Packet Tracer – Lab 1

What is Packet Tracer?

Packet Tracer is a protocol simulator developed by Dennis Frezzo and his team at Cisco Systems. Packet Tracer (PT) is a powerful and dynamic tool that displays the various protocols used in networking, in either Real Time or Simulation mode. This includes layer 2 protocols such as Ethernet and PPP, layer 3 protocols such as IP, ICMP, and ARP, and layer 4 protocols such as TCP and UDP. Routing protocols can also be traced.

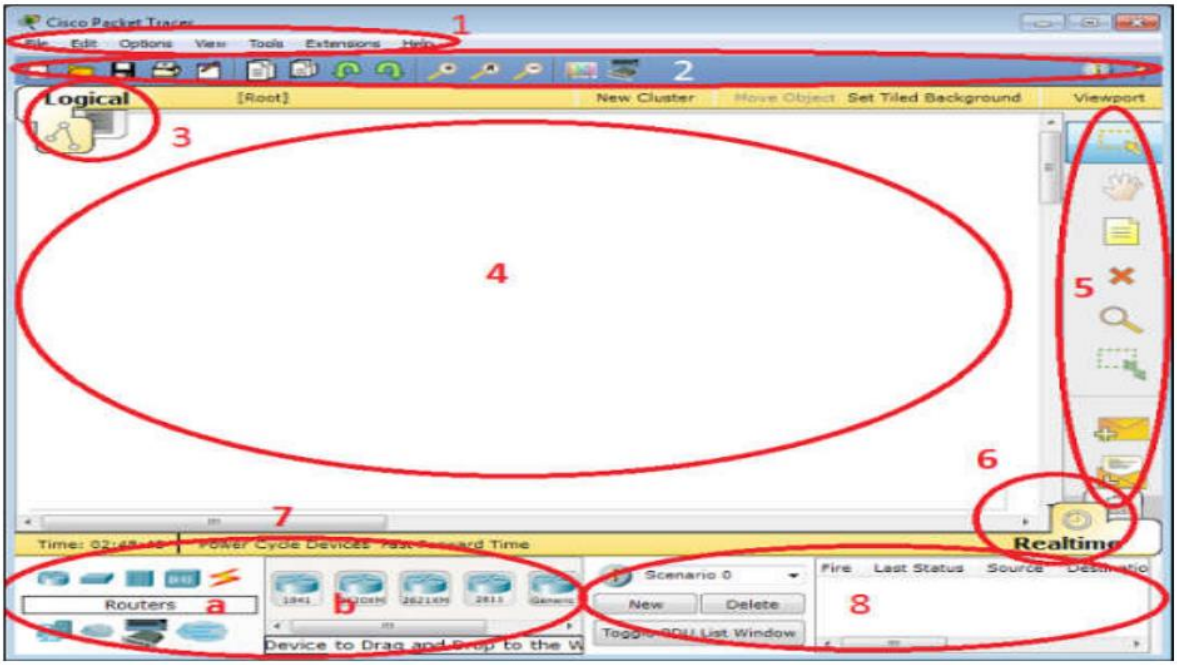
Purpose:

This lab exercise is designed:

1. To get familiarization with "Packet Tracer".
2. How to make Connections Between more than one Devices?
3. How to test the Connectivity between the devices?

Packet Tracer Interface overview

The layout of Packet Tracer is divided into several components. Match the numbering in the following screenshot with the explanations given after it:



Area 1: Menu bar – This is a common menu found in all software applications; it is used to open, save, print, change preferences, and so on.

Area 2: Main toolbar – This bar provides shortcut icons to menu options that are commonly accessed, such as open, save, zoo, undo, and redo, and on the right-hand side is an icon for entering network information for the current network.

Area 3: Logical/Physical workspace tabs – These tabs allow you to toggle between the Logical and Physical work areas.

Area 4: Workspace – This is the area where topologies are created and simulations are displayed.

Area 5: Common tools bar – This toolbar provides controls for manipulating topologies, such as select, move layout, place note, delete, inspect, resize shape, and add simple/complex PDU.

Area 6: Real-time/Simulation tabs – These tabs are used to toggle between the real and simulation modes. Buttons are also provided to control the time, and to capture the packets.

Area 7: Network component box – This component contains all of the network and end devices available with Packet Tracer, and is further divided into two areas:

- Area 7a: Device-type selection box – This area contains device categories.
- Area 7b: Device-specific selection box – When a device category is selected, this selection box displays the different device models within that category

Area 8: User-created packet box – Users can create highly-customized packets to test their topology from this area, and the results are displayed as a list.

The Logical Workspace

The Logical Workspace is where you will spend the majority of your time building and configuring your network. In conjunction with Real-time Mode, you can use this workspace to complete many of the labs you encounter in the Module coursework. To begin building the network, you can do the following:

- Choose devices from the Network Component box.
- Connect your devices by choosing the appropriate cables (also found in the Network Component box).
- Configure device parameters (such as the device name and IP address) through graphical dialogue boxes.

Choosing devices from the Network Component box.

To place a device onto the workspace, first choose a device type from the Device-Type Selection box. Then, click on the desired device model from the Device-Specific Selection box. Finally, click on a location in the workspace to put your device in that location. If you want to cancel your selection, press the Cancel icon for that device. Alternatively, you can click and drag a device from the Device-Specific Selection box onto the workspace. 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

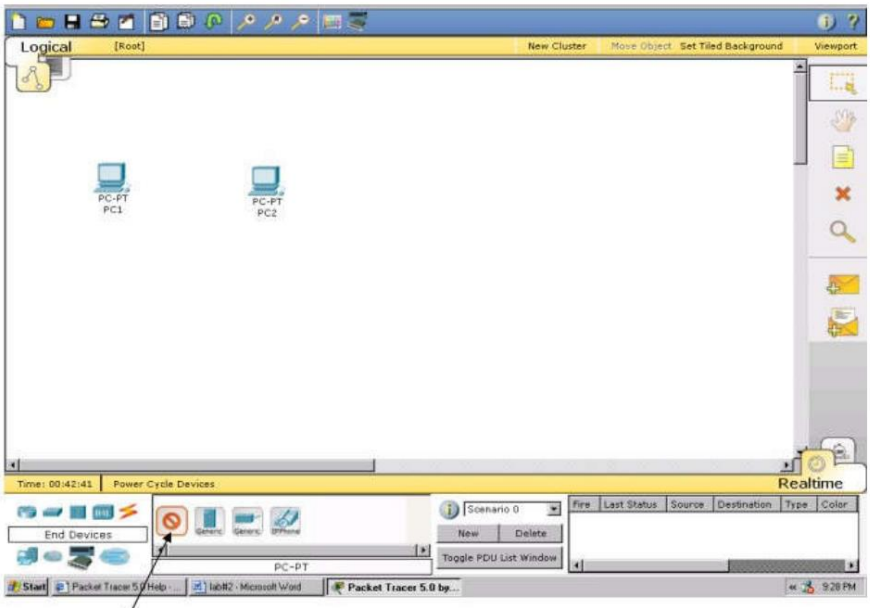
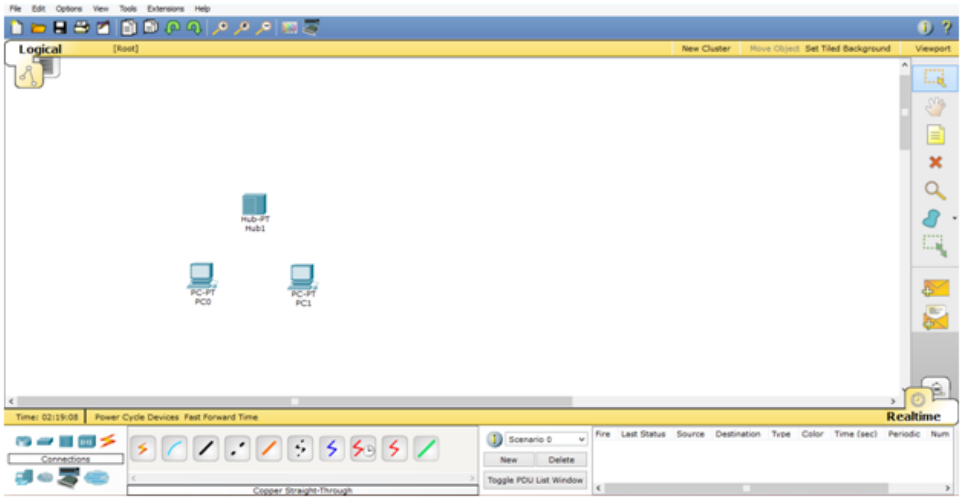


Figure 1-1

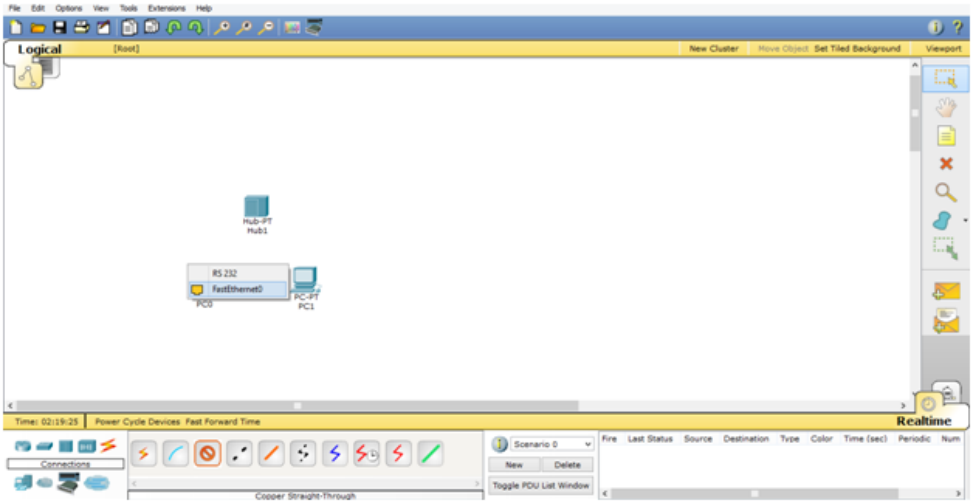
Experiment 1

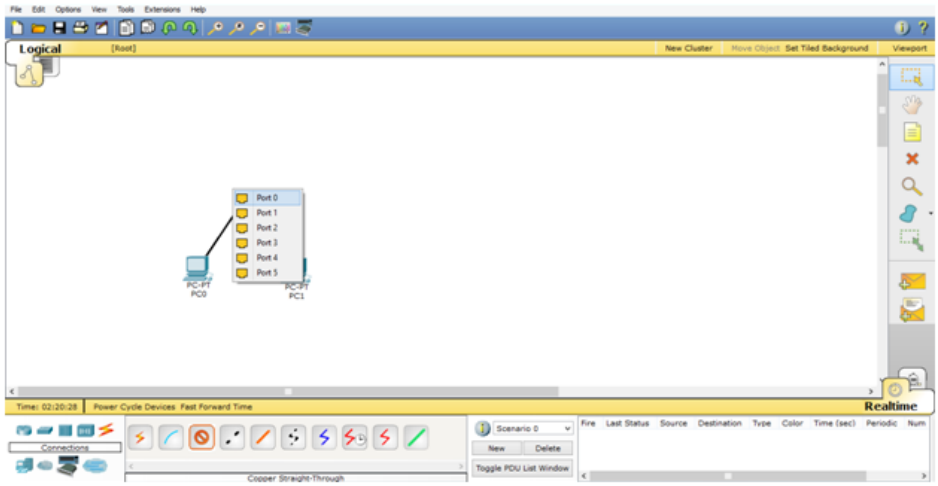
In this experiment, we will be creating a logical network diagram with two PCs and a Hub.

1. Open Packet Tracer from Desktop or Start Menu.
2. The bottom left-hand corner in the screen displays eight icons that represent device categories or groups, such as Routers, Switches, or End Devices. Select **End Devices**. Drag and drop two generic **PCs** onto your design area.
3. Click on **Hub** in lower left part, and then again click in the main window. The **Hub** will appear in the main window.

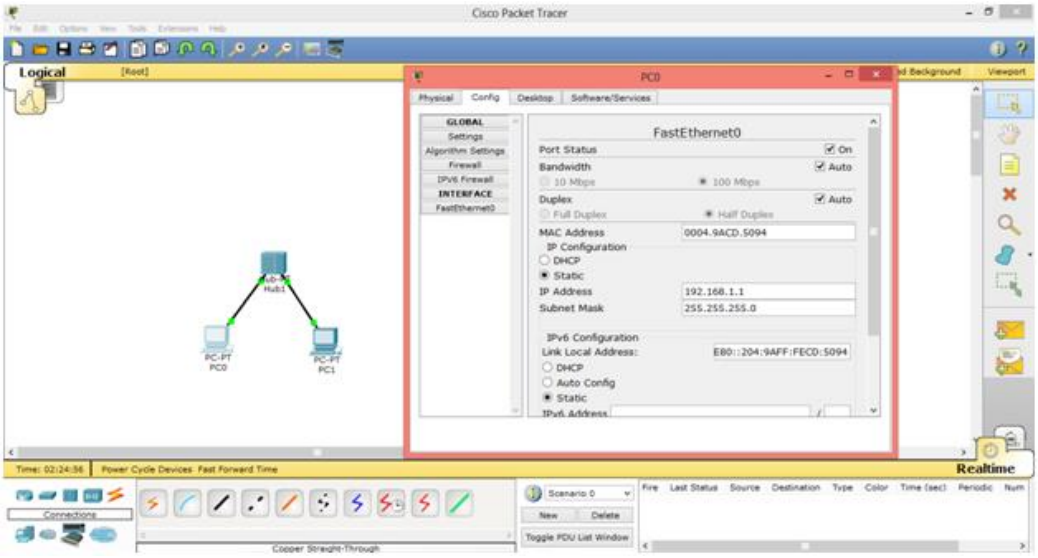


4. Select **Connections**. Choose a copper Straight-through cable type. Click the first host, PC0, and assign the cable to the FastEthernet connector. Click the hub, Hub0, and select a connection port, Port 0, to connect to PC0.





5. Repeat the connection steps for PC1.
6. In order to configure hostnames and IP addresses on the PCs:
7. Click PC0. PC0 window will appear. Select the Config tab. Change the PC Display name to PC-A. Select the FastEthernet tab on the left and add the IP Address of 192.168.1.1 and subnet mask of 255.255.255.0. Close the window.

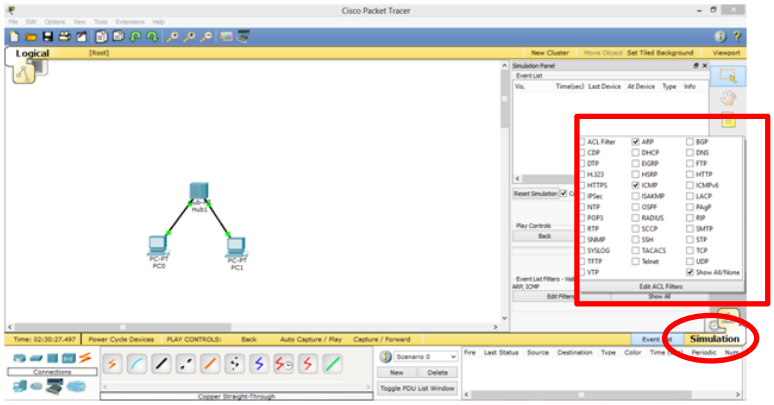


8. Apply the same for PC1 change to PC-B with IP Address 192.168.1.2 and subnet mask 255.255.255.0.

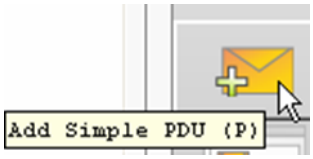
Now that our network is ready, we can try and test its connection with one of the most powerful tools used for network testing called **'Ping'**. Ping uses the ICMP protocol to send an Echo Request and receive an Echo Response.

Now, let's try a simple network simulation to see how packets flow in a network.

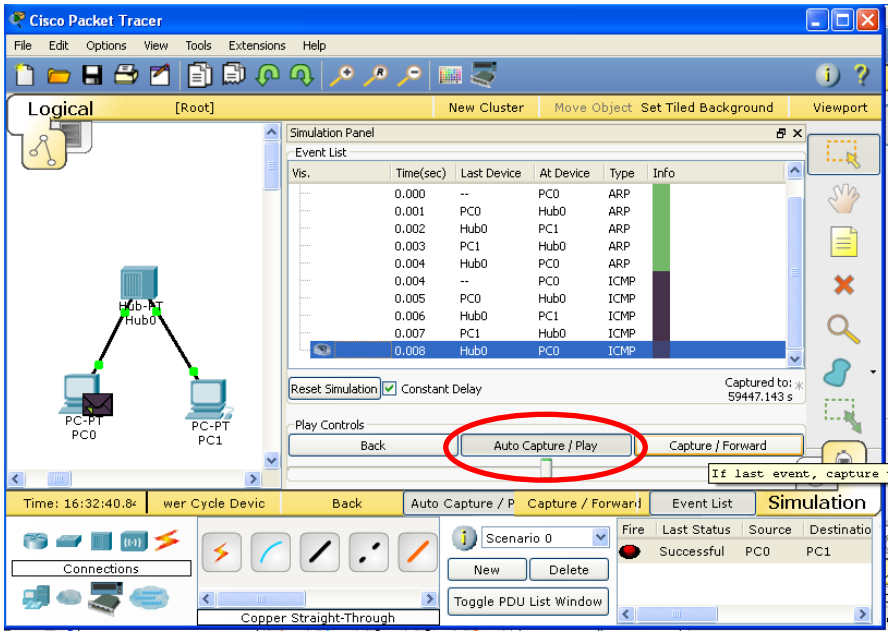
1. In the bottom right of your screen, make sure you're on the '**Simulation**' tab.
2. Click the Edit Filters in the Edit List Filters area, select only **ARP** and **ICMP** filters.



3. Select a Simple PDU by clicking the closed envelope on the right vertical toolbar. Move your cursor to the display area of your screen. Click PC-A to establish the source. Move your mouse to PC-B and click to establish the destination.



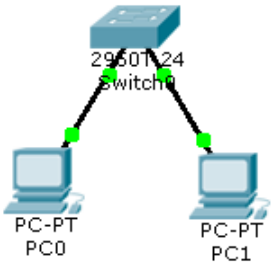
4. Select Auto Capture/Play to see an animation of the flow of packets.



The flow and order of the packets sent through the network in the Pinging process is seen on the Event List on the right. More details about the packet can be seen if you click on each event. Details such as the packet type, contents and structure...

Experiment 2

In this experiment, instead of a hub we will now use a Switch, and see what a real time Ping looks like. Use the exact same steps used previously to create a network with two hosts and a 2950T switch.



- Set the IP address of PC0 to 192.168.10.10 with subnet mask 255.255.255.0.
- Set the IP address of PC1 to 192.168.10.11 with subnet mask 255.255.255.0.

This time we will test the connectivity in this network using a Real time ping test.

- Switch to 'Real Time' tab.
- Click on PC0 > Desktop > Command Prompt.
- Type 'ping 192.168.10.11'.

A successful Ping indicates that the network has been configured correctly.