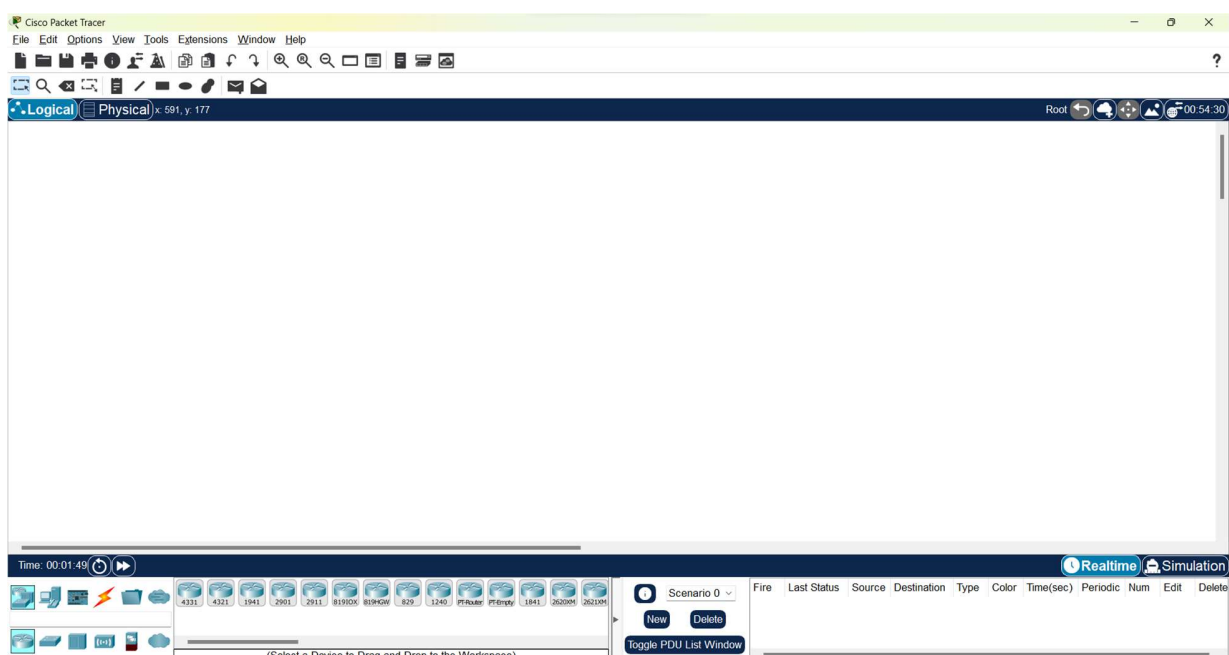
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Subject: Computer Networks (01CT0503)	Aim: Introduce networking simulator tool and demonstrate various functionality - CO1	
Experiment No: 01	Date: 24/7/2023	Enrolment No: 92210133006

Aim: Introduce networking simulator tool and demonstrate various functionality. - CO1

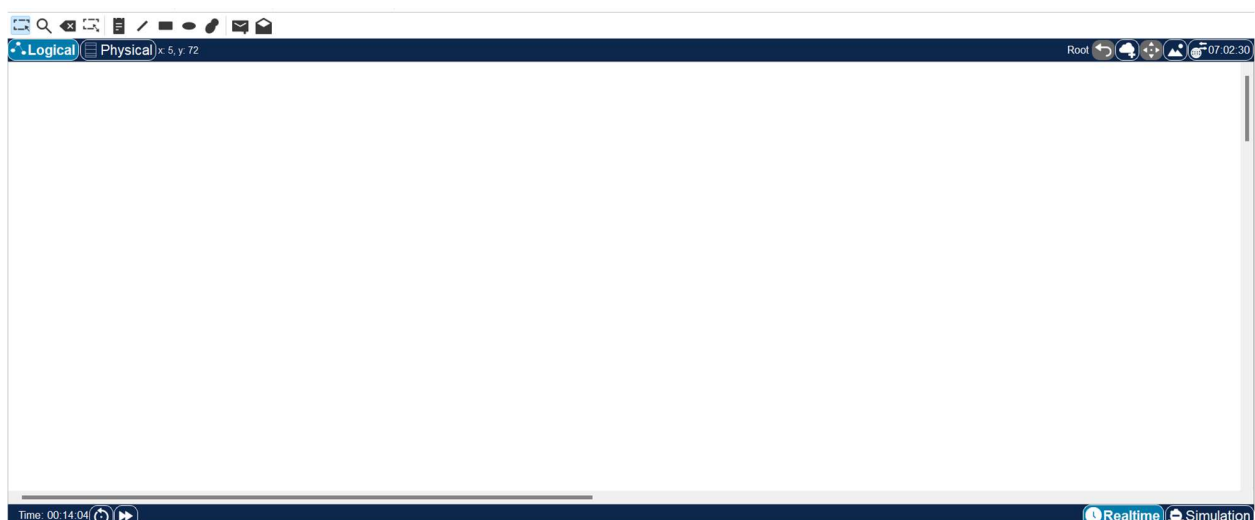
Step 1:


Open Cisco Packet Tracer to explore its different functionalities.



Step 2:

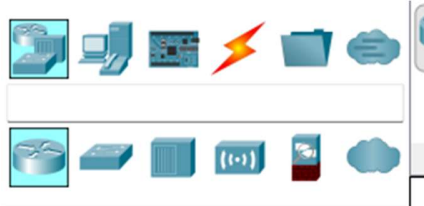
In the main window, you'll find a white blank area where you can place networking components and conduct experiments. There are options like logical, physical, realtime, and simulation mode.



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Step 3:

At the bottom left corner of the interface, you'll notice various categories, and in the second line, there are different sub-categories for each category.



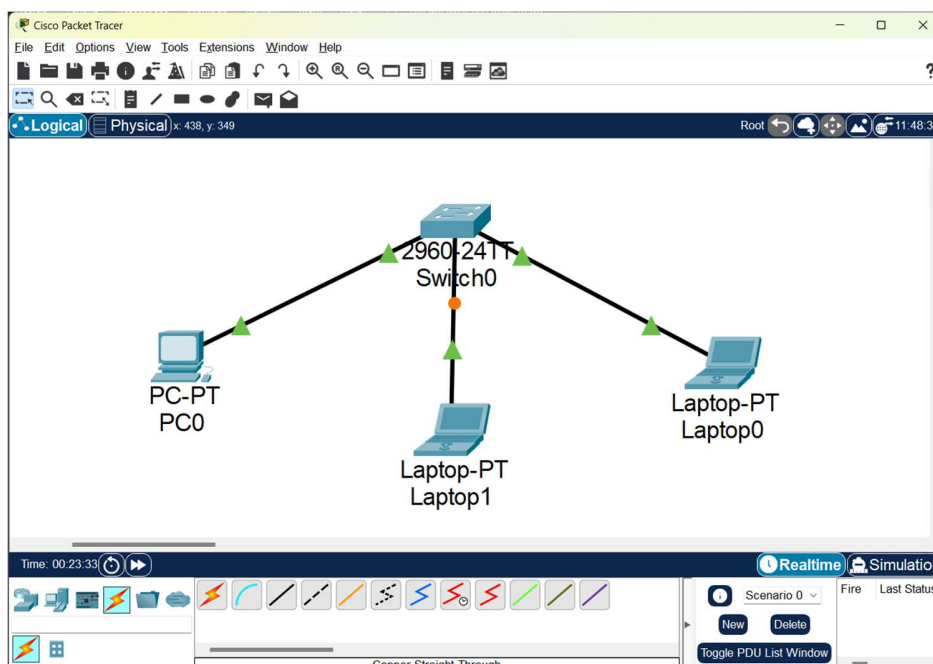
Step 4:


By clicking on a specific sub-category, you can access different components on the right side of it. You can drag and drop these components into the work area to perform different tasks.



Step 5:

Let's create a small network with 1 PC, 2 laptops, and 1 switch to perform simulation. Connect the PCs and laptops to the switch using FastEthernet ports and copper straight cables.

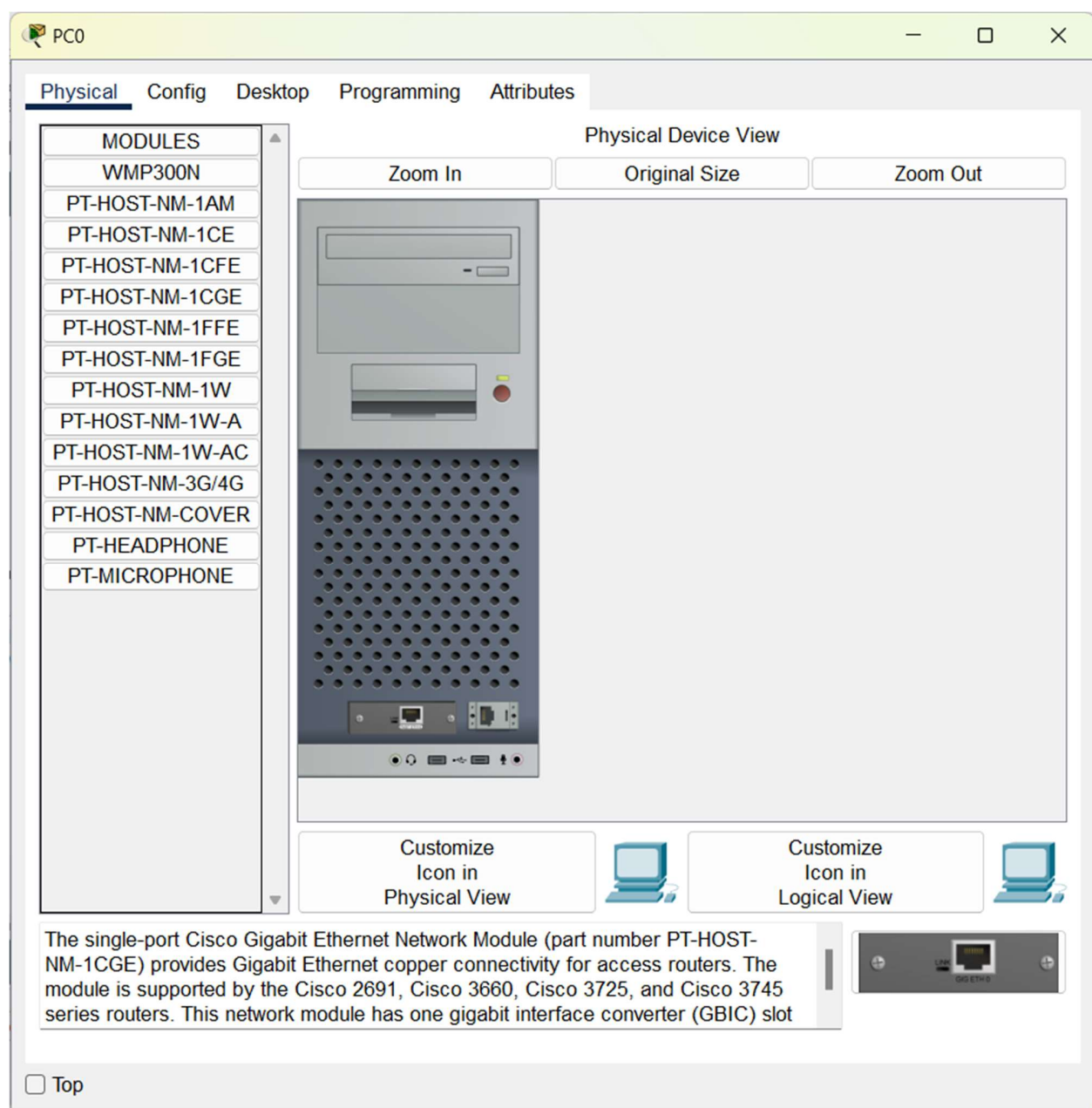



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Step 6:

Clicking on any component provides options like its physical view, configuration, desktop, CLI (Command Line Interface), and attributes. These options allow you to edit modules, configure devices, and many things by exploring these options.

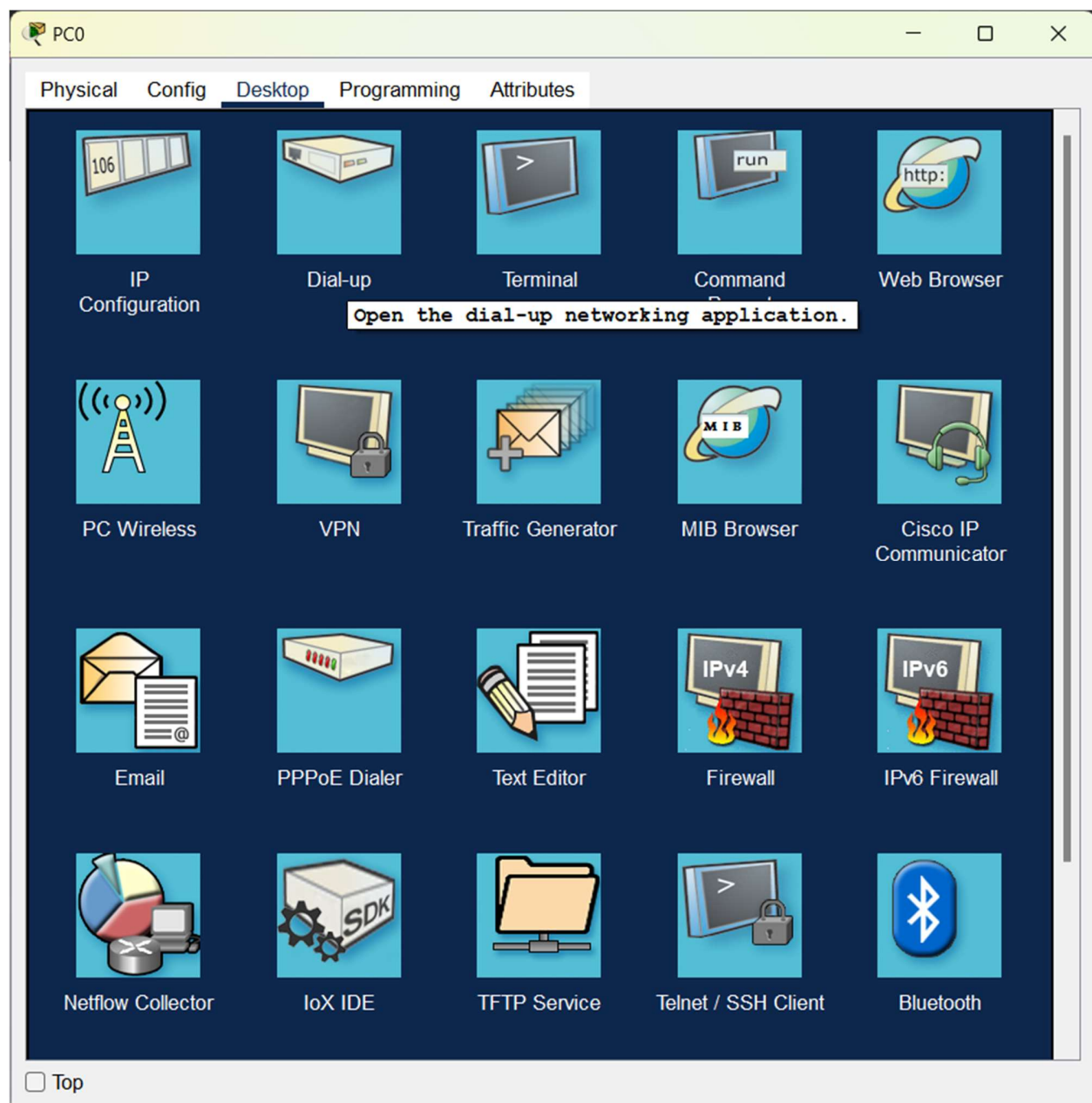
In below image we clicked on pc and see its different options.




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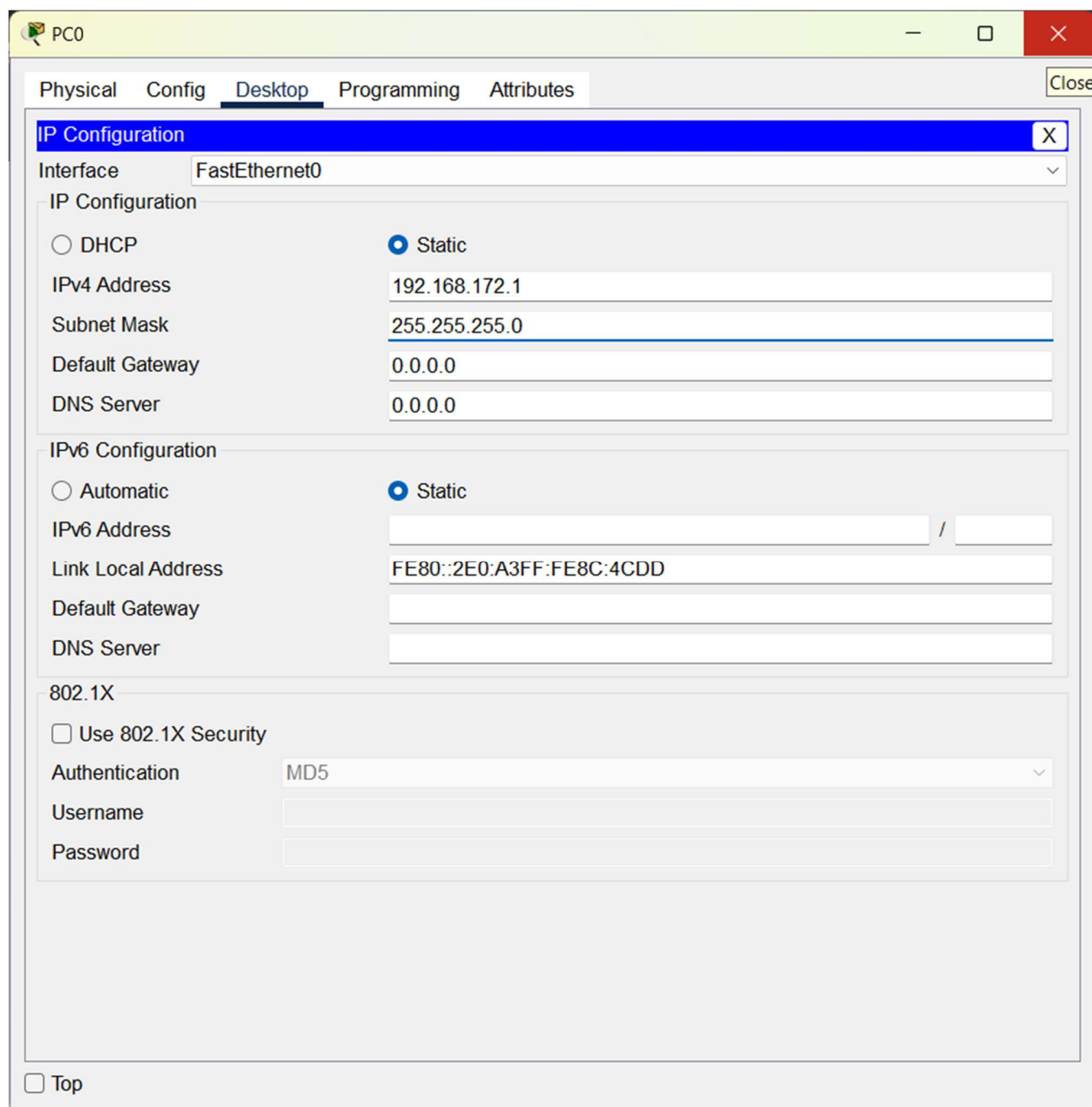
Step:7

Now click on Desktop and in that we can see many options like ip configuration, dial-up, terminal, command prompt, web browser and many more.



Here we can use ip configuration to config ip address to perform simulation. To do that click on IP Configuration and fill all details and then click close button

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PC0

Physical Config **Desktop** Programming Attributes Close

IP Configuration X

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 192.168.172.1

Subnet Mask: 255.255.255.0

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: /

Link Local Address: FE80::2E0:A3FF:FE8C:4CDD

Default Gateway:

DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:


Password:

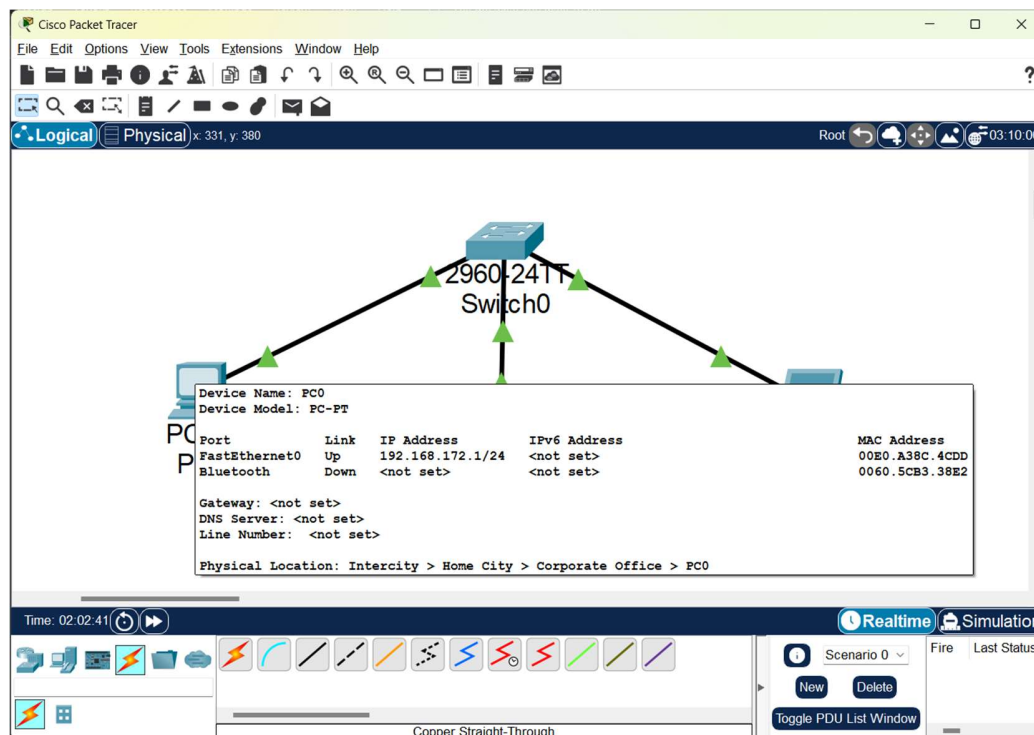
☐ Top

Do this for all remaining PC and Laptops.

Step:8

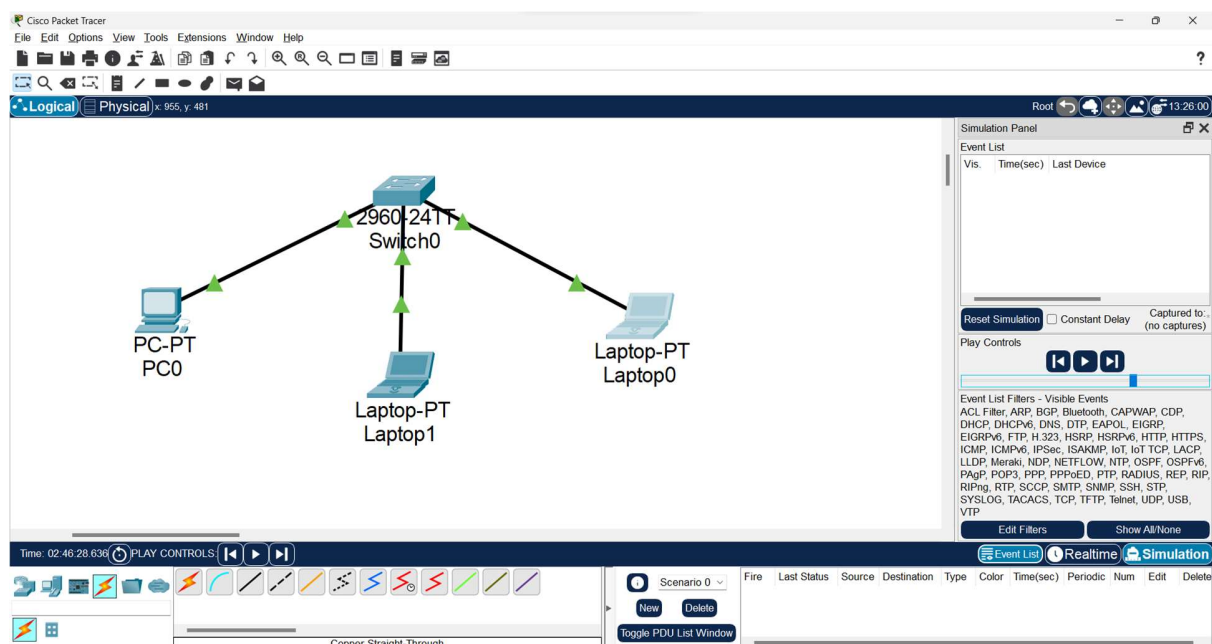
Now hover any PC or Laptop to see IP is successfully configured or not and also see other details like port name, port status up or down, ip address, mac address etc.


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Step:9

Now click on simulation to see simulation steps in animation form.

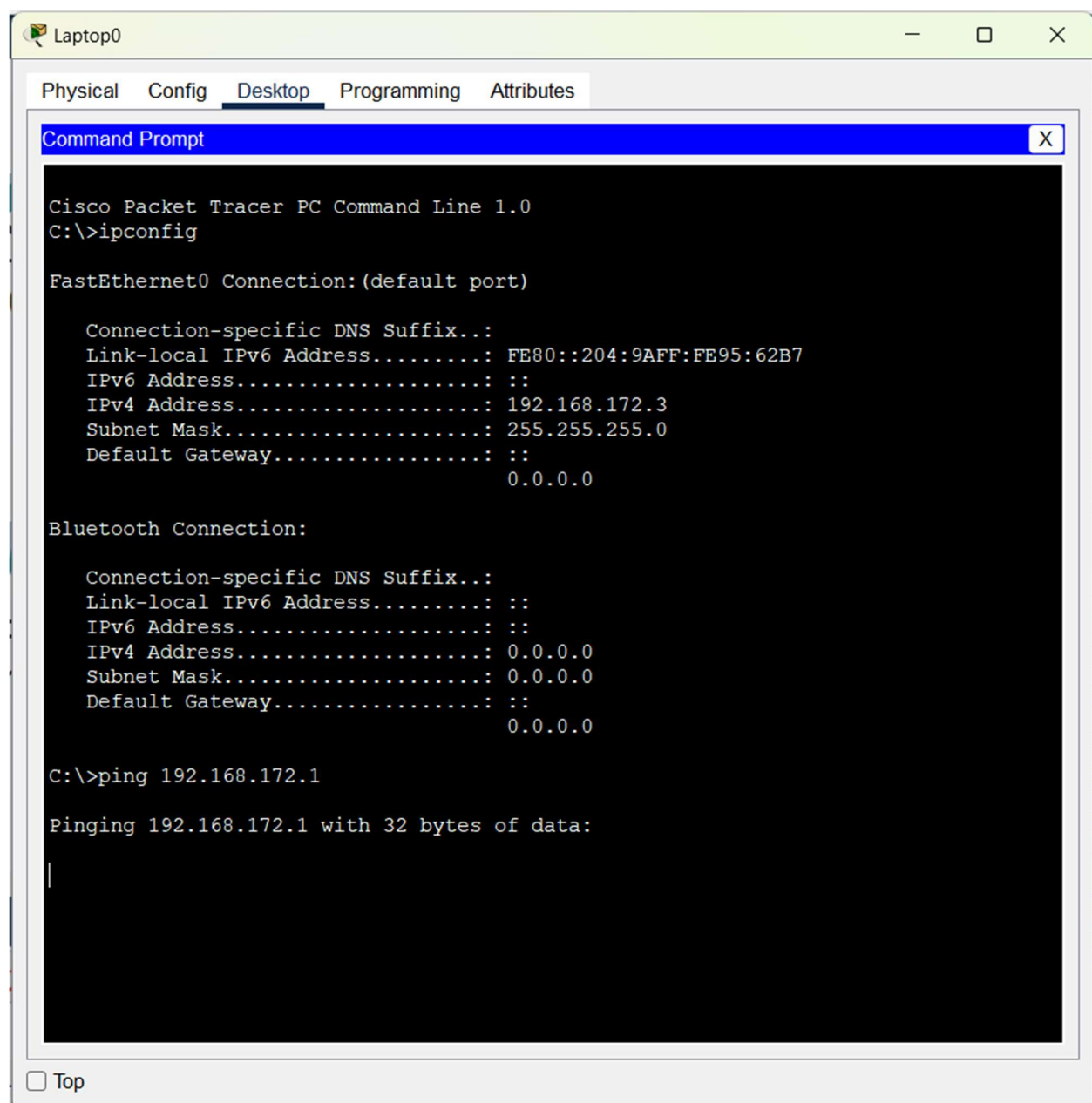


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Step:10

Now click on any pc or laptop and then click on desktop and then click command prompt.

Now write ipconfig command to see current device ip configuration and then write ping command to send packet from selected device to another device to check connect between those two devices.



```

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

FastEthernet0 Connection: (default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address.....: FE80::204:9AFF:FE95:62B7
    IPv6 Address.....: ::
    IPv4 Address.....: 192.168.172.3
    Subnet Mask.....: 255.255.255.0
    Default Gateway.....: ::
                           0.0.0.0


Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address.....: ::
    IPv6 Address.....: ::
    IPv4 Address.....: 0.0.0.0
    Subnet Mask.....: 0.0.0.0
    Default Gateway.....: ::
                           0.0.0.0

C:\>ping 192.168.172.1

Pinging 192.168.172.1 with 32 bytes of data:
|

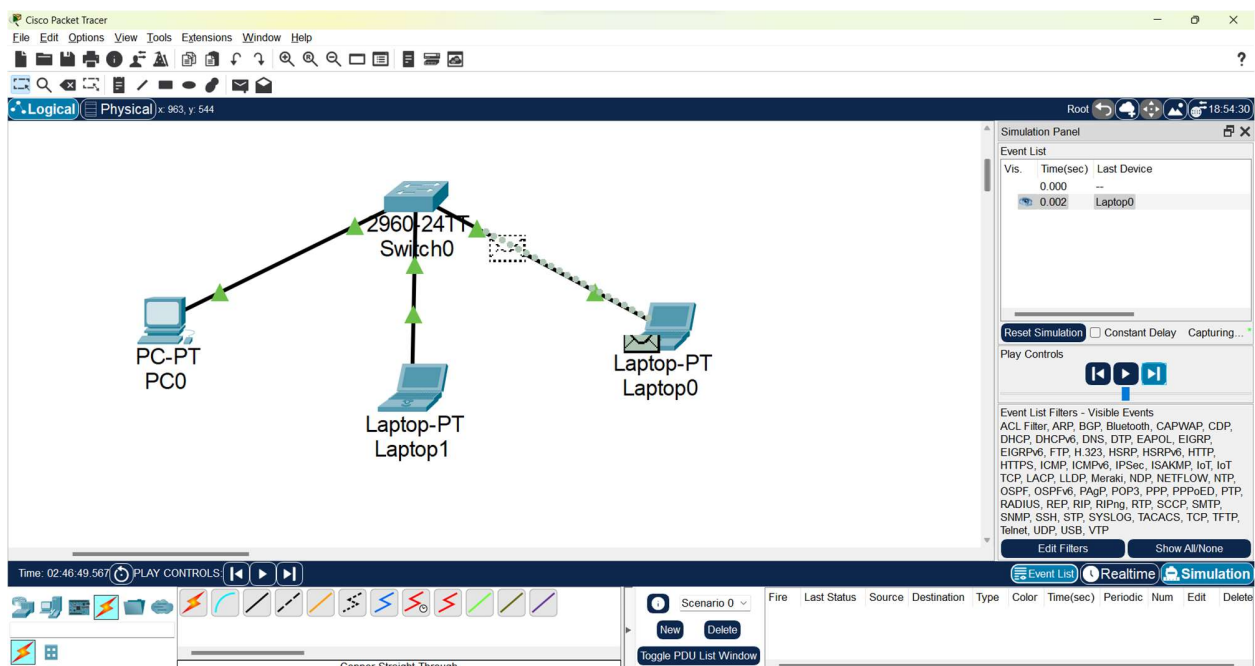
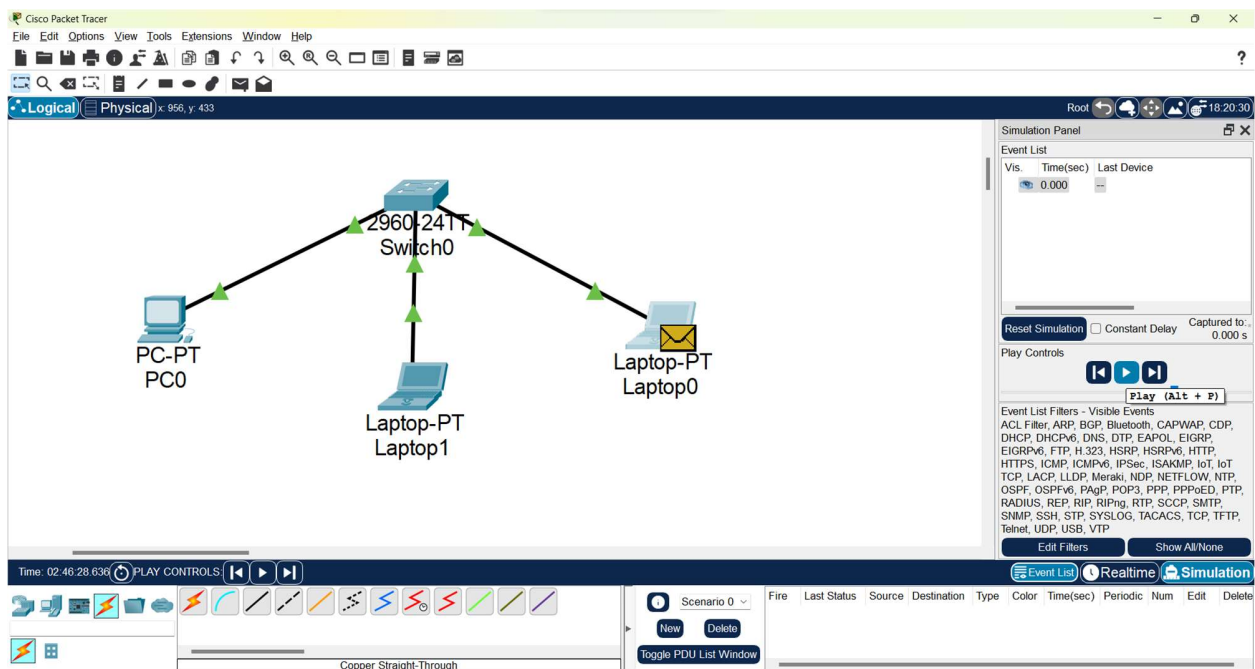
```

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Step:11

Now we can see packet icon in image at device where we run ping command.

Now click on play button to see how packet is transfer from one device to another device.



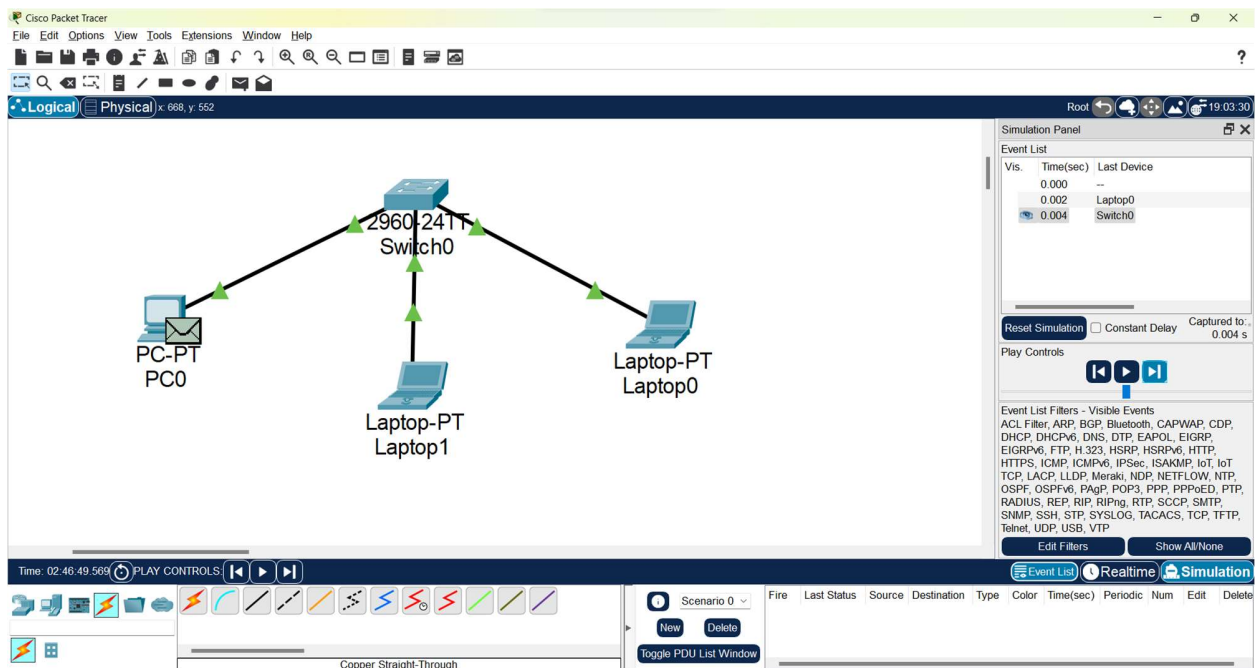
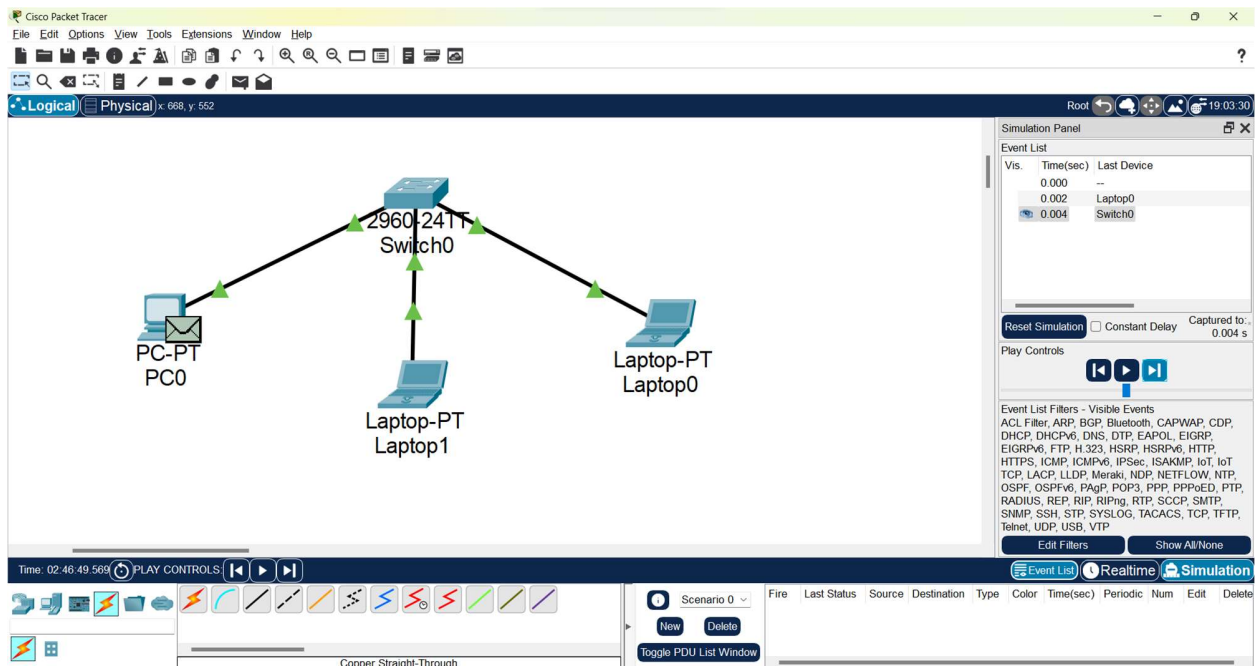
Subject: Computer Networks (01CT0503)

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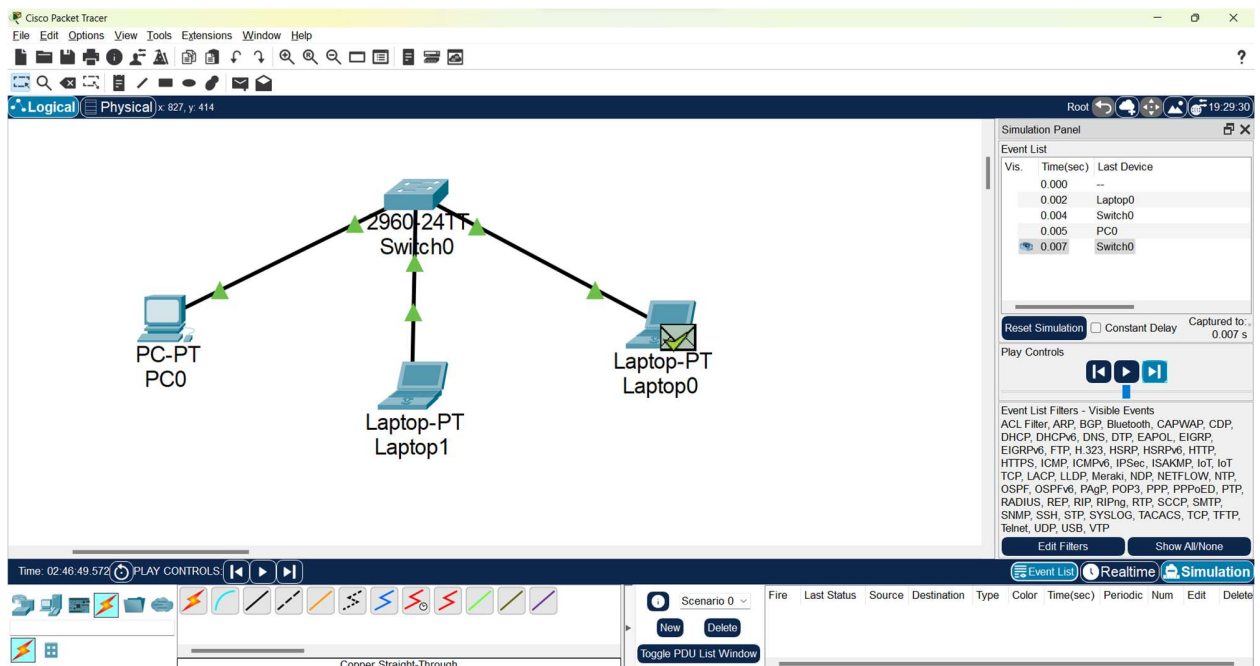
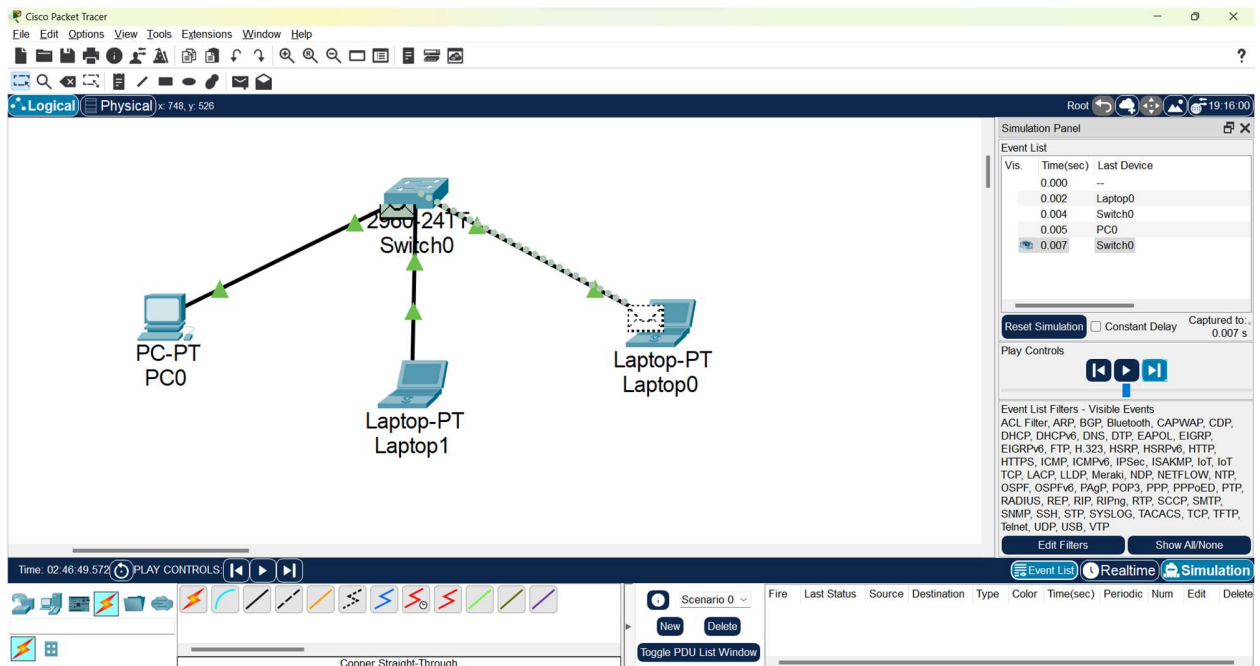
Subject: Computer Networks (01CT0503)


Aim: Introduce networking simulator tool and demonstrate various functionality - CO1

Experiment No: 01

Date: 24/7/2023

Enrolment No: 92210133006

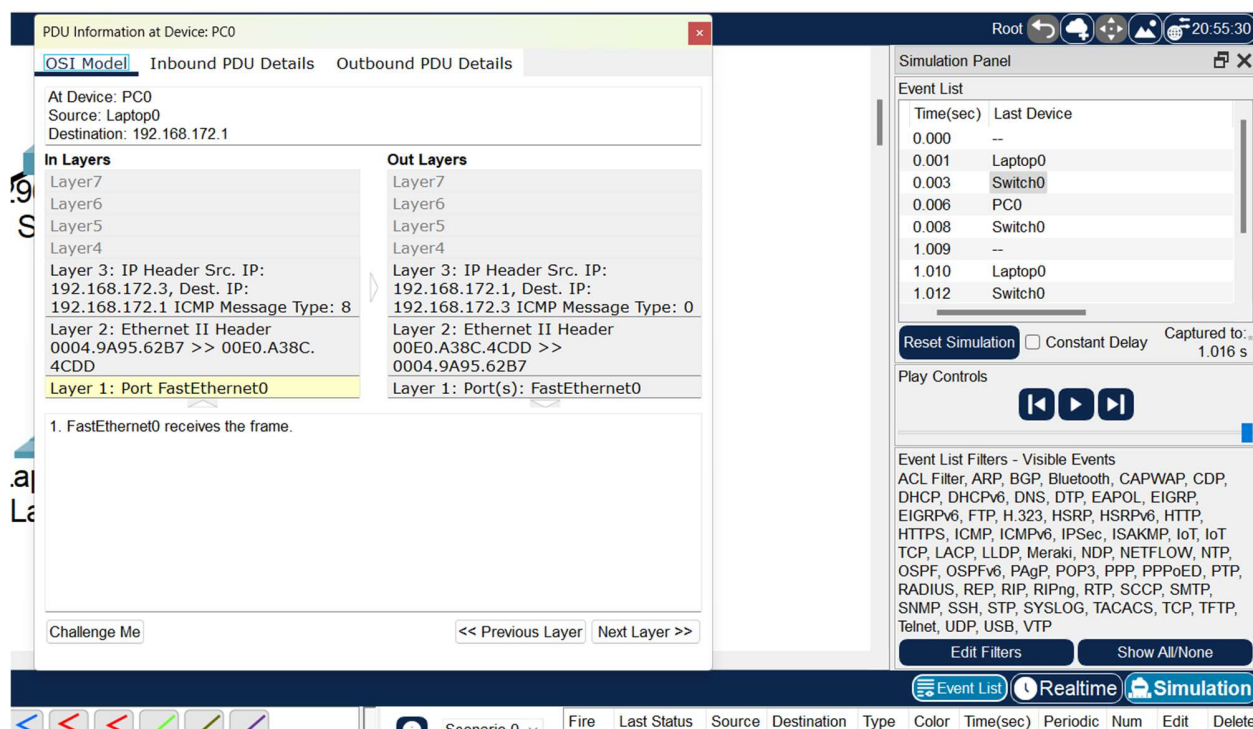


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Step:12

Now click on any step from list display in simulation panel event list.

From there we can see OSI model and its information for particular stage.



The screenshot displays the Cisco Packet Tracer interface. The main window shows the 'PDU Information at Device: PC0' window, which is divided into 'In Layers' and 'Out Layers' sections. The 'In Layers' section shows the following details:

- At Device: PC0
- Source: Laptop0
- Destination: 192.168.172.1
- In Layers: Layer7, Layer6, Layer5, Layer4, Layer3: IP Header Src. IP: 192.168.172.3, Dest. IP: 192.168.172.1 ICMP Message Type: 8, Layer2: Ethernet II Header 0004.9A95.62B7 >> 00E0.A38C.4CDD, Layer1: Port FastEthernet0
- Out Layers: Layer7, Layer6, Layer5, Layer4, Layer3: IP Header Src. IP: 192.168.172.1, Dest. IP: 192.168.172.3 ICMP Message Type: 0, Layer2: Ethernet II Header 00E0.A38C.4CDD >> 0004.9A95.62B7, Layer1: Port(s): FastEthernet0

The Event List panel on the right shows a list of events with time and device names. The bottom status bar shows the simulation is running in Realtime mode.

Step:13

Press CTRL + S or save from file option to save work as packet tracer file (.pkt)

Conclusion:

Through this experiment, I have learned about Cisco Packet Tracer and its various uses. Now I understand how to utilize it for conducting different experiments before implementing any physical network setup, thus preventing significant errors and potential device damage. Moreover, I have explored the different functionalities of Packet Tracer, its extensive component library, and the benefits of working with real-time and simulation modes, allowing me to analyze data transfer between devices effectively. Overall, this experience has provided me with valuable knowledge and insights into network simulation, and I am grateful for the opportunity to learn and grow from it.