SLIIT
Discover Your Future

BSc (Hons) in Information Technology

IT1020 – Introduction to Computer Systems

Year 1, Semester 1

Worksheet 9

Introduction:

Through this worksheet, first, you will learn to use the Cisco Packet Tracer which is a simulation tool to build and test Computer Networks. You will create a simple Local Area Network and apply IP addresses for the devices within the Cisco packet Tracer.

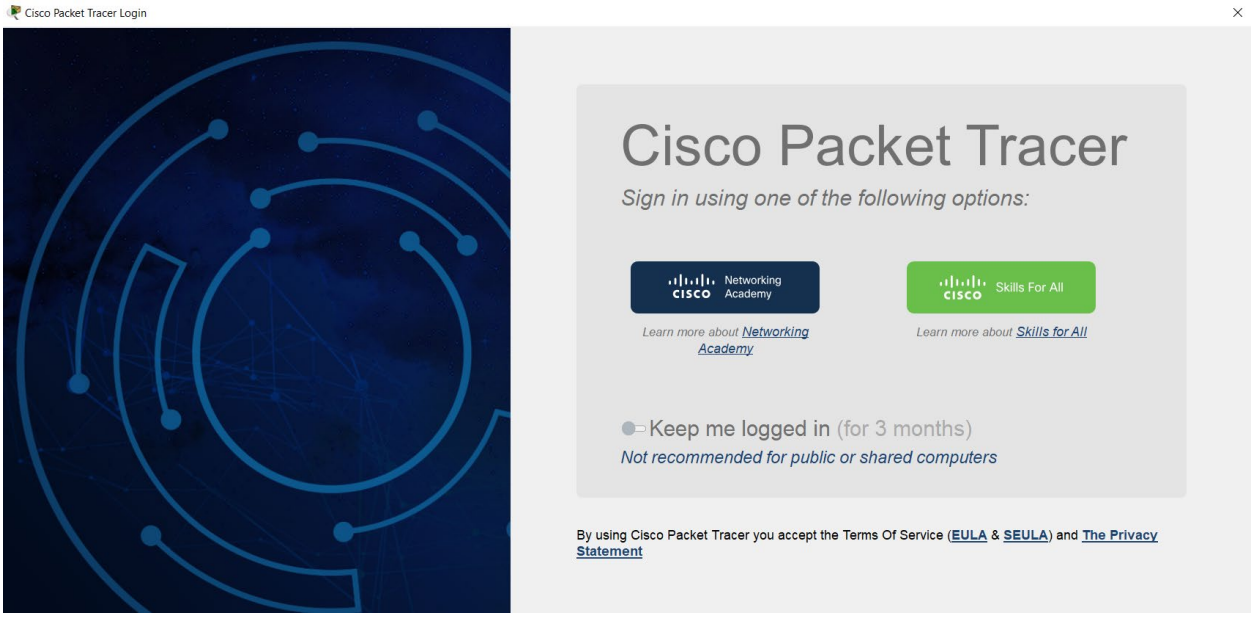
Objectives:

- Understand the Cisco Packet Tracer Interface
- Add devices into the Packet Tracer Workspace
- Make Connections in the Packet Tracer
- Setup a simple LAN and apply IP addresses for the devices within the Packet Tracer
- Learn to use the Simulation mode

Download Cisco Packet Tracer for your computer

Link: https://www.netacad.com/portal/resources/packet-tracer

*You can create a free account within https://www.netacad.com/



Click on "Network Academy" Button to loin to the Cisco Packet Tracer.

If you have already created an account, you can use your login credentials to login to the Cisco Packet Tracer.
Or,
Use the following credential details to access the Cisco Packet Tracer

- Username : cispkt@yk20.com
- Password : Asdfg12345

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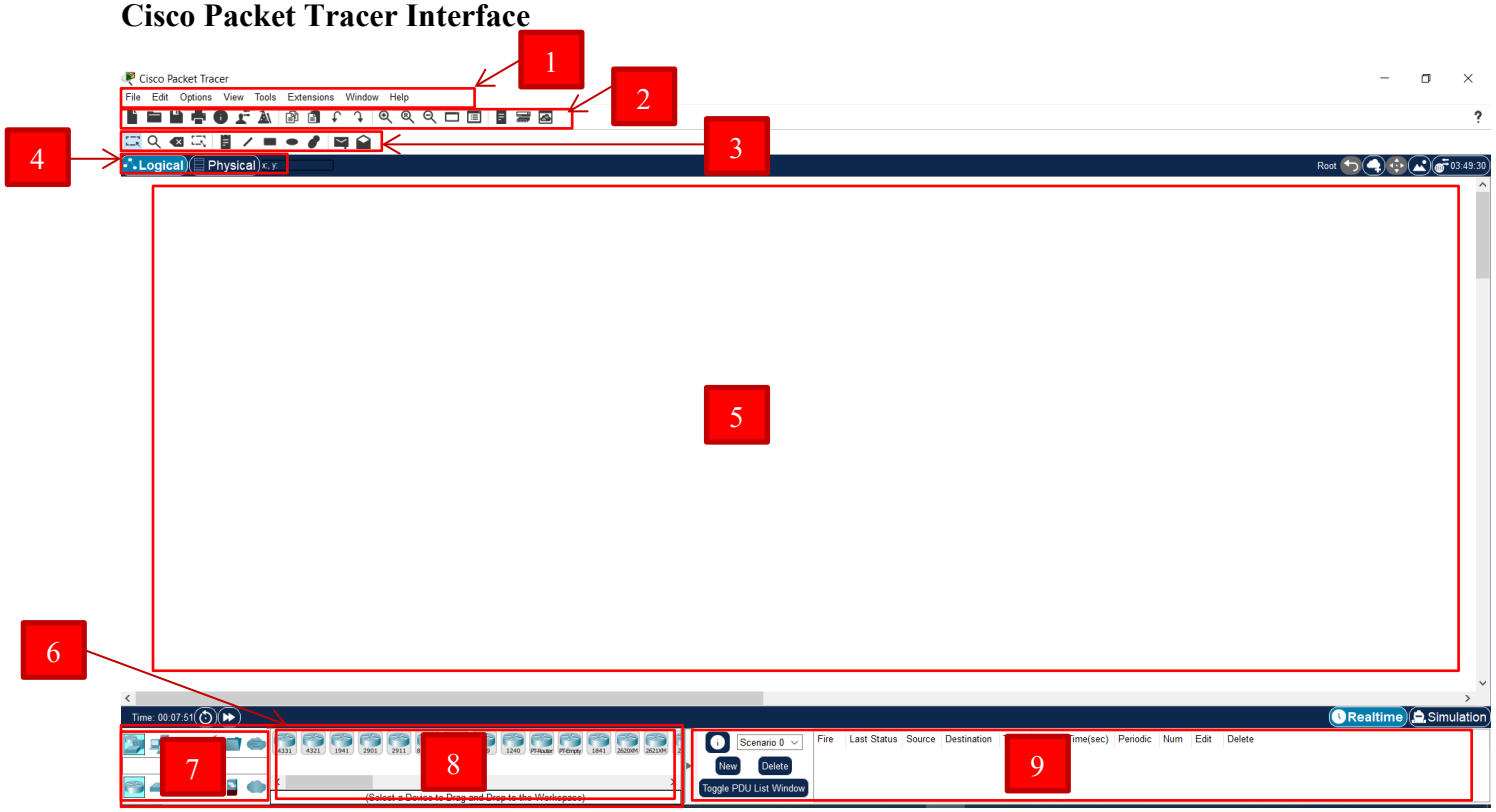
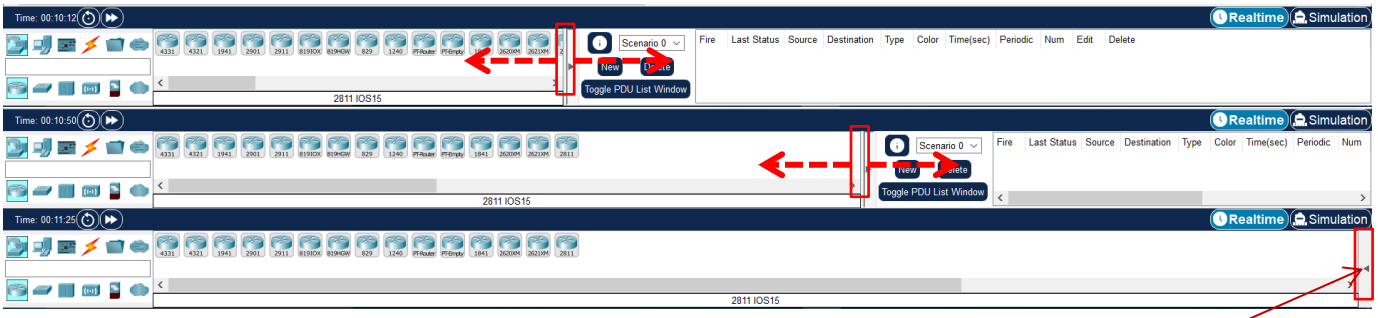
Cisco Packet Tracer Interface





Use the hidden to get User Created Packet Window

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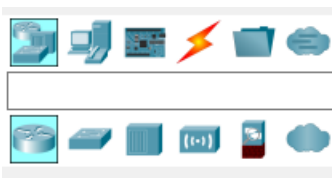
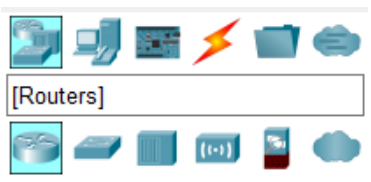
1	**Menu Bar**	This bar provides the **File**, **Edit**, **Options**, **View**, **Tools**, **Extensions**, and **Help** menus. You will find basic commands such as **Open**, **Save**, **Print**, and **Preferences** in these menus. You will also be able to access the **Activity Wizard** from the **Extensions** menu.
2	**Main Tool Bar**	This bar provides shortcut icons to the **File** and **Edit** menu commands. This bar also provides buttons for **Zoom**, the drawing **Palette**, and the **Device Template Manager**. On the right, you will also find the **Network Information** button, which you can use to enter a description for the current network (or any text you wish to include).
3	**Common Tools Bar**	This bar provides access to these commonly used workspace tools: **Select**, **Move Layout**, **Place Note**, **Delete**, **Inspect**, **Add Simple PDU**, and **Add Complex PDU**.
4	**Logical/Physical Workspace and Navigation Bar**	You can toggle between the Physical Workspace and the Logical Workspace with the tabs on this bar. In Logical Workspace, this bar also allows you to navigate through levels of a cluster, create a **New Cluster**, **Move Object**, **Set Tiled Background**, and **Viewport**. In Physical Workspace, this bar allows you to navigate through physical locations, create a **New City**, create a **New Building**, create a **New Closet**, **Move Object**, apply **Grid** to the background, **Set Background**, and go to the **Working Closet**.
5	**Workspace**	This area is where you will create your network, watch simulations, and view many kinds of information and statistics.
6	**Network Component Box**	This box is where you choose devices and connections to put into the workspace. It contains the **Device-Type Selection** Box and the **Device-Specific Selection** Box.
7	**Device-Type Selection Box**	This box contains the type of devices and connections available in Packet Tracer. The **Device-Specific Selection** Box will change depending on which type of device you choose.
8	**Device-Specific Selection Box**	This box is where you choose specifically which devices you want to put in your network and which connections to make.
9	**User Created Packet Window**	This window manages the packets you put in the network during simulation scenarios.

Activity 1 – Adding devices into the Workspace

1. Choose a device type from the **Device-Type Selection Box**.





Move the mouse pointer onto the component to see the type/name of the component

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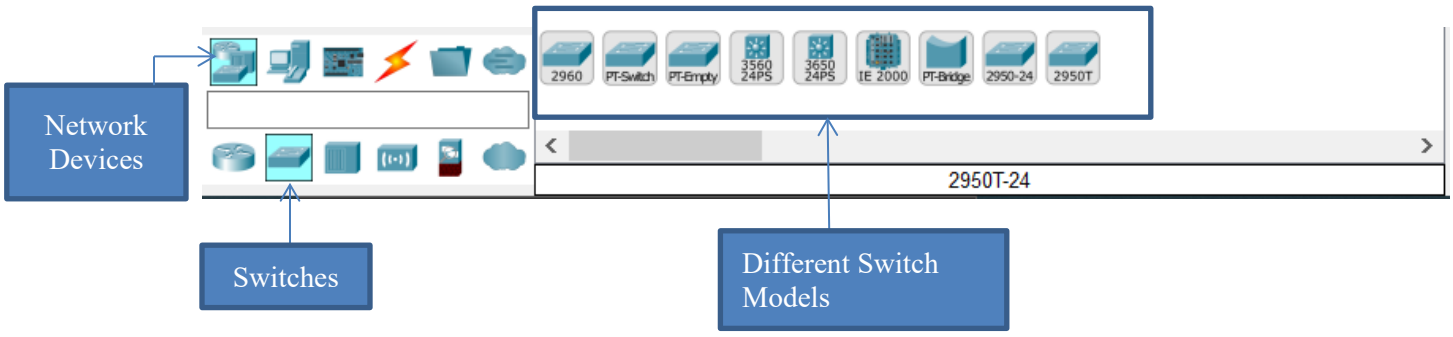
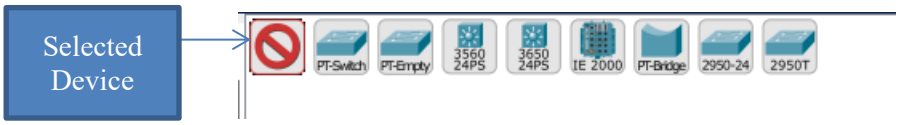
Through the **Device-Specific Selection box,** you can select the specific device that you want to place in the Network.



2. Click on the desired device model from the **Device-Specific Selection box**.



3. Click on a location in the workspace to put your device in that location.

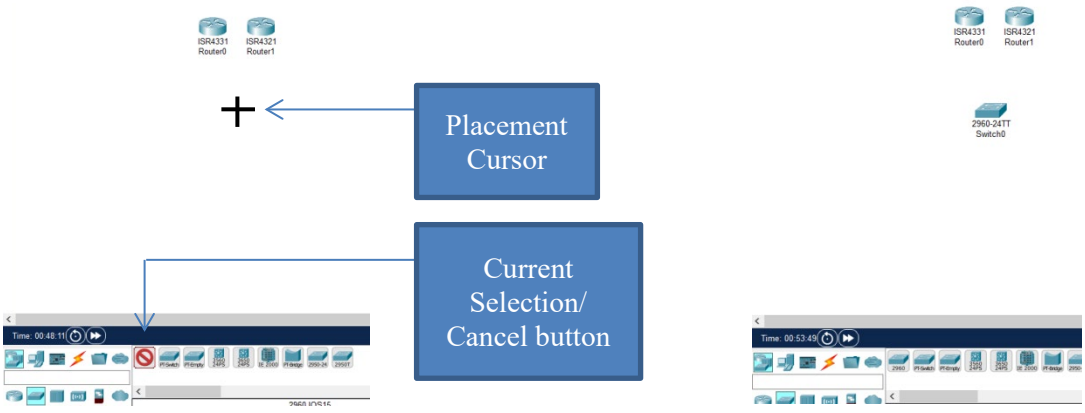
   Or,

   You can click and drag a device from the **Device-Specific Selection box** onto the workspace.

   Or,

   You can also click and drag a device directly from the **Device-Type Selection box** and a default device model will be chosen for you

4. If you want to cancel your selection, press the Cancel icon for that device.



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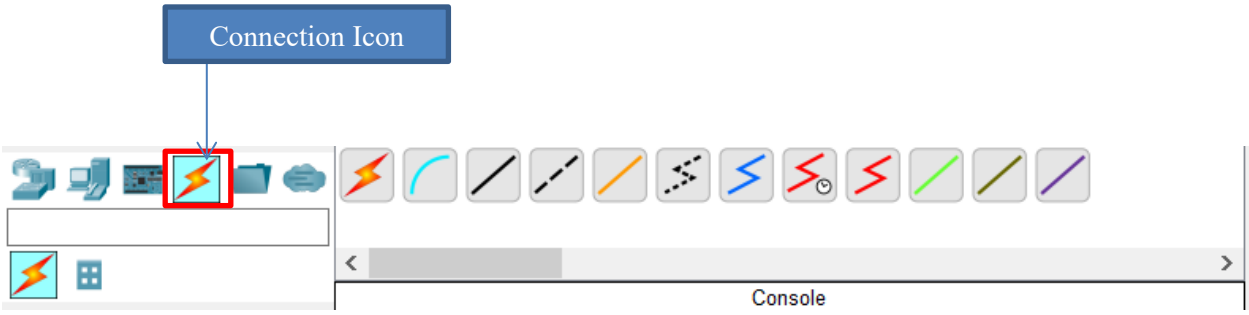
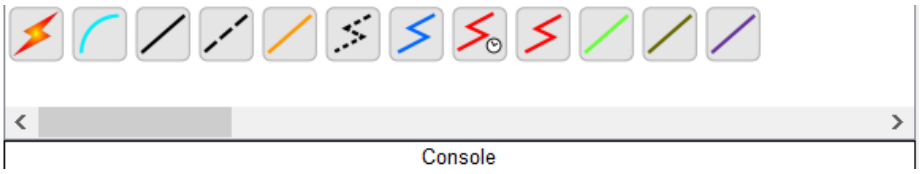
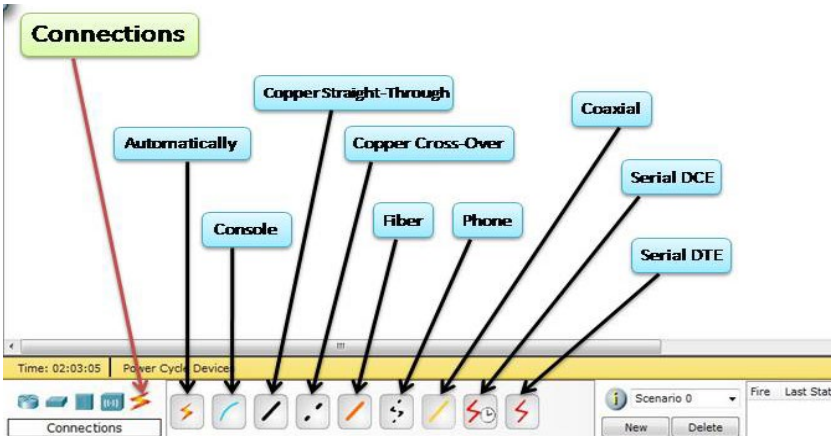
Activity 2 – Making Connections

1. To make a connection between two devices, first click the Connections icon from the **Device-Type Selection box** to bring up the list of available connections.

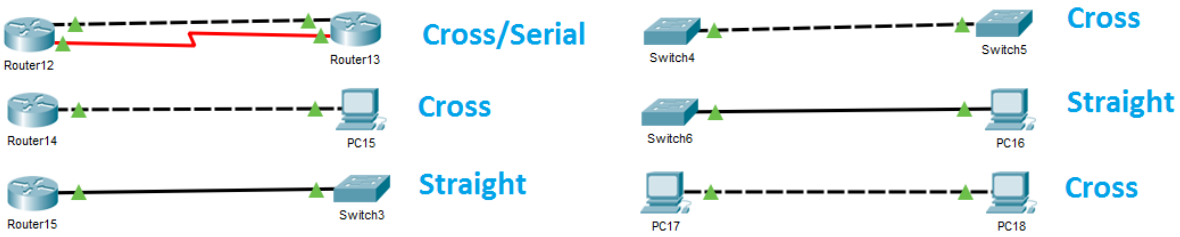


2. Then click the appropriate cable type.





Types of cables suitable for connecting different devices



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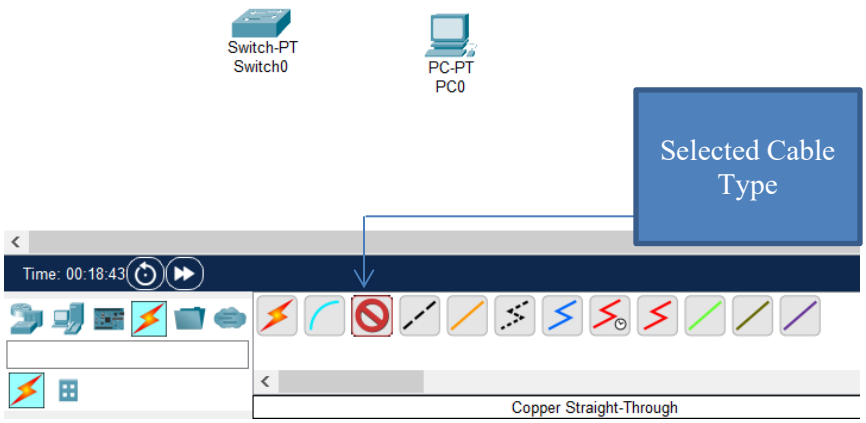
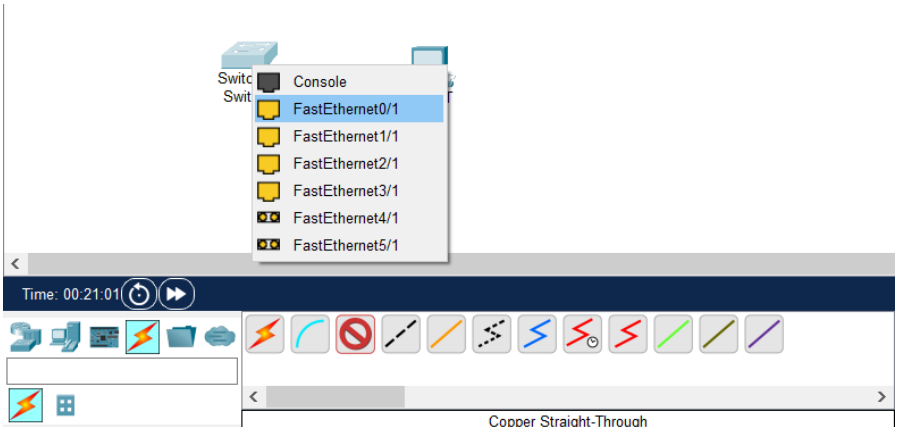


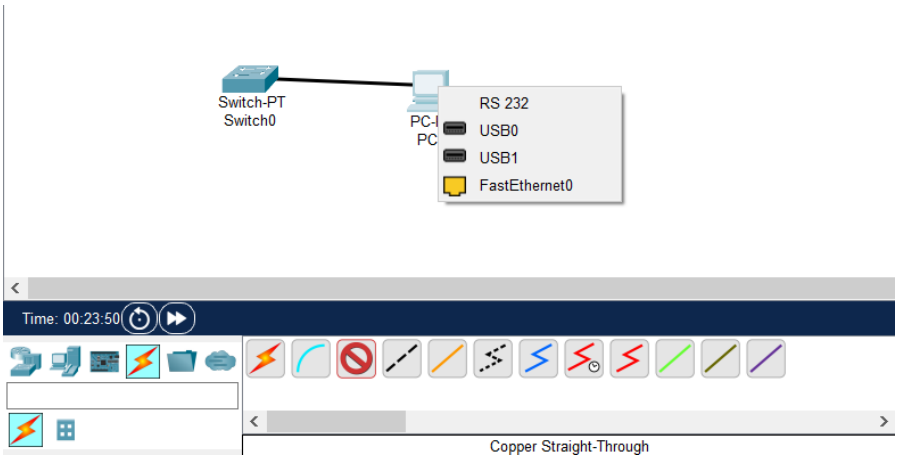
3. The mouse pointer will change into a "connection" cursor.

4. Click on the first device and choose an appropriate interface to which to connect.



***Choose FastEthernet interfaces to connect Straight Through/ Cross Over Cables**

5. Then click on the second device and do the same.



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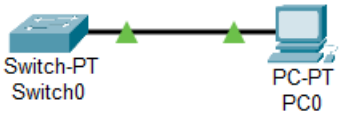
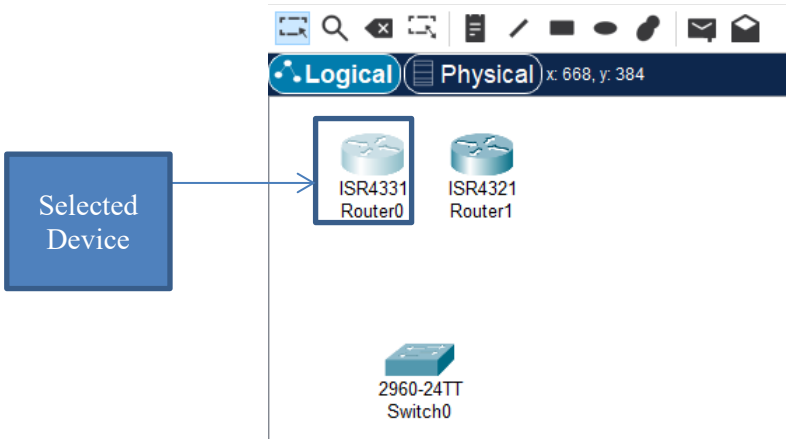
6. A connection cable will appear between the two devices, along with link lights showing the link status on each end
   Red light – link is down
   Green light – link is up
   Orange light – Initiating the link



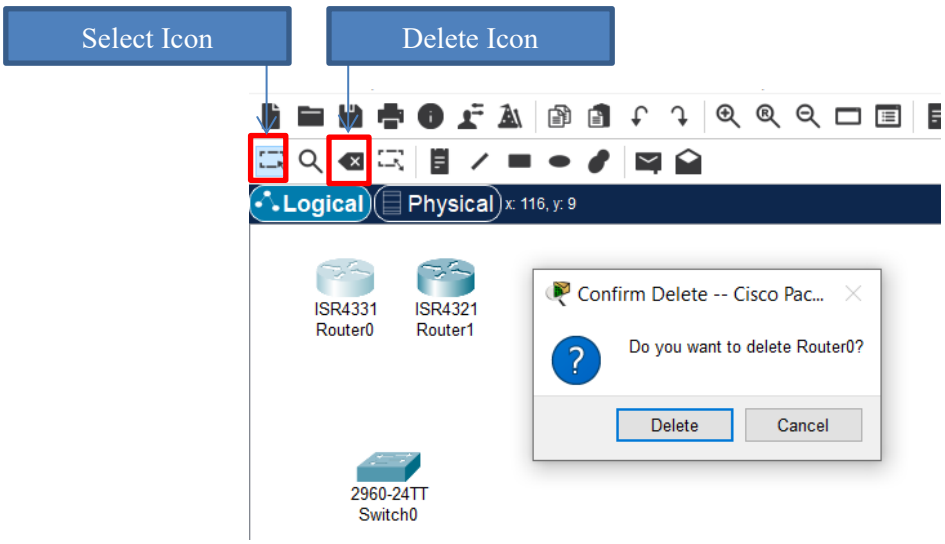
You can choose the *Automatically Choose Connection Type* option which will automatically select the cable type and ports for you.

Activity 3 – Deleting devices/Connections from the Workspace

1. Select the device/connection that you what to delete

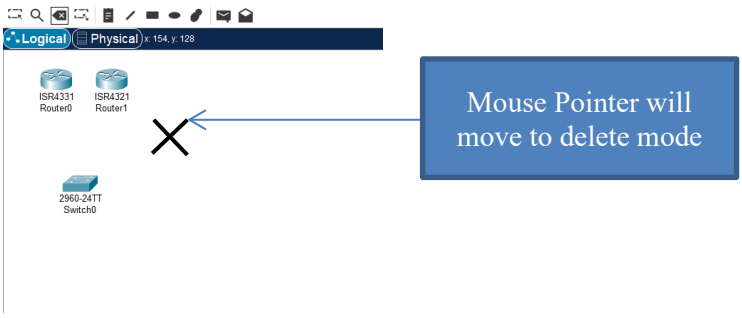


2. Click on the Delete icon and Confirm the delete



Or,

1. Click on the Delete icon first



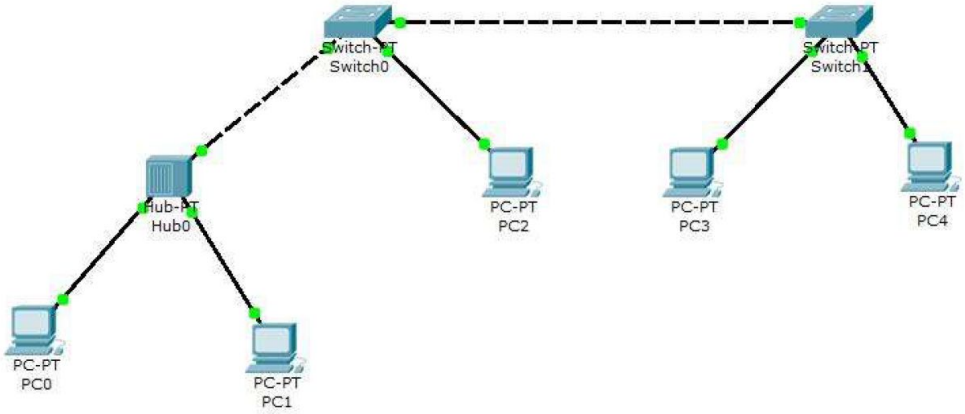
2. Select the device/connection that you what to delete

*If you want to add devices/connections, you must move to Select Mode again by clicking Select icon

- **Move a device – By selecting the device you also can move devices from one space to another**

Activity 4 – Setup a simple LAN

1. Open a new Packet Tracer activity
2. Prepare the simple LAN shown in the given diagram in your Workspace.



*Choose **Switch–PT as** the switches and **Hub–PT** as the hub

3. Configure the following IP addresses for the PCs.

PC	IP Address	Subnet Mask
PC0	192.168.10.1	255.255.255.0
PC1	192.168.10.2	255.255.255.0
PC2	192.168.10.3	255.255.255.0
PC3	192.168.10.4	255.255.255.0
PC4	192.168.10.5	255.255.255.0

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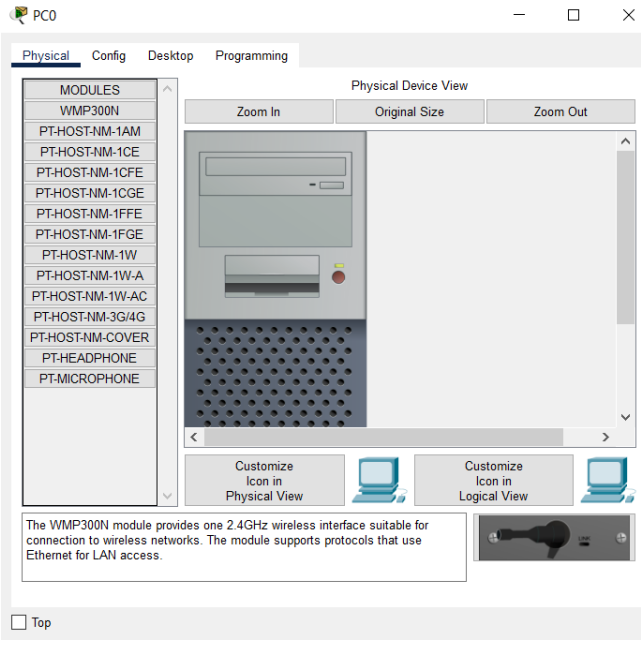
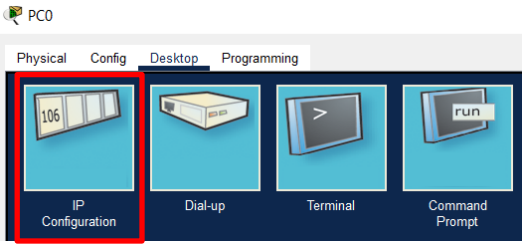
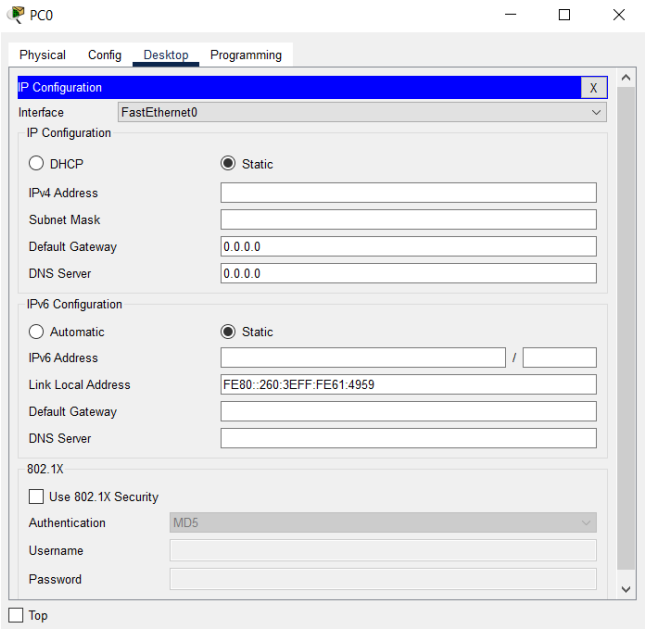
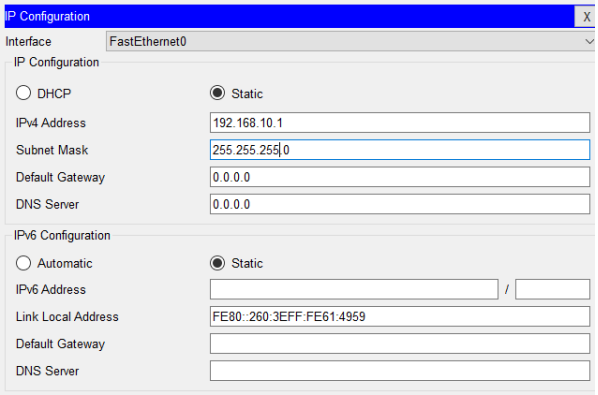
4. To set the IP address, click on the PC, then select the Desktop tab and click on the IP Configuration option.





5. Fill the details for the corresponding PC according to the above IP addressing table.





***After assigning the details, close the tab. No need to save the changes. Changes will be automatically applied to the corresponding device.**

6. Set IP addresses to all the PCs

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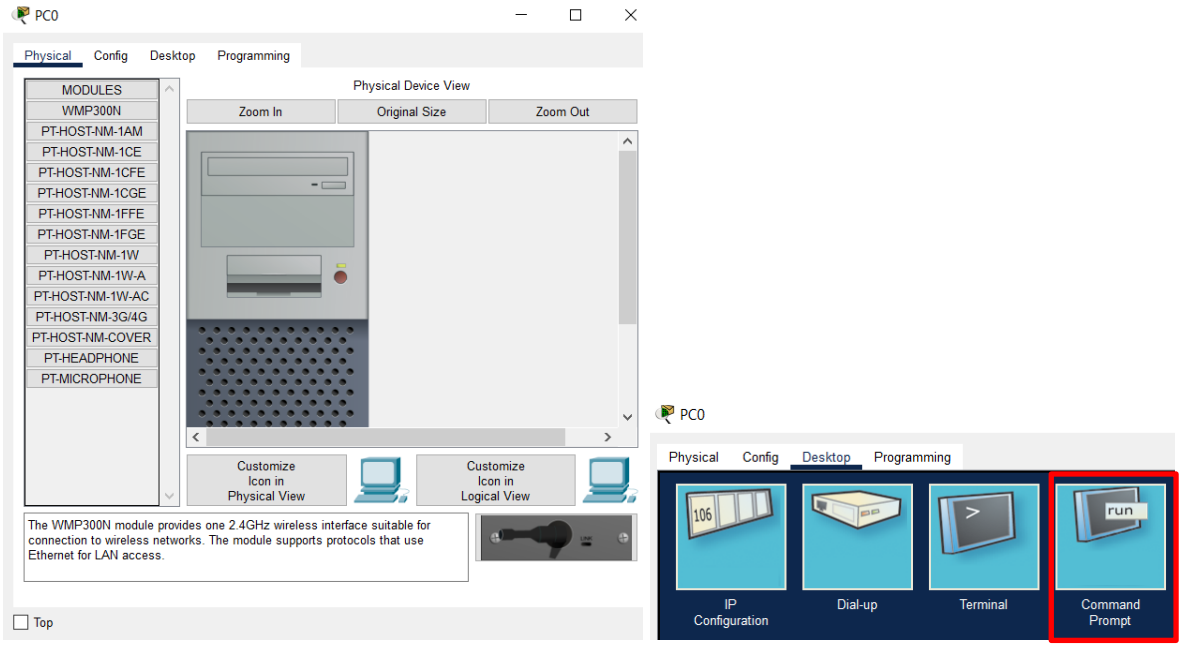
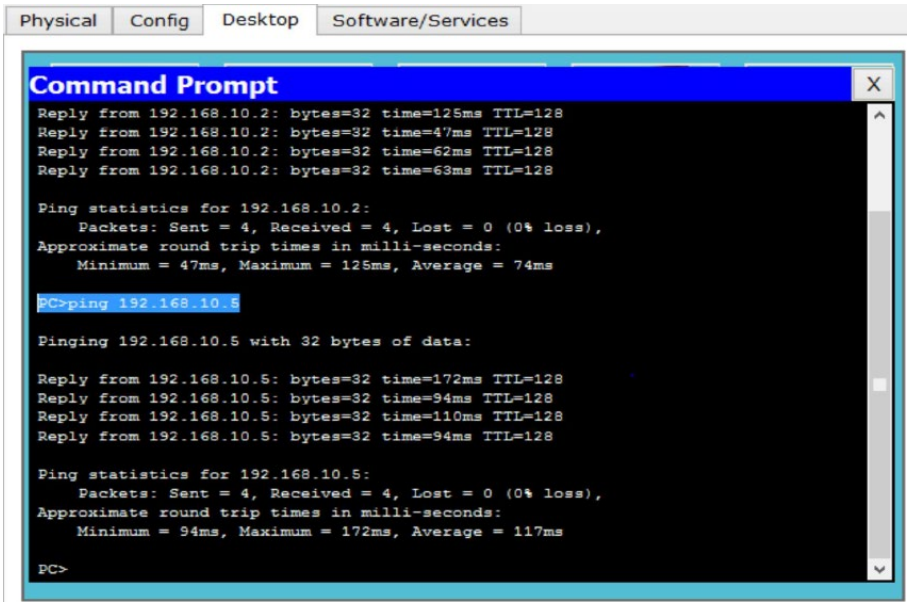
Activity 5 – Verify the connection

1. To verify the connection, click on one PC, then select the Desktop tab and click on the command prompt.



2. Use the ping command to verify whether you can communicate from each PC to every other PC.



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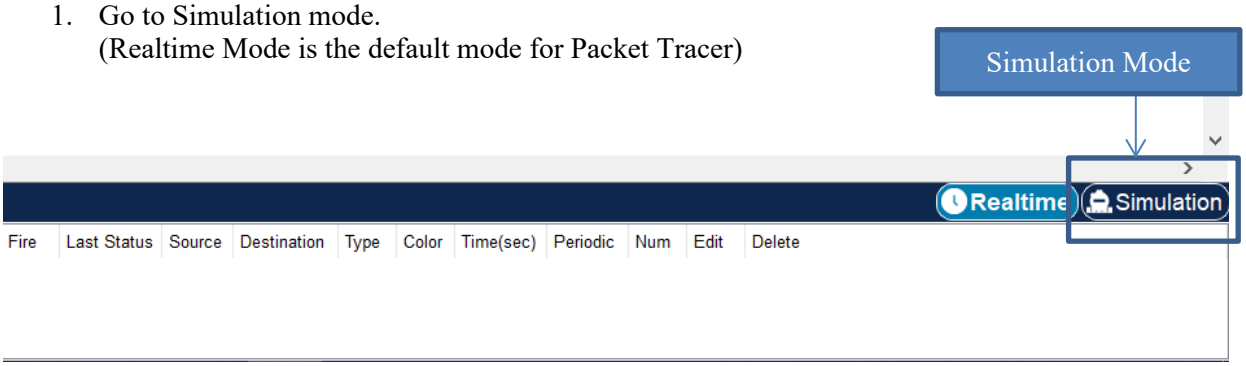
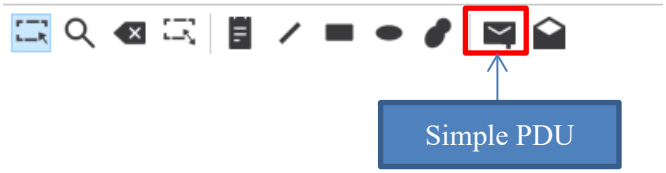
Activity 6 – Simulation mode

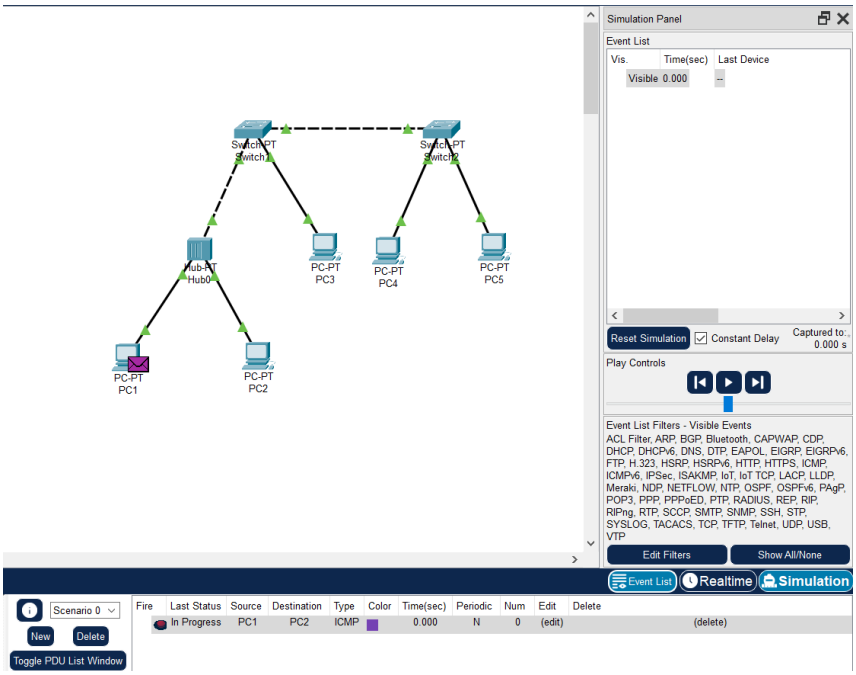
1. Go to Simulation mode.
   (Realtime Mode is the default mode for Packet Tracer)



2. Take a simple PDU **from Common Tool Bar**



3. First Click on one PC (Source PC) and then the other PC that you want to check the connection (Destination PC)



A Packet will be created at the Source end

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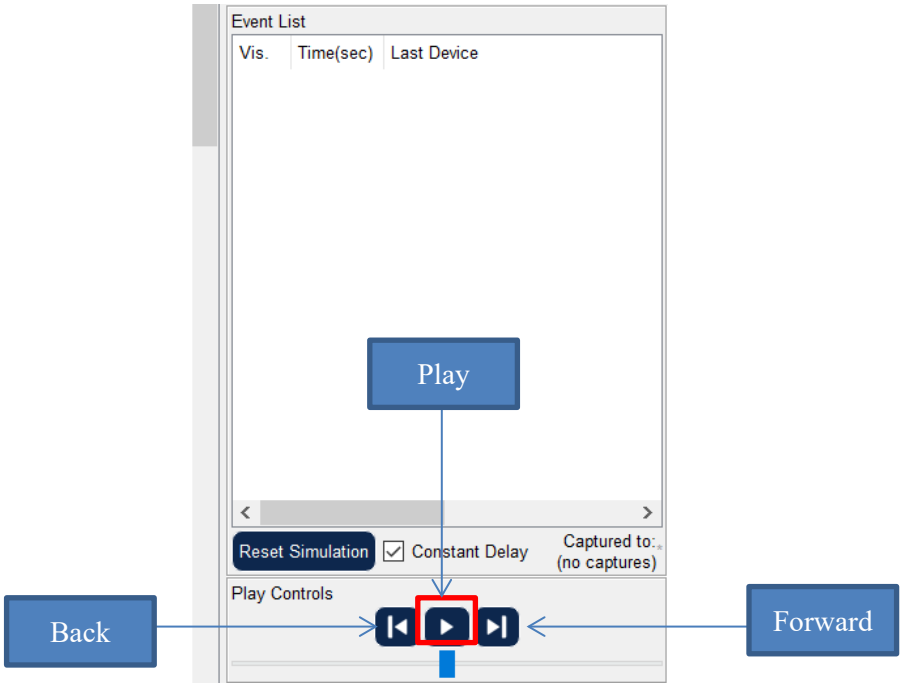
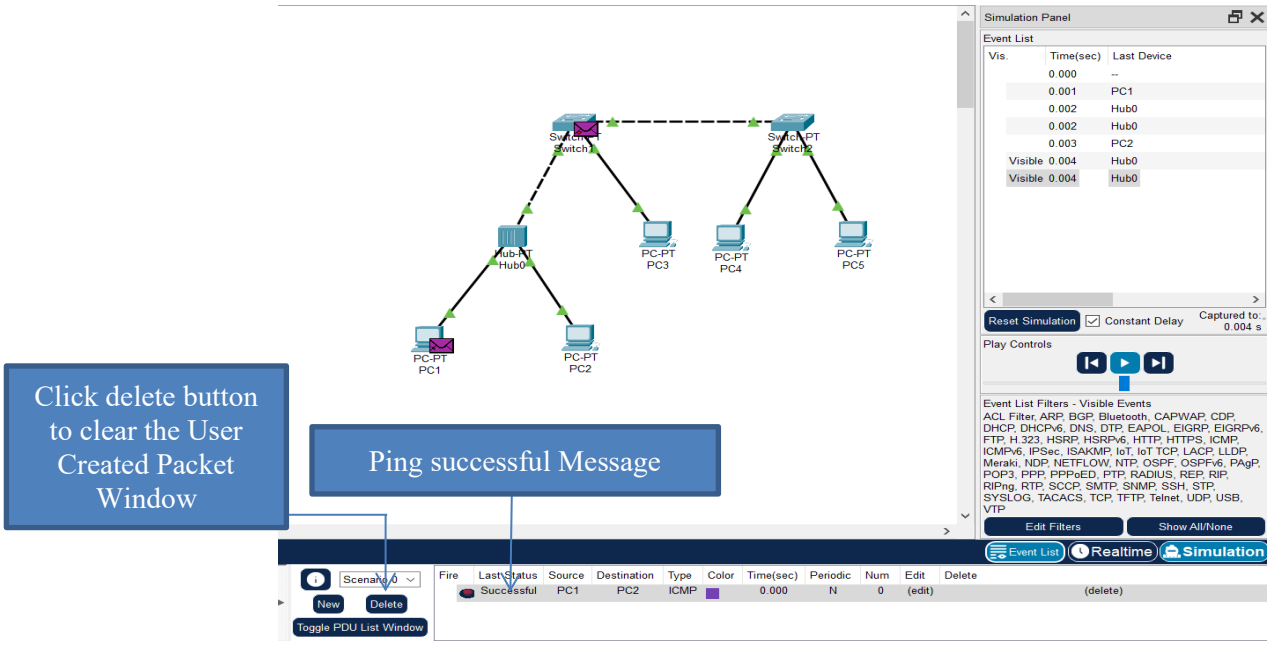
4. Now the simulation is ready. To start the simulation press Play button. You can also navigate back and forth the simulation steps using Back and Forward buttons respectively. To reset the simulation you can use the Reset Simulation button.



Carefully observe how the packet is transferred to the destination and how the reply comes back to source.

***Once the destination received the reply, stop the simulation by clicking the play button again**



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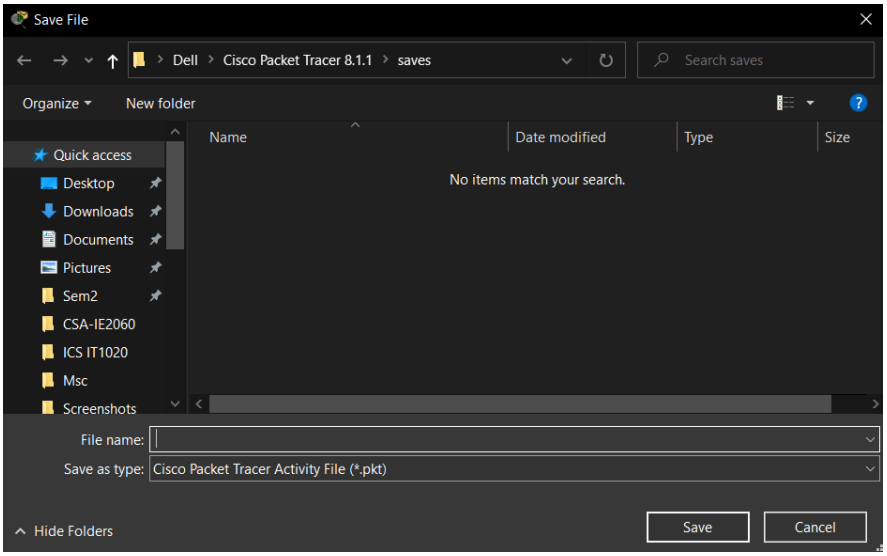
Hub will forward every packet it receives to all the connected devices. A switch can learn the corresponding destination at the first delivery and starting from the second delivery it will directly send the packets to the corresponding destination.

Activity 7 – Saving your work

1. Go to, File > Save



Give a name for your activity and Click “Save”

2. Packet Tracer files will be saved with .pkt extension.

Reference:

- https://www.youtube.com/watch?v=frUQMHXhnvs
- https://www.youtube.com/watch?v=6h7lC3QeYC8