

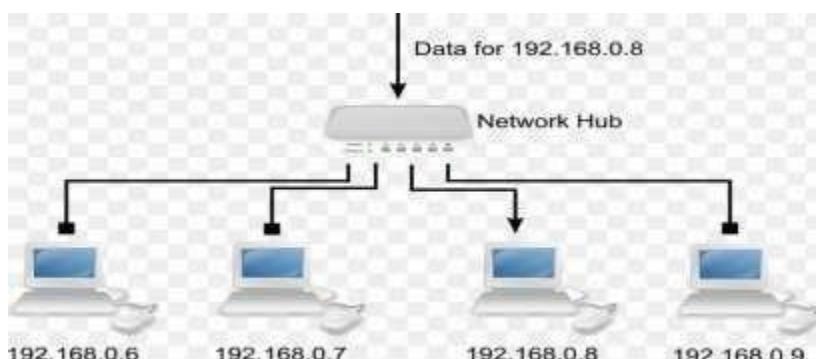
Practical-1

Aim: To study about various network connecting devices and wires used for their interconnection.

Theory:

Various network connecting devices are following:

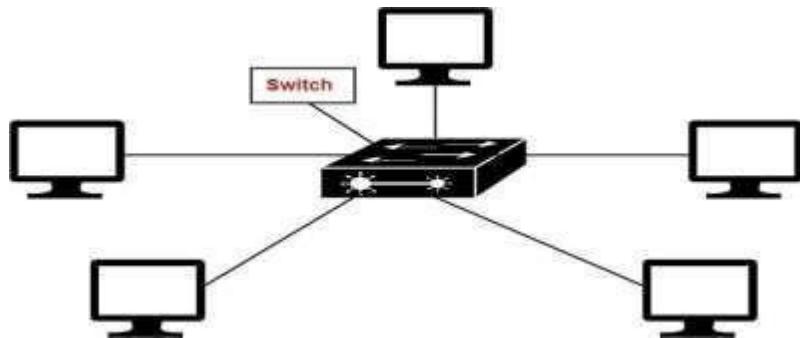
1. **Hub-** Hubs connect multiple computer networking devices together. A hub is the simplest in the family of network connecting devices because it connects LAN components with identical protocols. A hub can be used with both digital and analog data, provided its settings have been configured to prepare for the formatting of the incoming data. For example, if the incoming data is in digital format, the hub must pass it on as packets; however, if the incoming data is analog, then the hub passes it on in signal form. Hubs do not perform packet filtering or addressing functions; they just send data packets to all connected devices. Hubs operate at the Physical layer of the OSI model.



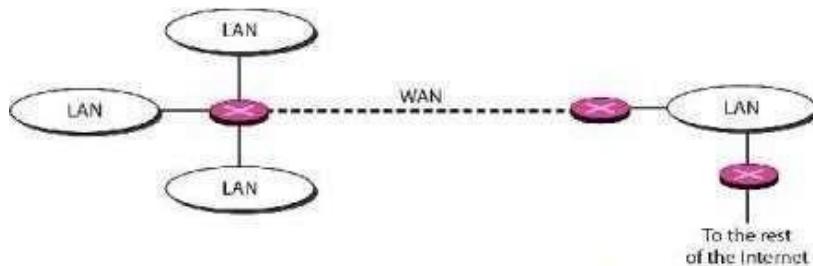
2. **Switch-** A switch is a multiport device that improves network efficiency. Strands of LANs are usually connected using switches. Generally, switches can read the hardware addresses of incoming packets to transmit them to the appropriate destination. A switch can work at either the Data Link layer or the Network



layer of the OSI model. A multilayer switch is one that can operate at both layers, which means that it can operate as both a switch and a router.



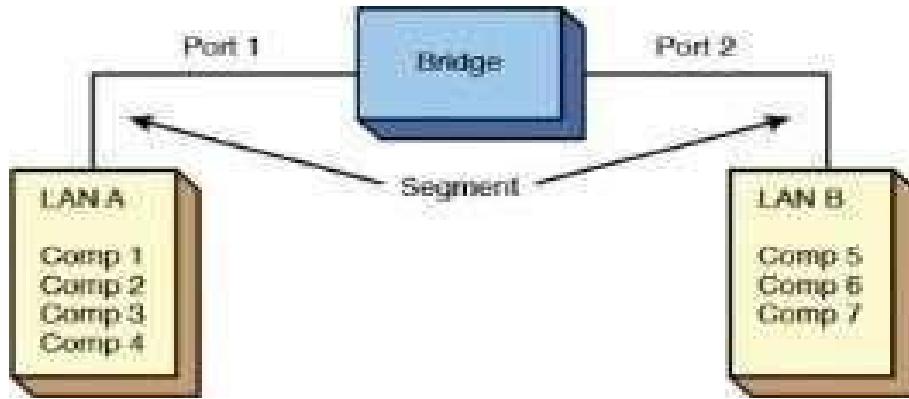
- 3. Router-** A router is a three-layer device that routes packets based on their logical addresses (host-to-host addressing). A router normally connects LANs and WANs in the internet and has a routing table that is used for making decisions about the route. The router, with the help of a routing table, has knowledge of routes a packet could take from its source to its destination. Routers normally work at the Network layer of the OSI model.



- 4. Bridge-** Bridges are used to connect two or more hosts or network segments together. The basic role of bridges in network architecture is storing and forwarding frames between the different segments that the bridge connects. A bridge operates in both the physical and the data link layer. As a physical



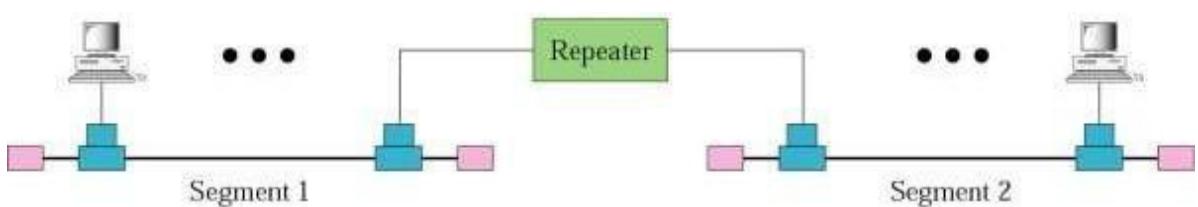
layer device, it regenerates the signal it receives. As a data link layer device, the bridge can check the physical (MAC) addresses (source and destination) contained in the frame.



5. **Gateway-** A gateway can translate the data from one type of network to the other type. Gateway is a protocol convertor. It can receive a packet formatted for one protocol and change it to a packet formatted for a different protocol before forwarding it. Gateways can operate at any network layer.



6. **Repeater-** Repeater works on physical layer. A repeater receives the signal and it regenerates the signal in original bit pattern before the signal gets corrupted. It does not amplify the signal, it just regenerates it. A repeater has no filtering capability. It is used to extend the physical distance of LAN. A repeater cannot connect two LANs, but it connects two segments of the same LAN.



- 7. Access Point-** While an access point (AP) can technically involve either a wired or wireless connection, it commonly means a wireless device. An AP works at the Data Link layer, and it can operate either as a bridge connecting a standard wired network to wireless devices or as a router passing data transmissions from one access point to another.



Various types of cables are following:

- 1. Console cable-** Also known as Cisco cables, rollover cables and management cables — are designed for a specific purpose. They connect Cisco networking devices to terminals or PCs for configuration.



Typically, the Cisco end will connect via RJ45, and the terminal end will conclude in a serial connection.

- 2. Copper straight through-** When you connect two devices of different types together, you use a straight through cable.

When you connect two devices of the same type together, you use a crossover cable. All Pg. 6 cables are straight through if you insert a network device between two devices of the same kind.



- 3. Coaxial cable-** Sometimes known as coax cable, is an electrical cable which transmits radio frequency (RF) signals from one point to another.



- 4. DCE AND DTE cables-** With the DCE cable, (red zigzag with clock) the side you click first will be the DCE, the second will be DTE. With the DTE cable (red zigzag no clock) the side you click first will be DTE, the second will be DCE.

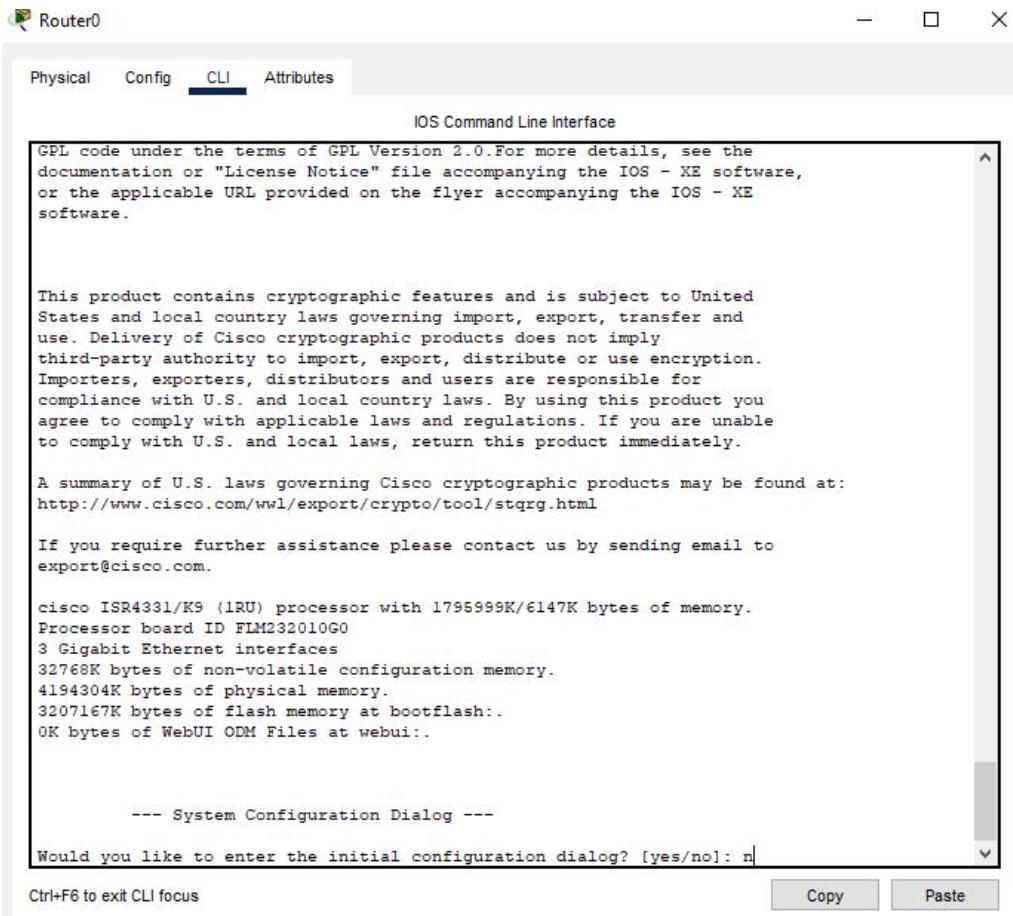


Practical No :- 2

AIM:- Connecting and Logging on to a Cisco Router along with the introduction to the Basic User Interface.

THEORY:

1. To select Router 1, click on the eRouters button located at the top of yourscreen and select “Router 1”.



- 2.) The Router 1 window will open and the text “Press Enter to Start” will appear.

The screenshot shows a Cisco Router CLI window titled "Router0". The window has tabs at the top: "Physical", "Config", "CLI" (which is selected), and "Attributes". The main area is labeled "IOS Command Line Interface". It displays the following text:

```
This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:
http://www.cisco.com/wlc/export/crypto/tool/stqrg.html

If you require further assistance please contact us by sending email to
export@cisco.com.

cisco ISR4331/K9 (IRU) processor with 1795999K/6147K bytes of memory.
Processor board ID FLM232010G0
3 Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
4194304K bytes of physical memory.
3207167K bytes of flash memory at bootflash:.
OK bytes of WebUI ODM Files at webui:.

--- System Configuration Dialog ---
Would you like to enter the initial configuration dialog? [yes/no]: n

Press RETURN to get started!

Router>
```

At the bottom of the window, there are buttons for "Copy" and "Paste". A status bar at the bottom left says "Ctrl+F6 to exit CLI focus".

3.) Click inside the Router 1 window and press the "Enter" key to get started. You are now connected to Router 1 and are at the user mode prompt. The prompt is broken down into two parts, the hostname and the mode. "Router" is the Router 1's hostname and ">" means you are in user mode.

4.) Press RETURN to get Started Router>

Router0

Physical Config **CLI** Attributes

IOS Command Line Interface

```
enable      Turn on privileged commands
exit        Exit from the EXEC
logout      Exit from the EXEC
ping        Send echo messages
resume      Resume an active network connection
show        Show running system information
ssh         Open a secure shell client connection
telnet      Open a telnet connection
terminal    Set terminal line parameters
traceroute  Trace route to destination
Router>enable
Router#?
Exec commands:
<1-99>      Session number to resume
auto         Exec level Automation
clear        Reset functions
clock        Manage the system clock
configure   Enter configuration mode
connect     Open a terminal connection
copy         Copy from one file to another
debug        Debugging functions (see also 'undebug')
delete       Delete a file
dir          List files on a filesystem
disable     Turn off privileged commands
disconnect  Disconnect an existing network connection
enable      Turn on privileged commands
erase       Erase a filesystem
exit        Exit from the EXEC
logout      Exit from the EXEC
mkdir       Create new directory
more        Display the contents of a file
no          Disable debugging informations
ping        Send echo messages
reload      Halt and perform a cold restart
--More--
```

Ctrl+F6 to exit CLI focus

Copy Paste

Top

- 5.) Next, type the command enable to get to the privileged mode prompt.

Router>enable Router#

Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#disable
Router>exit

Router con0 is now available

Press RETURN to get started.

Ctrl+F6 to exit CLI focus

Top

- 6.) To get back to the user mode, simply type disable. From the user mode type logout or exit to leave the router.

Router#disable Router> Router>exit

Router con0 is now available Press RETURN to get started

Basic User Interface:

We will be using Router 1. To select Router 1 click on the button labelled "Router 1" at the top of your screen.

1. Press <enter> to get to the router prompt.

Router>

The screenshot shows a window titled "Router0" with tabs for "Physical", "Config", "CLI" (which is selected), and "Attributes". The main area is titled "IOS Command Line Interface". It displays the following text:

```
3 Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
4194304K bytes of physical memory.
3207167K bytes of flash memory at bootflash:.
0K bytes of WebUI ODM Files at webui:.

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: n

Press RETURN to get started!

Router>?
Exec commands:
<1-99>      Session number to resume
connect       Open a terminal connection
disable       Turn off privileged commands
disconnect    Disconnect an existing network connection
enable        Turn on privileged commands
exit         Exit from the EXEC
logout       Exit from the EXEC
ping          Send echo messages
resume        Resume an active network connection
show          Show running system information
ssh           Open a secure shell client connection
telnet        Open a telnet connection
terminal     Set terminal line parameters
traceroute   Trace route to destination
Router>enable
Router#
```

At the bottom of the window, there are "Copy" and "Paste" buttons, and a checkbox labeled "Top". A status bar at the bottom left says "Ctrl+F6 to exit CLI focus".

- 2.) You are now in User mode. Type the command that is used to view all the available commands at this prompt.

Router>?

The screenshot shows a window titled "Router0" with tabs for "Physical", "Config", "CLI", and "Attributes". The "CLI" tab is selected, displaying the "IOS Command Line Interface". The interface lists various commands with their descriptions:

```
enable      Turn on privileged commands
exit        Exit from the EXEC
logout     Exit from the EXEC
ping       Send echo messages
resume     Resume an active network connection
show       Show running system information
ssh         Open a secure shell client connection
telnet     Open a telnet connection
terminal   Set terminal line parameters
traceroute Trace route to destination
Router>enable
Router#?
Exec commands:
<1-99>      Session number to resume
auto         Exec level Automation
clear        Reset functions
clock        Manage the system clock
configure   Enter configuration mode
connect     Open a terminal connection
copy         Copy from one file to another
debug        Debugging functions (see also 'undebug')
delete      Delete a file
dir          List files on a filesystem
disable     Turn off privileged commands
disconnect  Disconnect an existing network connection
enable      Turn on privileged commands
erase       Erase a filesystem
exit        Exit from the EXEC
logout     Exit from the EXEC
mkdir      Create new directory
more        Display the contents of a file
no          Disable debugging informations
ping       Send echo messages
reload     Halt and perform a cold restart
--More--
```

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

3.) Type the command used to enter Privilege mode.

Router>enable

Router#

View the available commands in Privilege mode.

Router# ?

The screenshot shows a Cisco Router's Command Line Interface (CLI) window titled "Router0". The window has tabs at the top: "Physical", "Config", "CLI" (which is selected), and "Attributes". Below the tabs is the title "IOS Command Line Interface". The main area displays a list of commands and their descriptions. At the bottom of the list, there is a "More" button. At the very bottom of the window, there are "Copy" and "Paste" buttons.

Command	Description
disconnect	Disconnect an existing network connection
enable	Turn on privileged commands
erase	Erase a filesystem
exit	Exit from the EXEC
logout	Exit from the EXEC
mkdir	Create new directory
more	Display the contents of a file
no	Disable debugging informations
ping	Send echo messages
reload	Halt and perform a cold restart
Router#show ?	
aaa	Show AAA values
access-lists	List access lists
arp	Arp table
cdp	CDP information
class-map	Show QoS Class Map
clock	Display the system clock
controllers	Interface controllers status
crypto	Encryption module
debugging	State of each debugging option
dhcp	Dynamic Host Configuration Protocol status
dot11	IEEE 802.11 show information
file	Show filesystem information
flash:	display information about flash: file system
flow	Flow information
frame-relay	Frame-Relay information
history	Display the session command history
hosts	IP domain-name, lookup style, nameservers, and host table
interfaces	Interface status and configuration
ip	IP information
ipv6	IPv6 information
license	Show license information
line	TTY line information
--More--	

Top

5.) Type the command that will allow you to see all of the show commands.

Router# show ?

Router0

Physical Config CLI Attributes

IOS Command Line Interface

```
flash: display information about flash: file system
flow Flow information
frame-relay Frame-Relay information
history Display the session command history
hosts IP domain-name, lookup style, nameservers, and host table
interfaces Interface status and configuration
ip IP information
ipv6 IPv6 information
license Show license information
line TTY line information

Router#show running-config
Building configuration...

Current configuration : 651 bytes
!
version 16.6.4
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
!
!
!
!
!
no ip cef
no ipv6 cef
!
!
--More-- |
```

Ctrl+F6 to exit CLI focus

Copy Paste

Top

6.) Type the command that will allow you to see the active or running configuration.

Router#show running-config

7.) The more prompt, hit the key that will show you the next page of information.

<spacebar>

The screenshot shows a window titled "Router0" with a tab bar containing "Physical", "Config", "CLI" (which is selected), and "Attributes". Below the tab bar is a title "IOS Command Line Interface". The main area contains the following text:

```
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#disable
Router>exit

Router con0 is now available

Press RETURN to get started.
```

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

8.) Type one of the commands that will log you out of the router.

Router#exit or Router#disable

The screenshot shows a window titled "Router0" with a tab bar at the top containing "Physical", "Config", "CLI" (which is highlighted), and "Attributes". Below the tab bar is a title "IOS Command Line Interface". The main area contains the following configuration text:

```
!
interface Vlan1
 no ip address
 shutdown
!
ip classless
!
ip flow-export version 9
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
!
!
end

Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#
```

At the bottom left of the window, there is a note: "Ctrl+F6 to exit CLI focus". On the right side, there are "Copy" and "Paste" buttons. At the very bottom of the window, there is a "Top" button.

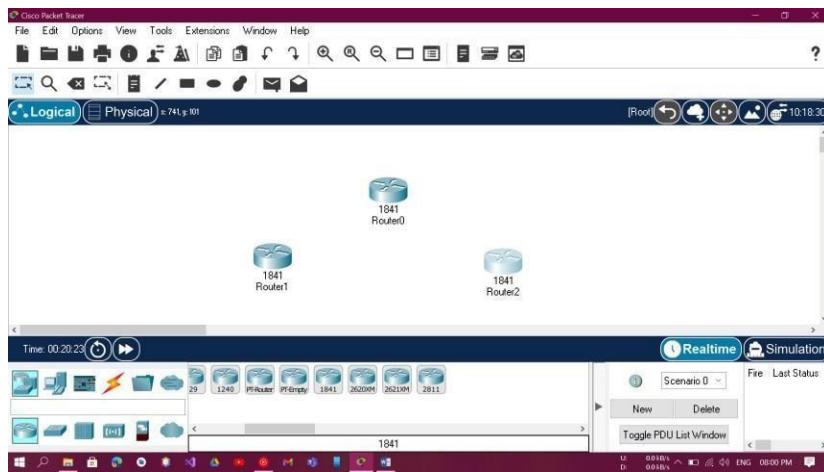
From privilege mode you can enter Configuration mode by typing CONFIG T. You can exit configuration mode type END or +z

```
Router#config t
Router(config)#end
```

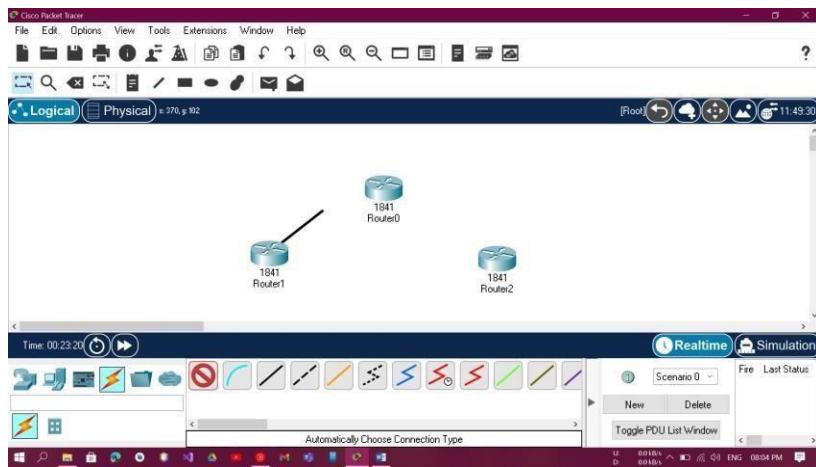
Practical - 3

AIM: To demonstrate the functions of Cisco Discovery Protocol.

STEP 1: Firstly Open the Cisco Packet Tracer and Under Network Devices Section Drag and Drop the Router (1841). We select three router for testing purpose.

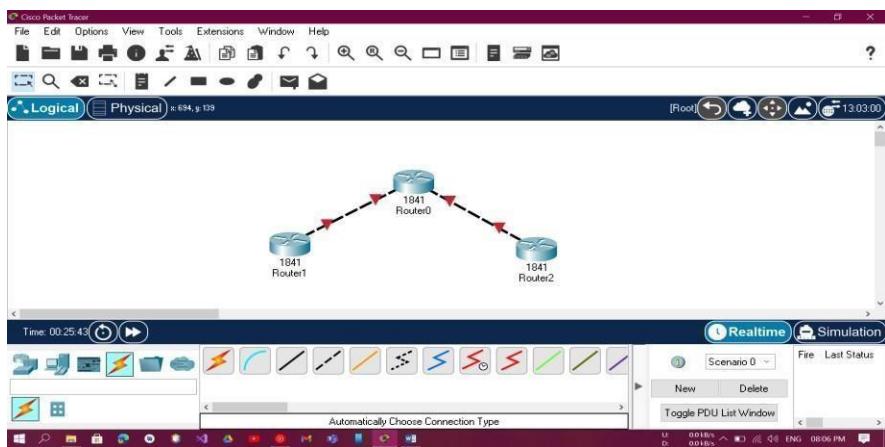


STEP 2: Then Under Connections Section Select the automatically choose connection type wire. In this CISCO PACKET TRACER automatically choose suitable wire for that device according to connection.

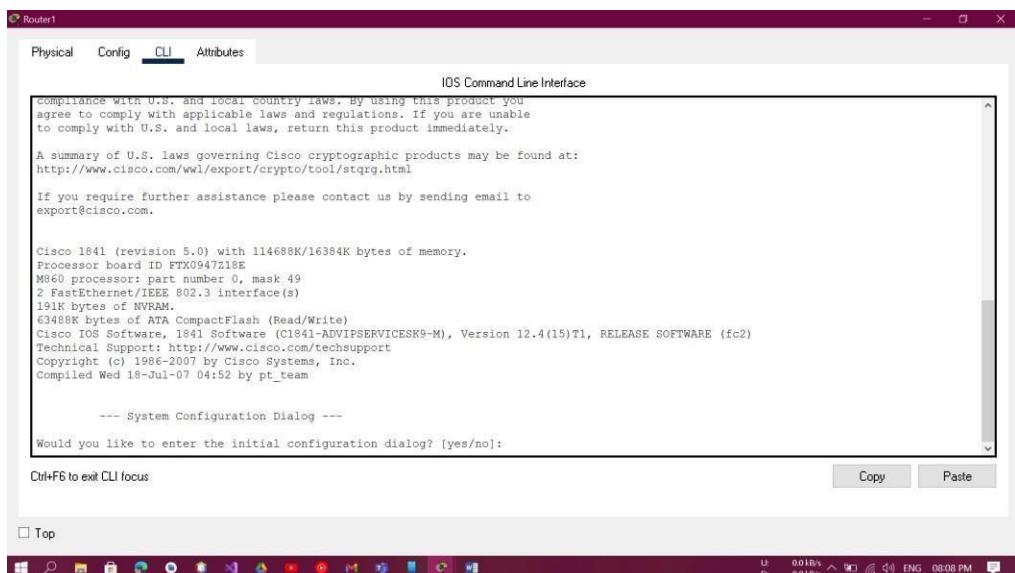


STEP 3: After click on Wire then click on router 1 and then drag the wire to router0 for making physical connection between router1 and router0.

Repeat this Step for router2 and router0.



STEP 4: Now we are going to up the interfaces of these routers. For This Double-click on router1 and Under CLI section.



STEP 5: Now we are changing the hostname of router1 we name it as R1. Below this Image is showing Commands use for change host name

Enable command use for enter in privileged mode for access advance level configuration of network device (Router). And **config** command for enter into configuration mode.

```

Processor board ID FTX0947Z18E
M860 processor: part number 0, mask 49
2 FastEthernet/IEEE 802.3 interface(s)
191K bytes of NVRAM.
63488K bytes of ATA CompactFlash (Read/Write)
Cisco IOS Software, 1841 Software (C1841-ADVIPSERVICESK9-M), Version 12.4(15)T1, RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Wed 18-Jul-07 04:52 by pt_team

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: n

Press RETURN to get started!

Router>enable
Router#config
Configuring from terminal, memory, or network [terminal]? t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R1
R1(config)#
Ctrl+F6 to exit CLI focus

```

STEP 6: Now we configure the interface of the router connect interface fastethernet 0/0 of router1 to interface fastethernet 0/0 of router0.

```

Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Wed 18-Jul-07 04:52 by pt_team

--- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: n

Press RETURN to get started!

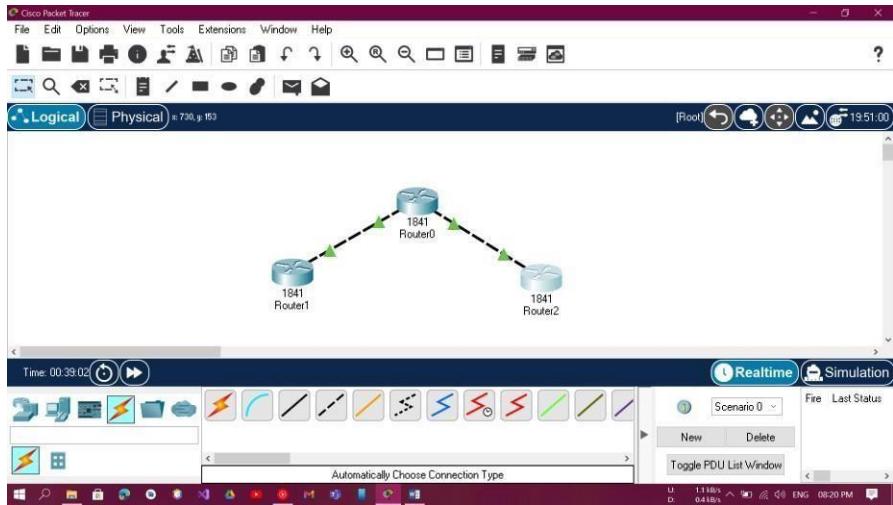
Router>enable
Router#config
Configuring from terminal, memory, or network [terminal]? t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R1
R1(config)#interface fastethernet0/0
R1(config-if)#no shutdown
R1(config-if)#
R1(config-if)#
*LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
R1(config-if)#
Ctrl+F6 to exit CLI focus

```

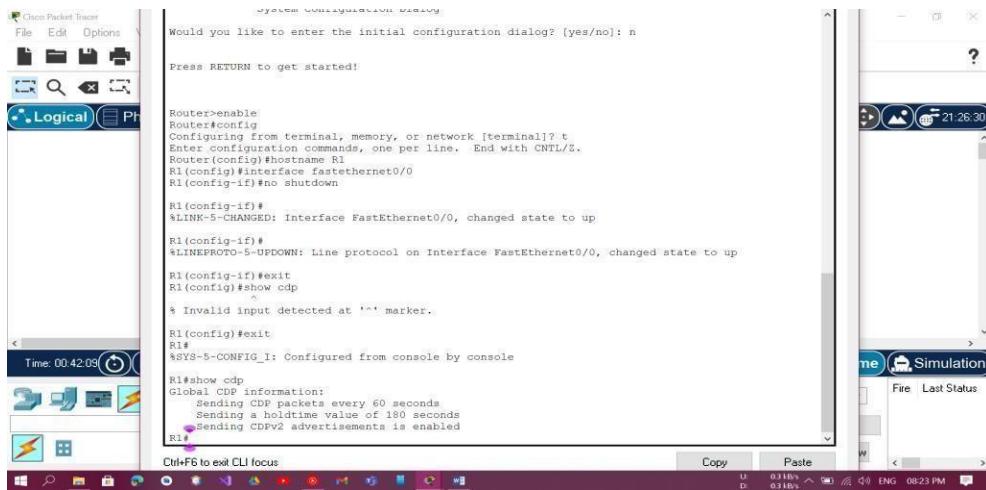
no shutdown command used for changing the state down to up of router.

Repeat this step for router2 and router0 to bring in up state.

STEP 7: After this, it is look like



STEP 8: Now we have to check CDP or CDP neighbour for check neighbour is active or not. **show cdp** or **show cdp neighbor** These two commands used for checking the neighbors is active or not.



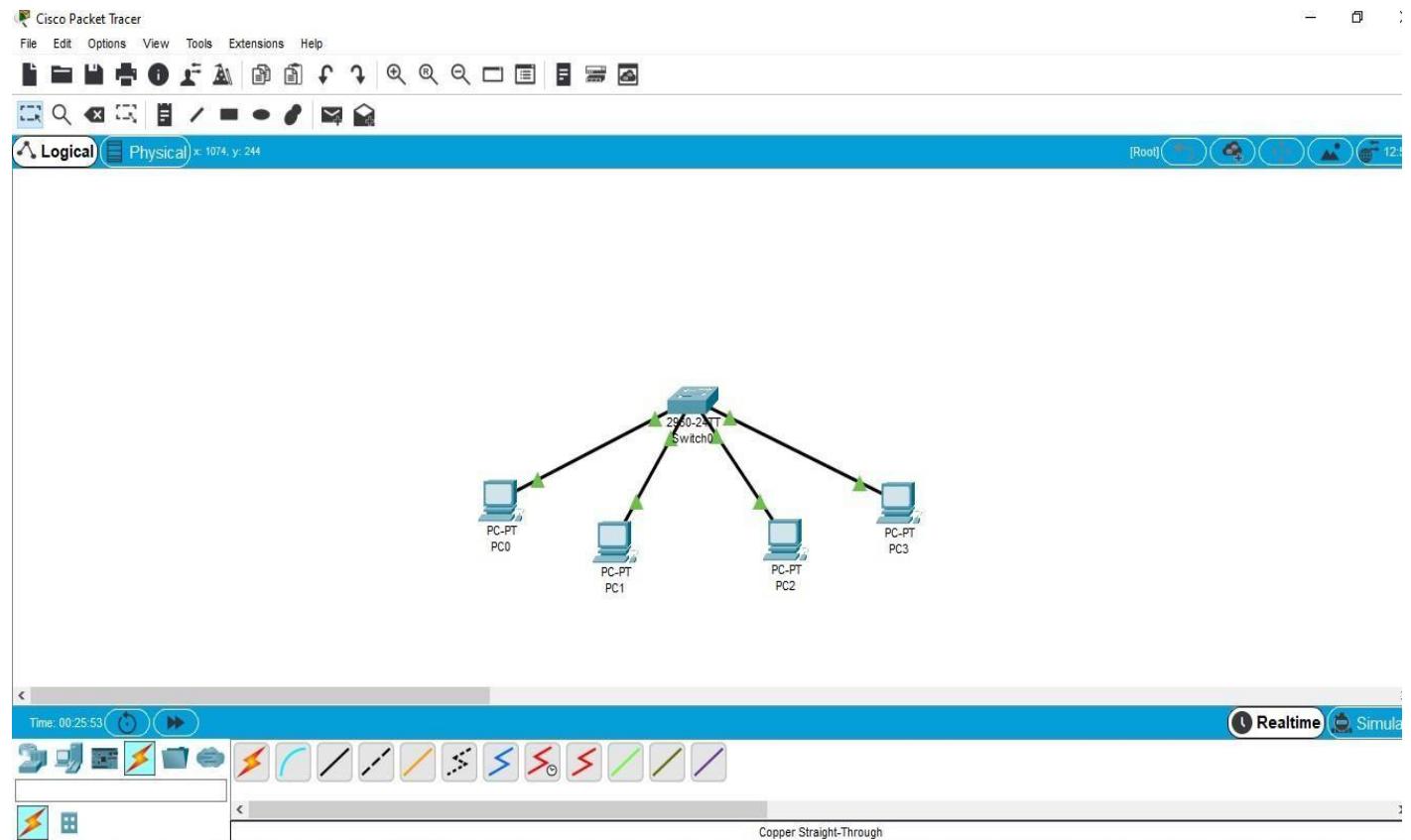
This image shows that router0 or router1 is connected and sending and receiving packets for identifying status and neighbors hostname and other info.

PRACTICAL:04

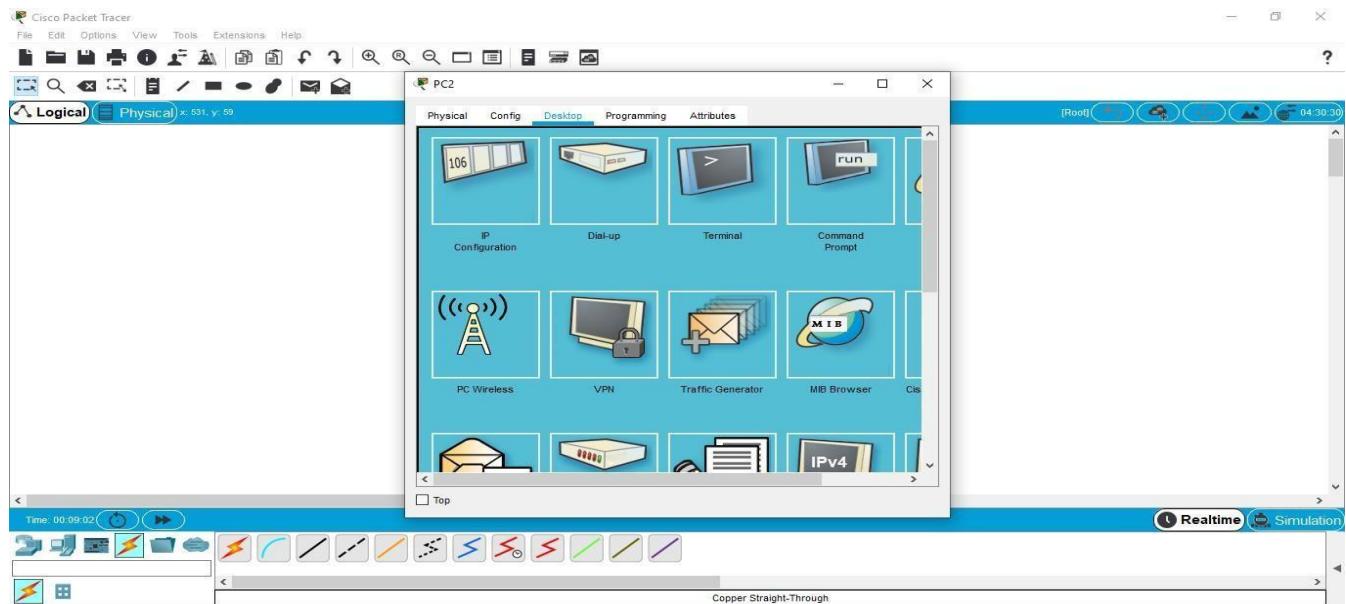
AIM: To study about the configuration of LAN by using Cisco Packet Tracer.

Network Topology for LAN:

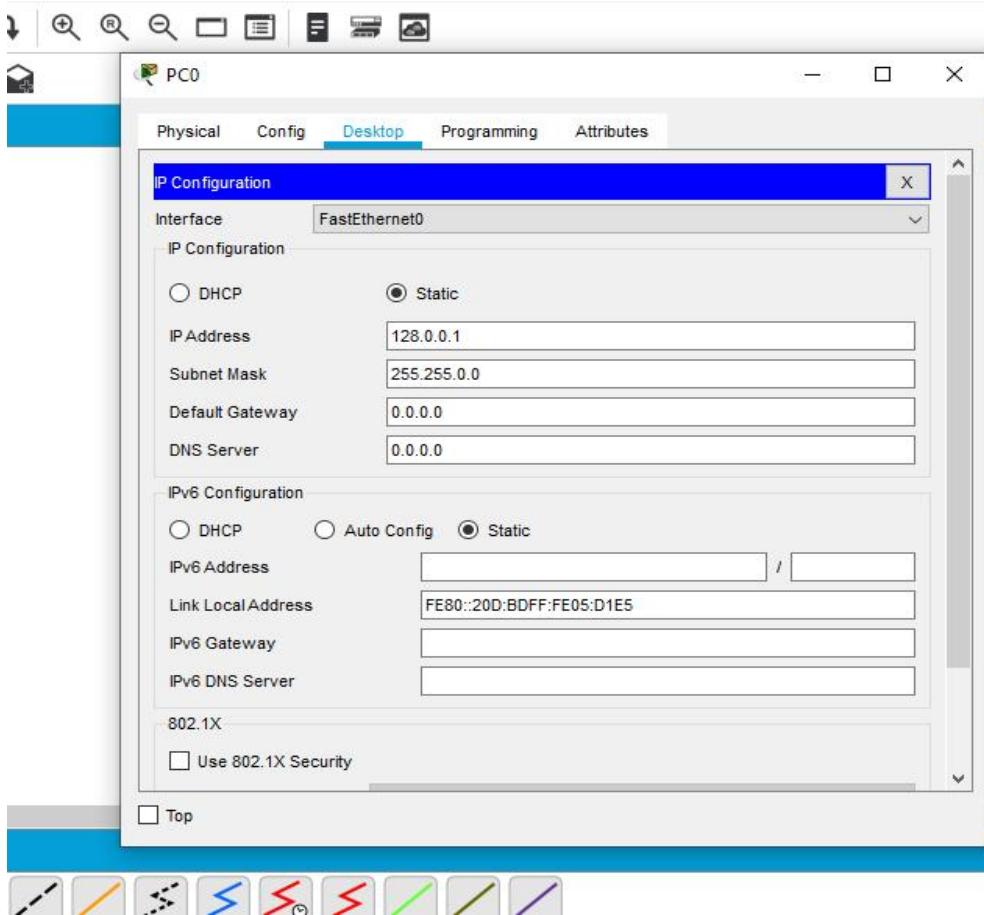
Here, we will be using Switch0 and four PCs to form the network topology and then connect all the devices by using suitable connecting wires.



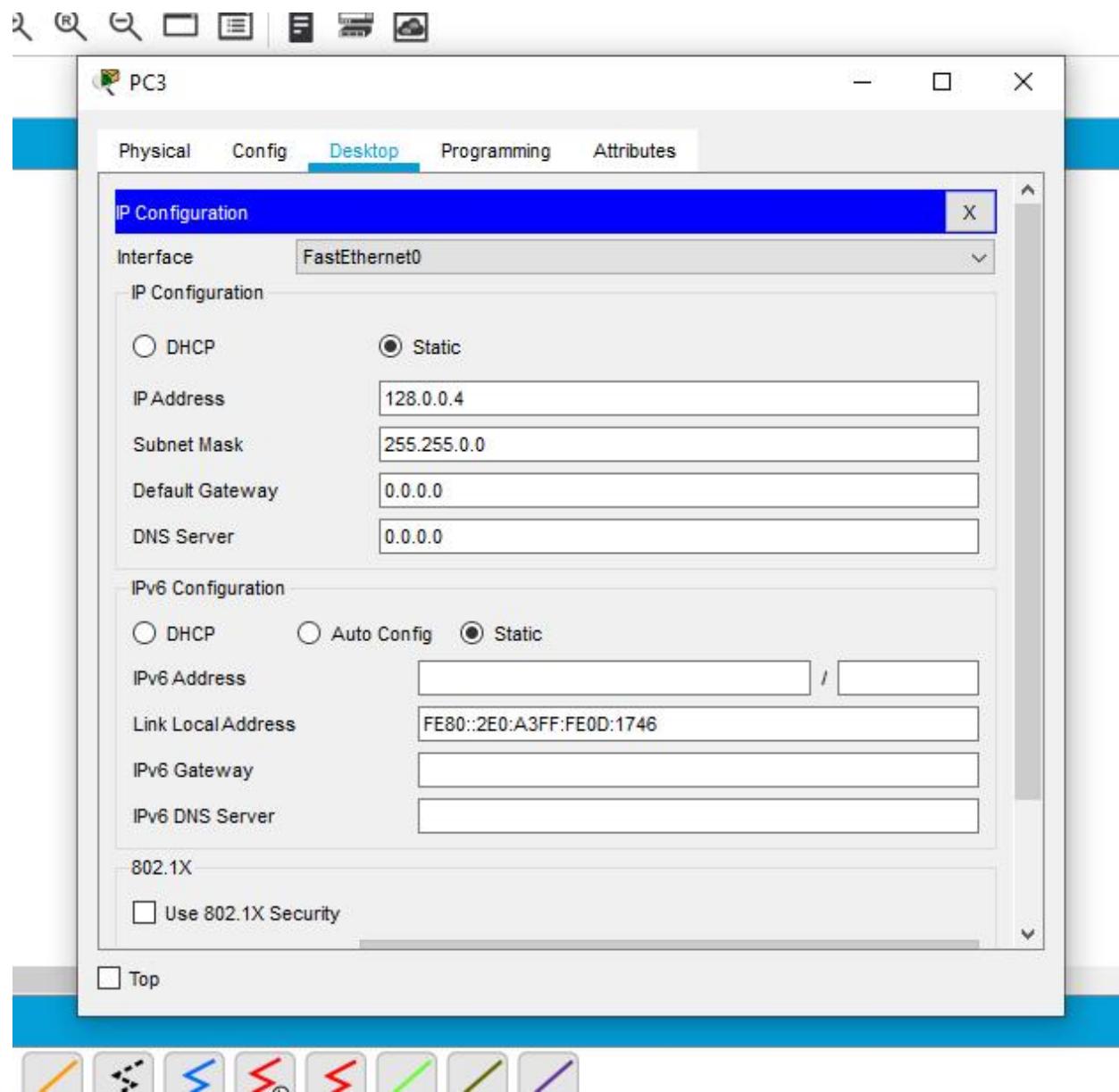
Configuration of IP, subnet mask and default gateway at pc side



Configuration at PC -0:

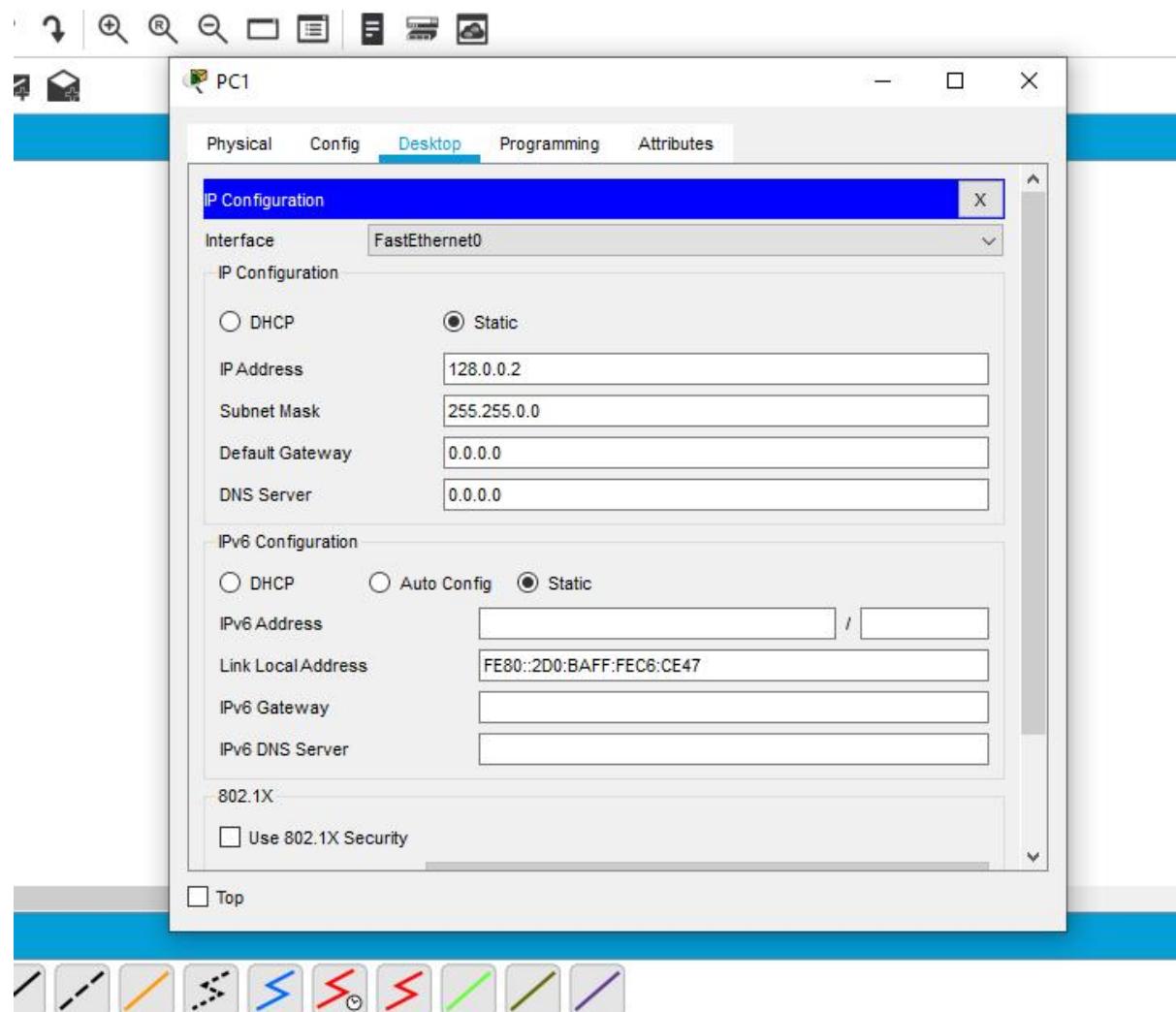


Configuration at PC -3:

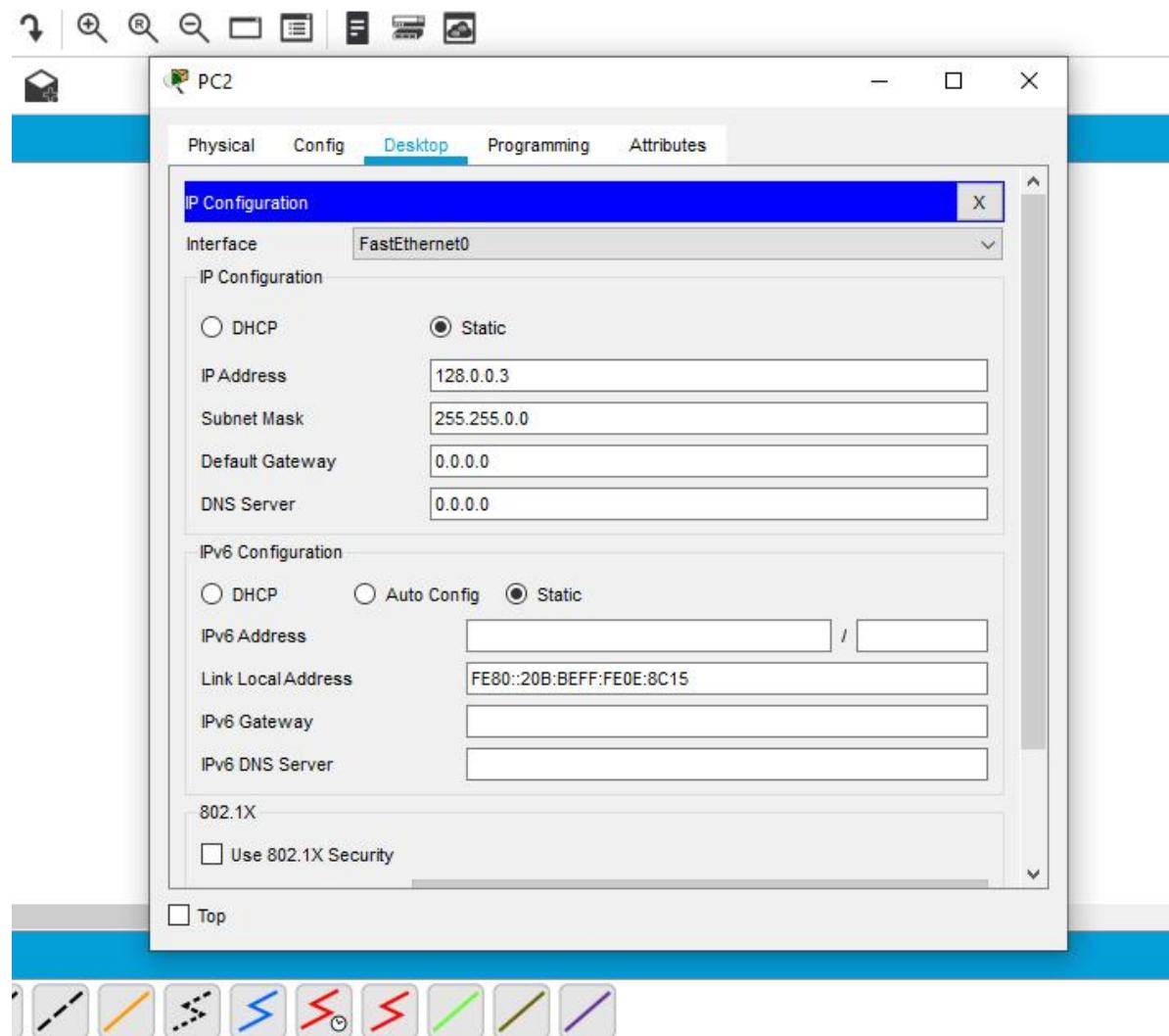


In the same way other PCs are also required to configure IP, subnet mask and default gateway so that they can be a part of the LAN.

Configuration at PC -1:



Configuration at PC -2:

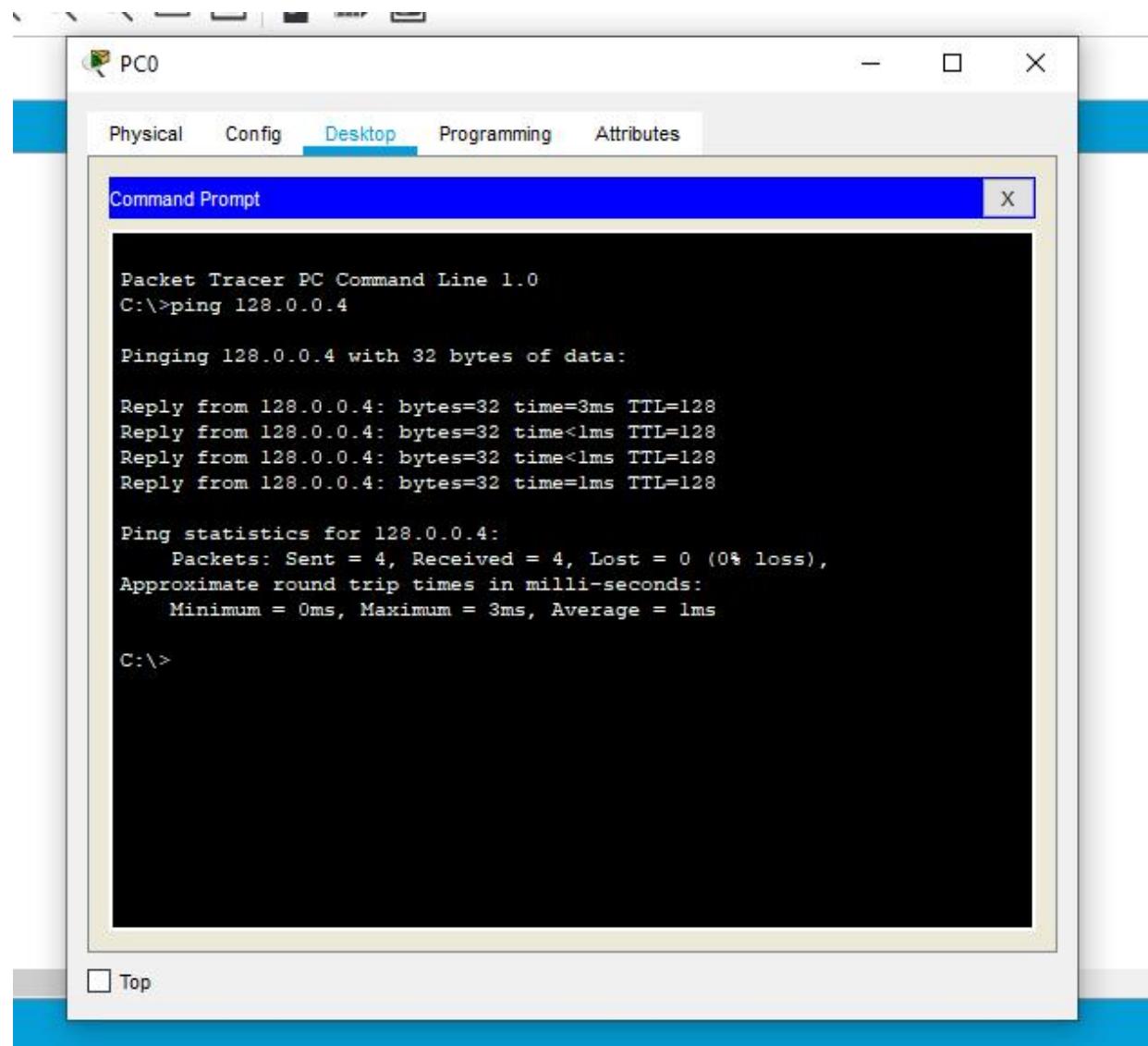


After the completion of configuration of IP, subnet mask and default gateway at each PC, PING(Packet Inetra Net Groper) will be used to check the connectivity of LAN. PING uses the Internet ControlMessage Protocol (ICMP) to communicate with other devices on the network.

The syntax is:

```
ping ip-address
```

Using Ping command at PC0:



PC0

Physical Config Desktop Programming Attributes

Command Prompt X

```
Packet Tracer PC Command Line 1.0
C:\>ping 128.0.0.4

Pinging 128.0.0.4 with 32 bytes of data:

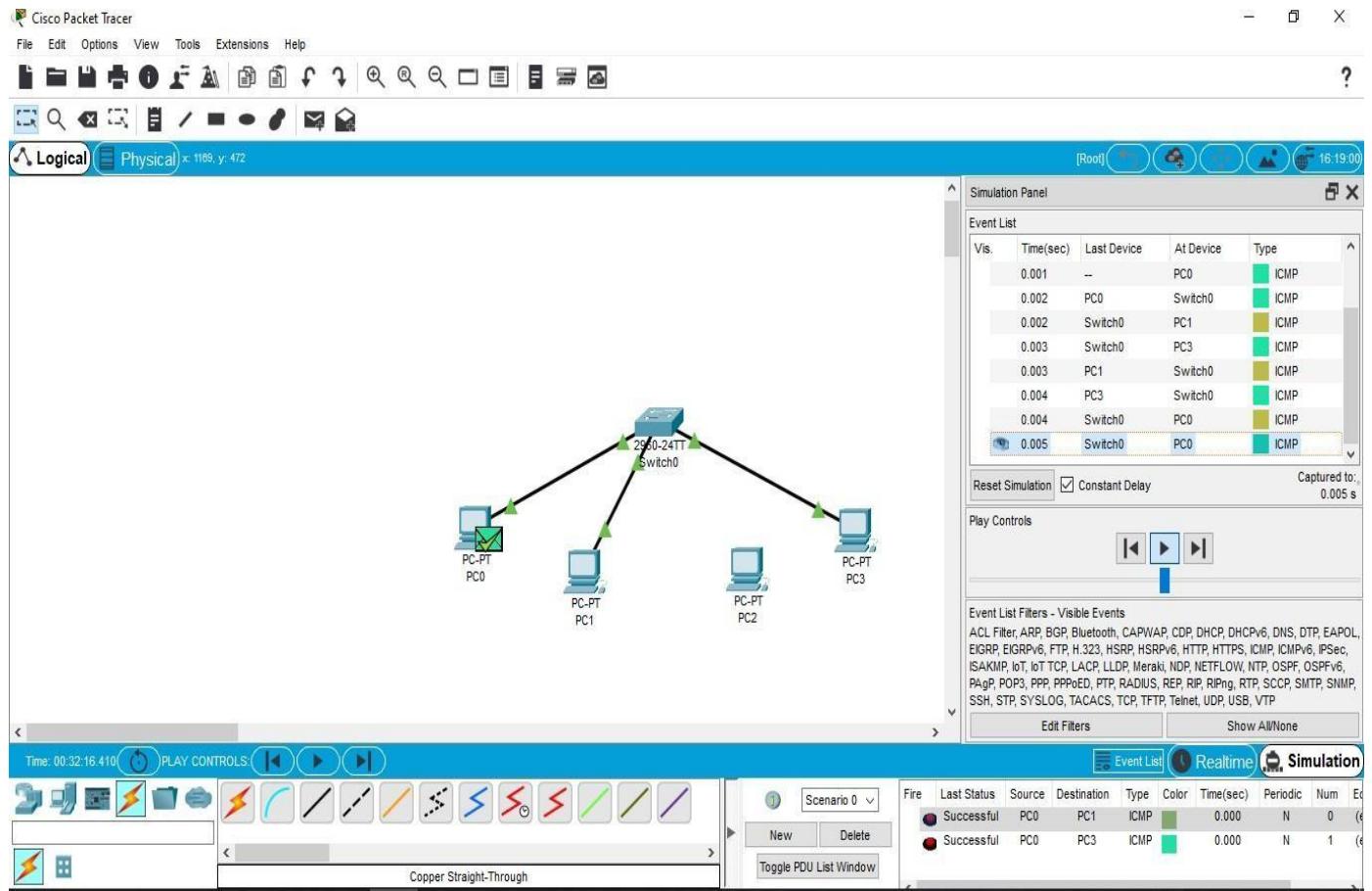
Reply from 128.0.0.4: bytes=32 time=3ms TTL=128
Reply from 128.0.0.4: bytes=32 time<1ms TTL=128
Reply from 128.0.0.4: bytes=32 time<1ms TTL=128
Reply from 128.0.0.4: bytes=32 time=1ms TTL=128

Ping statistics for 128.0.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 3ms, Average = 1ms

C:\>
```

Top

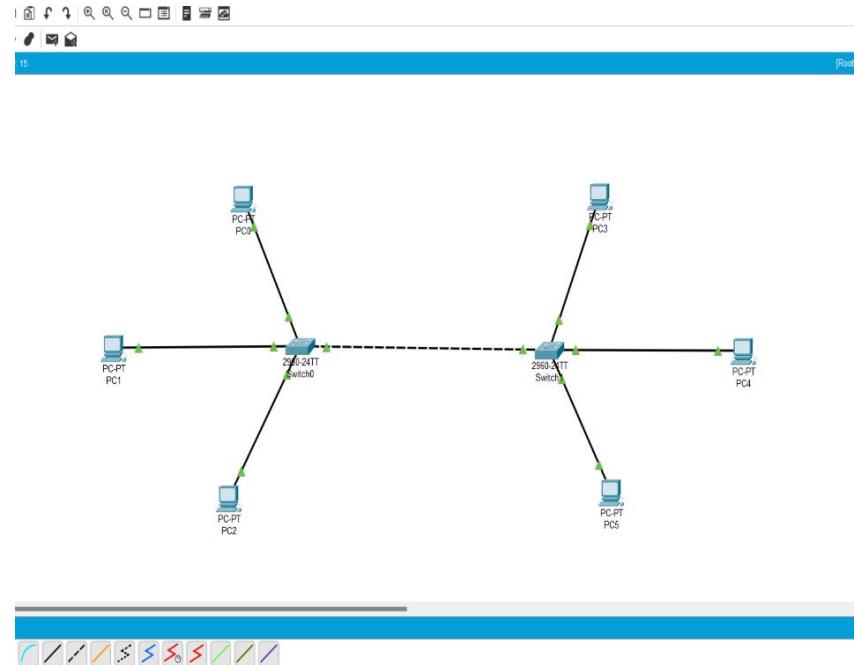
Delivering message from PC0 to PC1 and PC3



Practical-05

AIM: To study about the process of configuring Inter-connection of LANs by using Cisco Packet Tracer.

Network topology for inter-LAN:

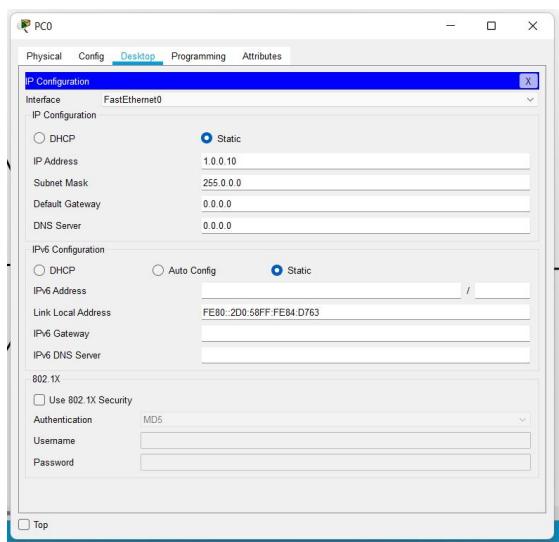


Here, two LANs will be formed by using required Switches and PCs and then all the devices will be connected by using suitable connecting wires. The switches should be connected using GigabitEthernet.

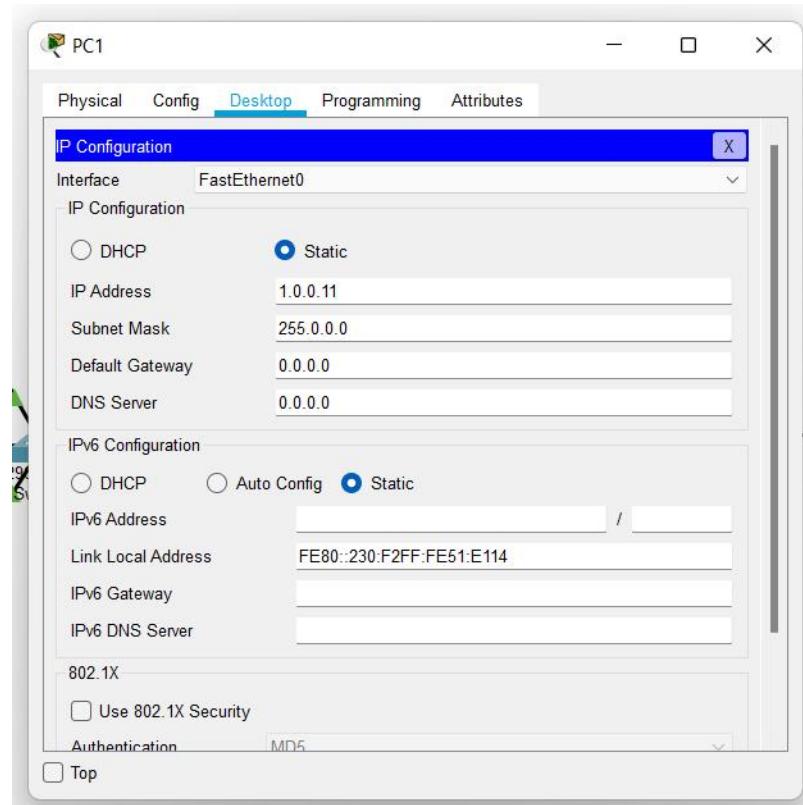
LAN-1 will have three PCs- PC0, PC1 and PC2 and LAN-2 will have PC3, PC4 and PC5.

Configuration of IP, subnet mask and default gateway at PC side:

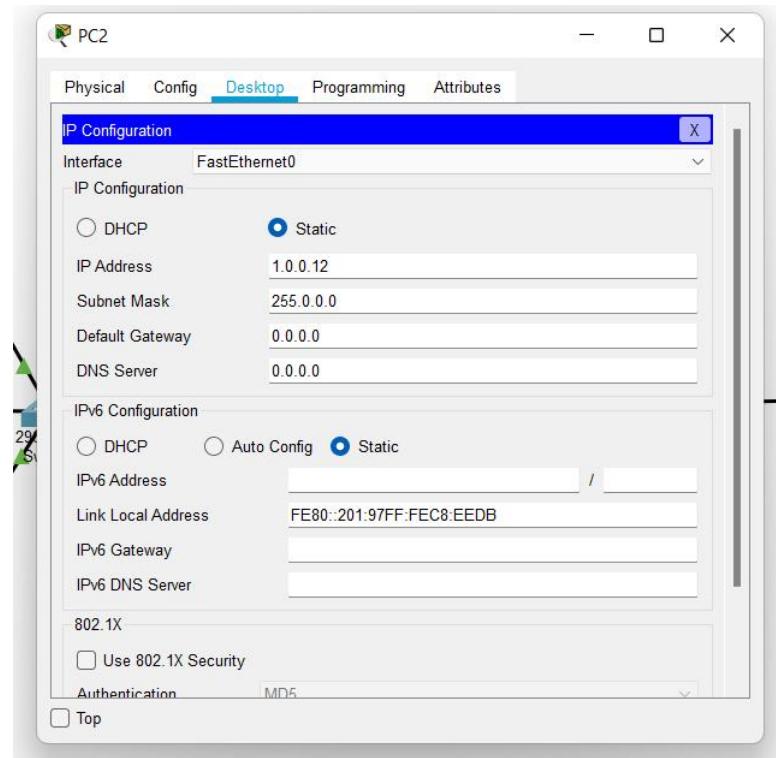
Configuration at PC0:



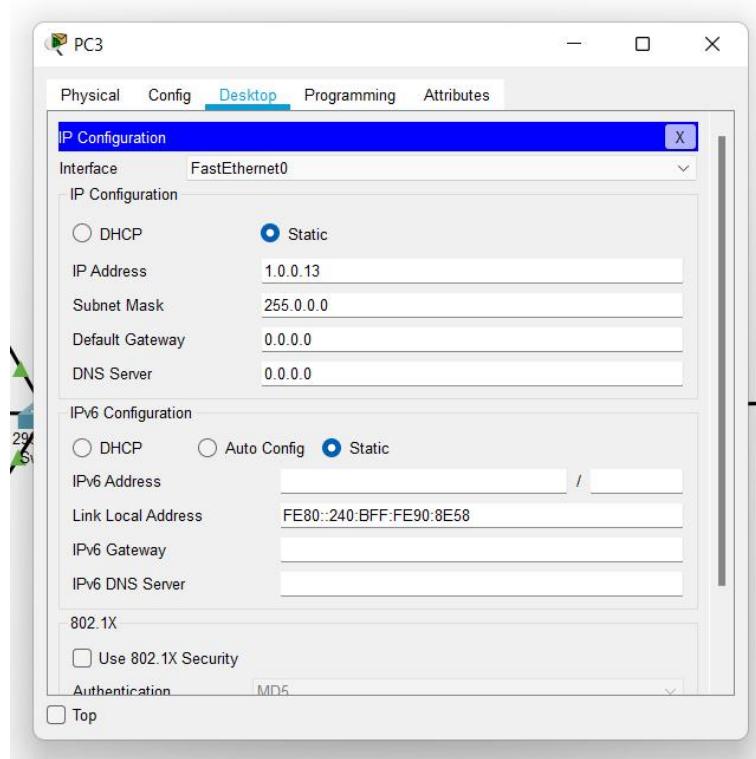
Configuration at PC1:



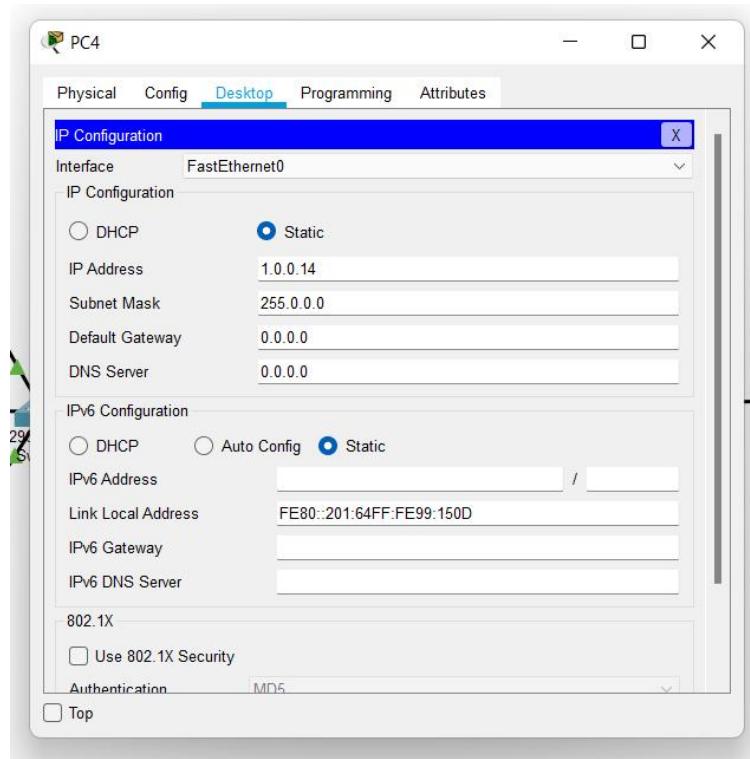
Configuration at PC2:



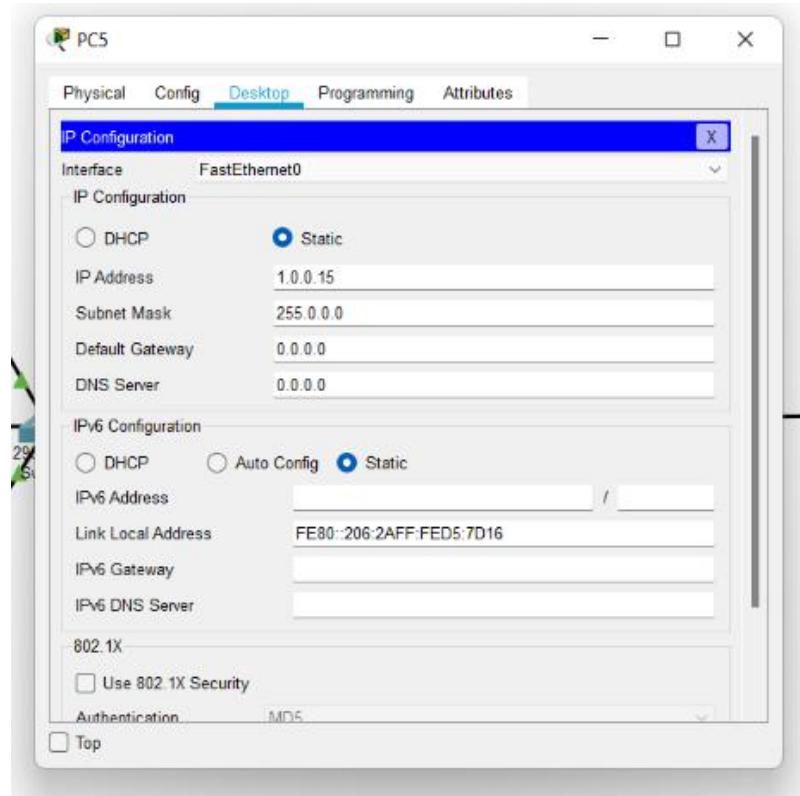
Configuration at PC3:



Configuration at PC4:



Configuration at PC5:



Following IPs will be given to PCs :

PC No.	IP Used	LAN Id
PC0	1.0.0.10	LAN-1
PC1	1.0.0.11	
PC2	1.0.0.12	
PC3	1.0.0.13	LAN-2
PC4	1.0.0.14	
PC5	1.0.0.15	

After the completion of configuration of IP, subnet mask and default gateway at each PC, PING(Packet Inter Net Groper) will be used to check the connectivity of LAN. PING uses the Internet Control Message Protocol (ICMP) to communicate with other devices on the network.

The syntax is:

```
ping ip-address
```

Using Ping command at PC4:

```
Packet Tracer PC Command Line 1.0
C:\>ping 1.0.0.10

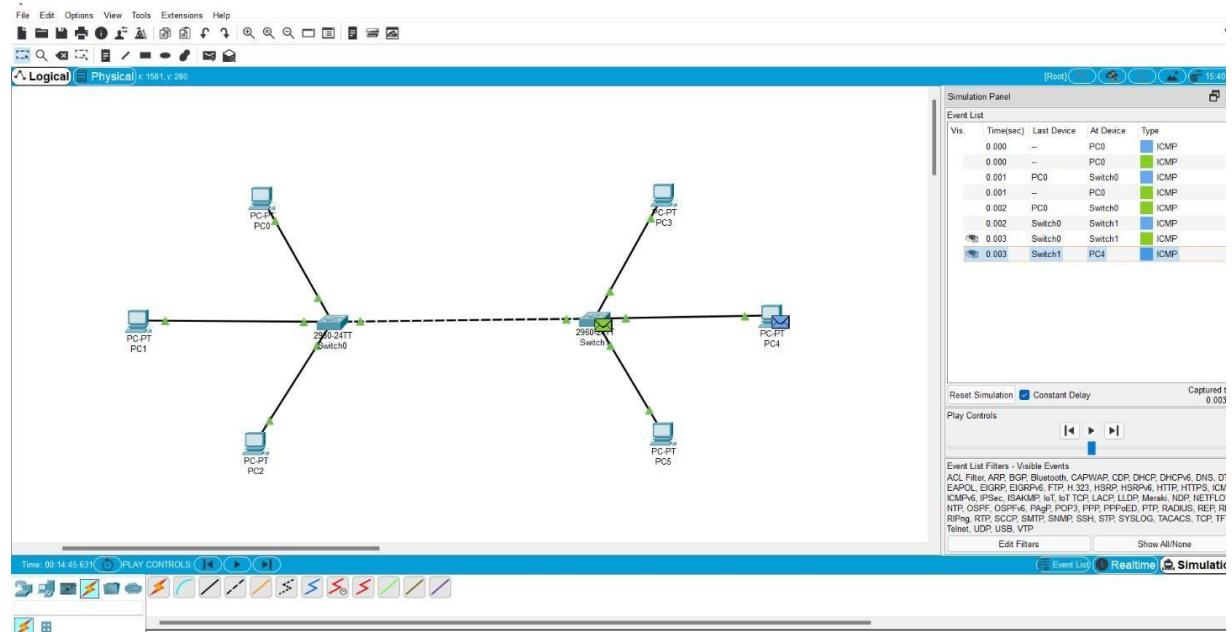
Pinging 1.0.0.10 with 32 bytes of data:

Reply from 1.0.0.10: bytes=32 time<1ms TTL=128
Reply from 1.0.0.10: bytes=32 time<1ms TTL=128
Reply from 1.0.0.10: bytes=32 time=1ms TTL=128
Reply from 1.0.0.10: bytes=32 time<1ms TTL=128

Ping statistics for 1.0.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

Sending message from PC0 to PC4:

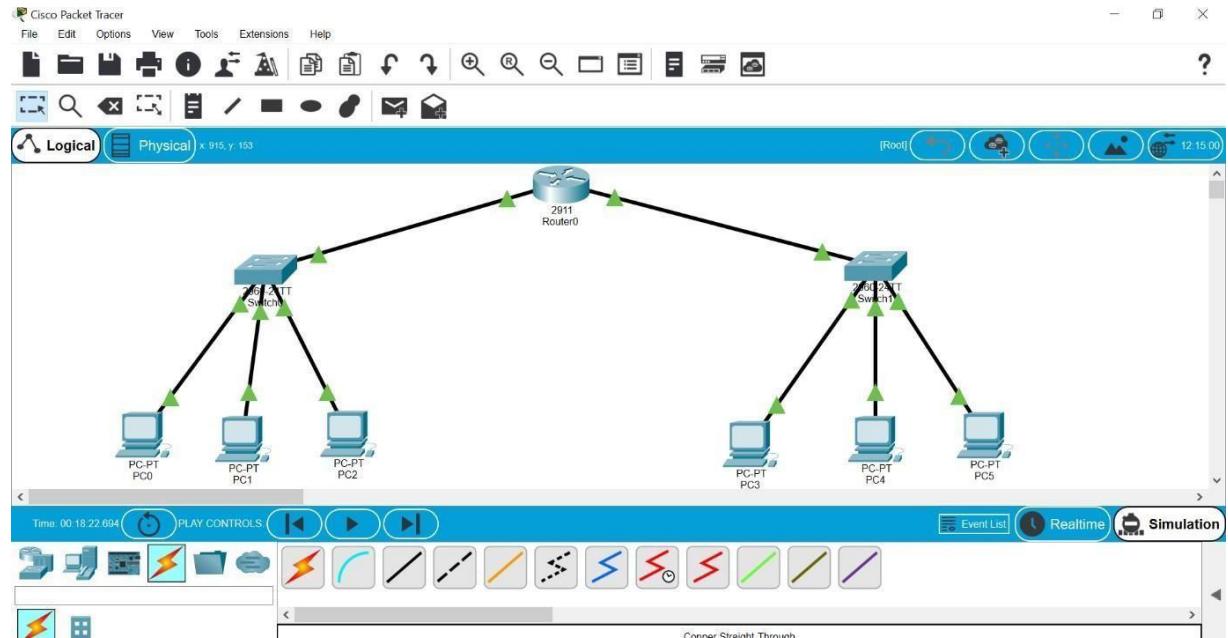


EXPERIMENT-6

AIM: To study about the configuration of Inter connection between different networks by using Cisco Packet Tracer.

Here, we will be using required switches and PCs to form two different LANs by connecting them with suitable wire and then both the network will be interconnected by using router.

Network-1 will contain PC0, PC1, PC2, connected with a switch and Network-2 will have PC3, PC4 and PC5 connected with another switch. Router0 will be used to interconnect both the Network-1 and Network-2.



Configuration of IP, subnet mask, default gateway and

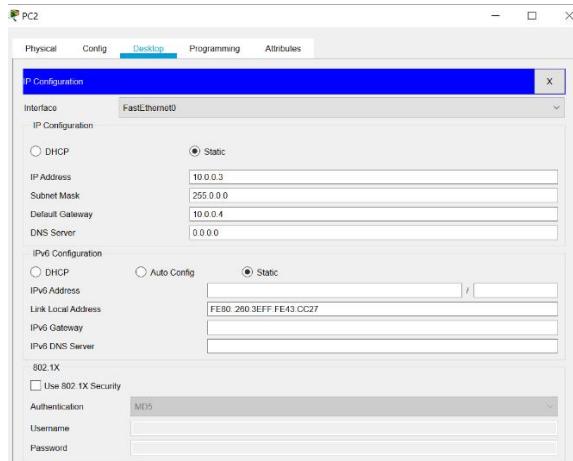
DNS at PC side: PC-0:

PC-1:

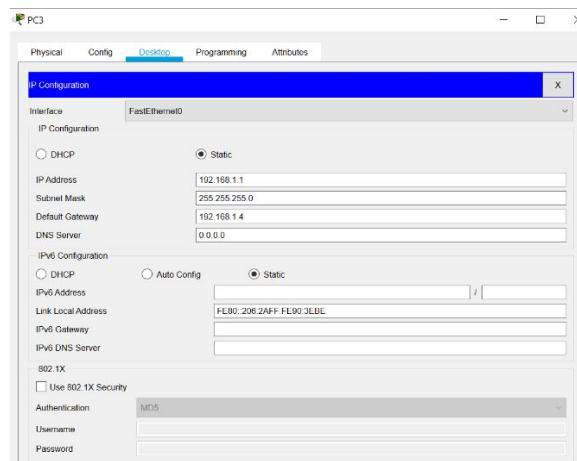
Interface	FastEthernet0
IP Configuration	<input checked="" type="radio"/> Static
IP Address	10.0.0.1
Subnet Mask	255.0.0.0
Default Gateway	10.0.0.4
DNS Server	0.0.0.0
IPv6 Configuration	<input checked="" type="radio"/> Auto Config
IPv6 Address	FE80::201:99FF:FEB0:72E2
Link Local Address	FE80::250:FFF:FE23:8C42
IPv6 Gateway	
IPv6 DNS Server	
802.1X	<input type="checkbox"/>
Use 802.1X Security	<input type="checkbox"/>
Authentication	MDS
Username	
Password	

Interface	FastEthernet0
IP Configuration	<input checked="" type="radio"/> Static
IP Address	10.0.0.2
Subnet Mask	255.0.0.0
Default Gateway	10.0.0.4
DNS Server	0.0.0.0
IPv6 Configuration	<input checked="" type="radio"/> Auto Config
IPv6 Address	FE80::250:FFF:FE23:8C42
Link Local Address	FE80::250:FFF:FE23:8C42
IPv6 Gateway	
IPv6 DNS Server	
802.1X	<input type="checkbox"/>
Use 802.1X Security	<input type="checkbox"/>
Authentication	MDS
Username	
Password	

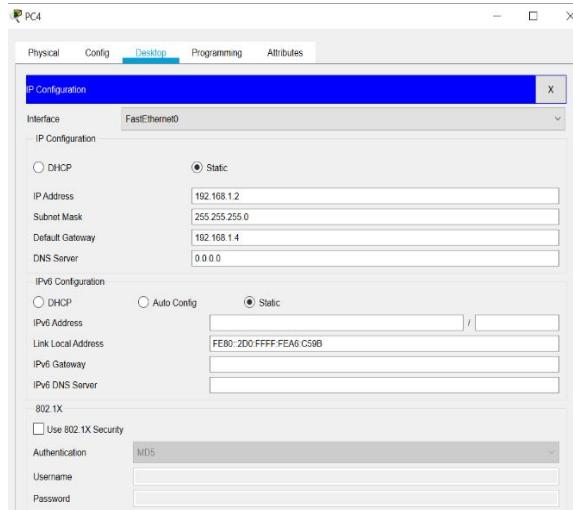
PC-2:



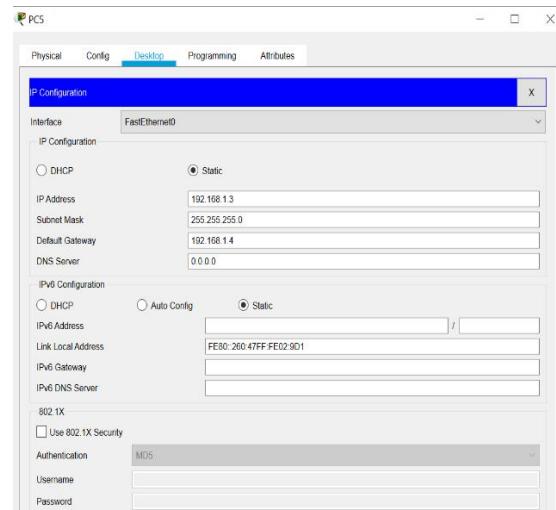
PC-3:



PC-4:



PC-5:



After the completion of configuration of IP on at both the interfaces of Router0, PING will be used to check the connectivity between networks. PING uses the Internet Control Message Protocol (ICMP) to communicate with other devices on the network.

Using Ping command at PC0:

```
PC0
Physical Config Desktop Programming Attributes
Command Prompt
Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:
Reply from 10.0.0.1: bytes=32 time<1ms TTL=128

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 4ms, Average = 1ms

C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 4ms, Average = 1ms

C:\>
```

Using Ping command at PC1:

```
PC1
Physical Config Desktop Programming Attributes
Command Prompt
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:
Request timed out.
Reply from 192.168.1.1: bytes=32 time=1ms TTL=127
Reply from 192.168.1.1: bytes=32 time<1ms TTL=127
Reply from 192.168.1.1: bytes=32 time=2ms TTL=127

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 1ms

C:\>
```

Using Ping command at PC2:

PC2

Physical Config Desktop Programming Attributes

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:>ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:

Reply from 10.0.0.3: bytes=32 time=2ms TTL=128
Reply from 10.0.0.3: bytes=32 time=4ms TTL=128
Reply from 10.0.0.3: bytes=32 time=2ms TTL=128
Reply from 10.0.0.3: bytes=32 time=3ms TTL=128

Ping statistics for 10.0.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 4ms, Average = 2ms

C:>
```

Using Ping command at PC3:

PC3

Physical Config Desktop Programming Attributes

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=2ms TTL=128
Reply from 192.168.1.1: bytes=32 time=5ms TTL=128
Reply from 192.168.1.1: bytes=32 time=3ms TTL=128
Reply from 192.168.1.1: bytes=32 time=3ms TTL=128

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 5ms, Average = 3ms

C:>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time=1ms TTL=128
Reply from 192.168.1.3: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:>
```

Using Ping command at PC4:

PC4

Physical Config Desktop Programming Attributes

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time=4ms TTL=128
Reply from 192.168.1.2: bytes=32 time=3ms TTL=128
Reply from 192.168.1.2: bytes=32 time=4ms TTL=128
Reply from 192.168.1.2: bytes=32 time=2ms TTL=128

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 4ms, Average = 3ms

C:>
```

Using Ping command at PC5:

PC5

Physical Config Desktop Programming Attributes

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

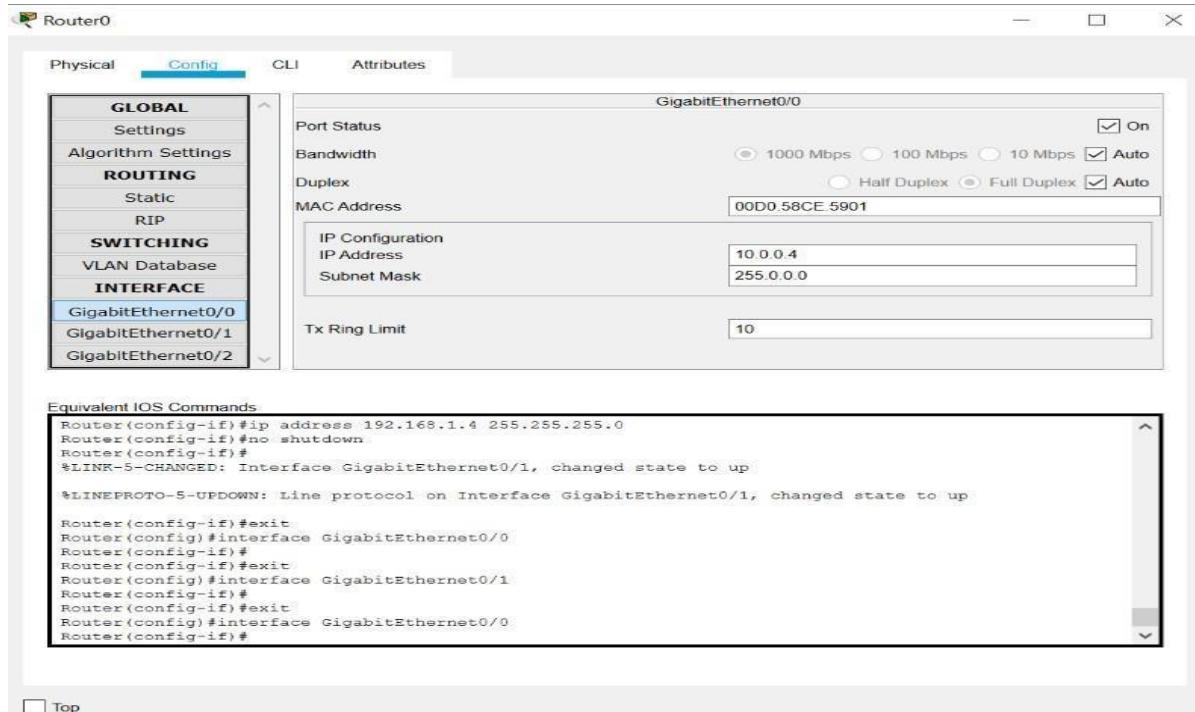
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time=3ms TTL=128
Reply from 192.168.1.3: bytes=32 time=3ms TTL=128
Reply from 192.168.1.3: bytes=32 time=2ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 3ms, Average = 2ms

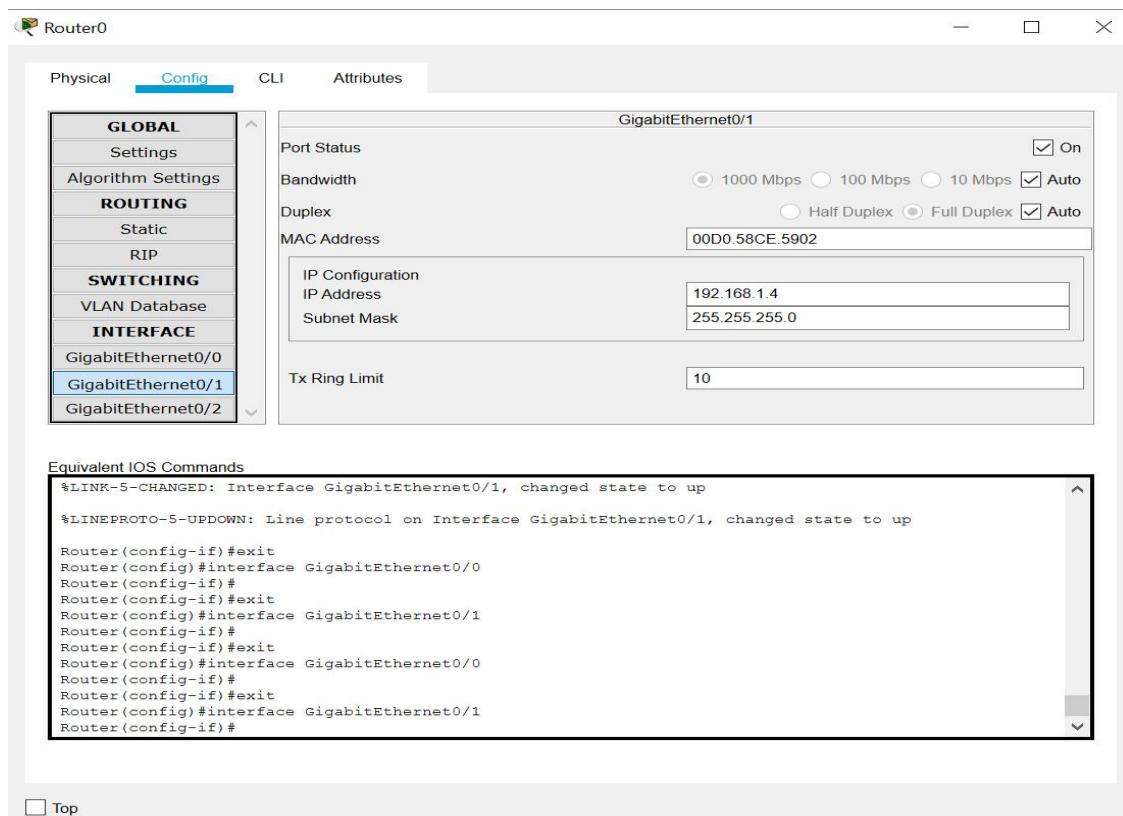
C:>
```

CONFIGURATION OF IP AND SUBNET MASK AT ROUTER: As Router0 is used to interconnect both the Networks, gigabit interfaces 0/0 and 0/1 will be used to connect Network-1 and Network-2 respectively. So, gigabit interface 0/0 of Router0 need to be configured to communicate with network

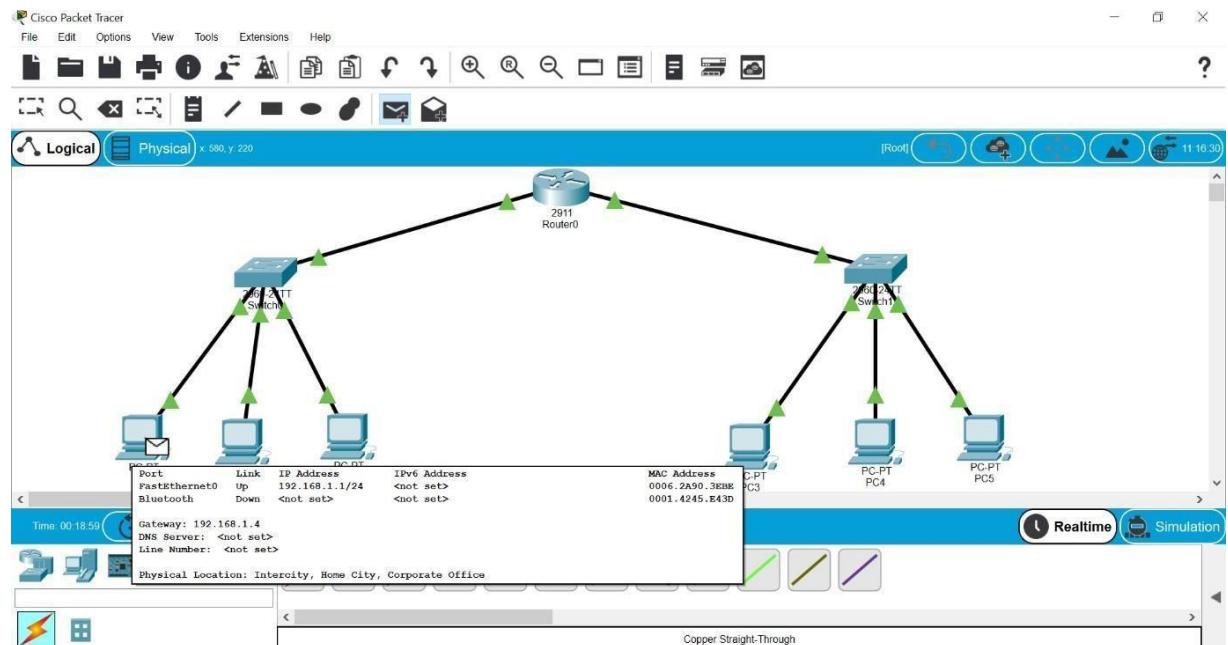
Gigabit Ethernet 0/0 interface configuration:



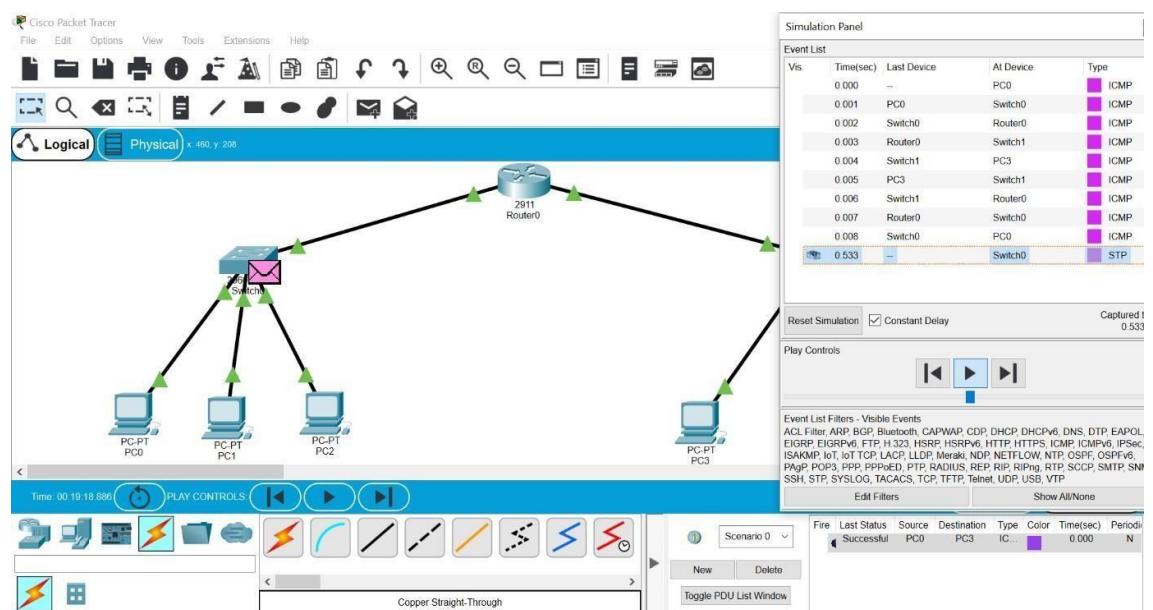
Gigabit Ethernet 0/1 interface configuration:



Delivering message from PC-0 to PC-3:



Message successfully delivered:



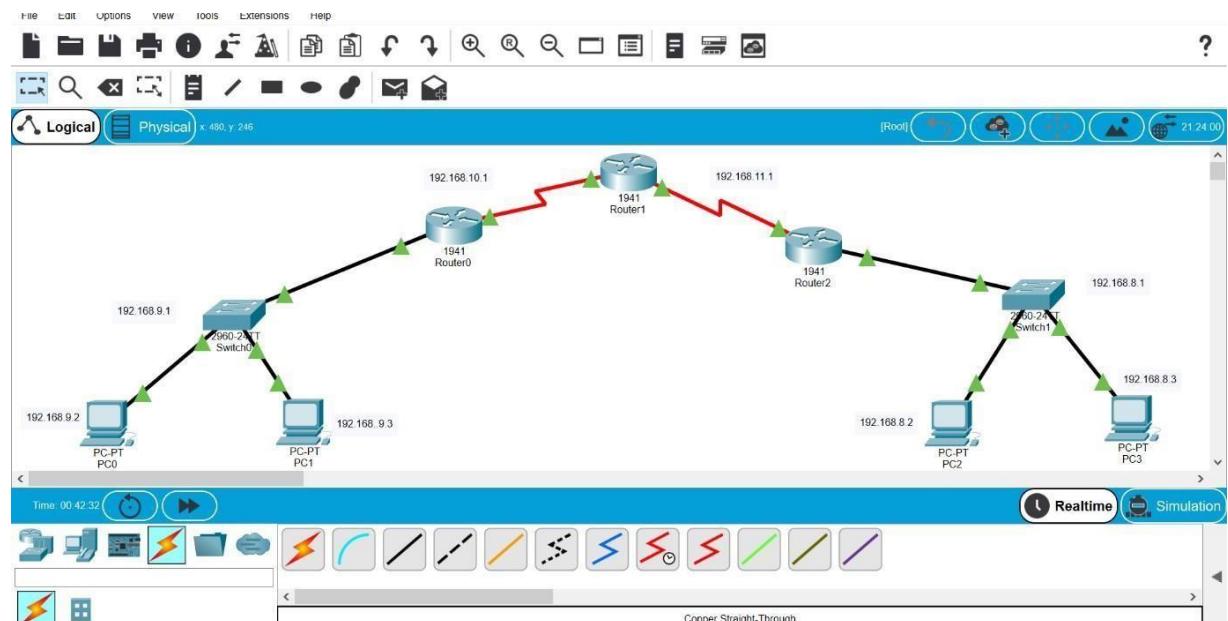
EXPERIMENT-7

AIM: To study about the configuration of static routing Inter-connection and communication of different networks by using Cisco Packet Tracer.

NETWORK TOPOLOGY FOR INTER LAN:

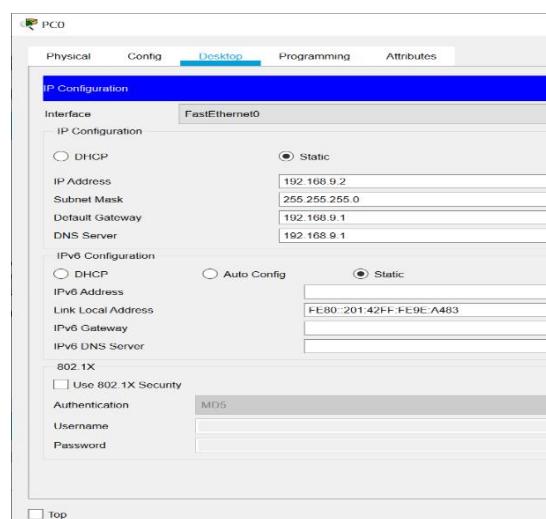
Here, four different networks will be formed by using required Routers, Switches and PCs, these all the devices interconnected by using suitable connecting network cables.

First network at left end contain two PCs, PC0 and PC1, connected with a switch which further connected to Router0 that have network ID as 192.168.9.1. Router0 next connected to Router1 and have the network ID 192.168.10.1; Router1 connected with Router2 and have the network ID 192.168.11.1. At the extreme right end the network that is connected with Router3 is having two PCs connected via a switch have the network ID 192.168.8.1.

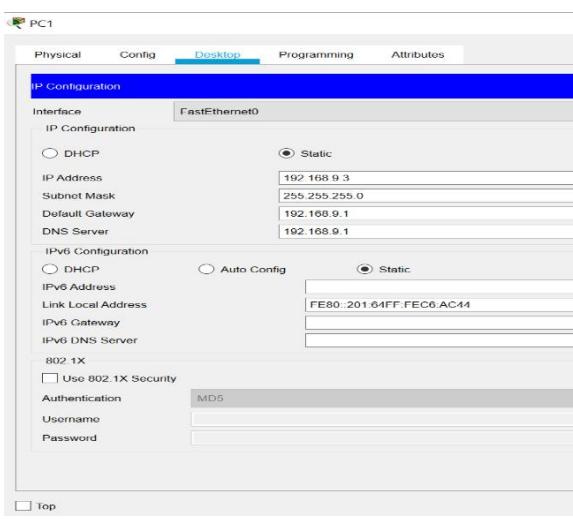


CONFIGURATION OF IP AND SUBNET MASK

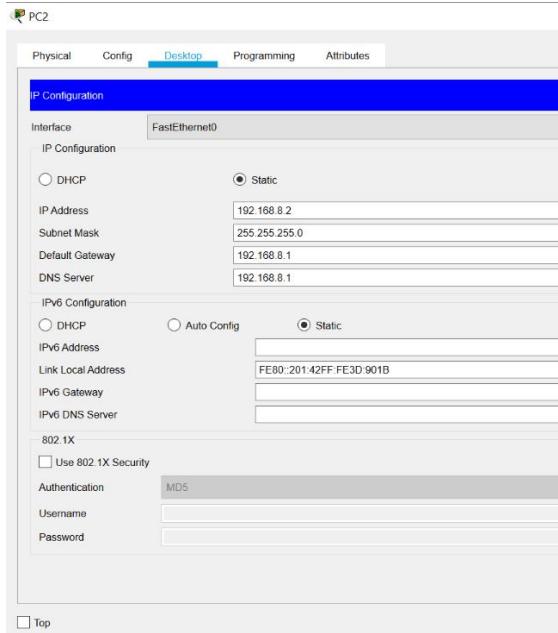
AT PC SIDE: PC0:



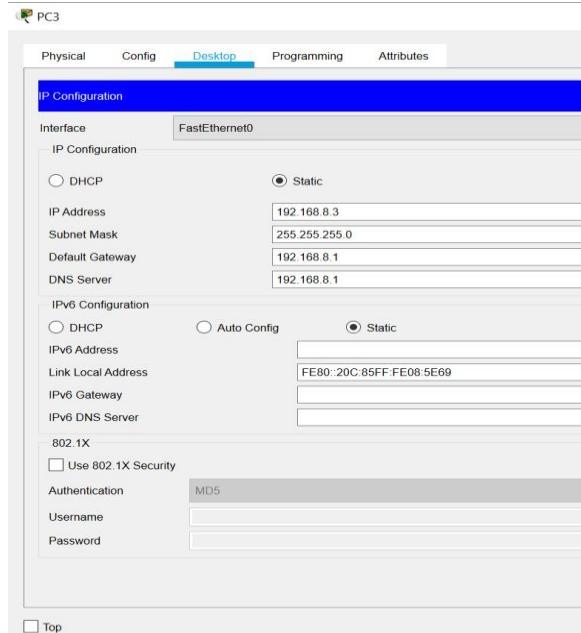
PC1:



PC2:



PC3:



CONFIGURATION OF IP AND SUBNET MASK AT ROUTER:

Router0 (Gigabit Ethernet 0/0/1)

Router0

Physical Config CLI Attributes

GigabitEthernet0/1

Port Status: On

Bandwidth: 1000 Mbps (radio button) - Selected

Duplex: Full Duplex (radio button) - Selected

MAC Address: 0060.5CB5.8A02

IP Configuration

- IP Address: 192.168.9.1
- Subnet Mask: 255.255.255.0

Tx Ring Limit: 10

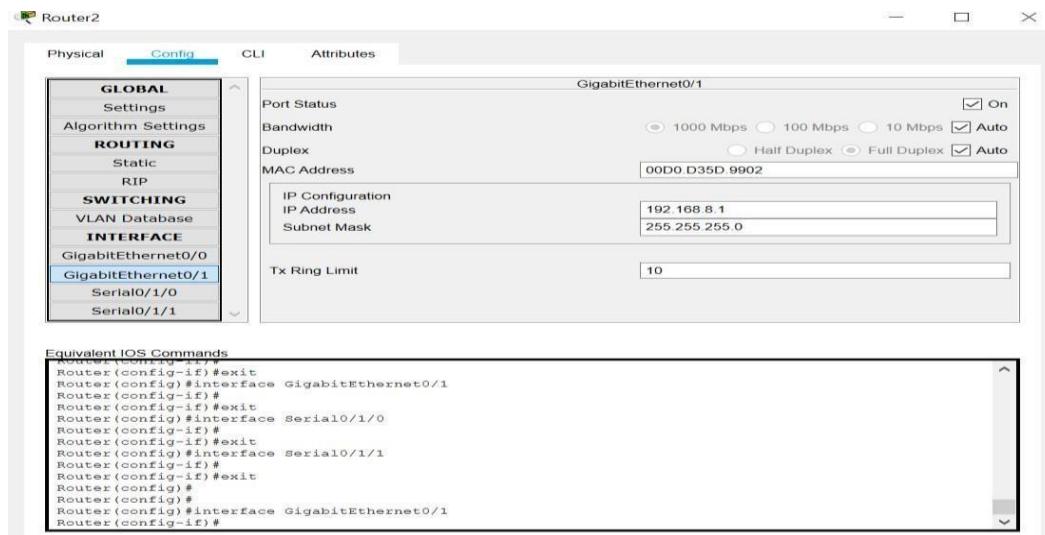
Equivalent IOS Commands

```

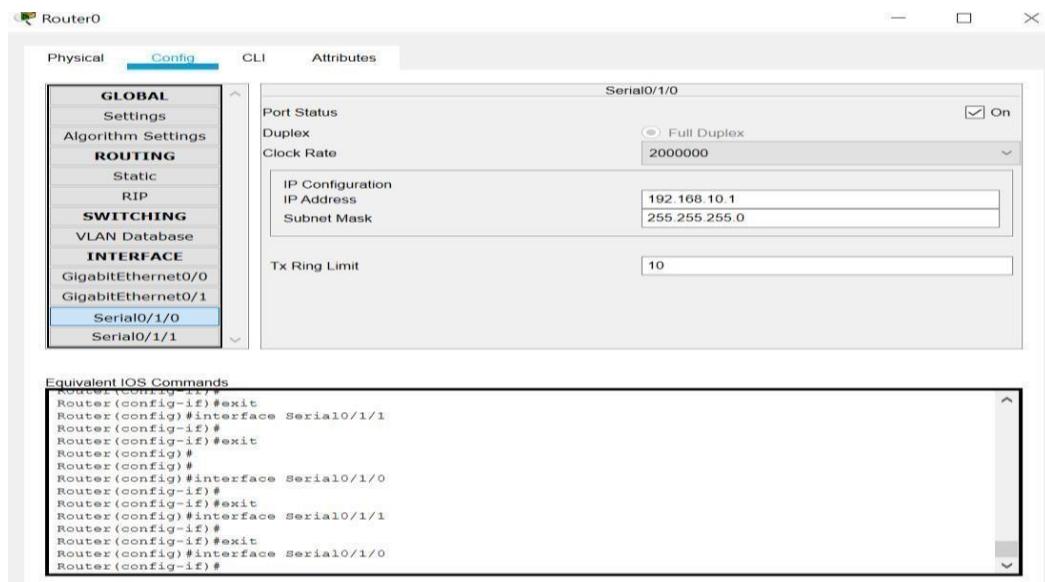
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/1
Router(config-if)#
  
```

Top

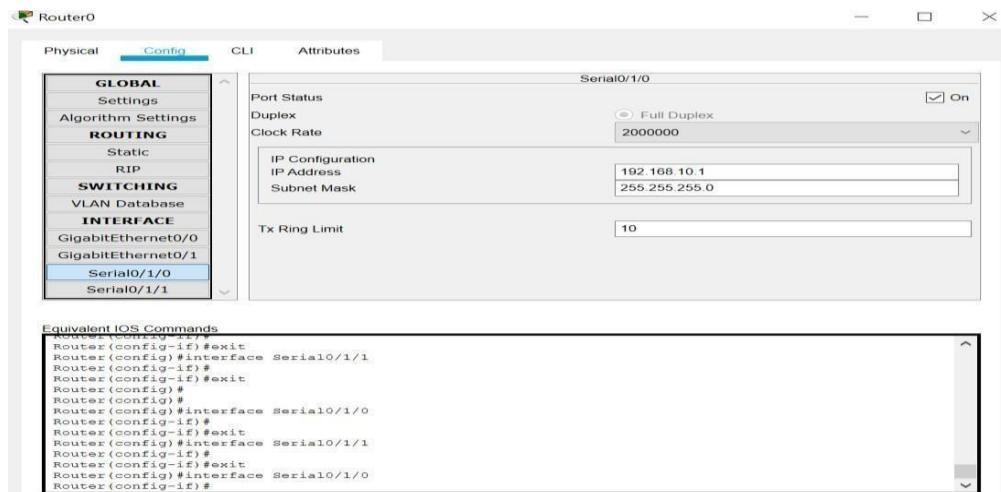
Router2 (Gigabit Ethernet 0/0/1)



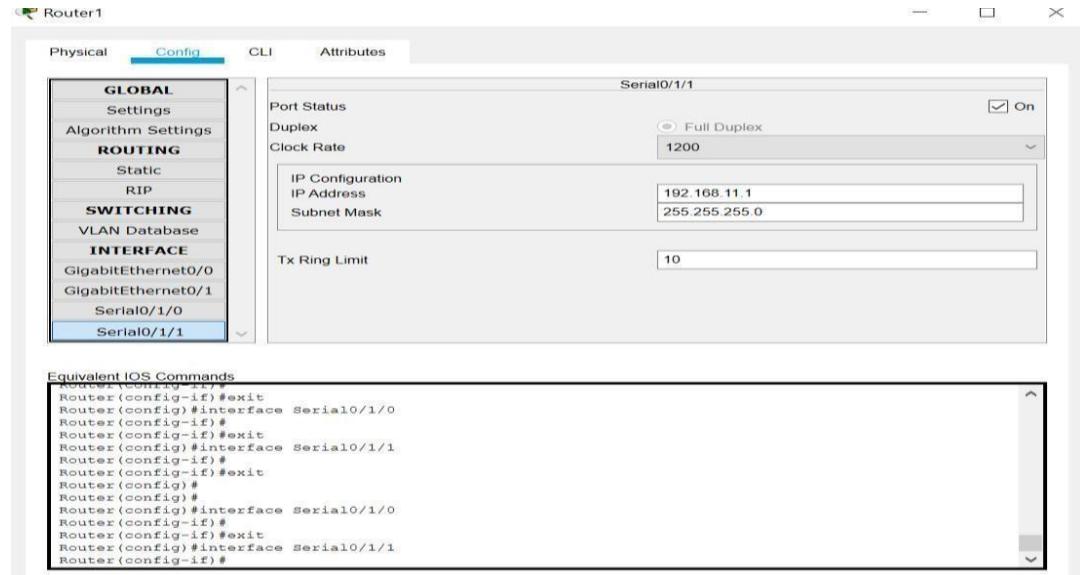
Router0 (Serial 0/1/0):



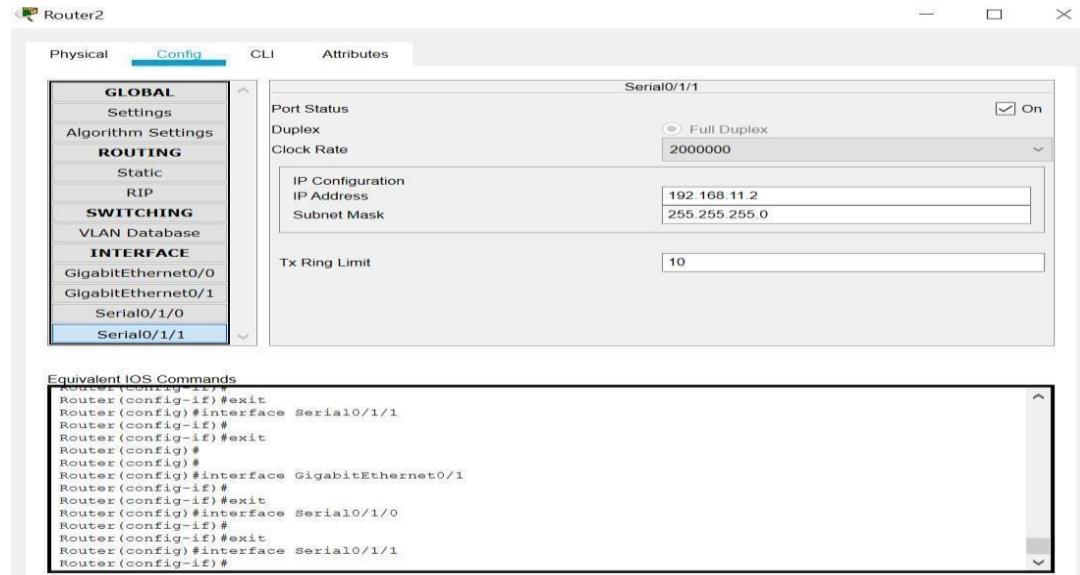
Router1 (Serial 0/1/0):



Router1 (Serial 0/1/1):



Router2 (Serial 0/1/1):



The Ip-route command manages static routes in the routing table. Issue this command for each static route to add to the routing table.

R1>enable

R1#configure terminal

R1(config)#no ip

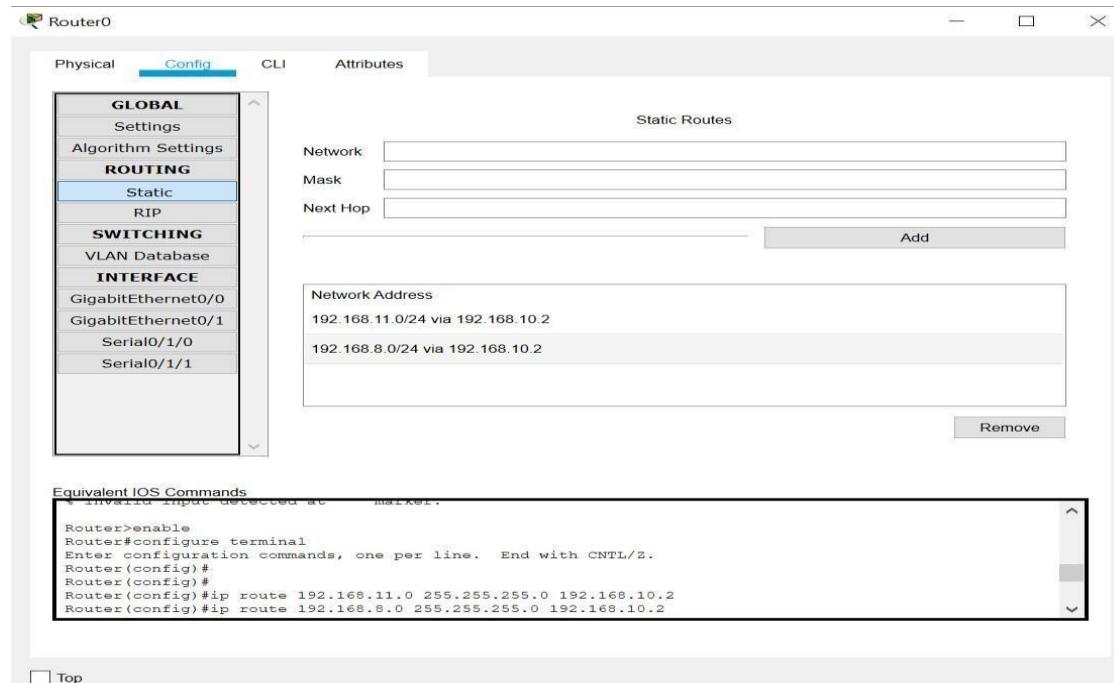
routing R1(config)#ip

routing

R1(config)#ip route 192.168.11.0 255.255.255.0 192.168.10.2

R1(config)#ip route 192.168.9.0 255.255.255.0 192.168.10.2

Router0:

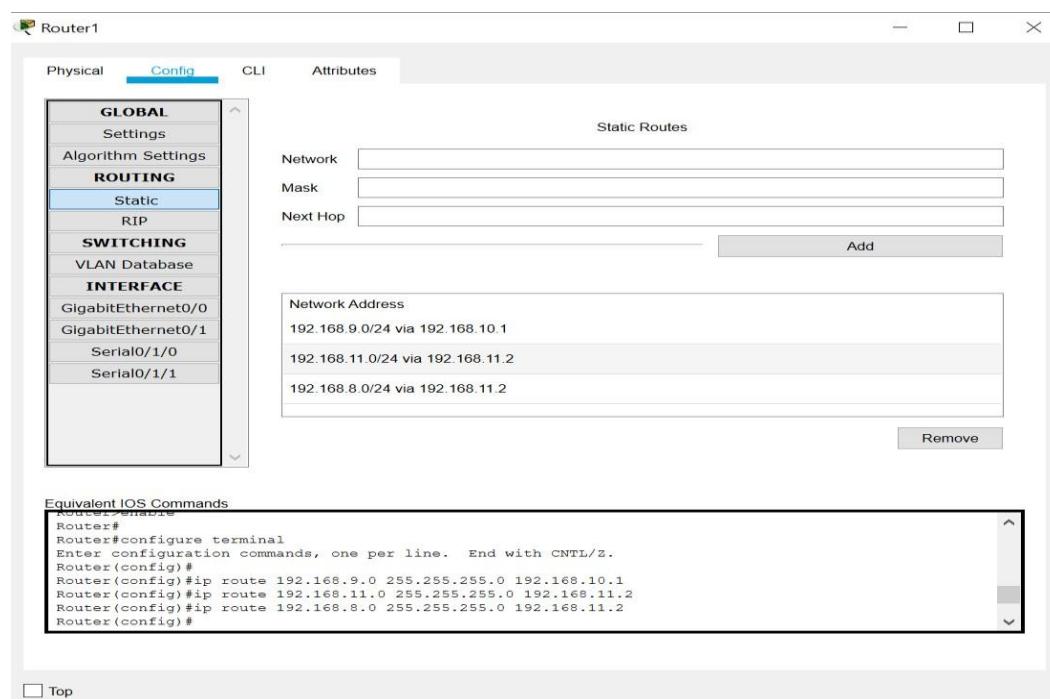


Router1

```

R1(config)#ip route 192.168.9.0 255.255.255.0 192.168.10.1
R1(config)#ip route 192.168.11.0 255.255.255.0 192.168.11.2
R1(config)#ip route 192.168.8.0 255.255.255.0 192.168.11.2

```

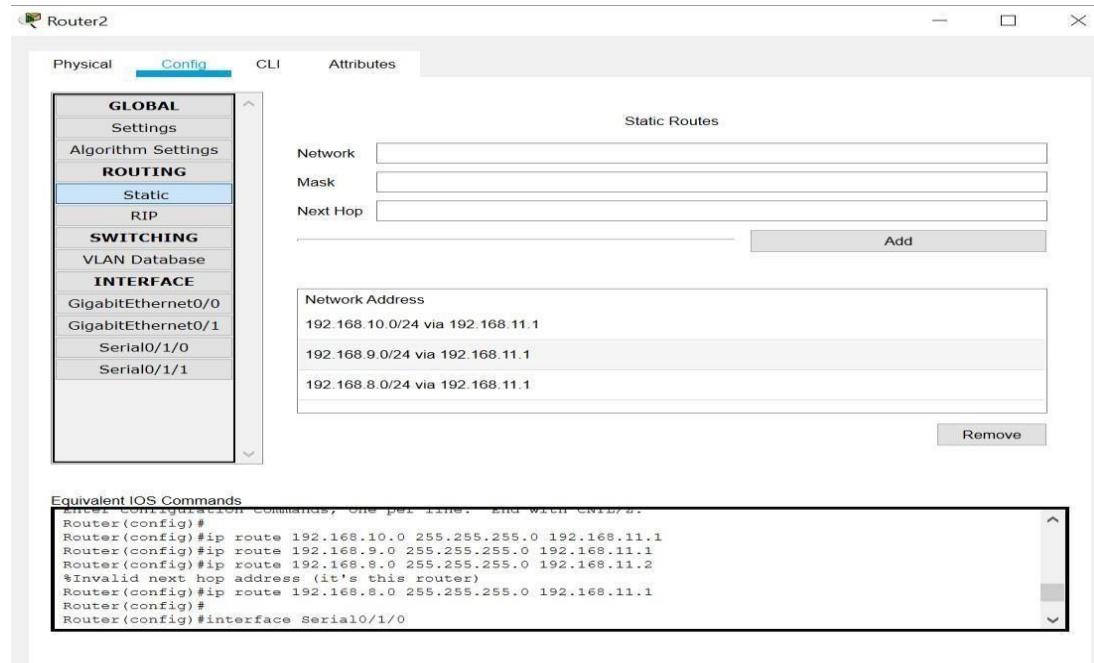


Router2

```
R1(config)#ip route 192.168.10.0 255.255.255.0 192.168.11.1
```

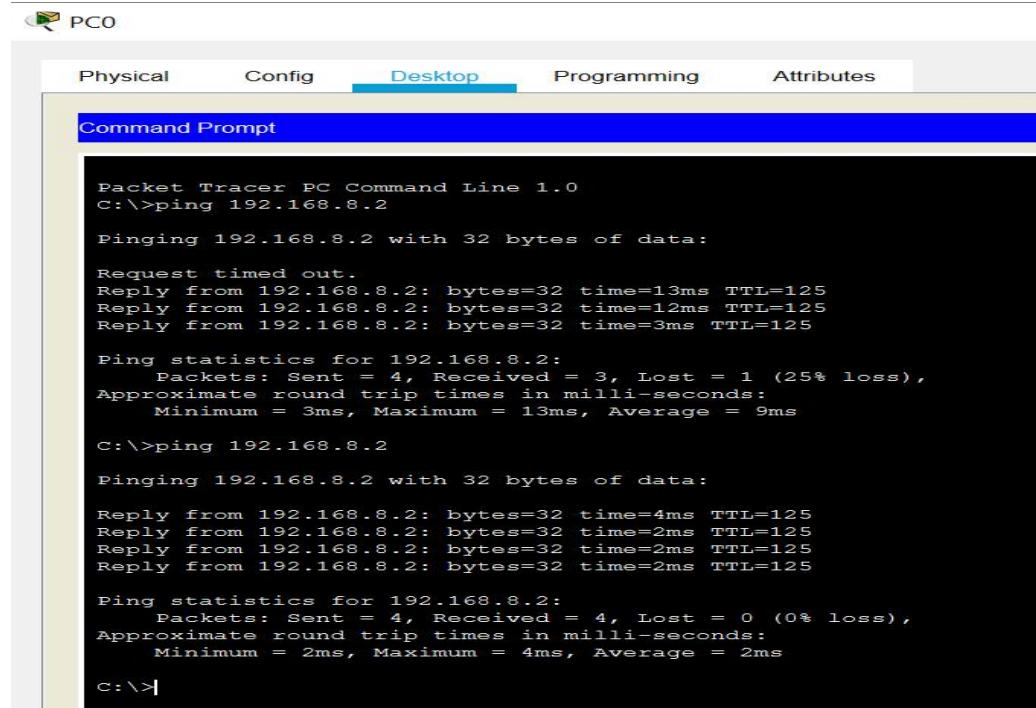
```
R1(config)#ip route 192.168.9.0 255.255.255.0 192.168.11.1
```

```
R1(config)#ip route 192.168.8.0 255.255.255.0 192.168.11.2
```

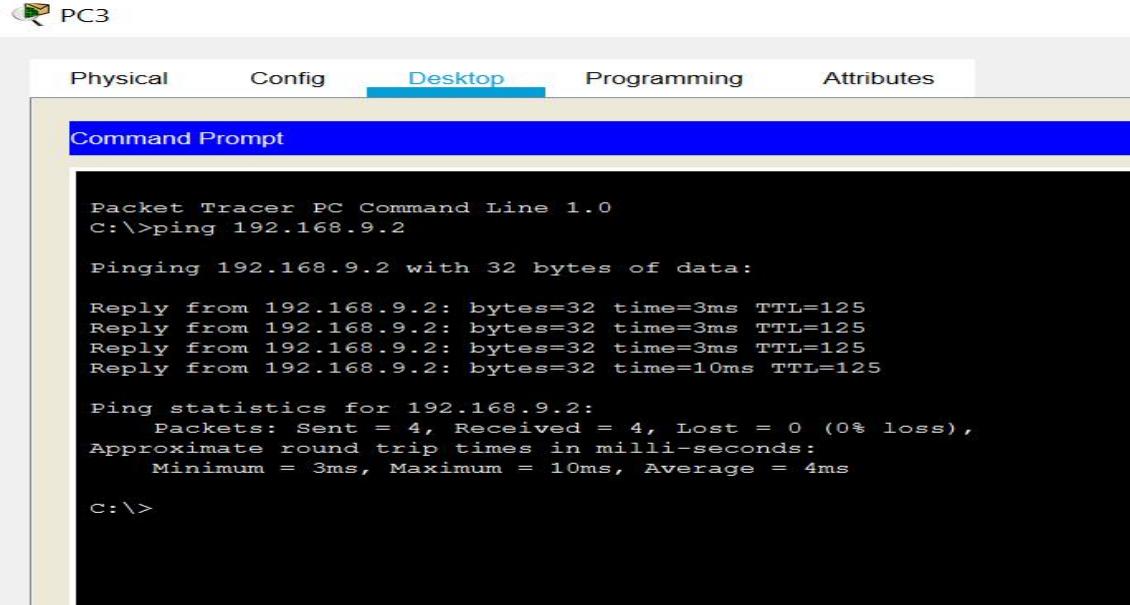


Top

Use of Ping command to confirm the interconnection from PC-0 having IP address 192.168.9.2:



Use of Ping command to confirm the interconnection from PC-3 having IP address 192.168.8.3:



The screenshot shows the Cisco Packet Tracer interface with the 'Desktop' tab selected. In the central window, the 'Command Prompt' shows the output of a ping command:

```

Packet Tracer PC Command Line 1.0
C:\>ping 192.168.9.2

Pinging 192.168.9.2 with 32 bytes of data:

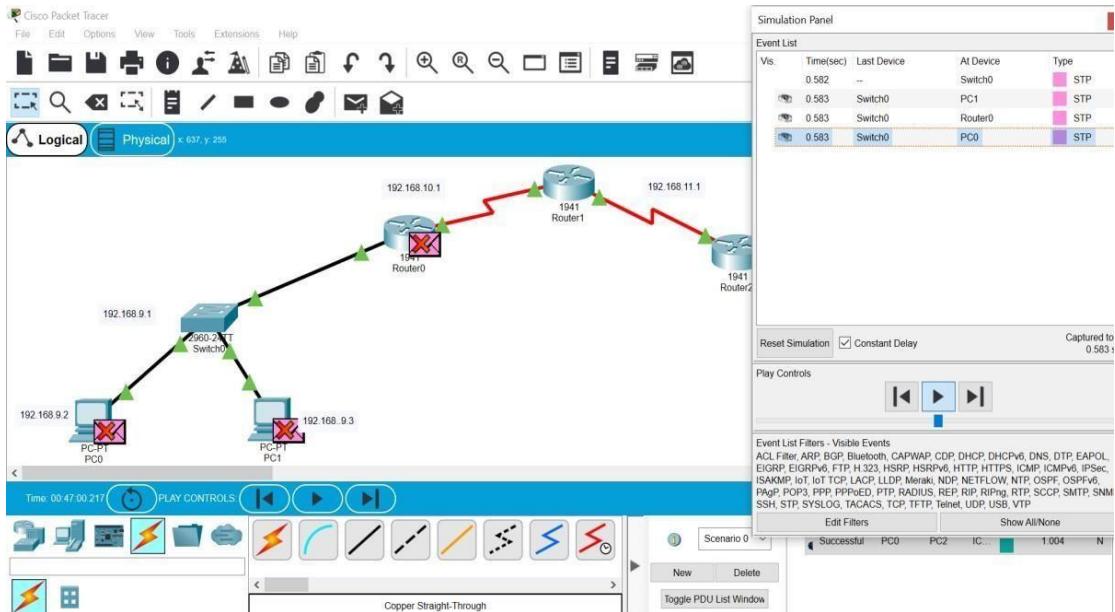
Reply from 192.168.9.2: bytes=32 time=3ms TTL=125
Reply from 192.168.9.2: bytes=32 time=3ms TTL=125
Reply from 192.168.9.2: bytes=32 time=3ms TTL=125
Reply from 192.168.9.2: bytes=32 time=10ms TTL=125

Ping statistics for 192.168.9.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 3ms, Maximum = 10ms, Average = 4ms

C:\>

```

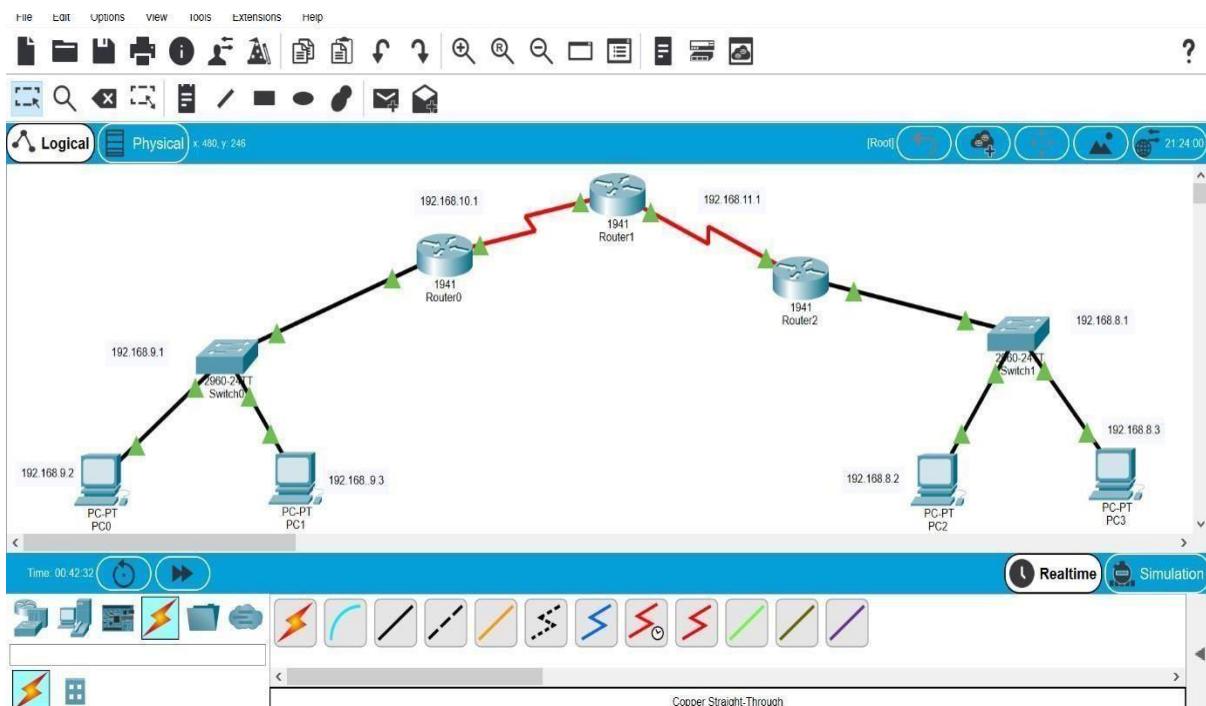
Message successfully delivered:



EXPERIMENT- 8

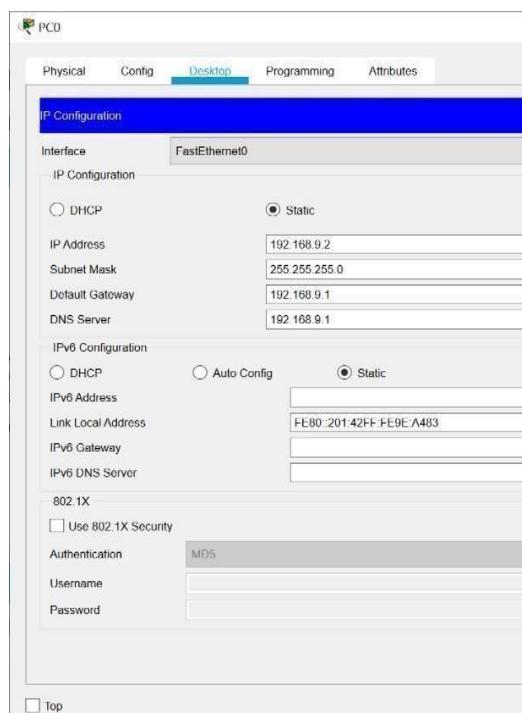
AIM: To study about the configuration of distance vector RIP routing protocol by using Cisco Packet Tracer.

NETWORK TOPOLOGY FOR INTER LAN:

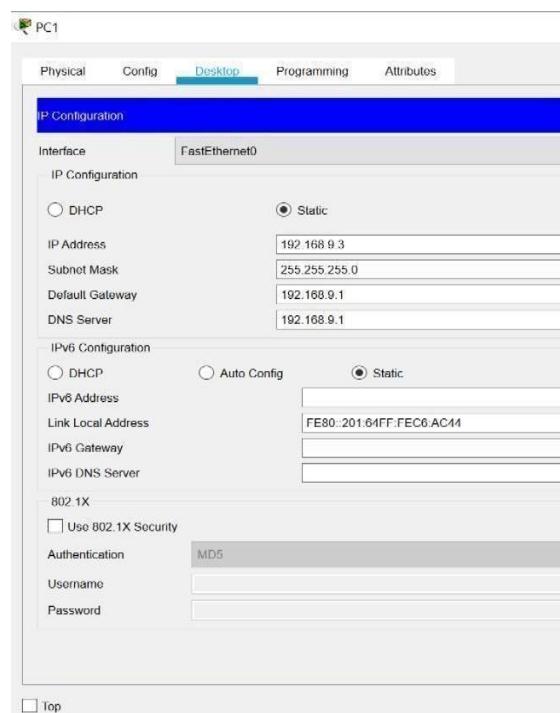


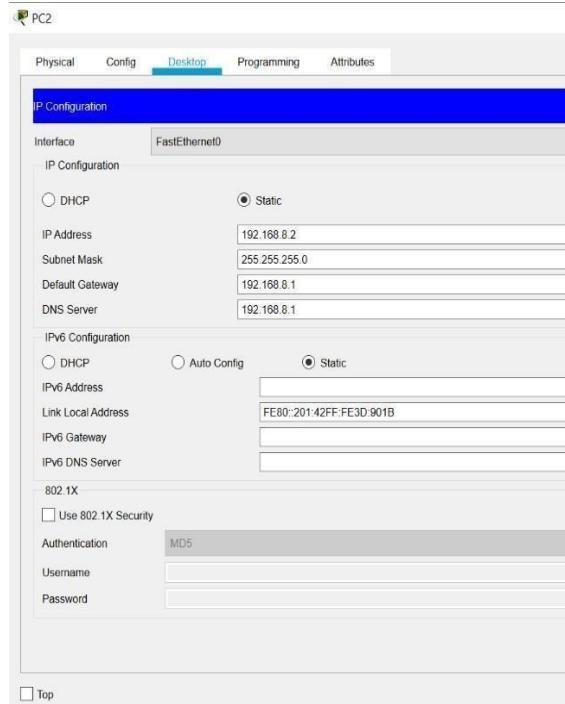
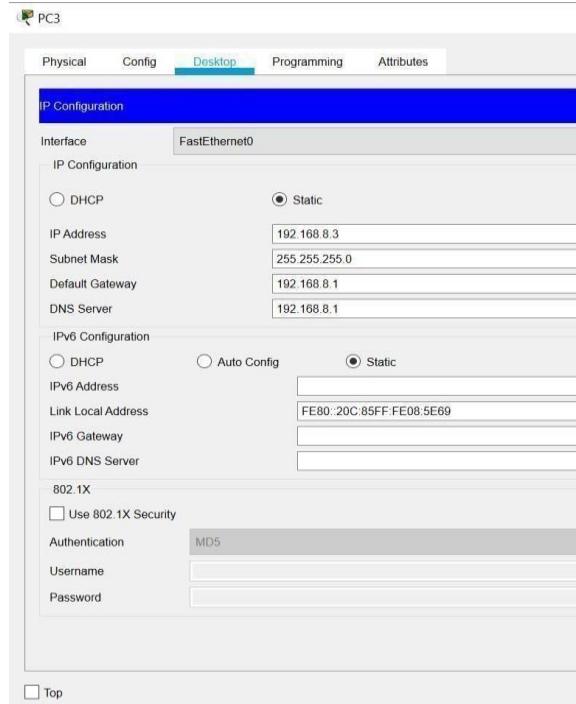
CONFIGURATION OF IP AND SUBNET MASK

AT PC SIDE: PC0:



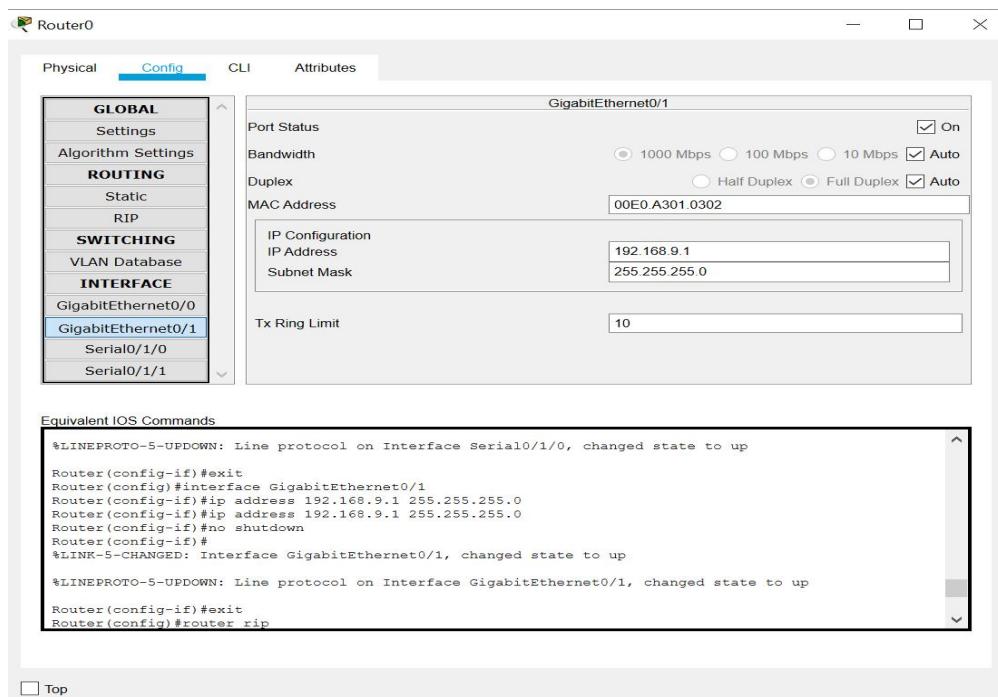
PC1:



PC2:**PC3:**

CONFIGURATION OF IP AND SUBNET MASK AT ROUTER:

Router0 (GigabitEthernet 0/0/1)



Router2 (GigabitEthernet 0/0/1)

The screenshot shows the configuration interface for Router2. The left sidebar lists global and interface settings. The selected interface is GigabitEthernet0/1. The main panel displays configuration for GigabitEthernet0/1, including Port Status (On), Bandwidth (1000 Mbps selected), Duplex (Full Duplex selected), MAC Address (0001.C990.9502), IP Configuration (IP Address 192.168.8.1, Subnet Mask 255.255.255.0), and Tx Ring Limit (10). Below the interface configuration is a section titled "Equivalent IOS Commands" containing the following CLI commands:

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/1, changed state to up
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#ip address 192.168.8.1 255.255.255.0
Router(config-if)#ip address 192.168.8.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up
Router(config-if)#exit
```

Top

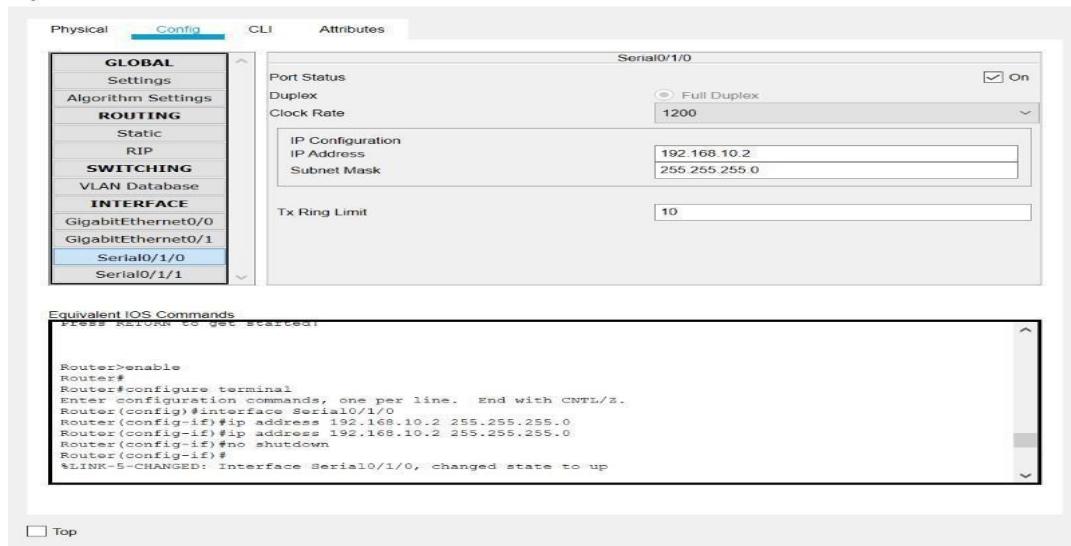
Router0 (Serial 0/1/0):

The screenshot shows the configuration interface for Router0. The left sidebar lists global and interface settings. The selected interface is Serial0/1/0. The main panel displays configuration for Serial0/1/0, including Port Status (On), Duplex (Full Duplex selected), Clock Rate (2000000), IP Configuration (IP Address 192.168.10.1, Subnet Mask 255.255.255.0), and Tx Ring Limit (10). Below the interface configuration is a section titled "Equivalent IOS Commands" containing the following CLI commands:

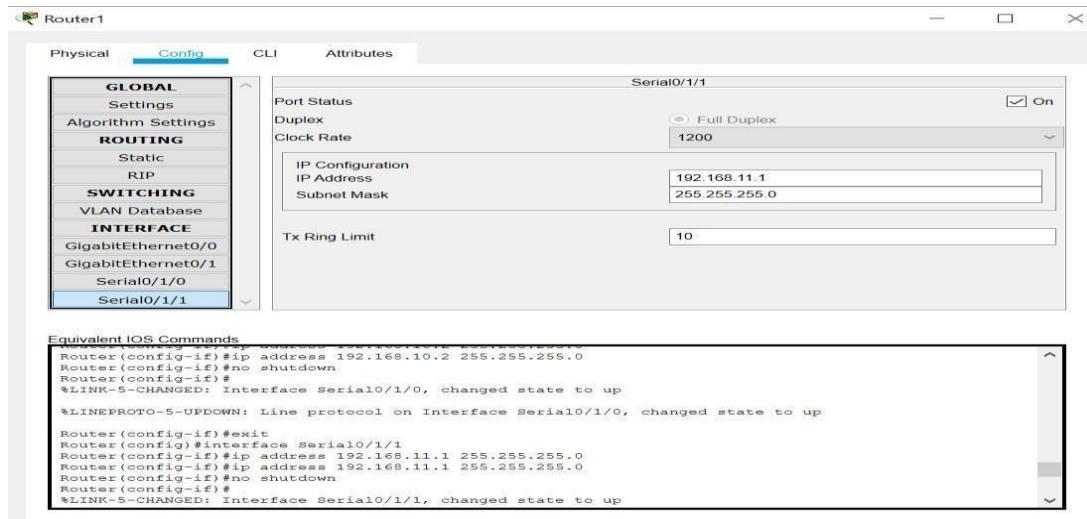
```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Serial0/1/0
Router(config-if)#no ip address
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/0, changed state to up
```

Top

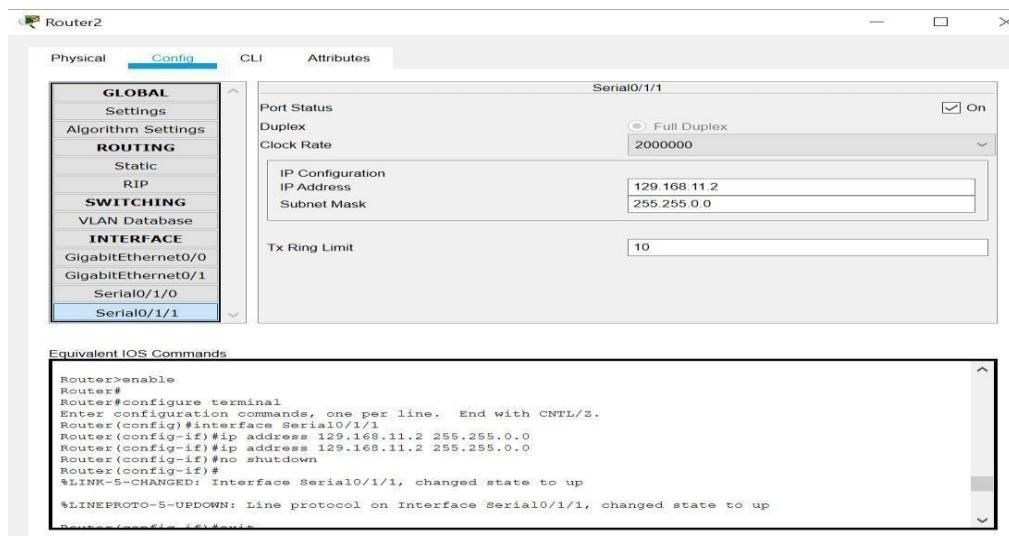
Router1 (Serial 0/1/0):



Router1 (Serial 0/1/1):

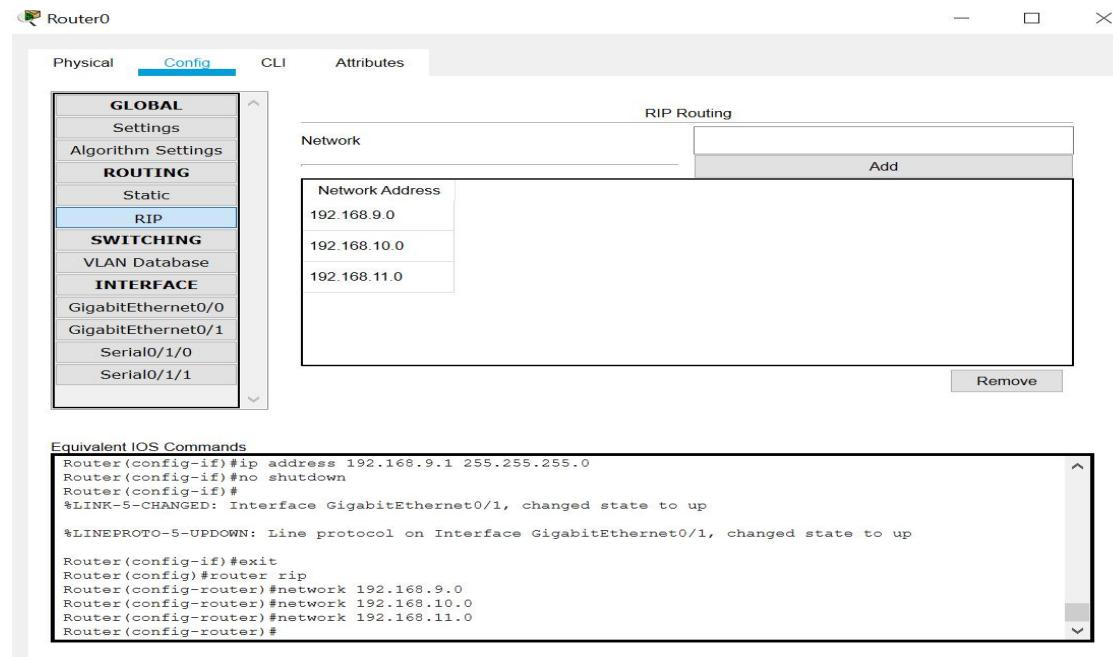


Router2 (Serial 0/1/1):

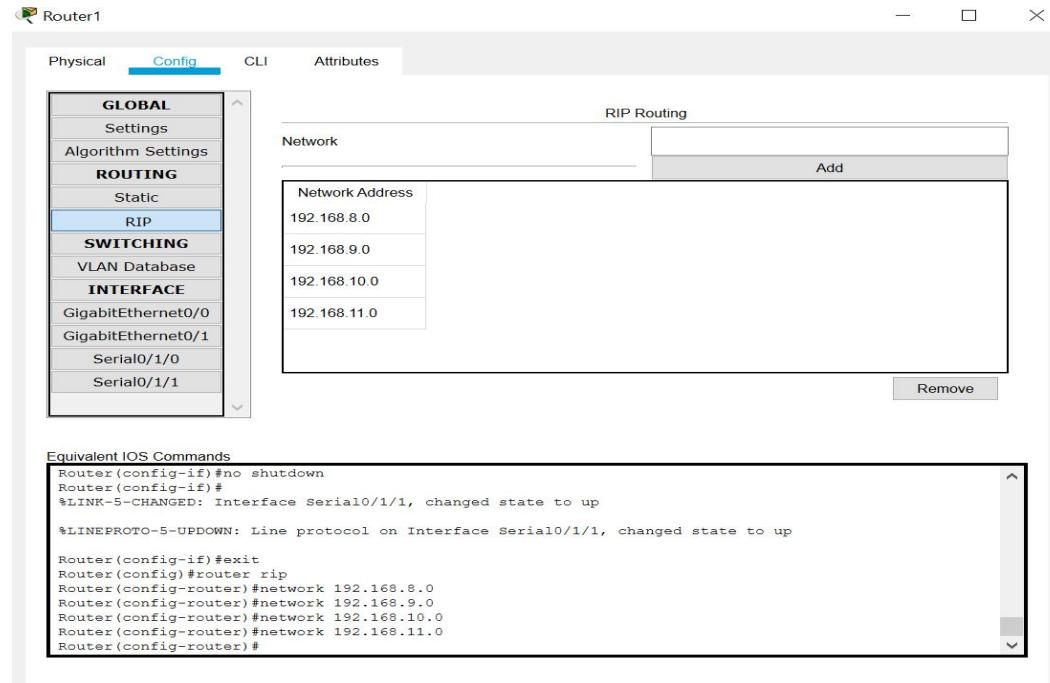


PROCESS OF ADDING RIP (NEIGHBORS'S IP ADDRESS)

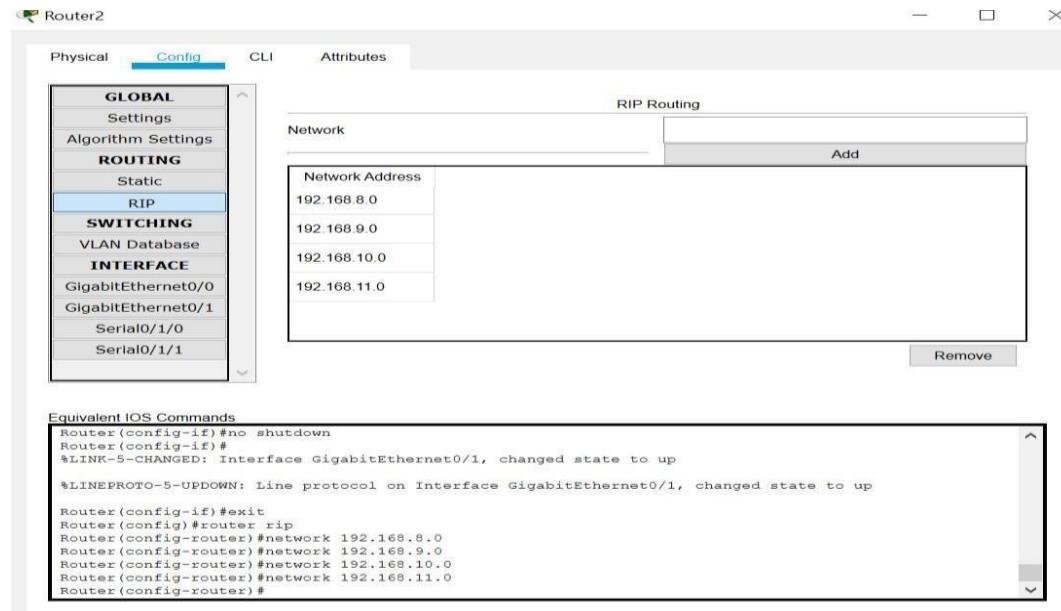
Router0:



Router1:



Router2:



Use of Ping command to confirm the interconnection from PC-0 having IP address 192.168.9.2:

The screenshot shows the PC-0 Command Prompt window. The 'Desktop' tab is selected. The command prompt shows the output of several ping commands to 192.168.8.2 and 192.168.8.2, displaying statistics like round trip times and packet loss.

```

Packet Tracer PC Command Line 1.0
C:\>ping 192.168.8.2

Pinging 192.168.8.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.8.2: bytes=32 time=13ms TTL=125
Reply from 192.168.8.2: bytes=32 time=12ms TTL=125
Reply from 192.168.8.2: bytes=32 time=3ms TTL=125

Ping statistics for 192.168.8.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 3ms, Maximum = 13ms, Average = 9ms

C:\>ping 192.168.8.2

Pinging 192.168.8.2 with 32 bytes of data:

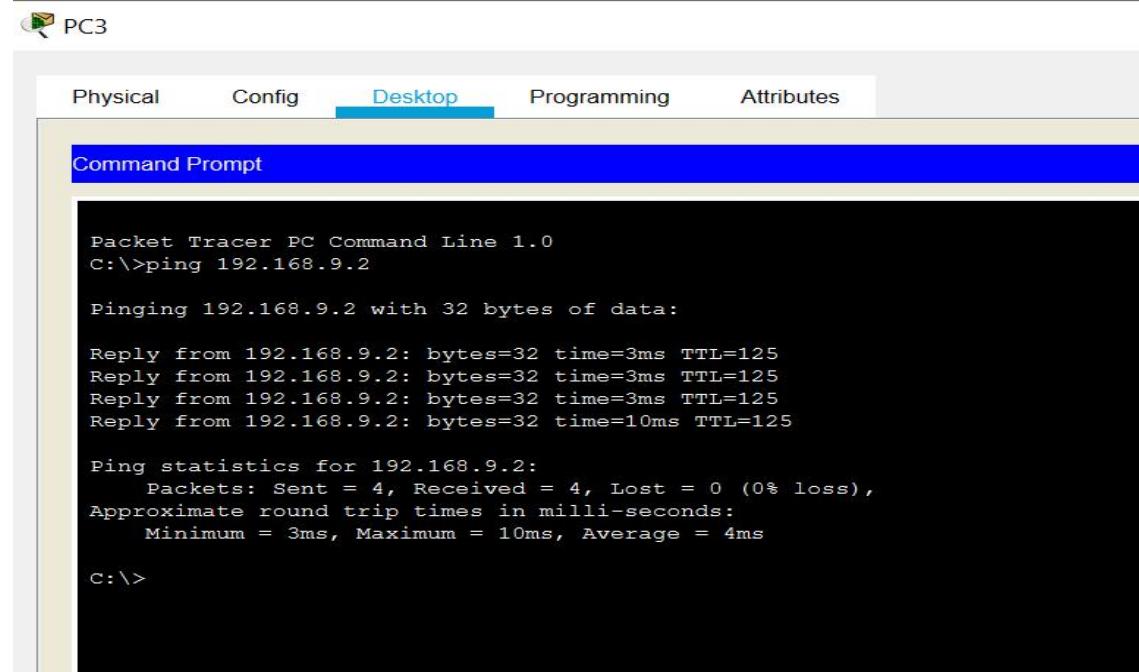
Reply from 192.168.8.2: bytes=32 time=4ms TTL=125
Reply from 192.168.8.2: bytes=32 time=2ms TTL=125
Reply from 192.168.8.2: bytes=32 time=2ms TTL=125
Reply from 192.168.8.2: bytes=32 time=2ms TTL=125

Ping statistics for 192.168.8.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 4ms, Average = 2ms

C:\>

```

Use of Ping command to confirm the interconnection from PC-3 having IP address 192.168.8.3:



PC3

Physical Config Desktop Programming Attributes

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.9.2

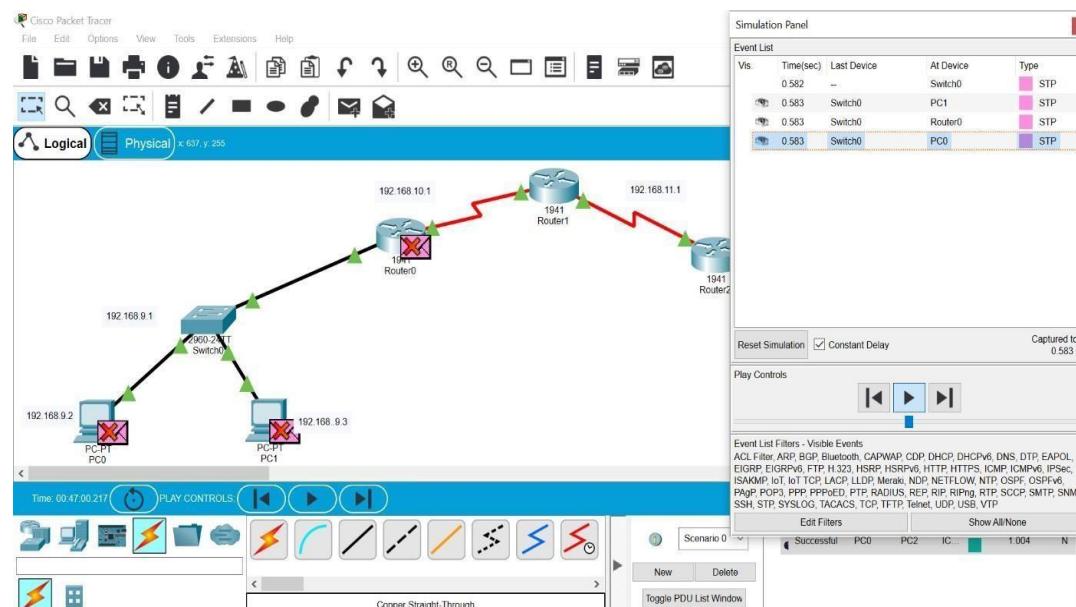
Pinging 192.168.9.2 with 32 bytes of data:

Reply from 192.168.9.2: bytes=32 time=3ms TTL=125
Reply from 192.168.9.2: bytes=32 time=3ms TTL=125
Reply from 192.168.9.2: bytes=32 time=3ms TTL=125
Reply from 192.168.9.2: bytes=32 time=10ms TTL=125

Ping statistics for 192.168.9.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 3ms, Maximum = 10ms, Average = 4ms

C:\>
```

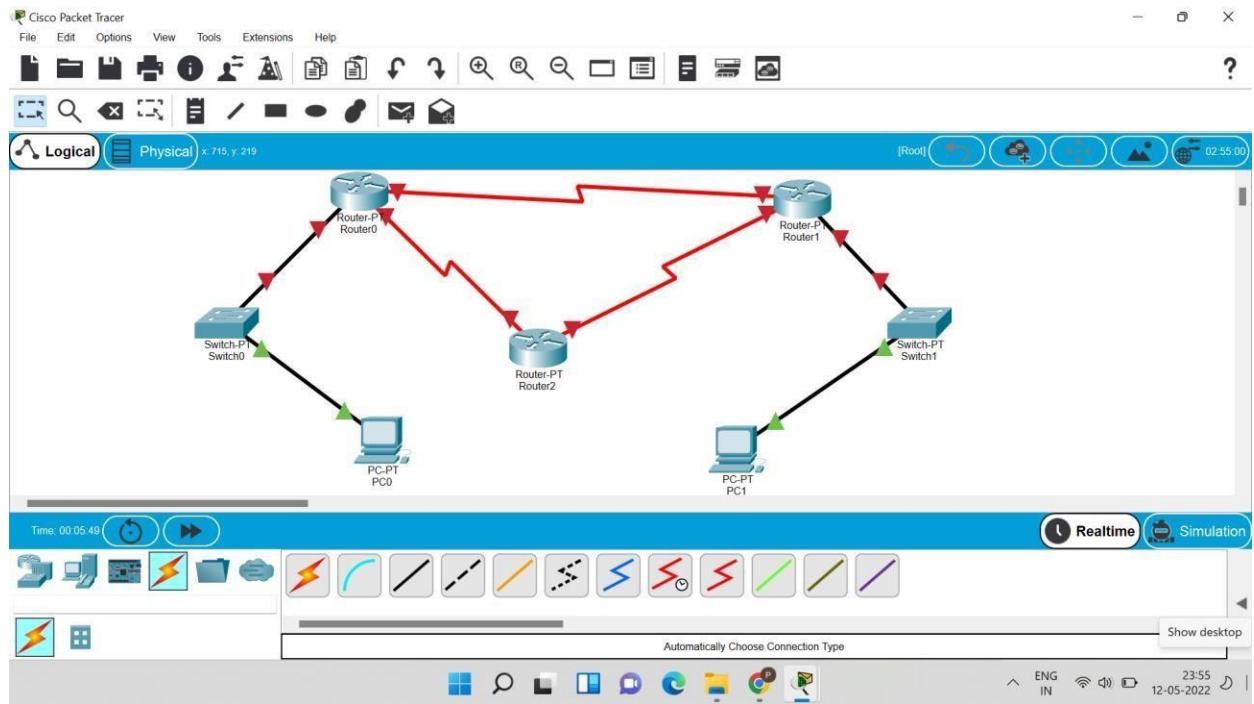
Message Successfully delivered :



Practical-9

AIM: To study about the configuration of link state OSPF routing protocol by using Cisco Packet Tracer.

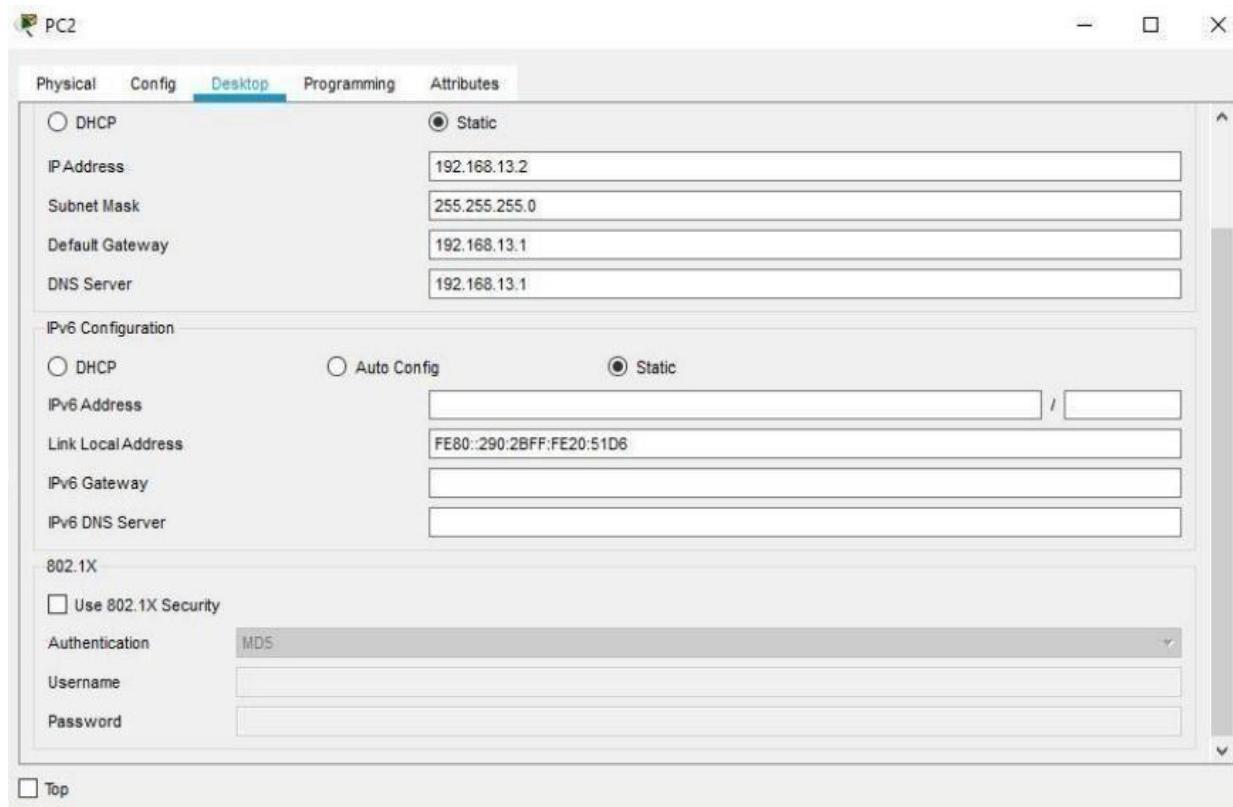
NETWORK TOPOLOGY FOR INTER LAN:



CONFIGURATION OF IP AND SUBNET MASK AT PC: PC-0

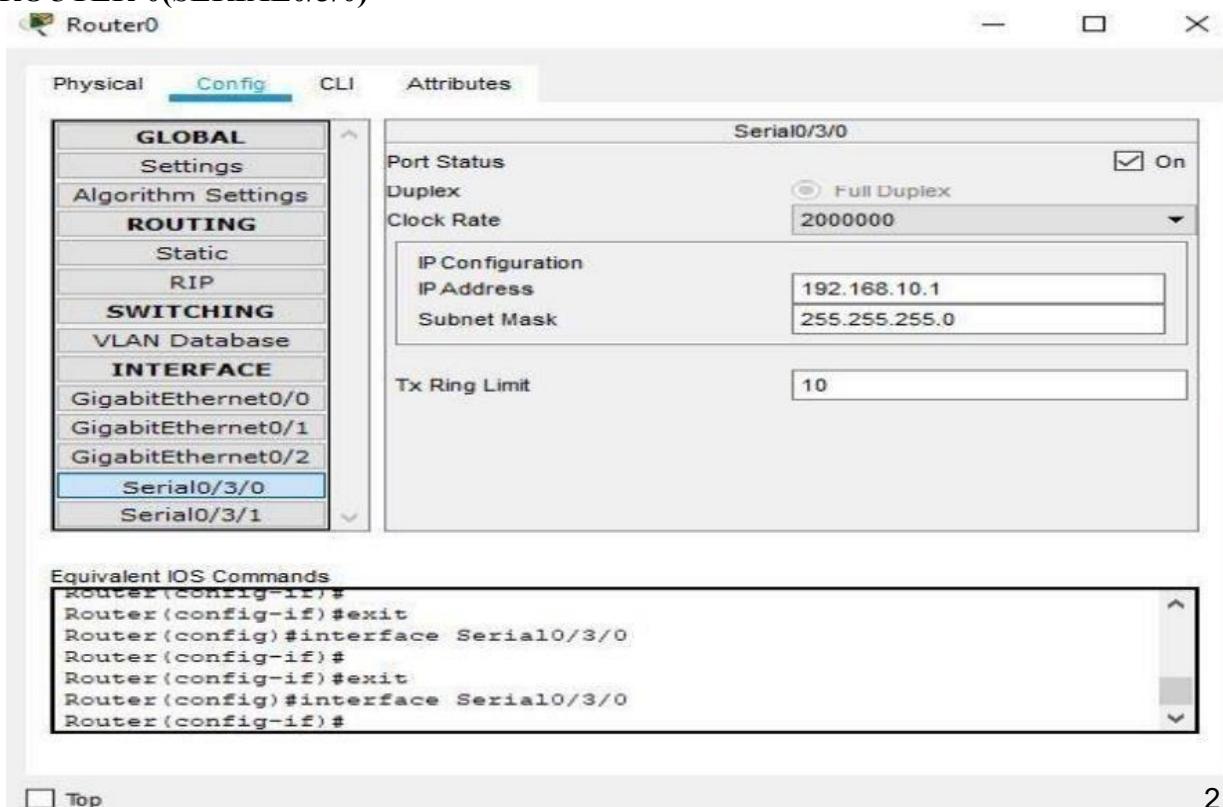
Physical		Config		Desktop	Programming	Attributes
<input type="radio"/> DHCP		<input checked="" type="radio"/> Static				
IP Address		192.168.9.1				
Subnet Mask		255.255.255.0				
Default Gateway		192.168.9.3				
DNS Server		192.168.9.3				
IPv6 Configuration						
<input type="radio"/> DHCP	<input type="radio"/> Auto Config	<input checked="" type="radio"/> Static				
IPv6 Address		/				
Link Local Address		FE80::201:96FF:FEAC:9CD2				
IPv6 Gateway						
IPv6 DNS Server						
802.1X						
<input type="checkbox"/> Use 802.1X Security						
Authentication	MD5					
Username						
Password						

CONFIGURATION OF IP AND SUBNET MASK AT PC: PC-1



CONFIGURATION OF IP AND SUBNET MASK AT ROUTER:

ROUTER-0(SERIAL0/3/0)



ROUTER-0(Gigabit0/0)

Router0

Physical Config CLI Attributes

GIGABITETHERNET0/0

Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 1000 Mbps <input type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	0090.2BA5.E401
IP Configuration	
IP Address	192.168.9.3
Subnet Mask	255.255.255.0
Tx Ring Limit	10

Equivalent IOS Commands

```
Router(config-if)#  
Router(config-if)#exit  
Router(config)#interface Serial0/3/0  
Router(config-if)#  
Router(config-if)#exit  
Router(config)#interface GigabitEthernet0/0  
Router(config-if)#{
```

Top

ROUTER-1(SERIAL 3/0)

Router1

Physical Config CLI Attributes

SERIAL0/3/0

Port Status	<input checked="" type="checkbox"/> On
Duplex	<input checked="" type="radio"/> Full Duplex
Clock Rate	2000000
IP Configuration	
IP Address	192.168.10.2
Subnet Mask	255.255.255.0
Tx Ring Limit	10

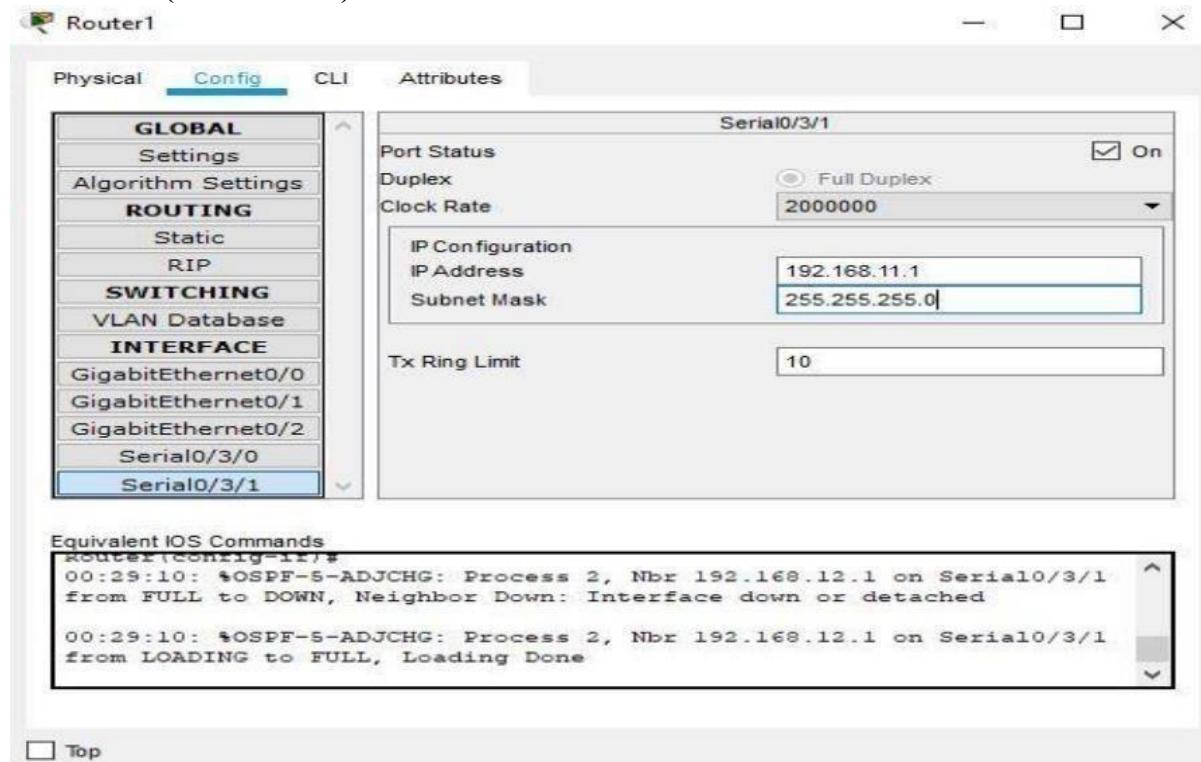
Equivalent IOS Commands

```
Router#configure terminal  
Enter configuration commands, one per line. End with CNTL/Z.  
Router(config)#interface GigabitEthernet0/0  
Router(config-if)#  
Router(config-if)#exit  
Router(config)#interface Serial0/3/0  
Router(config-if)#{
```

Top

CONFIGURATION OF ROUTER:

ROUTER-1(SERIAL 3/1)

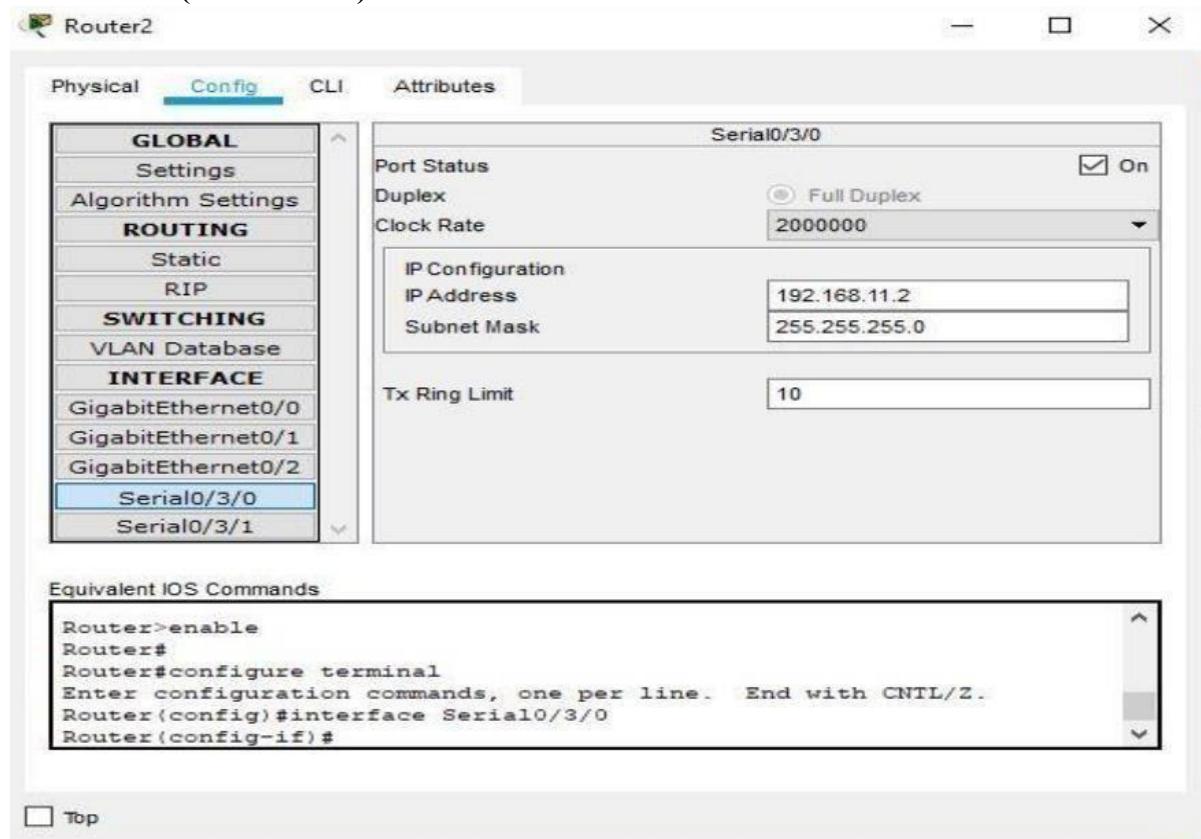


The configuration window for Router1 shows the 'Config' tab selected. The left sidebar lists global settings, algorithm, routing (selected), static, RIP, switching, VLAN database, and interfaces (GigabitEthernet0/0, GigabitEthernet0/1, GigabitEthernet0/2, Serial0/3/0, Serial0/3/1). The main panel displays settings for Serial0/3/1, including Port Status (On, Full Duplex), Clock Rate (2000000), IP Configuration (IP Address 192.168.11.1, Subnet Mask 255.255.255.0), and Tx Ring Limit (10). Below the interface panel is a section titled 'Equivalent IOS Commands' containing the following output:

```
Router1(CONFIG-INTF)#  
00:29:10: %OSPF-5-ADJCHG: Process 2, Nbr 192.168.12.1 on Serial0/3/1  
from FULL to DOWN, Neighbor Down: Interface down or detached  
  
00:29:10: %OSPF-5-ADJCHG: Process 2, Nbr 192.168.12.1 on Serial0/3/1  
from LOADING to FULL, Loading Done
```

Top

ROUTER-2(SERIAL 3/0)



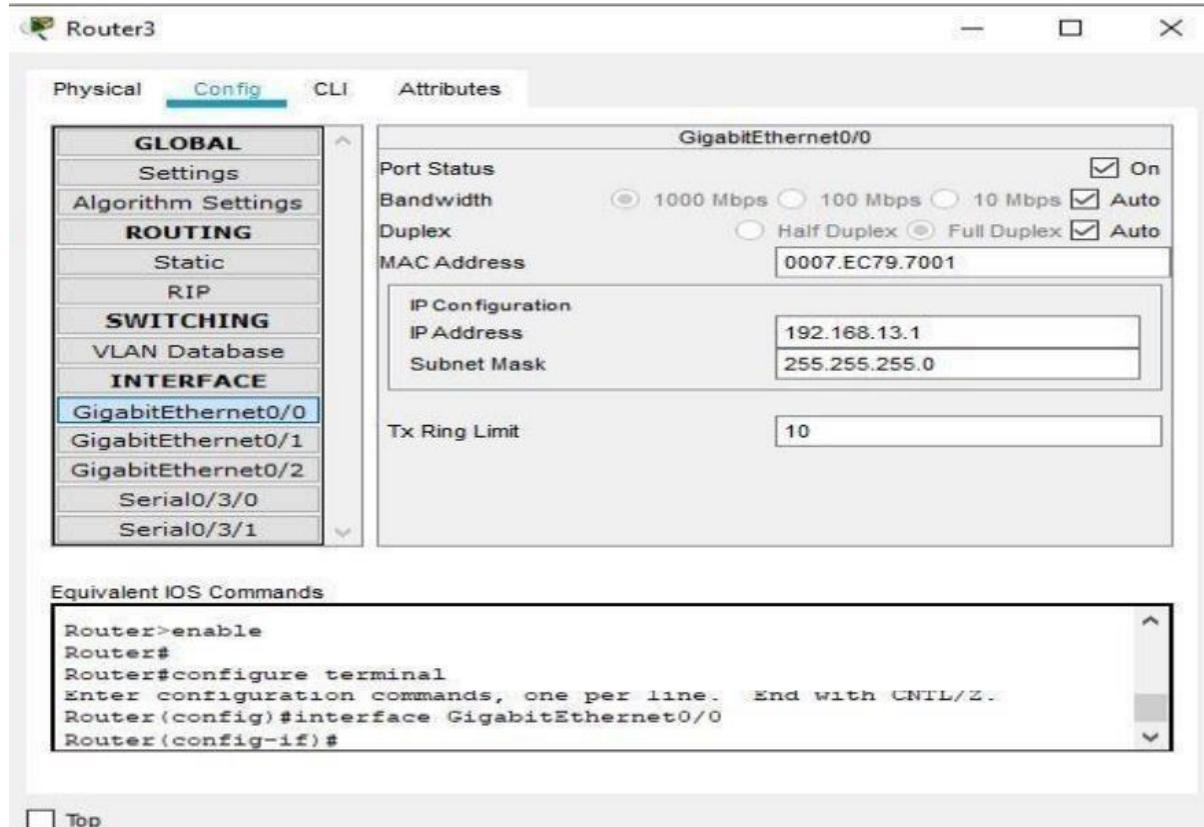
The configuration window for Router2 shows the 'Config' tab selected. The left sidebar lists global settings, algorithm, routing (selected), static, RIP, switching, VLAN database, and interfaces (GigabitEthernet0/0, GigabitEthernet0/1, GigabitEthernet0/2, Serial0/3/0, Serial0/3/1). The main panel displays settings for Serial0/3/0, including Port Status (On, Full Duplex), Clock Rate (2000000), IP Configuration (IP Address 192.168.11.2, Subnet Mask 255.255.255.0), and Tx Ring Limit (10). Below the interface panel is a section titled 'Equivalent IOS Commands' containing the following output:

```
Router>enable  
Router#  
Router#configure terminal  
Enter configuration commands, one per line. End with CNTL/Z.  
Router(config)#interface Serial0/3/0  
Router(config-if)#
```

Top

CONFIGURATION OF ROUTERS:

ROUTER 3(GIGABIT0/0)

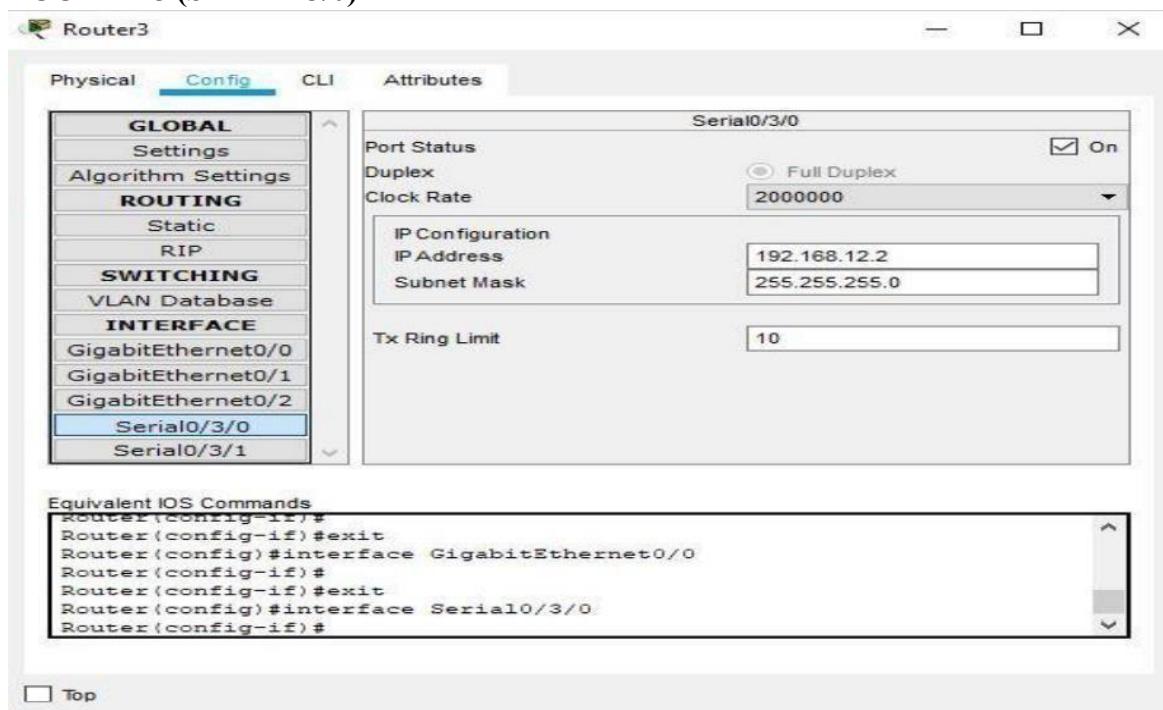


The screenshot shows the configuration interface for Router3. The left sidebar lists various global and interface settings. The main panel shows the configuration for GigabitEthernet0/0, including port status (On), bandwidth (1000 Mbps selected), duplex (Full Duplex selected), MAC address (0007.EC79.7001), IP configuration (IP Address: 192.168.13.1, Subnet Mask: 255.255.255.0), and Tx Ring Limit (10). Below the configuration pane is a section titled "Equivalent IOS Commands" containing the following CLI commands:

```
Router>enable  
Router#  
Router#configure terminal  
Enter configuration commands, one per line. End with CNTL/Z.  
Router(config)#interface GigabitEthernet0/0  
Router(config-if)#
```

Top

ROUTER-3 (SERIAL3/0)



The screenshot shows the configuration interface for Router3. The left sidebar lists various global and interface settings. The main panel shows the configuration for Serial0/3/0, including port status (On), duplex (Full Duplex selected), clock rate (2000000), IP configuration (IP Address: 192.168.12.2, Subnet Mask: 255.255.255.0), and Tx Ring Limit (10). Below the configuration pane is a section titled "Equivalent IOS Commands" containing the following CLI commands:

```
Router#config-1#  
Router(config-if)#exit  
Router(config)#interface GigabitEthernet0/0  
Router(config-if)#  
Router(config-if)#exit  
Router(config)#interface Serial0/3/0  
Router(config-if)#
```

Top

CLI CONFIGURATION:

The screenshot shows a window titled "Router0" with a tab bar containing "Physical", "Config", "CLI" (which is selected), and "Attributes". Below the tabs is a title "IOS Command Line Interface". The main area contains the following CLI session output:

```
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#Network 192.168.9.0 0.0.0.255 Area 1
Router(config-router)#Network 192.168.10.0 0.0.0.255 Area 1
Router(config-router)#config save
*Invalid hex value
Router(config)NNetwork 192.168.9.0 0.0.0.255 Area 1Network
192.168.9.0 0.0.0.255 Area 1
Router(config-router)Network 192.168.10.0 0.0.0.255 Area 1Network
192.168.10.0 0.0.0.255 Area 1Network 192.168.9.0 0.0.0.255 Area 1
*InvalidNNetwork 192.168.9.0 0.0.0.255 Area 1Network 192.168.9.0 0.0.0.255 Area 1
Router(config-router)#
Router(config-router)#end
Router#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Router#
*SYS-5-CONFIG_I: Configured from console by console

Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
```

At the bottom left is the text "Ctrl+F6 to exit CLI focus". On the right are "Copy" and "Paste" buttons. A "Top" button is located at the bottom left of the window.

PINGING:

The screenshot shows a "Command Prompt" window with the following output:

```
Reply from 192.168.9.1: bytes=32 time=lms TTL=255
Reply from 192.168.9.1: bytes=32 time<lms TTL=255

Ping statistics for 192.168.9.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 1ms

C:\>ping 192.168.9.0

Pinging 192.168.9.0 with 32 bytes of data:

Reply from 192.168.9.1: bytes=32 time<lms TTL=255
Reply from 192.168.9.3: bytes=32 time<lms TTL=128
Reply from 192.168.9.3: bytes=32 time<lms TTL=128
Reply from 192.168.9.1: bytes=32 time=lms TTL=255
Reply from 192.168.9.3: bytes=32 time<lms TTL=128
Reply from 192.168.9.1: bytes=32 time=lms TTL=255
Reply from 192.168.9.3: bytes=32 time<lms TTL=128
Reply from 192.168.9.1: bytes=32 time<lms TTL=255

Ping statistics for 192.168.9.0:
    Packets: Sent = 4, Received = 8, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

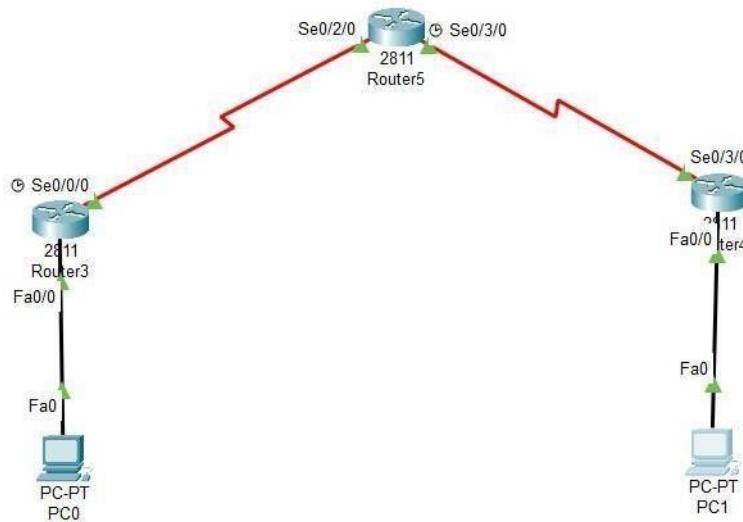
C:\>
```

Practical-10

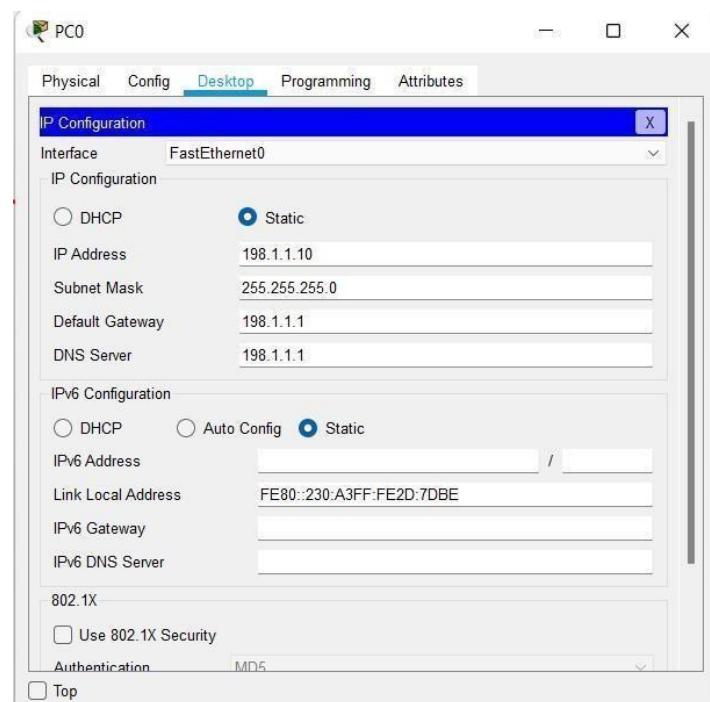
Aim: To study about the configuration of link state EIGRP routing protocol by using Cisco Packet Tracer.

NETWORK TOPOLOGY FOR INTER LAN:

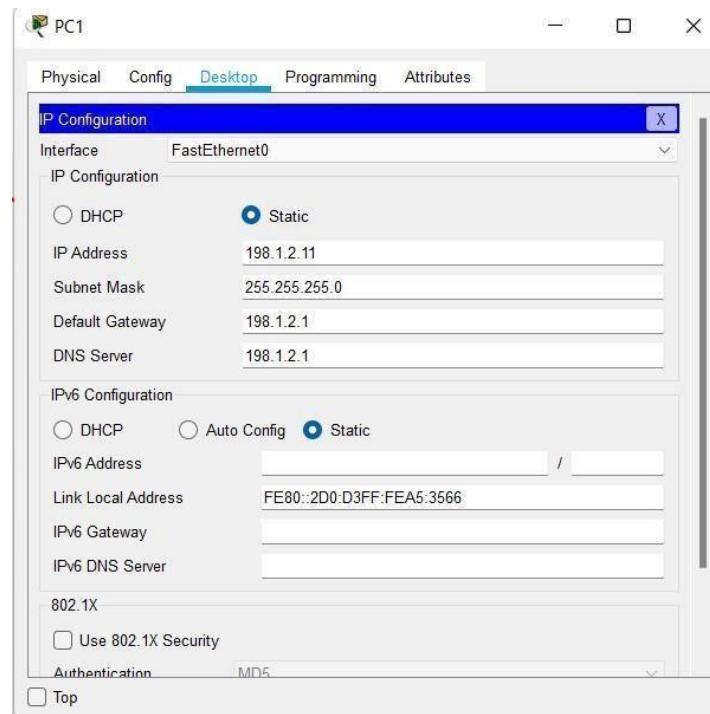
We take three 2811 routers Router3, Router5 & Router4 and two PCs PC0 & PC1. We connect PC0 to Router3 and PC1 to Router4, using copper straight through wires. Then we connect Router3 to Router5 and Router5 to Router4 using serial DCE wires.



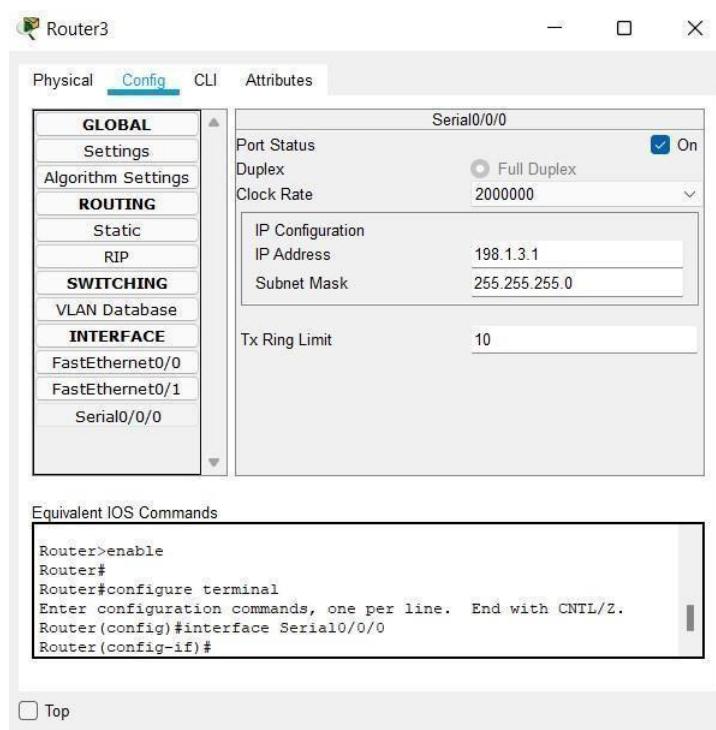
Configuration of PC0:



Configuration of PC1:

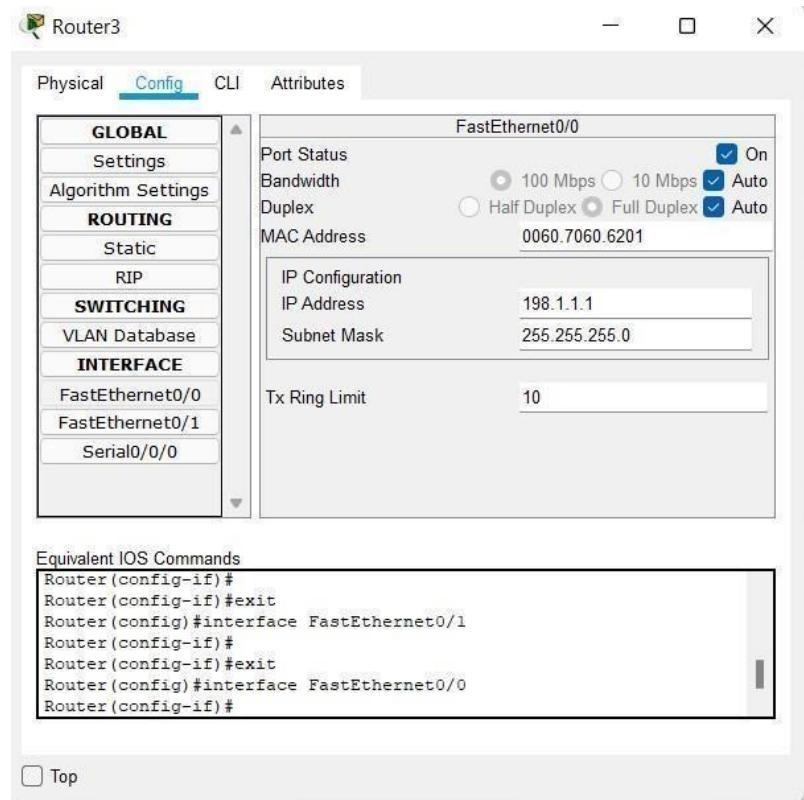


Configuration of Router 3 (Serial 0/0/0):

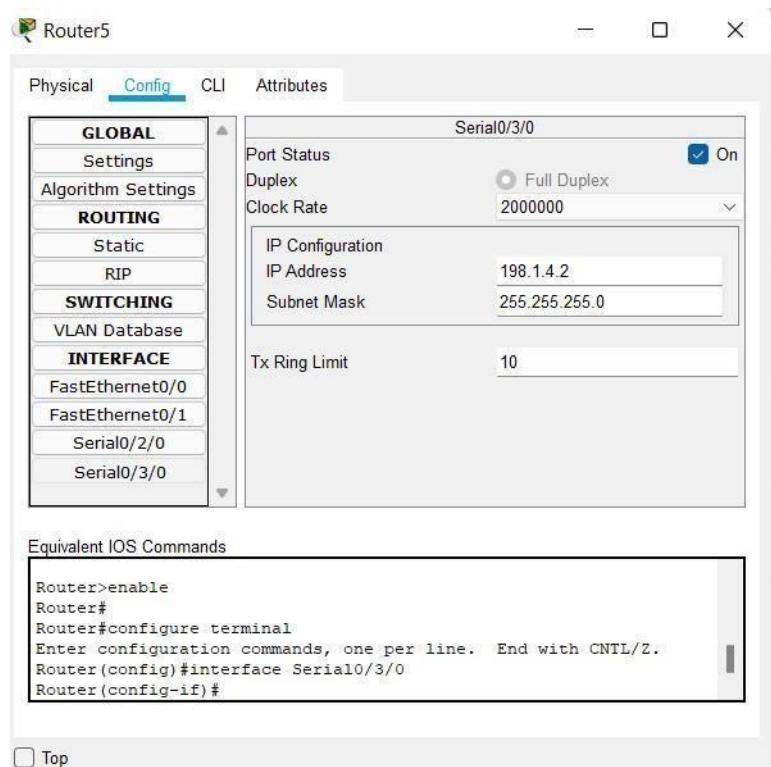


3 (FastEthernet 0/0):

Configuration of Router

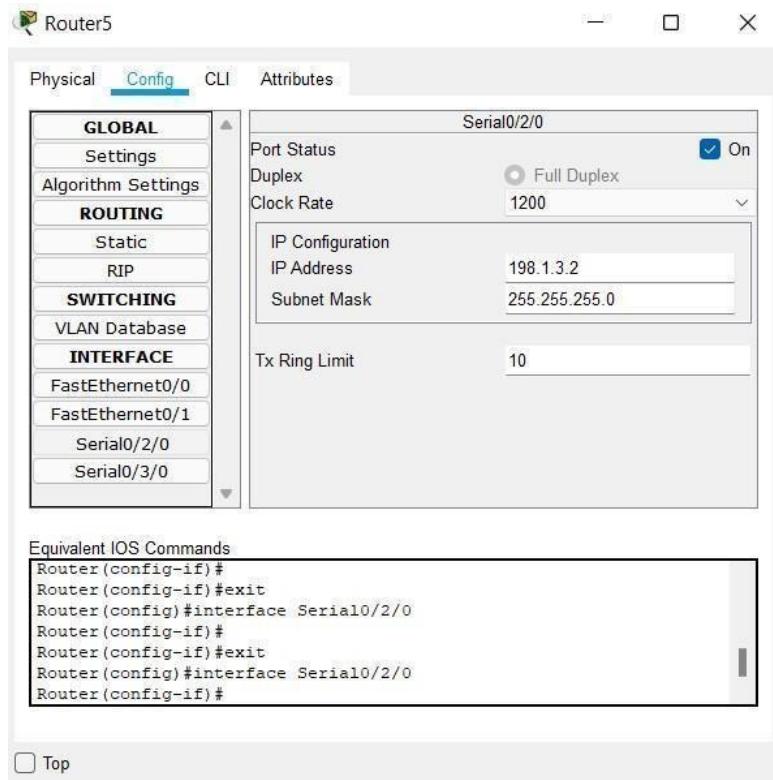


Configuration of Router 5 (Serial 0/3/0):



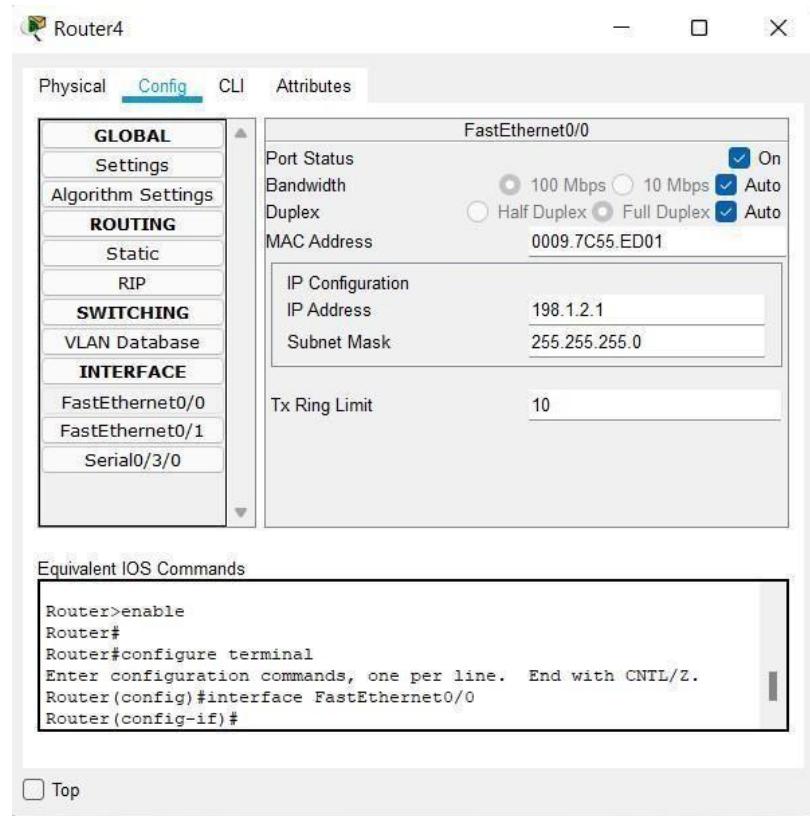
Configuration of Router

5 (Serial 0/2/0):



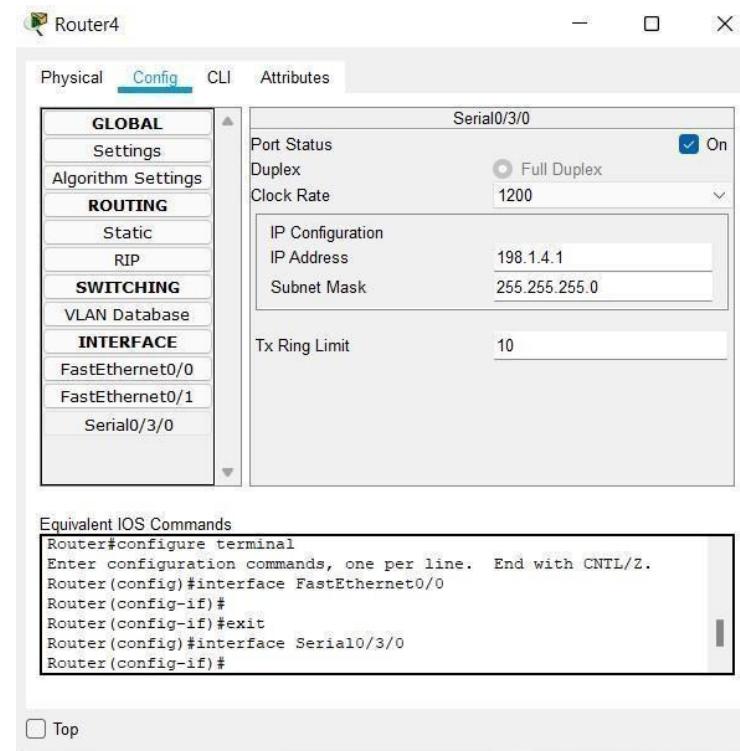
Configuration of Router 4 (FastEthernet 0/0):

Configuration of Router



Top

4 (Serial 0/3/0):



Top

Router3 CLI configuration:

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up  
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up  
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up  
Router(config-if)#exit  
Router(config)#interface Serial0/0/0  
Router(config-if)#ip address 198.1.3.1 255.255.255.0  
Router(config-if)#ip address 198.1.3.1 255.255.255.0  
Router(config-if)#  
Router(config-if)#exit  
Router(config)#interface Serial0/0/0  
Router(config-if)#  
Router(config-if)#exit  
Router(config)#router eigrp 5  
Router(config-router)#network 198.1.1.0  
Router(config-router)#network 198.1.3.0  
Router(config-router)#end  
Router#  
%SYS-5-CONFIG_I: Configured from console by console
```

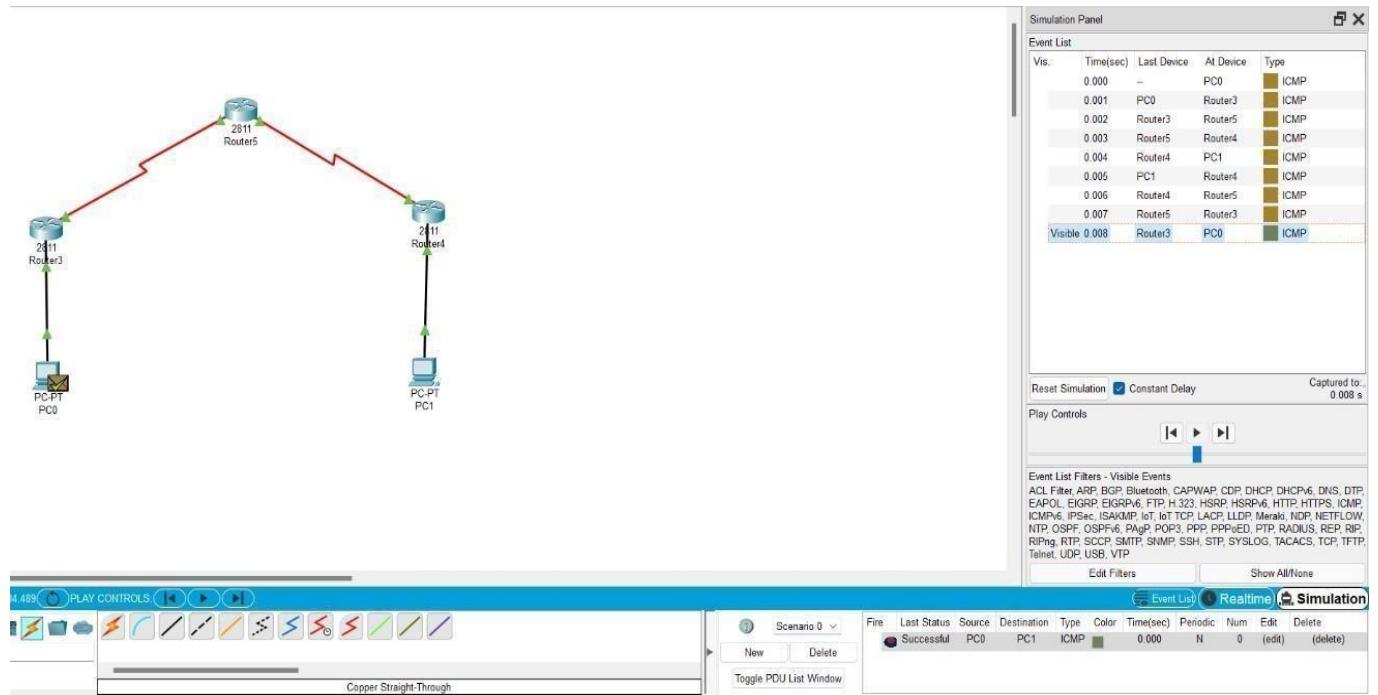
Similarly, the CLI of Router5 & Router4 are configured.

TERMINAL OUTPUT:

```
C:\>ping 198.1.2.11  
Pinging 198.1.2.11 with 32 bytes of data:  
Reply from 198.1.2.11: bytes=32 time=3ms TTL=125  
Reply from 198.1.2.11: bytes=32 time=4ms TTL=125  
Reply from 198.1.2.11: bytes=32 time=6ms TTL=125  
Reply from 198.1.2.11: bytes=32 time=3ms TTL=125  
  
Ping statistics for 198.1.2.11:  
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  
    Approximate round trip times in milli-seconds:  
        Minimum = 3ms, Maximum = 6ms, Average = 4ms  
  
C:\>  
C:\>  
C:\>  
C:\>  
C:\>  
C:\>  
C:\>  
C:\>  
C:\>  
C:\>
```

Configuration of Router

Sending message from PC0 to PC1:



The tick mark on PC0 shows that message is sent successfully.