

## Peer-to-Peer Network with Packet Tracer

### Objectives

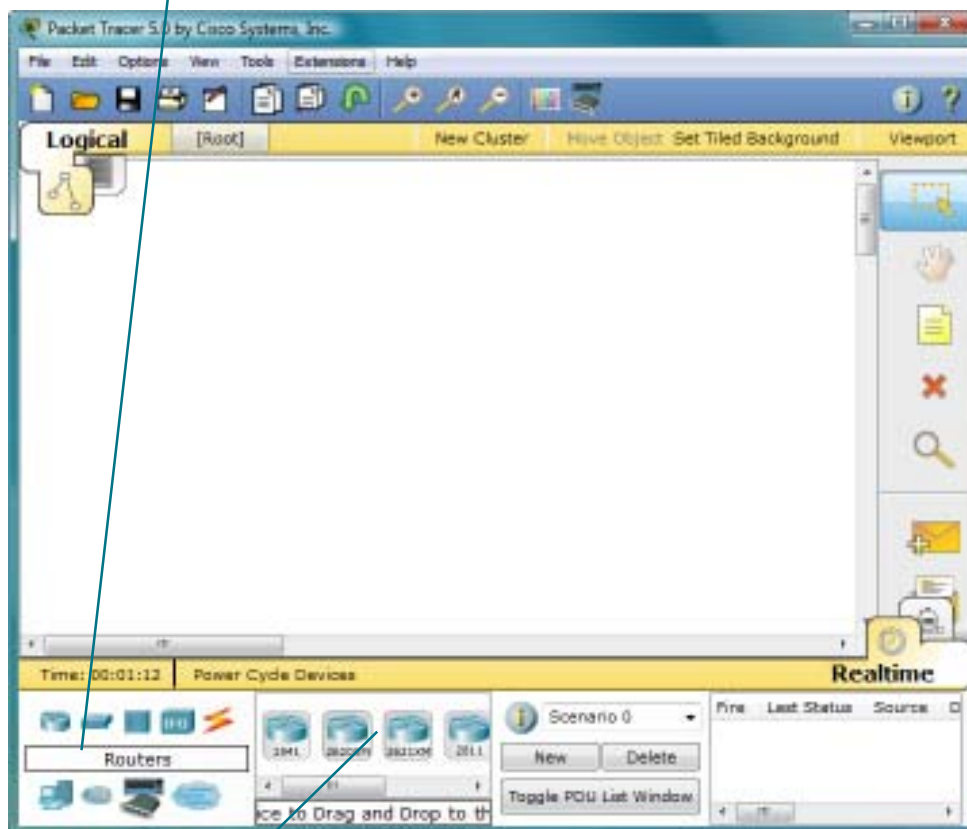
- Develop an understanding of the basic functions of Packet Tracer.
- Create/model a simple Ethernet network using four hosts and a switch.
- Observe traffic behavior on the network.
- Observe data flow of ARP broadcasts and pings in a simple network.

### Background/Preparation

- You need to have Packet Tracer 5.0 installed on your computer

### Step 1 - Start Packet Tracer And Have A Look At The Interface

The bottom left-hand corner of the Packet Tracer screen displays eight icons that represent device categories or groups, such as Routers, Switches, or End Devices.



Moving the cursor over the device categories will show the name of the category in the box. To select a device, first select the device category. Once the device category is selected, the options within that category appear in the box next to the category listings. Select the device option that is required.

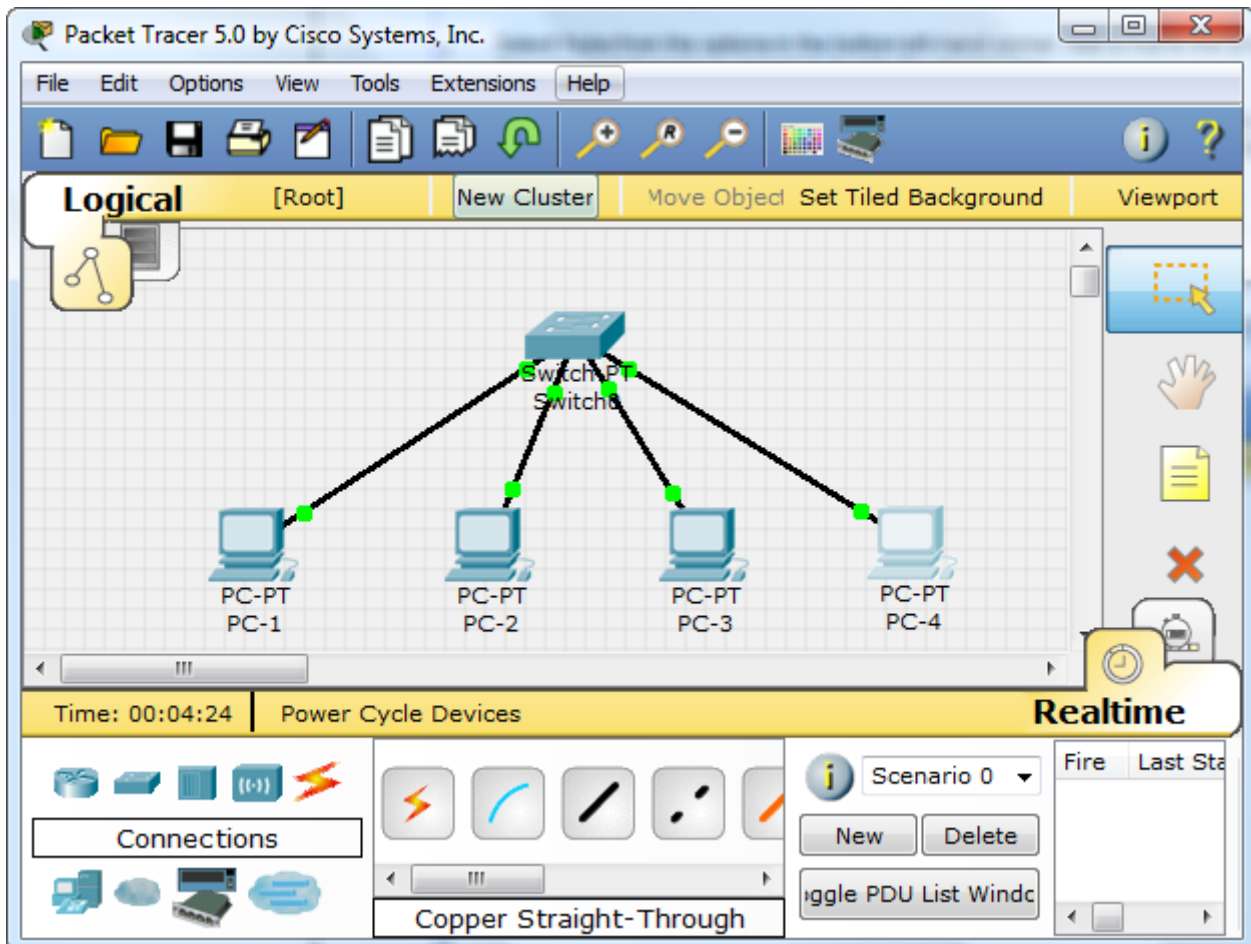
Select End Devices from the options in the bottom left-hand corner. Drag and drop two generic PCs onto the design area.

## Step 2 - Create A Logical Network Diagram With Four PCs And A Switch

- Select Switches from the options in the bottom left-hand corner. Add a switch to the prototype network by dragging and dropping a generic switch onto the design area.
- Select Connections from the bottom left-hand corner. Choose a Copper Straight-through cable type. Click the first host, PC0, and assign the cable to the FastEthernet connector. Click the switch and select a connection port, fa 0/1, to connect to PC0.
- Repeat Step c for the other PCs (PC1, PC2 and PC3) to connect the PCs to the switch.

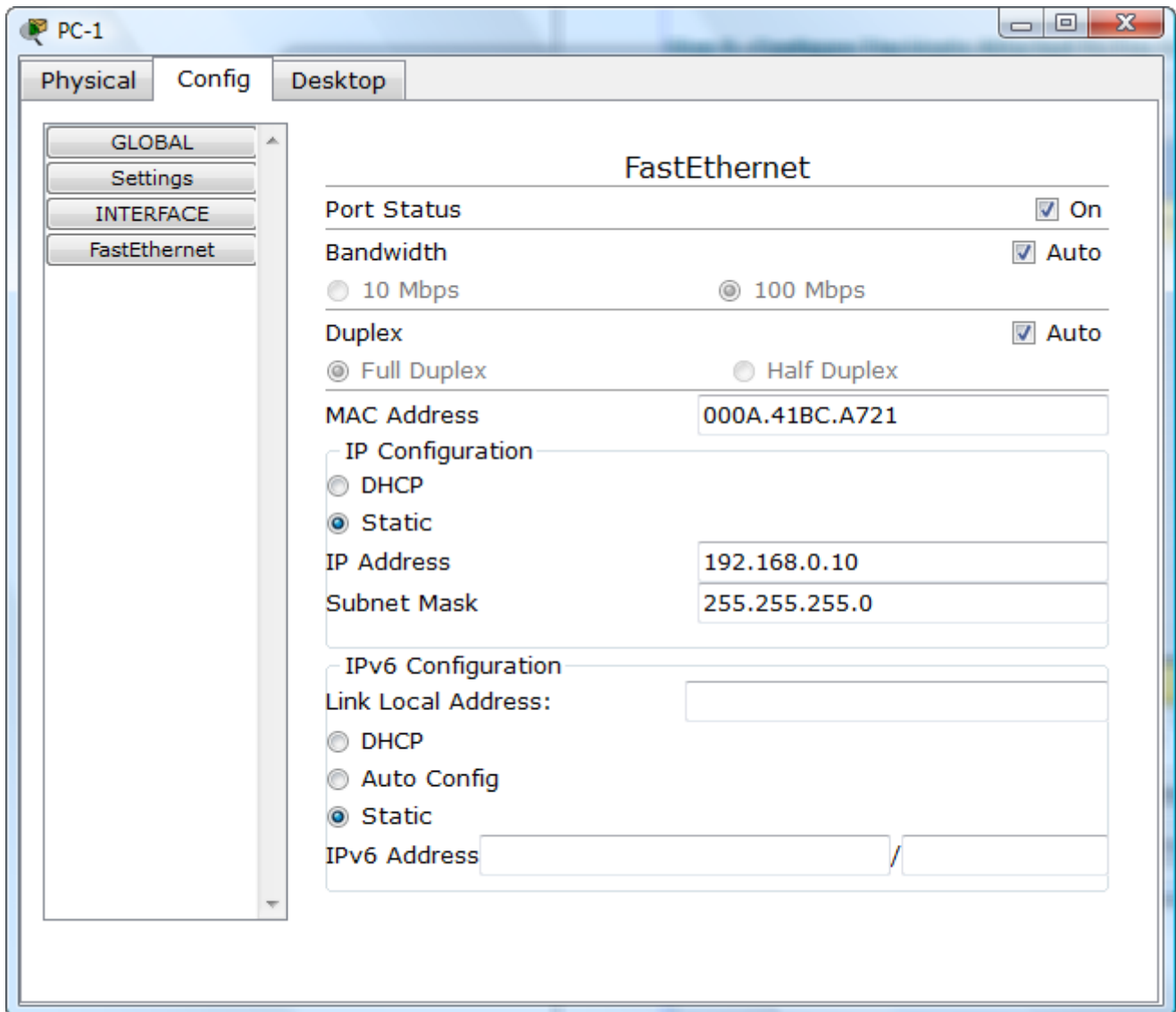
\*There should be green dots at both ends of each cable connection. If not, check the cable type selected. Attention!

At first there is a red light at the switch because it will take between 30 to 50 seconds for the switch to establish a MAC Table to be able to work.



### Step 3 - Configure The Hosts Attached To The Switch

- Configure host names and IP addresses on the PCs by clicking the PC0-icon.
- From the PC0 window, select the Config tab. Change the PC Display Name to PC-1.
- Select the FastEthernet tab on the left and add the IP address of 192.168.0.10 and subnet mask of 255.255.255.0.
- Close the PC-1 configuration window by selecting the x in the upper right-hand corner.



- Continue and configure PC1 by clicking on the PC1-icon.
- Select the Config tab. Change the PC Display Name to PC-2.
- Select the FastEthernet tab on the left and add the IP address of 192.168.0.20 and subnet mask of 255.255.255.0.
- Continue and configure PC2 by clicking on the PC2-icon.
- Select the Config tab. Change the PC Display Name to PC-3.
- Select the FastEthernet tab on the left and add the IP address of **192.168.1.30** and subnet mask of 255.255.255.0.
- Continue and configure PC3 by clicking on the PC3-icon.
- Select the Config tab. Change the PC Display Name to PC-4.
- Select the FastEthernet tab on the left and add the IP address of 192.168.0.40 and subnet mask of 255.255.255.0.

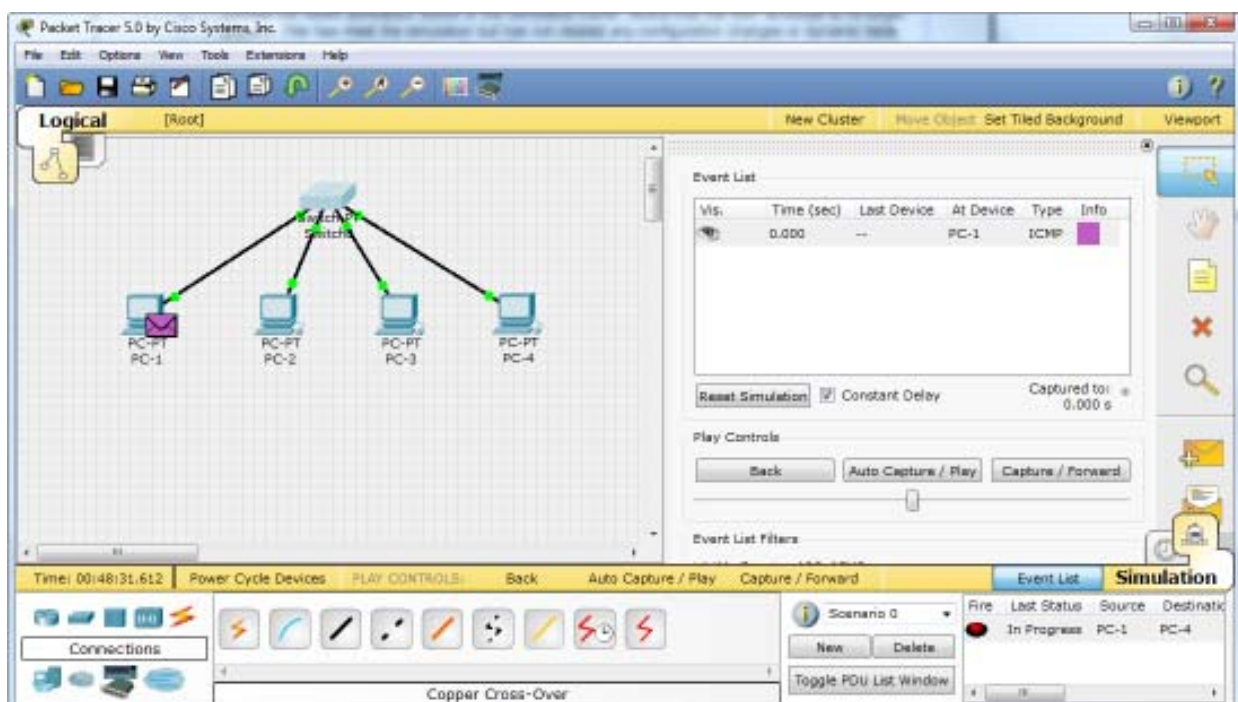
### Step 4 - Run A Simulation Of ICMP-communication (ping)

- Switch to Simulation mode by selecting the tab that is partially hidden behind the Realtime tab in the bottom right-hand corner. The tab has the icon of a stopwatch on it.
- Click the Edit Filters button in the Event List Filters area. Clicking the Edit Filters button will create a pop-up window.
- In the pop-up window, click the Show All/None box to deselect every filter. Select just the ARP and ICMP filters.
- Select the magnifying glass on the right vertical tool bar.
- Click The Switch. The ARP table for the switch will appear.
- 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-1 to establish the source.
- Move your cursor to PC-4 and click to establish the destination.

\*\*Notice that two envelopes are now positioned beside PC-1 One envelope is ICMP, while the other is ARP. The Event List in the Simulation Panel will identify exactly which envelope represents ICMP and which represents ARP.

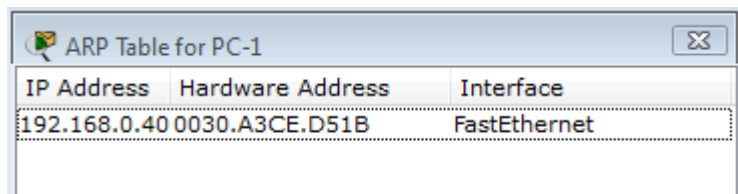
- Select Auto Capture / Play from the Play Controls area of the Simulation Panel. Below the Auto Capture / Play button is a horizontal bar, with a vertical button that controls the speed of the simulation. Dragging the button to the right will speed up the simulation, while dragging it to the left will slow down the simulation.
- Choose the Reset Simulation button in the Simulation Panel. Notice that the ARP envelope is no longer present. This has reset the simulation but has not cleared any configuration changes or dynamic table entries, such as ARP table entries. The ARP request is not necessary to complete the ping command because PC-A already has the MAC address in the ARP table.
- Choose the Power Cycle Devices button on the bottom left, above the device icons.

An error message might appear asking you to confirm reset. Choose Yes. Now both the ICMP and ARP envelopes are present again. The Reset Network button will clear any configuration changes not saved and will clear all dynamic table entries, such as the ARP and MAC table entries.



### Step 5 - View ARP Tables On Each PC

- Choose the Auto Capture / Play button to repopulate the ARP table on the PCs. Click OK when the No More Events message appears.
- Select the magnifying glass on the right vertical tool bar.
- Click PC-1. The ARP table for PC-1 will appear. Notice that PC-1 does have an ARP entry for PC-4. View the ARP table for PC-4. Close all ARP table windows.
- Click Select Tool on the right vertical tool bar. (This is the first icon present in the toolbar.)
- Click PC-1 and select the Desktop tab.
- Select the Command Prompt and type the command `arp -a` and press Enter to view the ARP table from the desktop view. Close the PC-1 configuration window.
- Examine the ARP table for PC-4.



IP Address	Hardware Address	Interface
192.168.0.40	0030.A3CE.D51B	FastEthernet

```
PC>arp -a
Internet Address      Physical Address      Type
192.168.0.40         0030.a3ce.d51b      dynamic
```

### Step 6 - Try Sending To An unreachable IP-address

- Go to the Scenario windows at the bottom of the Packet Tracer window and click the New button.
- 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-1 to establish the source.
- Move your cursor to PC-3 and click to establish the destination.

What happened with the message?

Answer: \_\_\_\_\_  
 \_\_\_\_\_

Why couldn't the message be sent?

Answer: \_\_\_\_\_  
 \_\_\_\_\_

- Save your simulation by the name **switch.pkt**.
- Send your file switch.pkt by email to your teacher as an attachment. Answer the two questions in the letter.