NAME: APEKSHA CHAVAN

TE COMPS

A BATCH

UID: 2017130013

ROLL NO: 2

CEL 51, DCCN, Monsoon 2020
Lab 3: Learn usage of Packet Tracer

Objectives

- Install Packet Tracer from https://www.ciscopods.com/install-packet-tracer-ubuntu/
Develop an understanding of the basic functions of Packet Tracer.
- Create/model a simple Ethernet network using two hosts and a hub.
- Observe traffic behavior on the network.
- Observer data flow of ARP broadcasts and pings.

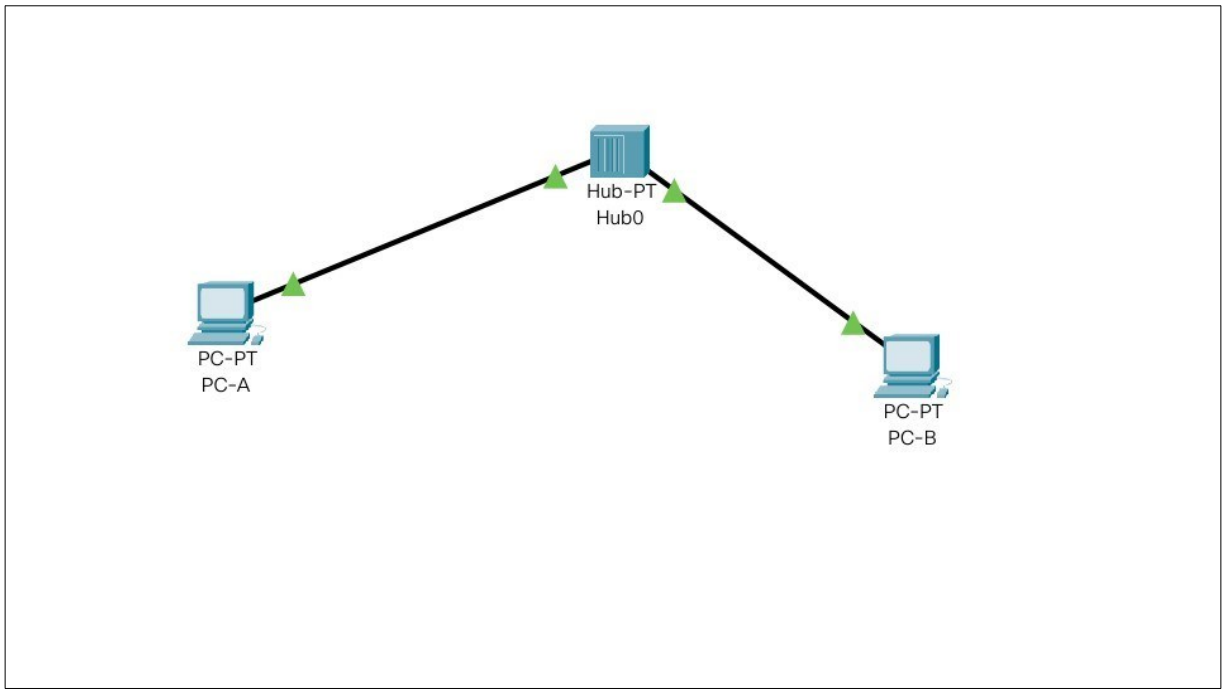
Step 1: Create a logical network diagram with two PCs and a hub

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.

a) Select **End Devices** from the options in the bottom left-hand corner. Drag and drop two generic PCs onto your design area.
b) Select **Hubs** from the options in the bottom left-hand corner. Add a hub to the prototype network by dragging and dropping a generic hub onto the design area.
c) Select **Connections** from the bottom left-hand corner. Choose a **Copper Straightthrough** 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**.
d) Repeat Step c for the second PC, **PC1**, to connect the PC to **Port 1** on the hub.

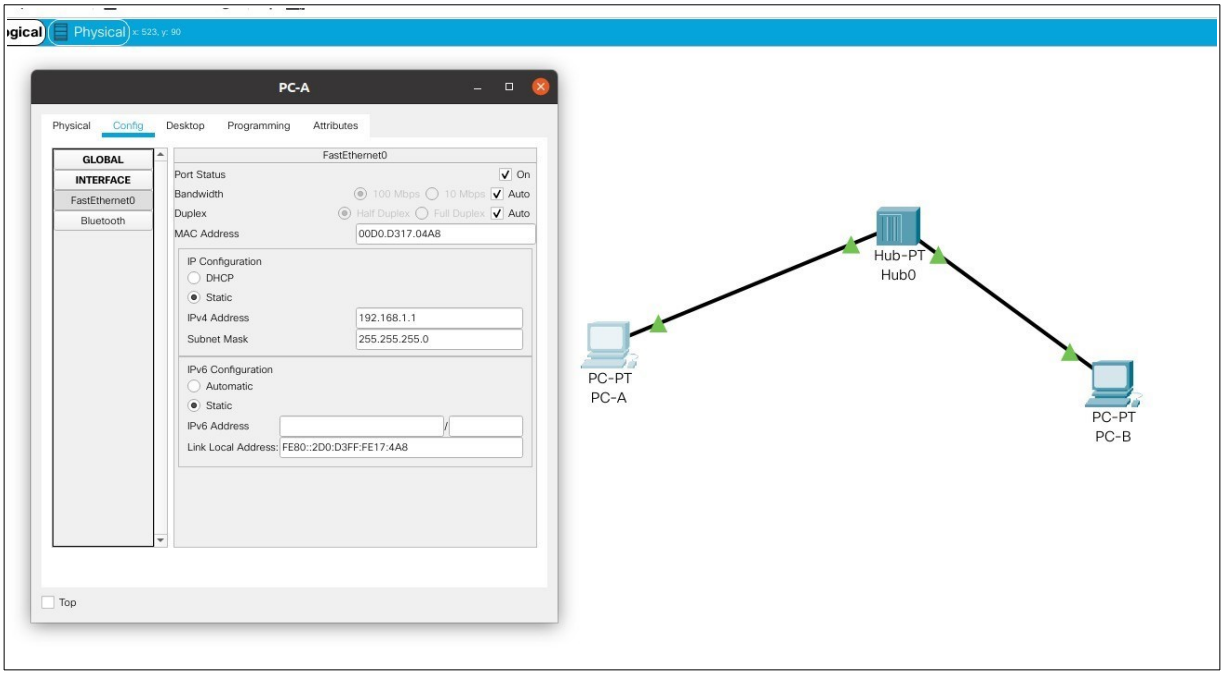
*There should be green dots at both ends of each cable connection. If not, check the cable type selected.

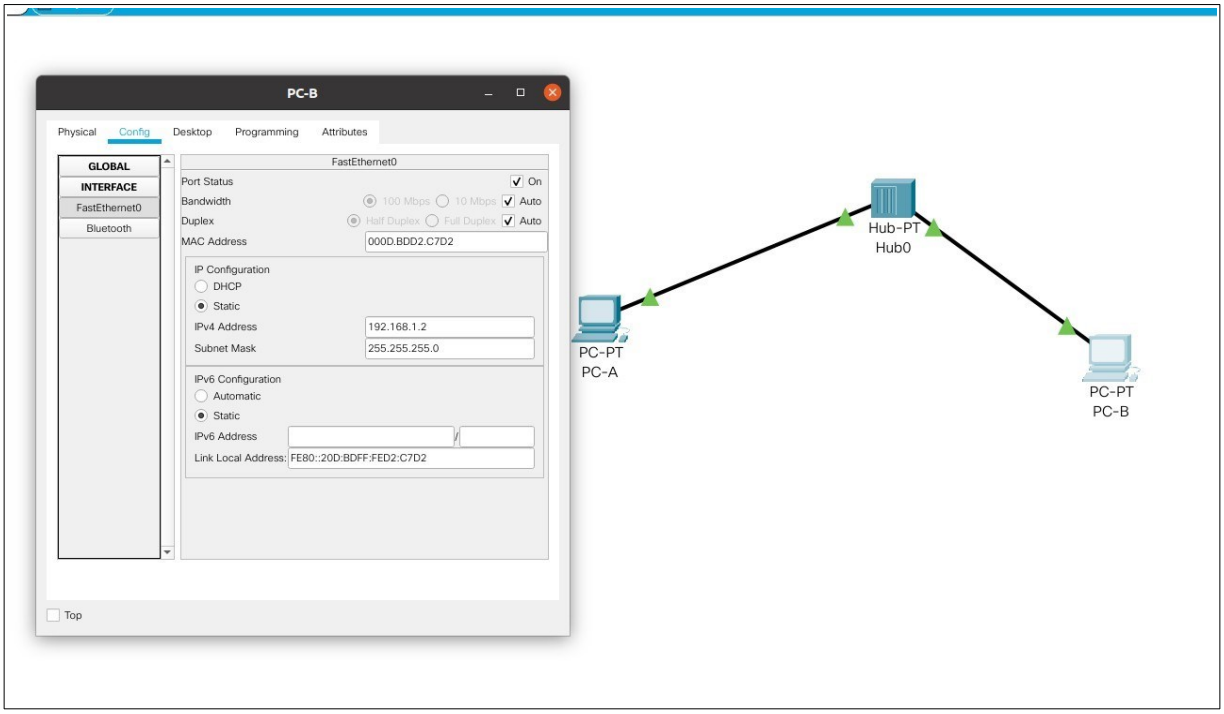


A network of two PCs and a hub is created. Connections are made using copper straightthrough cable.

Step 2: Configure host names and IP addresses on the PCs

a) Click PC0. A PC0 window will appear.
b) From the PC0 window, select the **Config** tab. Change the PC **Display Name** to **PC-A**. (An error message window will appear warning that changing the device name may affect scoring of the activity. Ignore this error message.) 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 PC-A configuration window by selecting the **x** in the upper righthand corner.
c) Click PC1.
d) Select the **Config** tab. Change the PC **Display Name** to **PC-B**. Select the **FastEthernet** tab on the left and add the IP address of **192.168.1.2** and subnet mask of **255.255.255.0**. Close the PC-B configuration window.





Display name, IP address and subnet mask values are assigned to both per as per the instructions.

Step 3: Observe the flow of data from PC-A to PC-B by creating network traffic

a) 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.

b) Click the **Edit Filters** button in the **Edit 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.

c) 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 cursor to **PC-B** and click to establish the destination.

**Notice that two envelopes are now positioned beside PC-A. 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.

d) 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 is to the left will slow down the simulation.

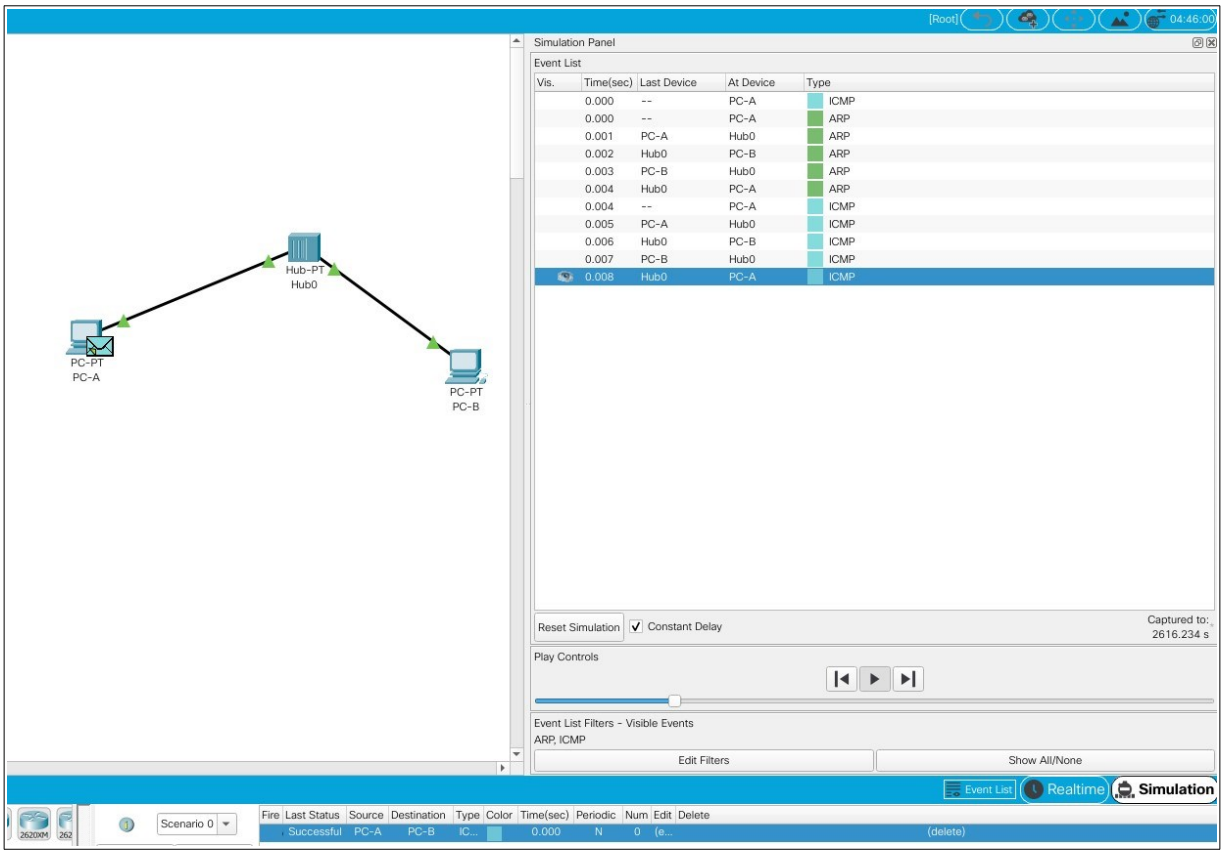
e) The animation will run until the message window *No More Events* appears. All requested events have been completed. Select OK to close the message box.

f) 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.

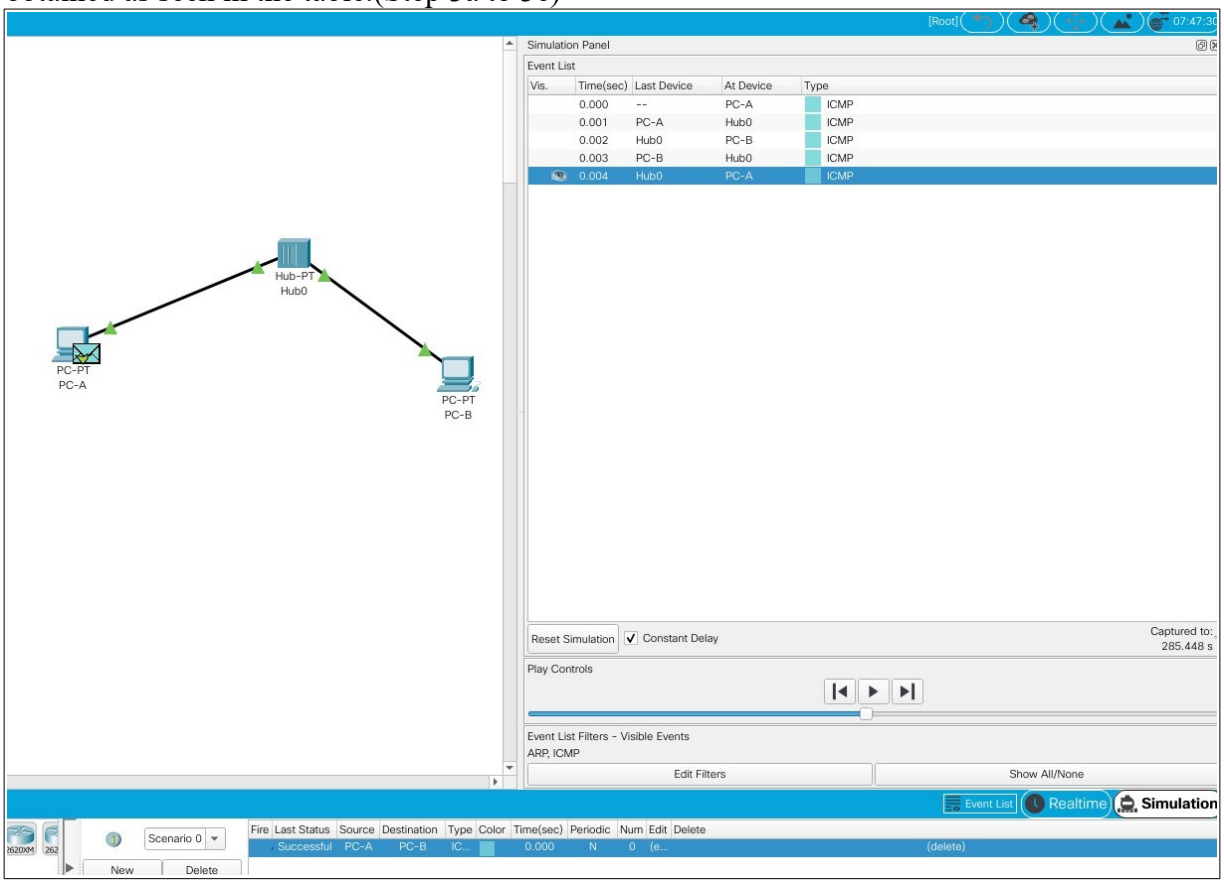
g) Choose the **Capture / Forward** button. The ICMP envelope will move from the source to the hub and stop. The **Capture / Forward** button allows you to run the simulation one step at a time. Continue selecting the **Capture / Forward** button until you complete the event.

h) Choose the **Power Cycle Devices** button on the bottom left, above the device icons.

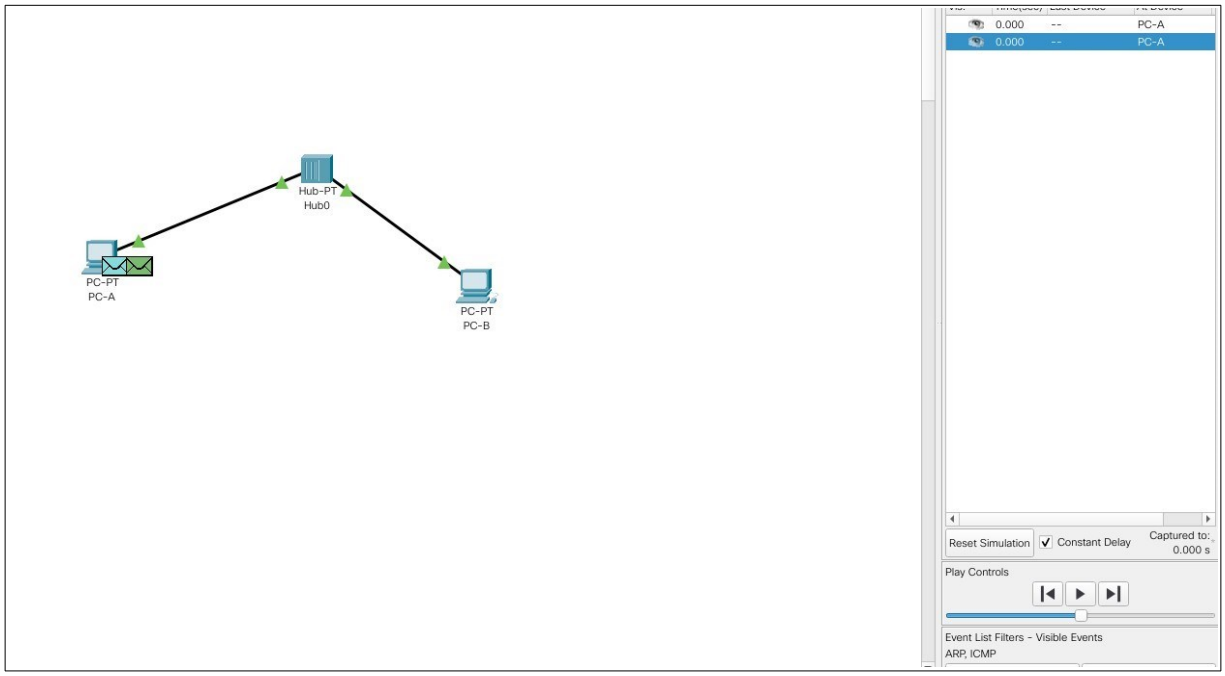
i) An error message will appear asking you to confirm reset. Choose **Yes**. Now both the ICMP and ARP envelops are present again. The **Reset Network** button will clear any configuration changes not saved and will clear all dynamic table entries, such as the ARP and MAC table entries.



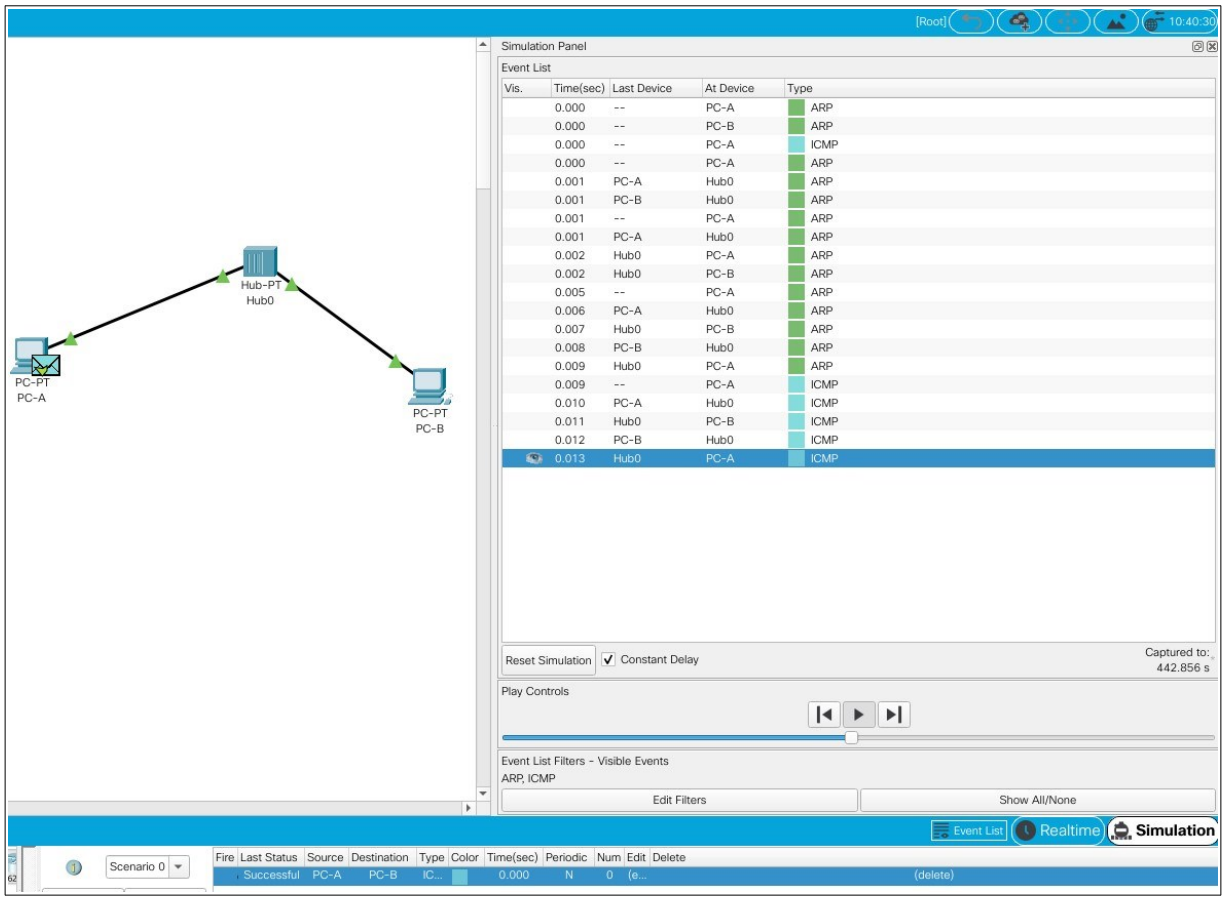
ARP and ICMP filters are selected.PDU is created and the simulation is played.Results are obtained as seen in the table.(Step 3a to 3e)



After pressing reset, no ARP entries seen in the table.(Step 3f,3g)



On pressing the power cycle devices button and reset, both ICMP and ARP entries appear in the table.



Step 4: View ARP Tables on each PC

a) Choose the **Auto Capture / Play** button to repopulate the ARP table on the PCs. Click **OK** when the *No More Events* message appears.

b) Select the magnifying glass on the right vertical tool bar.

c) Click **PC-A**. The ARP table for PC-A will appear. Notice that PC-A does have an ARP entry for PC-C. View the ARP tables for PC-B and PC-C as well. Close all ARP table windows.

d) Click the **Select Tool** on the right vertical tool bar. (This is the first icon present in the toolbar.)

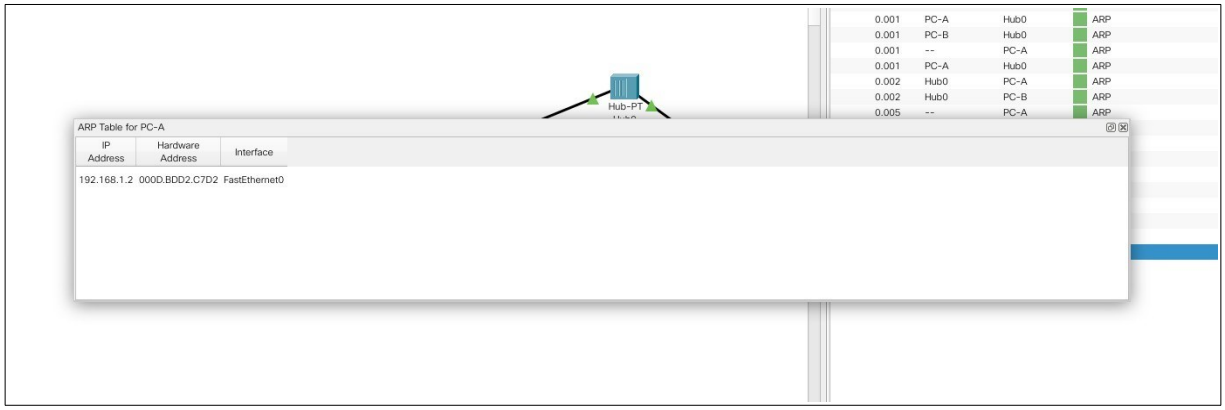
e) Click **PC-A** and select the **Desktop** tab.

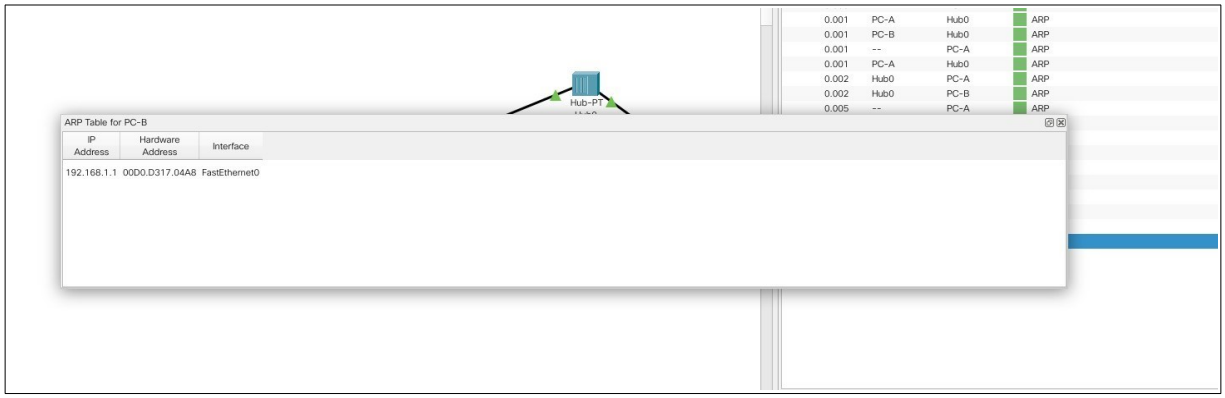
f) Select the **Command Prompt** and type the command **arp -a** and press *enter* to view the ARP table from the desktop view. Close the PC-A configuration window.

g) Examine the ARP table for **PC-B**.

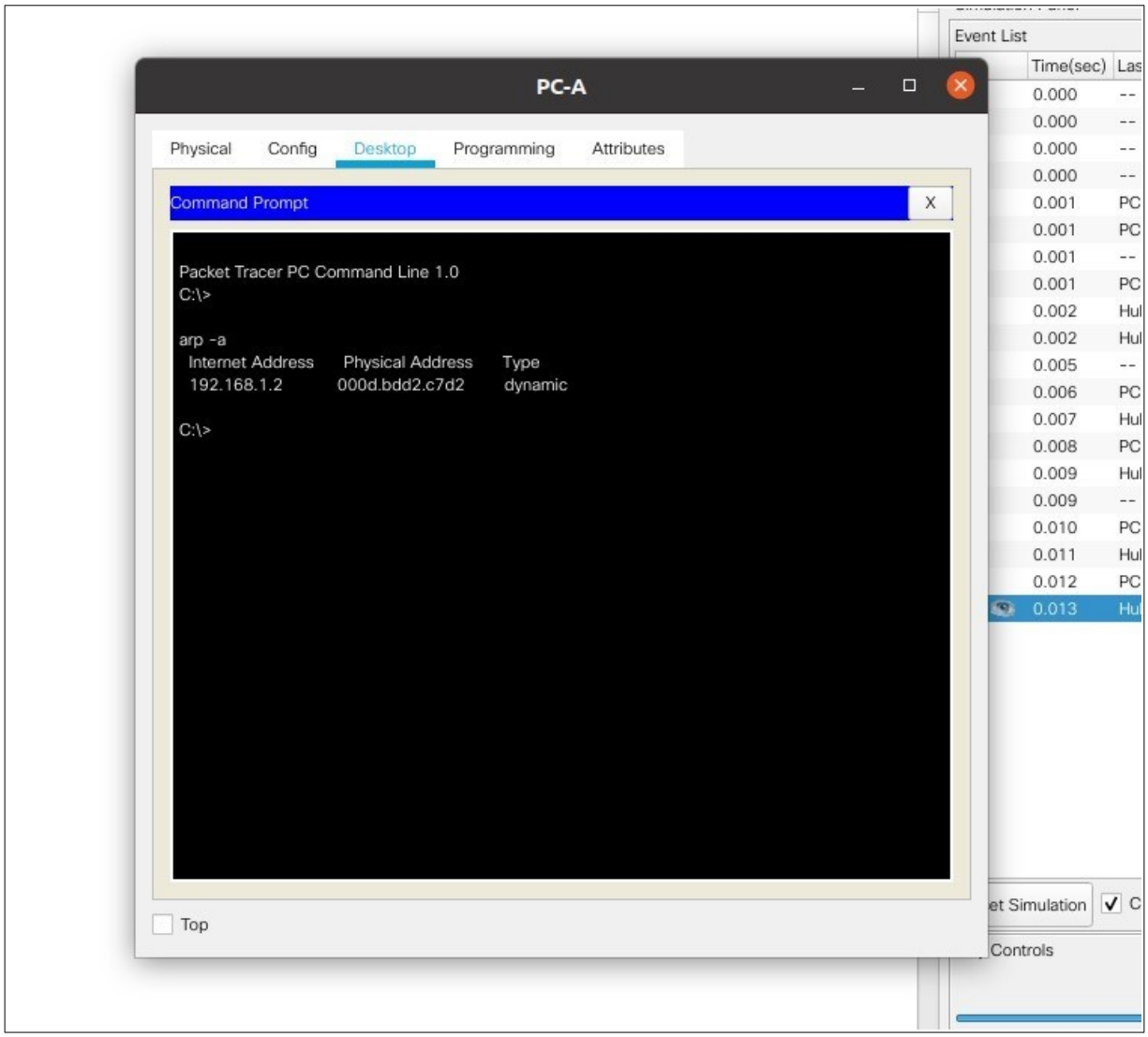
h) Close the PC-B configuration window.

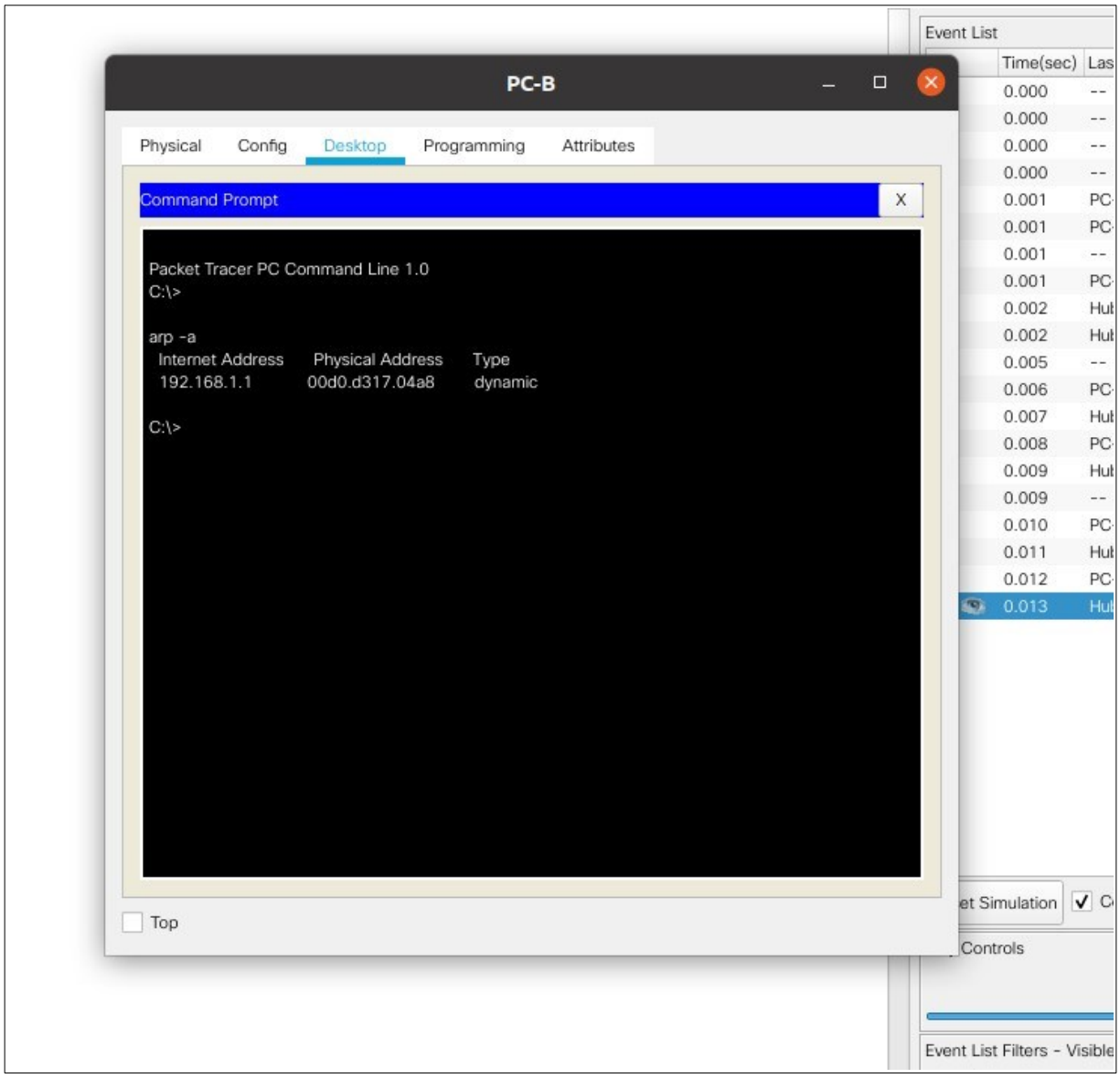
i) Click the **Check Results** button at the bottom of the instruction window to verify that the topology is correct.





ARP tables of both PCs are observed. IP address of PC-B is present in the table of PC-A and vice versa.


PC-A
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Packet Tracer PC Command Line 1.0
C:\>
arp -a
Internet Address Physical Address Type
192.168.1.2 000d.bdd2.c7d2 dynamic
C:\>
Top
Event List
Time(sec)
0.000
0.001
0.002
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
Controls



Output of arp a command matches with the ARP table. IP address of PC-A appears when command is executed in terminal of PC-B and vice versa.

Deliverables:

Submit model schematic view along proper notations and the outcome of all steps you followed for this experiment, with proper description.