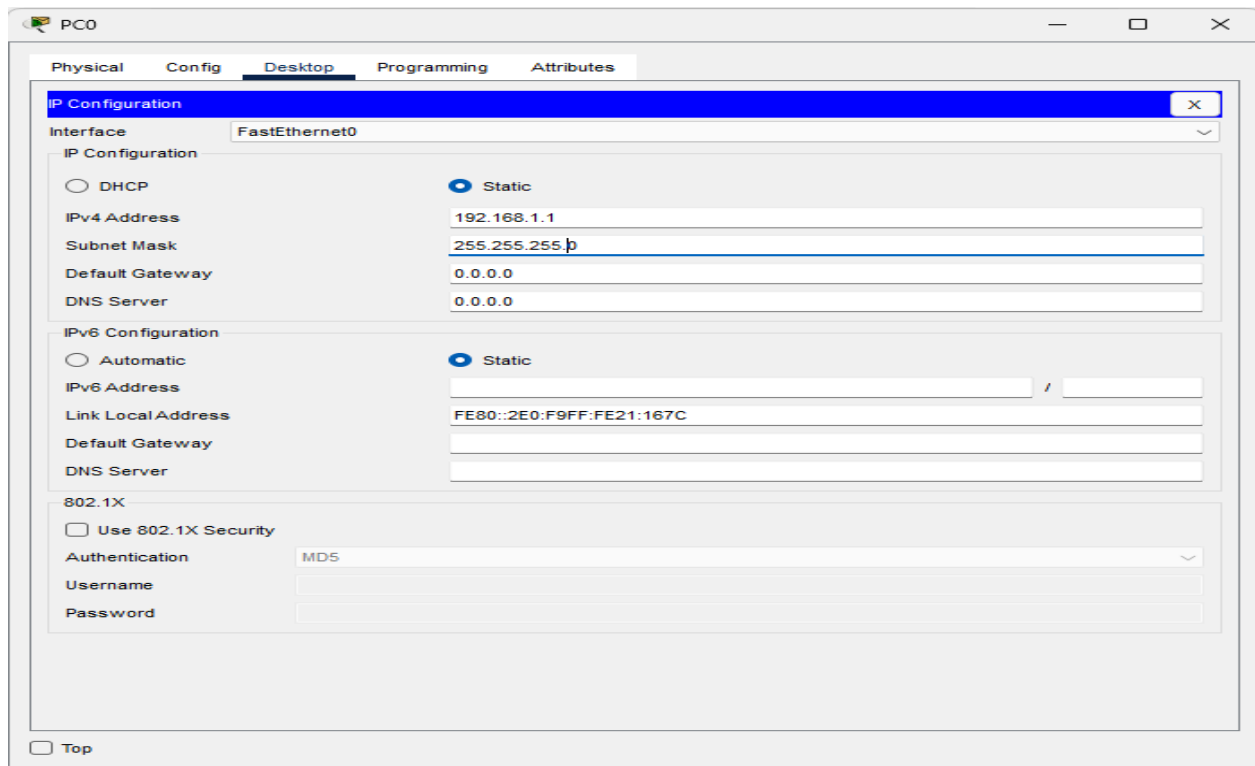
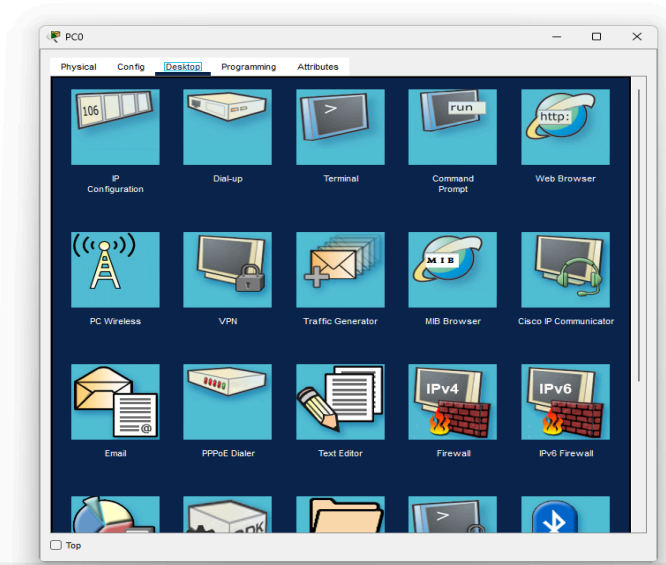
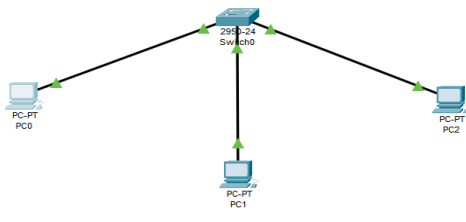
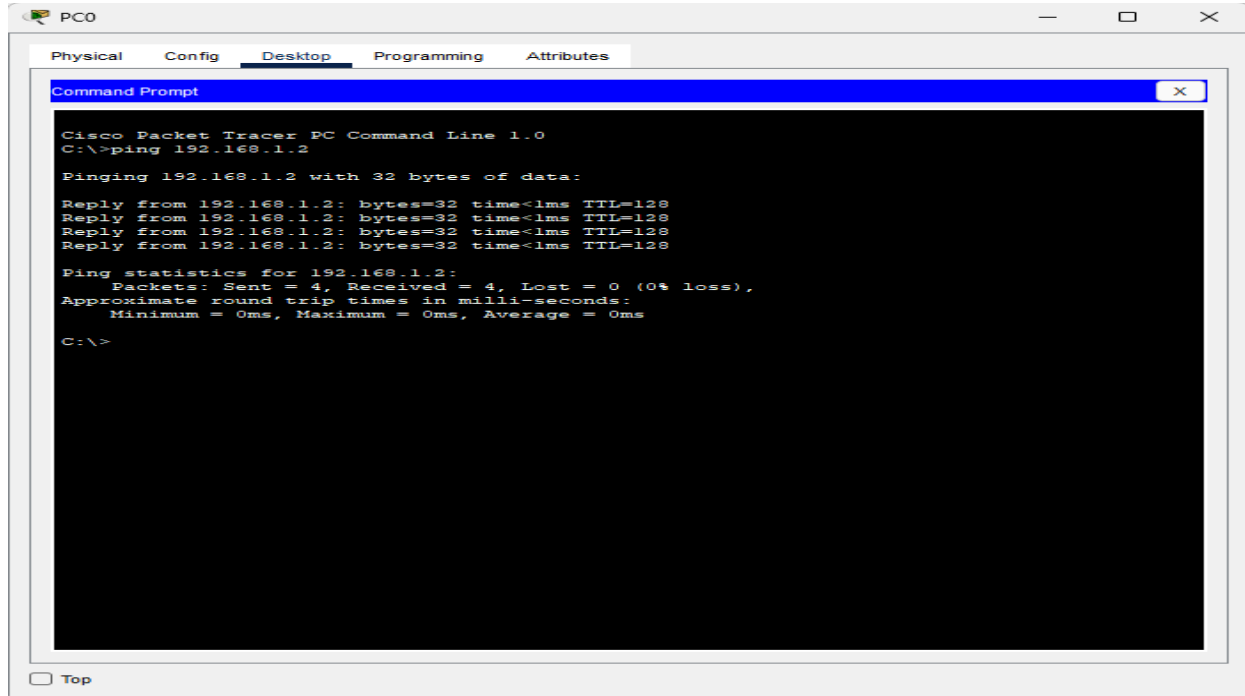


# To analyse the performance of various configuration and protocols in LAN

Assign IP to each machine:



Ping to check connectivity:



The screenshot shows a Cisco Packet Tracer PC Command Line window for a device named PC0. The window has tabs for Physical, Config, Desktop, Programming, and Attributes, with Desktop selected. The command prompt shows the command 'ping 192.168.1.2' being executed. The output indicates that the ping was successful, with 4 packets sent, 4 received, and 0% loss. The round trip times are all 0ms.

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

Pinging 192.168.1.2 with 32 bytes of data:

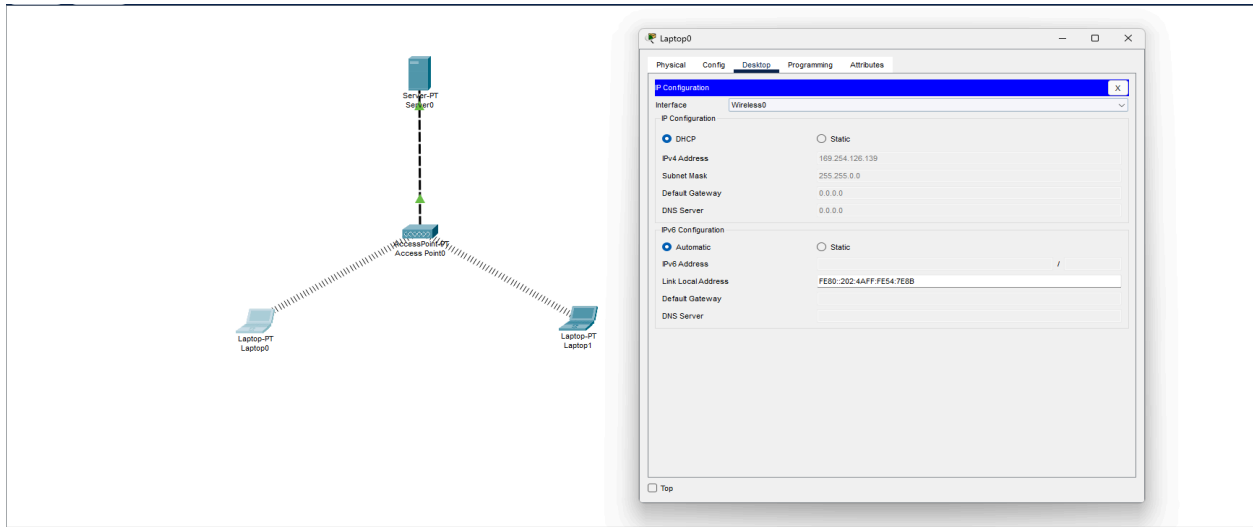
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128

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

C:\>
```

# Configuration of wireless LAN

Wireless connection:



Ping to check wireless connectivity:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>

ping 169.254.226.105

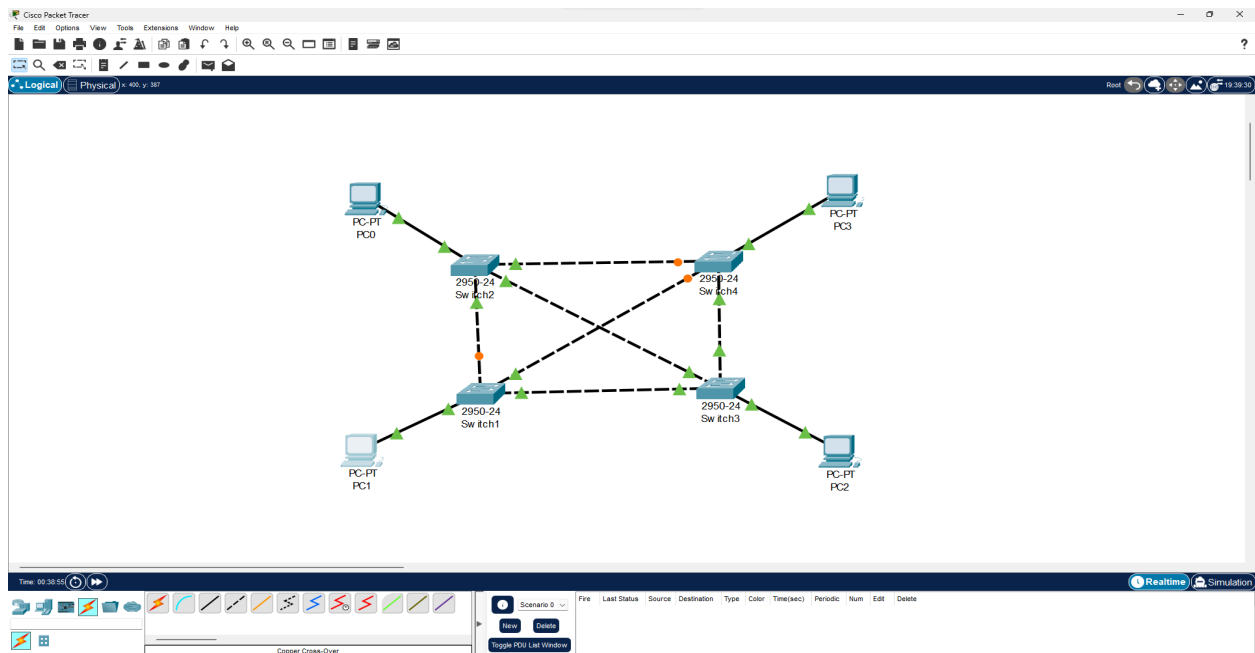
Pinging 169.254.226.105 with 32 bytes of data:

Reply from 169.254.226.105: bytes=32 time=36ms TTL=128
Reply from 169.254.226.105: bytes=32 time=22ms TTL=128
Reply from 169.254.226.105: bytes=32 time=21ms TTL=128
Reply from 169.254.226.105: bytes=32 time=16ms TTL=128

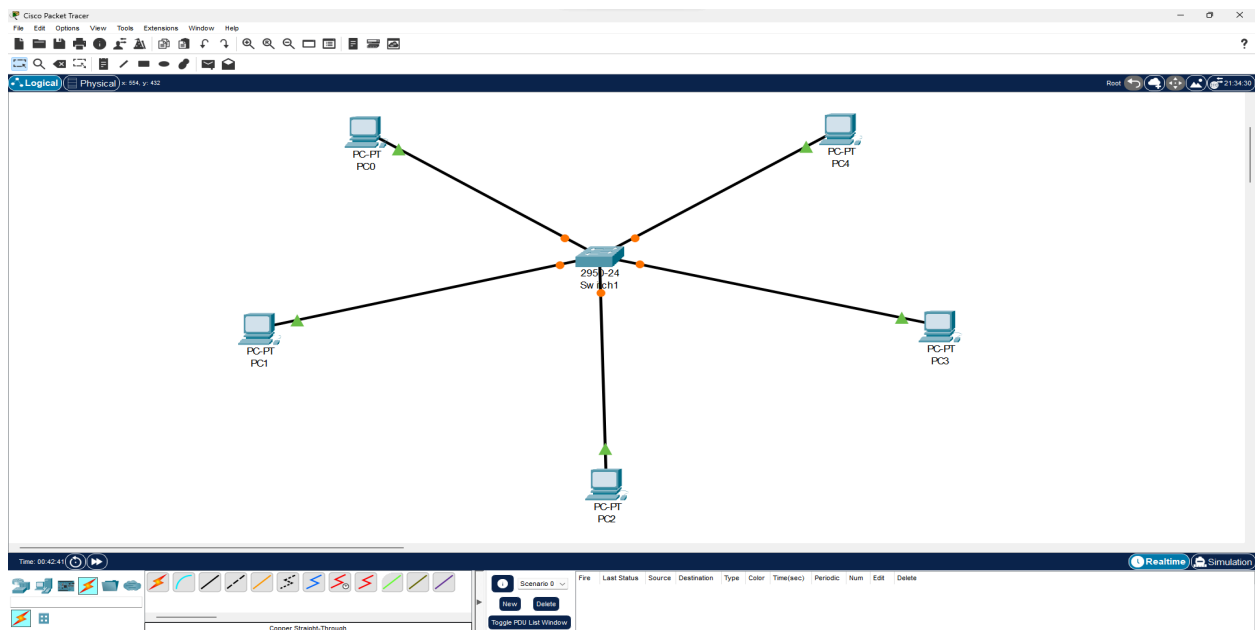
Ping statistics for 169.254.226.105:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 16ms, Maximum = 36ms, Average = 23ms
C:\>
```

# Study of different network topologies using Cisco Packet Tracer

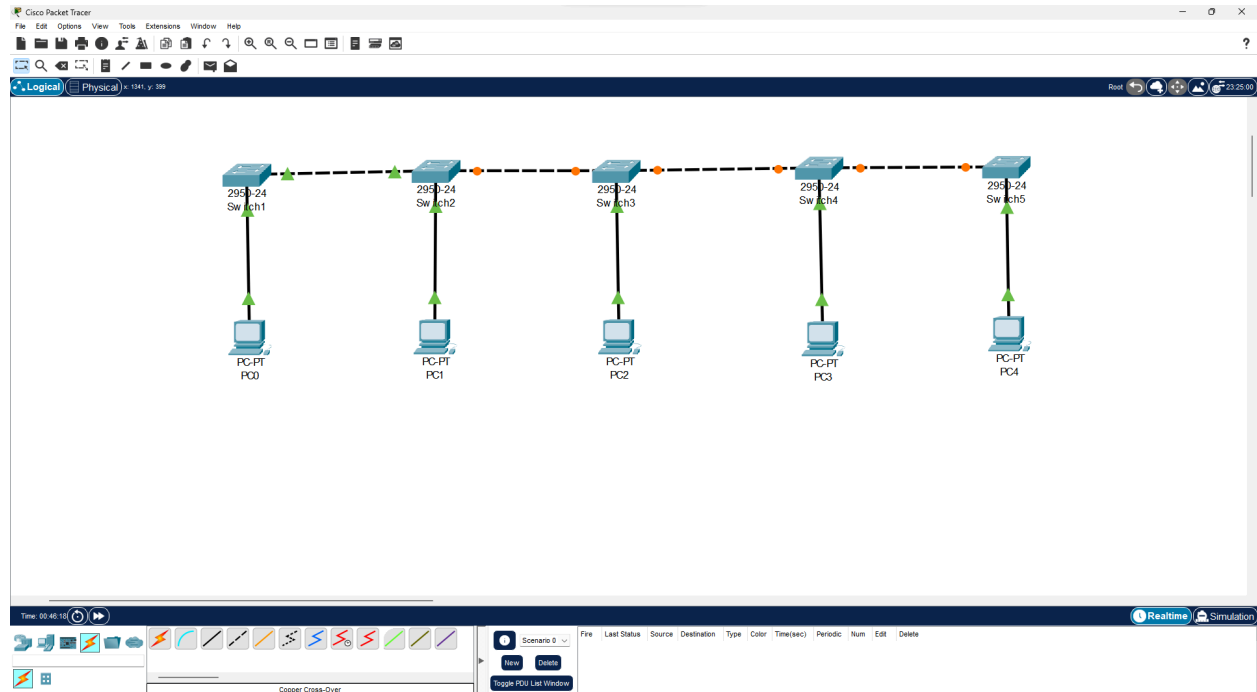
## Mesh Topology:



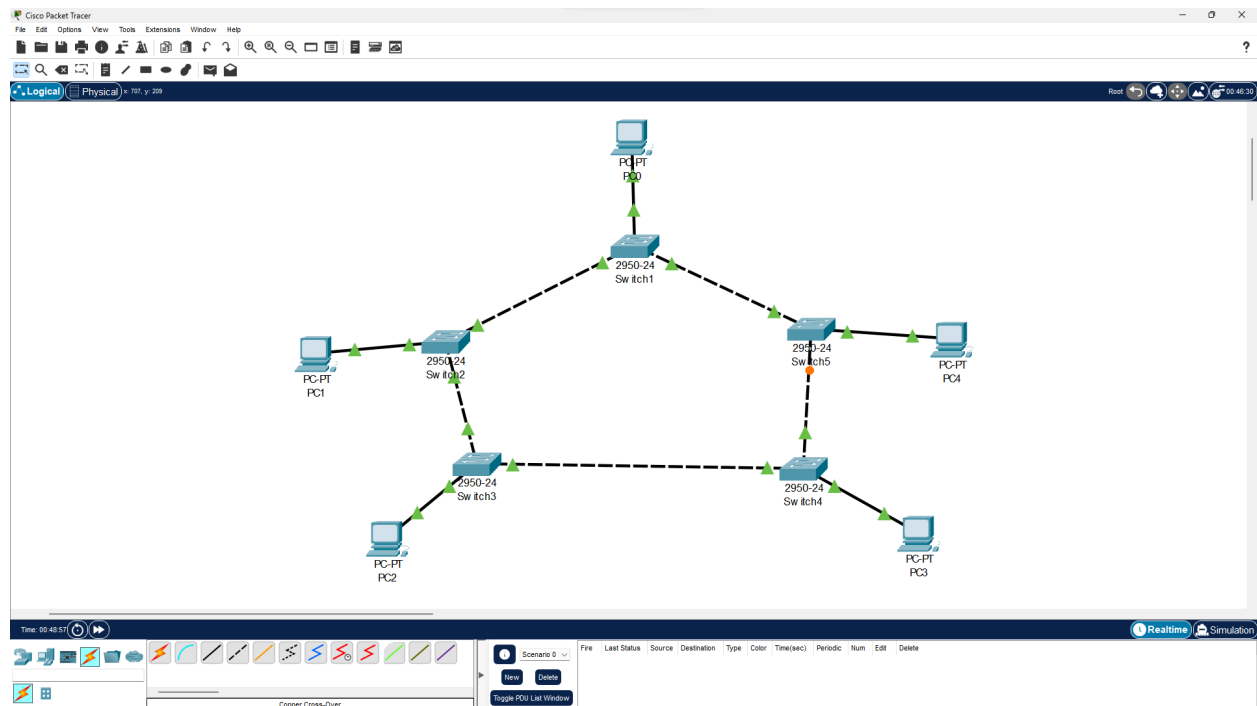
## Star Topology:



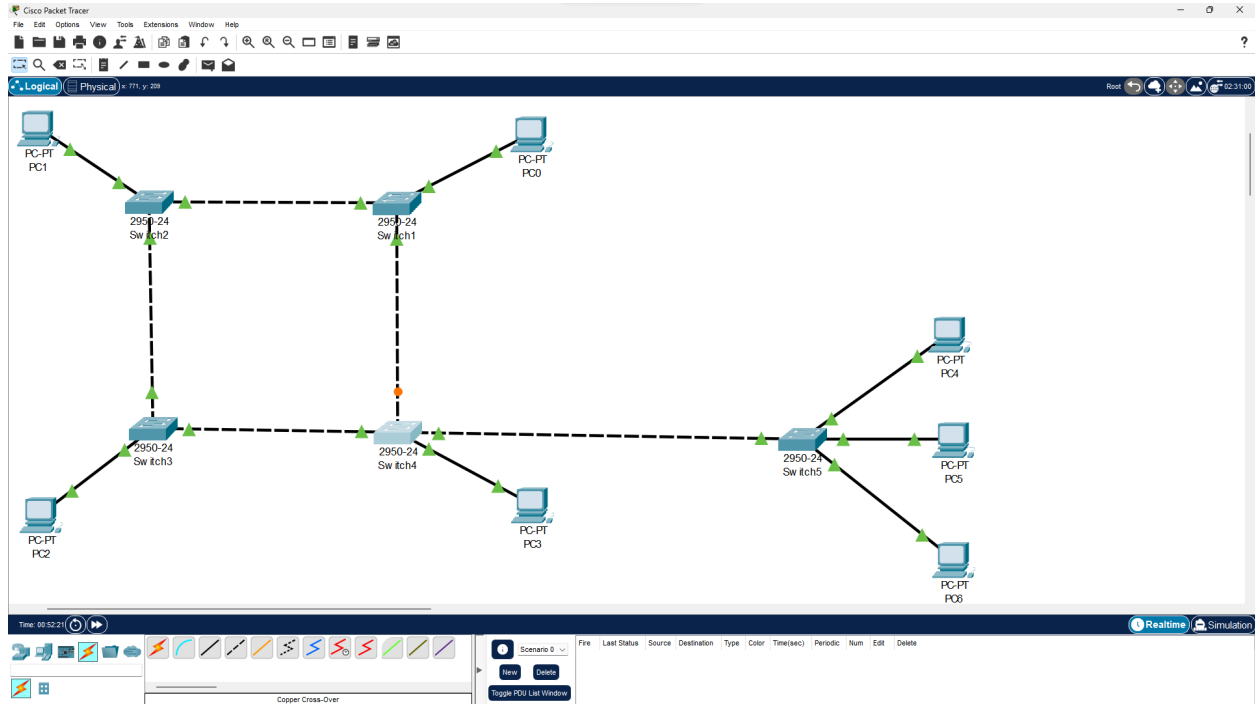
## Bus Topology:



## Ring Topology:

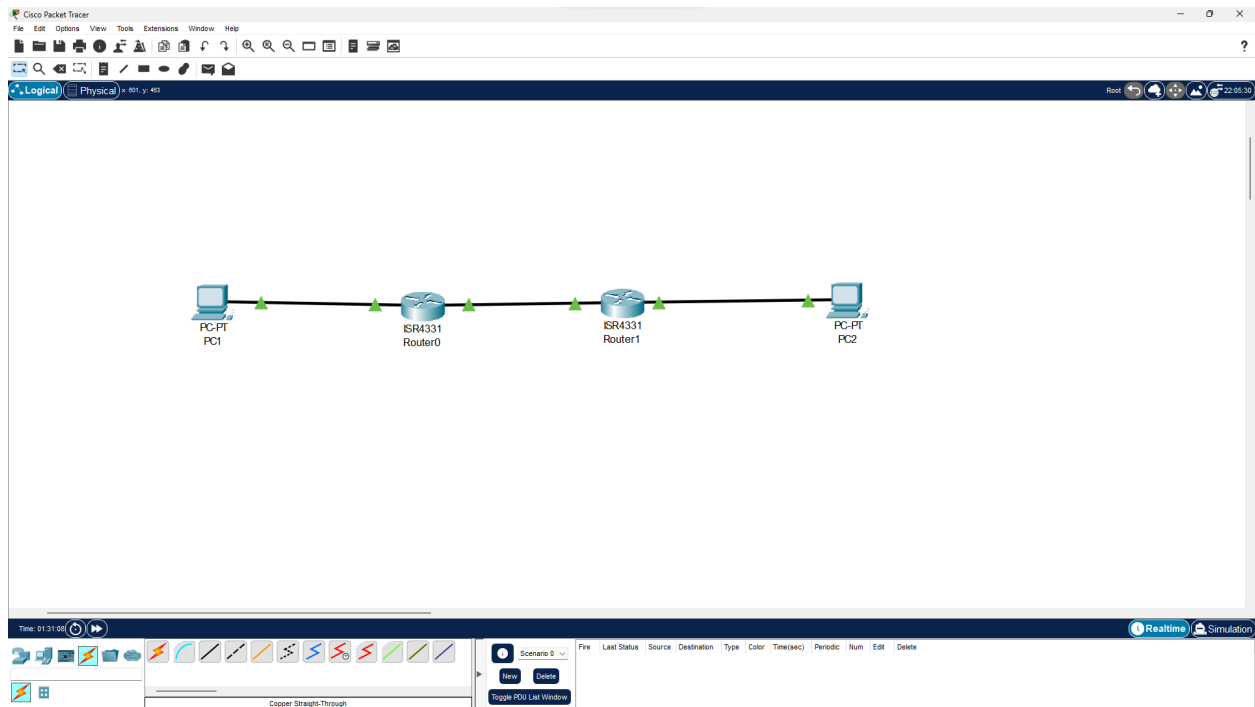


## Hybrid Topology:



# Static Routing

We connect two routers with two respective devices:



Configure IP address for the Routers:

Router0

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0/0

GigabitEthernet0/0/1

GigabitEthernet0/0/2

GigabitEthernet0/0/0

Port Status

Bandwidth

Duplex

MAC Address

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

On

Auto

1000 Mbps

100 Mbps

10 Mbps

Half Duplex

Full Duplex

Auto

00E0.F920.3D01

10.10.10.1

255.255.255.248

10

Equivalent IOS Commands

```
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#no ip route 10.0.0.0 255.0.0.0 11.0.0.2
Router(config)#
Router(config)#interface GigabitEthernet0/0/0
Router(config-if)#
```

☐ Top



Configure the Gateway and IP of the PC:

PC1

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::290:CFF:FE4A:5159

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

## Configuring Routers for communication:

The screenshot shows the configuration window for Router0. The 'Config' tab is active, and the 'Static Routes' section is selected in the left-hand menu. The main area displays the 'Static Routes' configuration form. The 'Network' field is empty, the 'Mask' field is empty, and the 'Next Hop' field is empty. Below these fields is an 'Add' button. A table below the form shows a single entry: '192.168.2.0/24 via 10.10.10.2'. Below the table is a 'Remove' button. At the bottom of the window, the 'Equivalent IOS Commands' section displays the following commands:

```
Router(config)#interface GigabitEthernet0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#no ip route 10.0.0.0 255.0.0.0 11.0.0.2
Router(config)#
Router(config)#interface GigabitEthernet0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#
```

Ping from PC0 to PC1:

