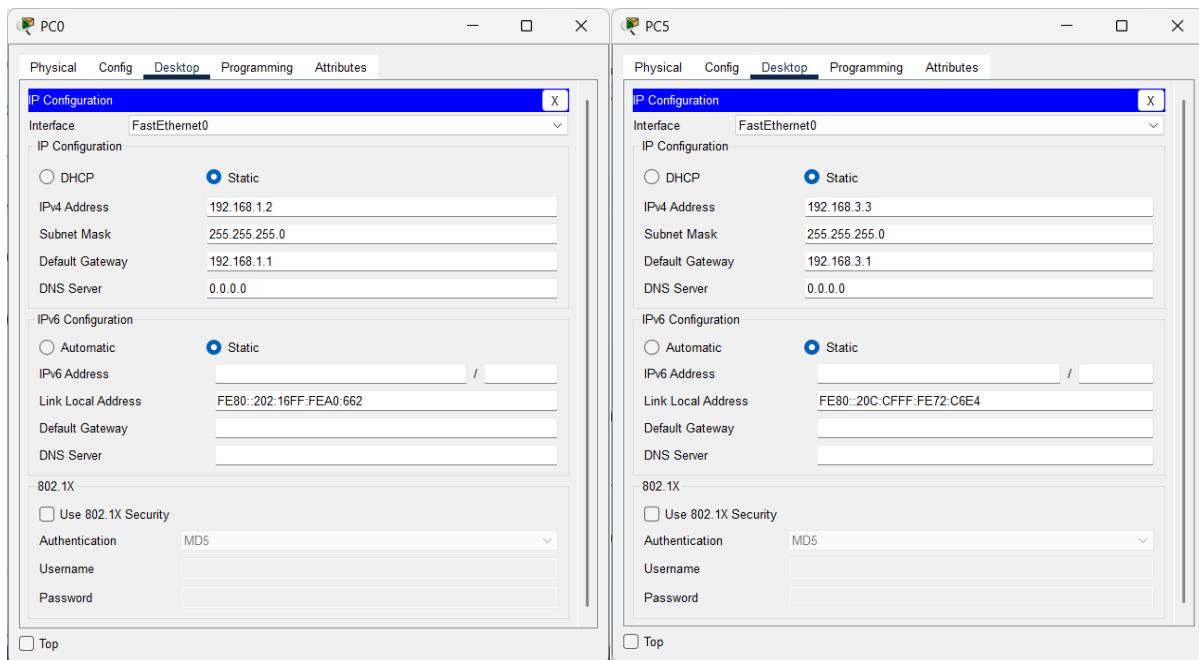
### **Connection :**

Connect all the devices(routers, Switches and PC) as given in the **network details** .

### **PC Configuration :**

Assign Host IPs and Gateways as given in the above **LAN Configuration Details**.

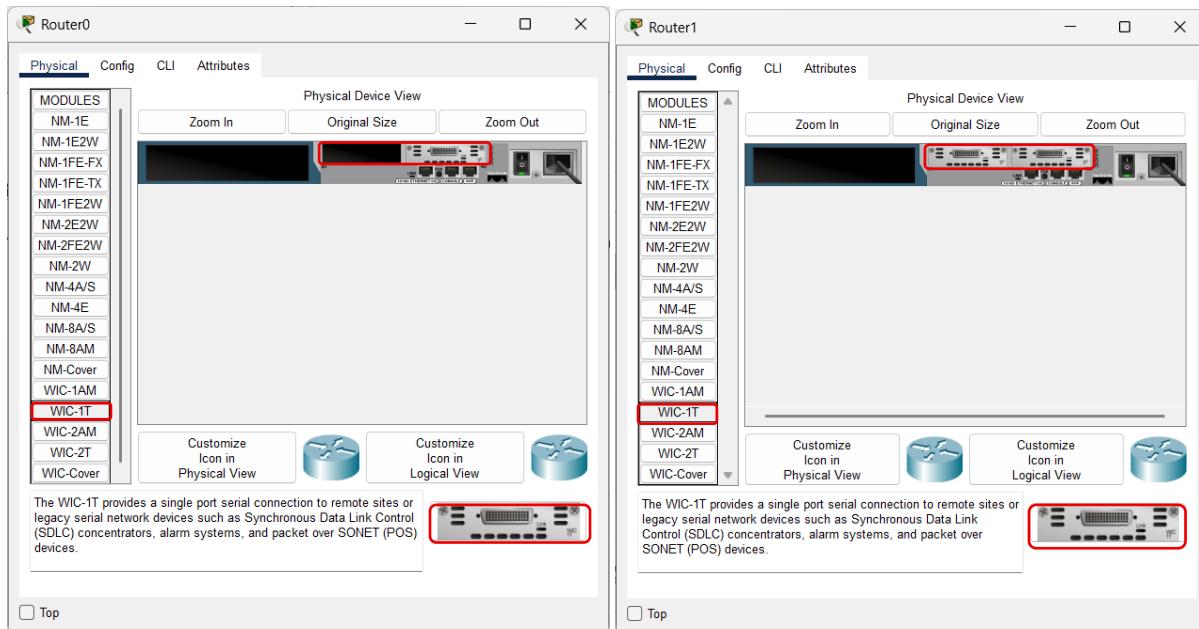
For ex – PC0 , PC5



## Router Configuration :

Before Configuring on CLI we need to add **WIC-1T** module to each router –

for router0 and router2 we will add only one module and for router1 we will add two.



## Configuring in CLI :

### Router0 :-

Router>enable

Router#

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface Serial0/0

Router(config-if)#ip address 11.0.0.1 255.0.0.0

Router(config-if)#no shutdown

Router(config-if)#exit

Router(config)#interface FastEthernet0/0

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

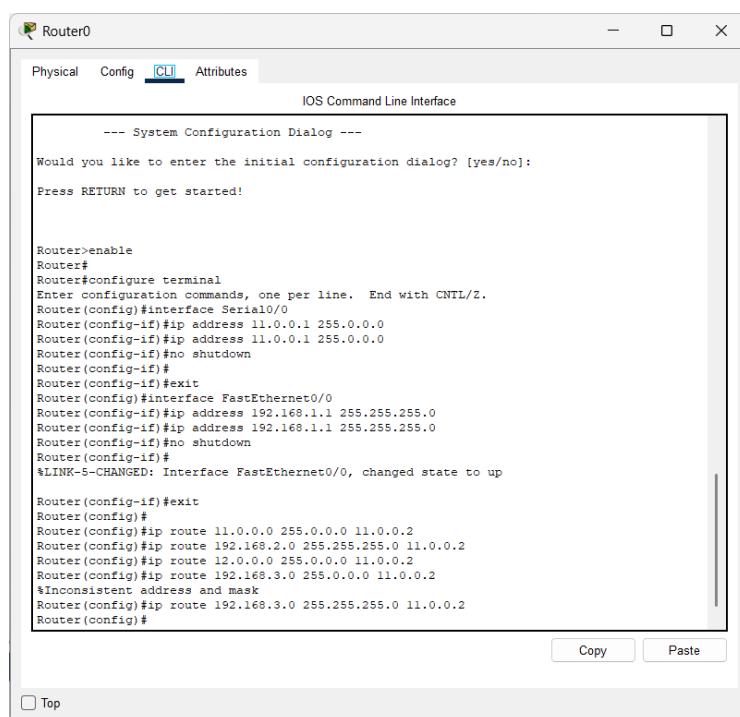
Router(config)#{

Router(config)#ip route 11.0.0.0 255.0.0.0 11.0.0.2

Router(config)#ip route 192.168.2.0 255.255.255.0 11.0.0.2

Router(config)#ip route 12.0.0.0 255.0.0.0 11.0.0.2

Router(config)#ip route 192.168.3.0 255.255.255.0 11.0.0.2



```
Router#  
Router#configure terminal  
Enter configuration commands, one per line. End with CNTL/Z.  
Router(config)#interface Serial0/0  
Router(config-if)#ip address 11.0.0.1 255.0.0.0  
Router(config-if)#no shutdown  
Router(config-if)#exit  
Router(config)#interface FastEthernet0/0  
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)#{  
Router(config)#ip route 11.0.0.0 255.0.0.0 11.0.0.2  
Router(config)#ip route 192.168.2.0 255.255.255.0 11.0.0.2  
Router(config)#ip route 12.0.0.0 255.0.0.0 11.0.0.2  
Router(config)#ip route 192.168.3.0 255.255.255.0 11.0.0.2  
Router(config)#{  
%Inconsistent address and mask  
Router(config)#ip route 192.168.3.0 255.255.255.0 11.0.0.2  
Router(config)#{
```

## **Router1 :-**

Router>enable

Router#

Router#configure terminal

Router(config)#interface Serial0/0

Router(config-if)#ip address 11.0.0.2 255.0.0.0

Router(config-if)#no shutdown

Router(config-if)#exit

Router(config)#interface Serial0/1

Router(config-if)#ip address 12.0.0.1 255.0.0.0

Router(config-if)#no shutdown

Router(config-if)#exit

Router(config)#interface FastEthernet0/0

Router(config-if)#ip address 192.168.2.1 255.255.255.0

Router(config-if)#no shutdown

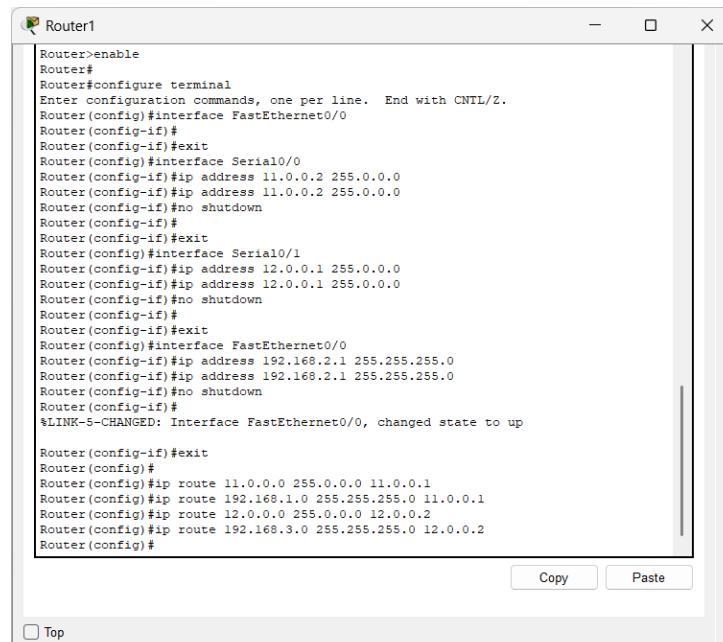
Router(config-if)#exit

Router(config)#ip route 11.0.0.0 255.0.0.0 11.0.0.1

Router(config)#ip route 192.168.1.0 255.255.255.0 11.0.0.1

Router(config)#ip route 12.0.0.0 255.0.0.0 12.0.0.2

Router(config)#ip route 192.168.3.0 255.255.255.0 12.0.0.2



The screenshot shows a terminal window titled "Router1". The window contains the following configuration commands:

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0
Router(config-if)#ip address 11.0.0.2 255.0.0.0
Router(config-if)#ip address 11.0.0.2 255.0.0.0
Router(config-if)#no shutdown
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/1
Router(config-if)#ip address 12.0.0.1 255.0.0.0
Router(config-if)#ip address 12.0.0.1 255.0.0.0
Router(config-if)#no shutdown
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.2.1 255.255.255.0
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 FastEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#
Router(config)#ip route 11.0.0.0 255.0.0.0 11.0.0.1
Router(config)#ip route 192.168.1.0 255.255.255.0 11.0.0.1
Router(config)#ip route 12.0.0.0 255.0.0.0 12.0.0.2
Router(config)#ip route 192.168.3.0 255.255.255.0 12.0.0.2
Router(config)#

```

At the bottom of the window, there are "Copy" and "Paste" buttons, and a "Top" checkbox.

## **Router2 –**

Router>enable

Router#

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface Serial0/0

Router(config-if)#ip address 12.0.0.2 255.0.0.0

Router(config-if)#no shutdown

Router(config-if)#exit

Router(config)#interface FastEthernet0/0

Router(config-if)#ip address 192.168.3.0 255.255.255.0

Router(config-if)#no shutdown

Router(config-if)#{

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

Router(config-if)#exit

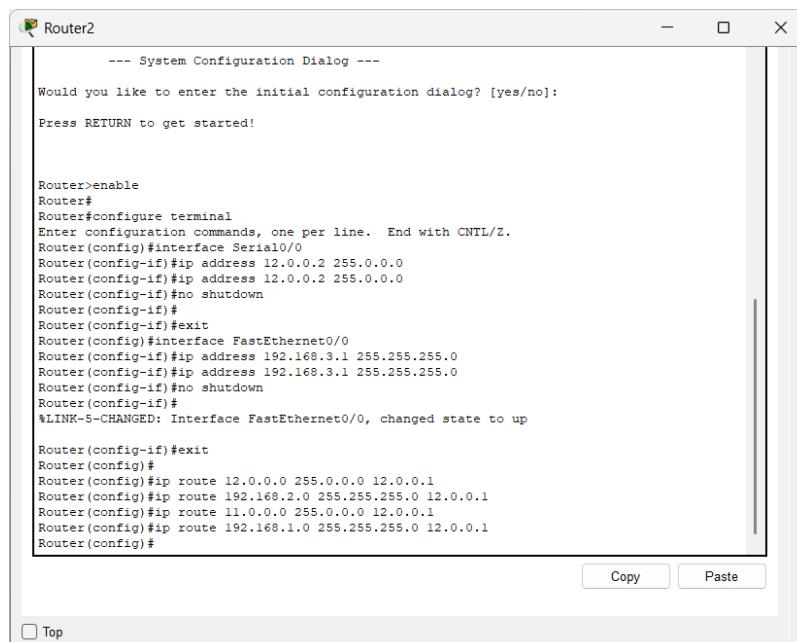
Router(config)#{

Router(config)#ip route 11.0.0.0 255.0.0.0 12.0.0.1

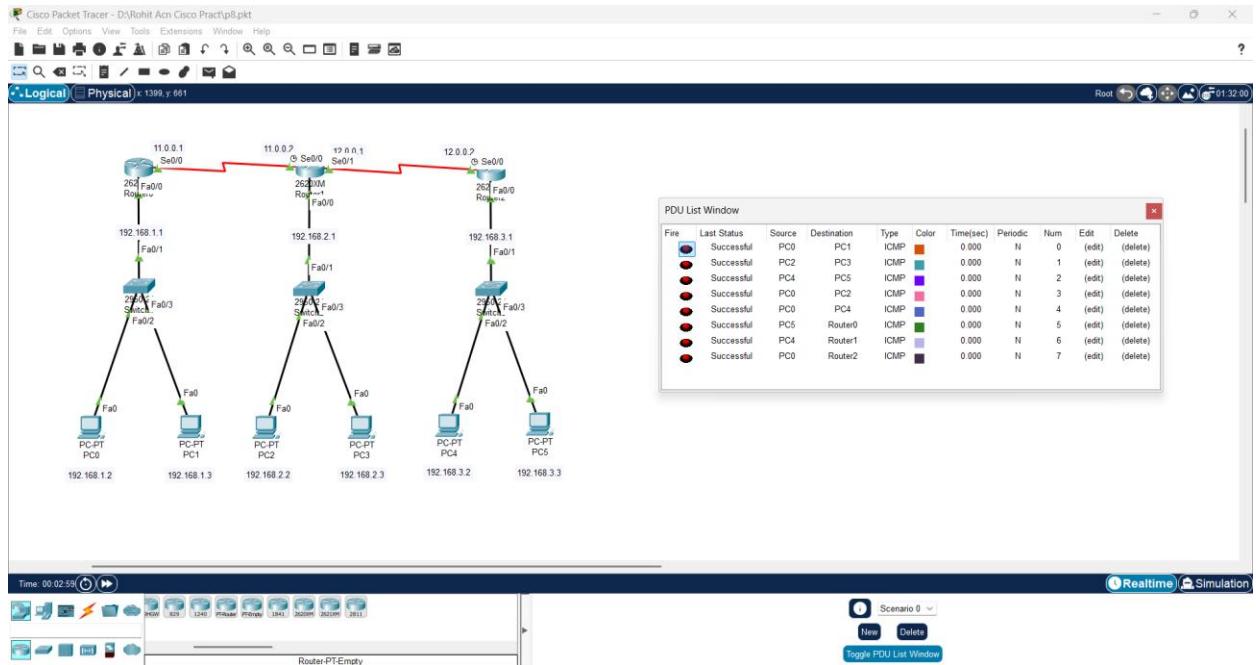
Router(config)#ip route 192.168.2.0 255.255.255.0 12.0.0.1

Router(config)#ip route 12.0.0.0 255.0.0.0 12.0.0.2

Router(config)#ip route 192.168.1.0 255.255.255.0 11.0.0.1



## Final Output :



## Pinging Router0 with Router1 / Router2

The screenshot shows a Cisco Packet Tracer PC Command Line window for host PC0. The window title is 'PC0'. The tabs are Physical, Config, Desktop (selected), Programming, and Attributes. The Command Prompt window displays the following ping results:

```

Cisco Packet Tracer PC Command Line 1.0
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=9ms TTL=125
Reply from 192.168.3.2: bytes=32 time=20ms TTL=125
Reply from 192.168.3.2: bytes=32 time=27ms TTL=125
Reply from 192.168.3.2: bytes=32 time=20ms TTL=125

Ping statistics for 192.168.3.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 9ms, Maximum = 27ms, Average = 19ms

C:\>ping 192.168.2.2

Pinging 192.168.2.2 with 32 bytes of data:

Reply from 192.168.2.2: bytes=32 time=9ms TTL=126
Reply from 192.168.2.2: bytes=32 time=9ms TTL=126
Reply from 192.168.2.2: bytes=32 time=12ms TTL=126
Reply from 192.168.2.2: bytes=32 time=12ms TTL=126

Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 9ms, Maximum = 12ms, Average = 10ms

C:\>

```