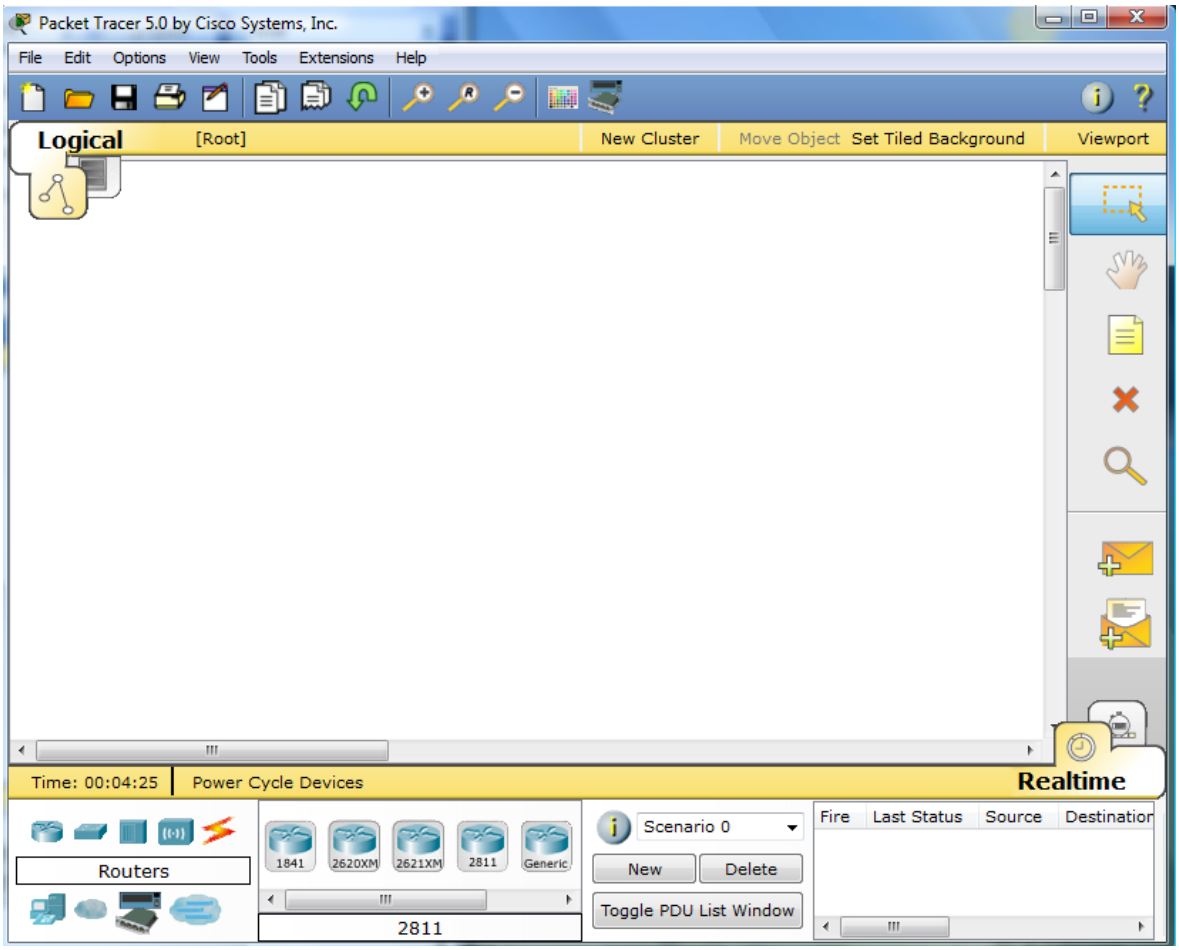
Yengkong Sayaovong
IFT 166
Lab 3

IFT 259 Introduction to Internet Networking

Lab 3
Packet Tracer Introduction and Forwarding IP Datagrams

- Packet Tracer is a network simulator developed Cisco Systems.
- 'Simulator' – simulates network devices and its environment.
- Packet Tracer supports a lot of protocols.
- Protocols in Packet Tracer are coded to work and behave in the same way as they would on read hardware.

Purpose: The purpose of this lab is to become familiar with building topologies in Packet Tracer.



Lab 3 Deliverables

Provide 2 screenshots of your work as indicated on the lab & answer any questions that may be asked.
In these screenshots, show proof that it is your work e.g. use appropriate names on the nodes.

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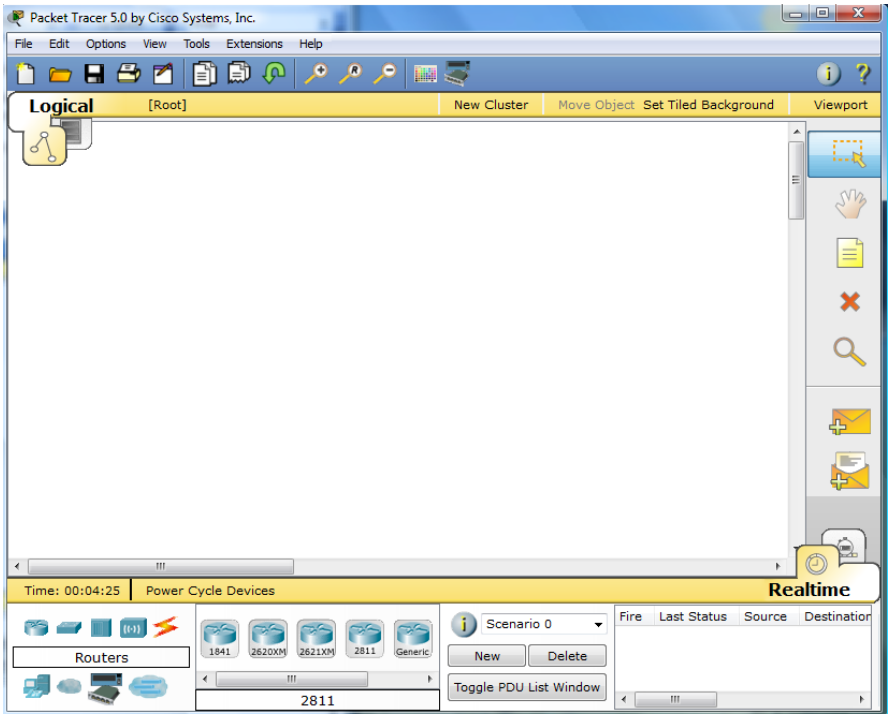
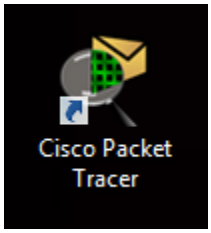
Packet Tracer Installation

1. Obtain a copy of the Packet Tracer software the folder link on Blackboard).
2. Install the software onto your portable hard drive (accept the default settings)
3. Once installed, you should have a shortcut icon on your desktop….now double click the icon to open the program
4. Upon opening, you will see the opening screen to Packet Tracer.





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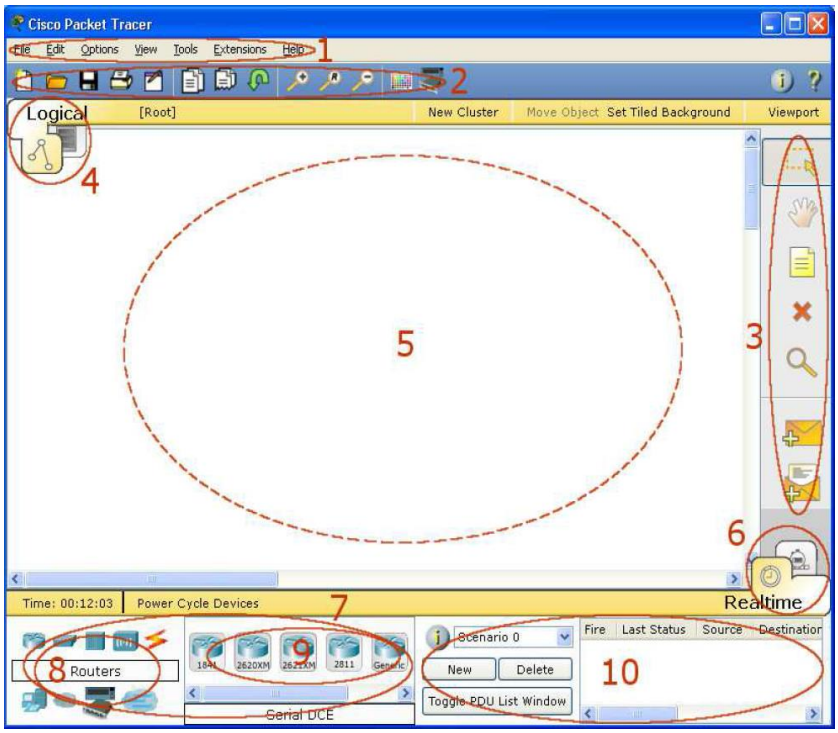
Packet Tracer Overview



1. Menu Bar: common menu found in most software e.g. open, save, print
2. Main Toolbar: shortcut icons to menu options e.g. open, save, print and networking information button for entering a description for the current network.
3. Commons Toolbar: commonly used workspace tools for manipulating topologies e.g. select, delete, move
4. Logical/Physical workspace tabs: toggle between tabs
5. Workspace: area where topologies are created and simulations are displayed
6. Realtime/Simulation tabs: toggle between tabs
7. Network component box: choose devices and connections to put into the workspace. It contains the Device-Type Selection Box and the Device-Specific Selection Box.
8. Device Type selection box: type of devices and connections available in Packet Tracer. The Device-Specific Selection Box will change depending on which type of device you choose.
9. Device-Specific Selection Box: choose specifically which devices you want to put in your network and which connections to make.
10. User Created Packet Window: users create customized packets to test topologies and the results are displayed as a list

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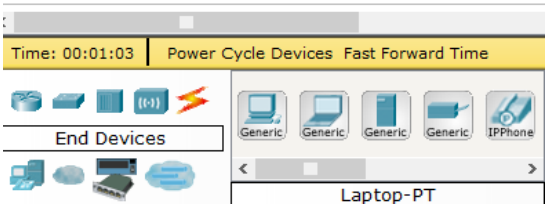
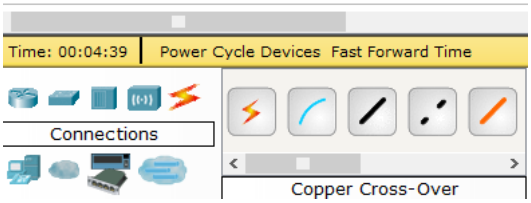
Create a Simple Topology

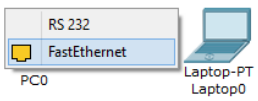
1. Start off with a clear workspace.
2. On the device type selection box, click on end devices and then drag and drop a generic PC icon and a generic laptop onto the workspace from the device specific selection box (as below)

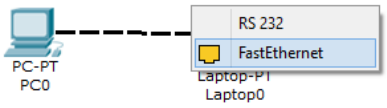


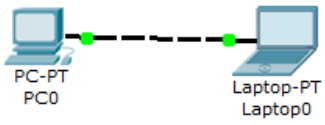
3. Click the connections icon in the device type selection box and then click on copper cross over cable.



4. With the copper cross over cable selected, click on PC then select FastEthernet and then click on the Laptop and select FastEthernet







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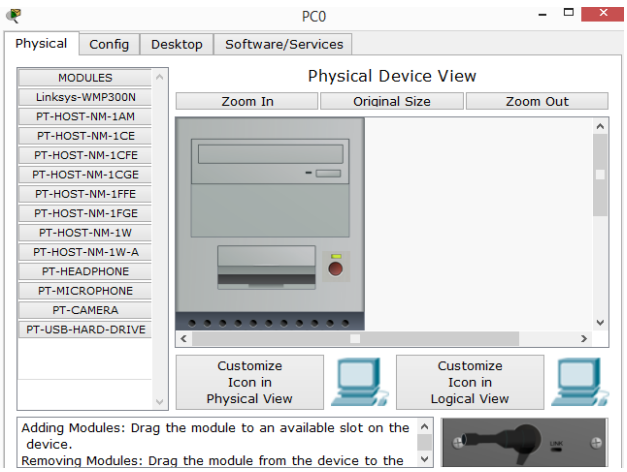
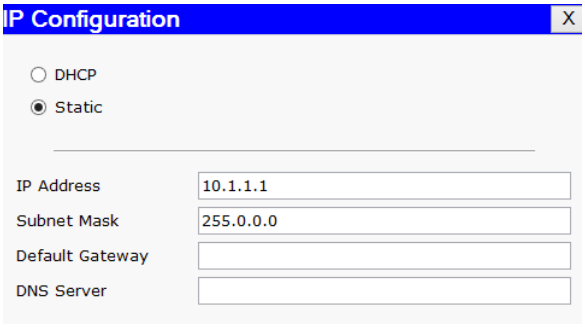
5. With the physical connection established, click on the PC, select Desktop and click IP configuration



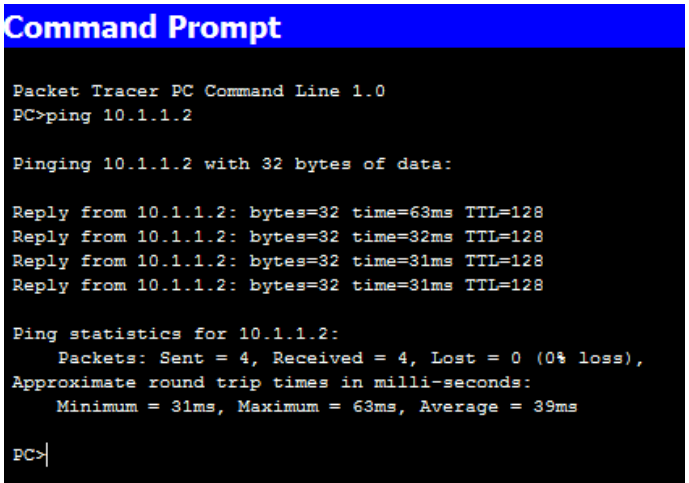
6. Enter the information as in the image below. We do not need to enter the default gateway or the DNS server information as there are only 2 devices in this network.



7. Repeat steps 5 and 6 for the laptop (IP: 10.1.1.2 SM: 255.0.0.0)

8. On the PC, open the command prompt and will attempt to see if we can contact the laptop through the ping command.

9. In the command window type: ping 10.1.1.2 and you should see the following



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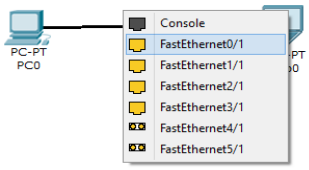
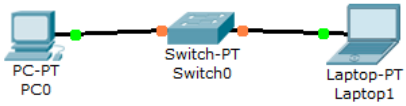
10. Now we will add in a switch to our topology (as shown below)

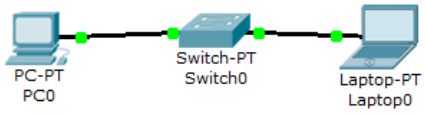
11. You will need to remove the cable/link connecting the PC to the laptop using the delete tool on the commons toolbar.

12. We will now connect the PC to the switch and the laptop to the switch using 2 separate copper straight through cables. Same procedure are before, click the cable, and click PC and then FastEthernet and same on the switch.





13. Initially the link lights on the switch are orange (as above) but will soon turn green.



Screenshot 1

14. With the switch connected on both sides, check for connectivity again using the ping command.

Put your Screenshot 1 in this box

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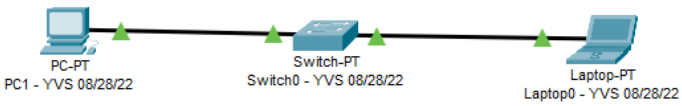
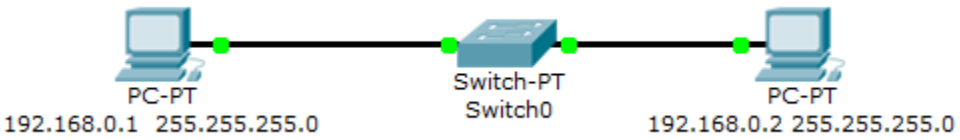


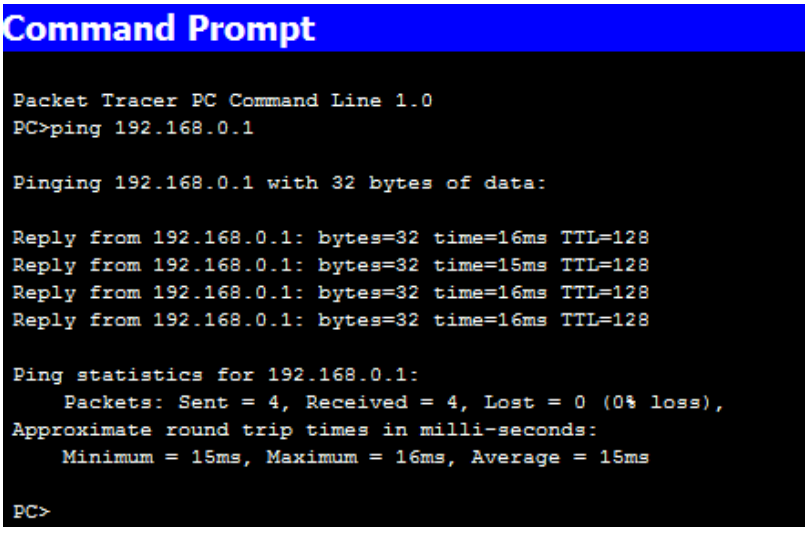
Sending Simple PDU's

- Once a topology has been created, connectivity can be tested between devices by using either simple or complex PDU's.
- Pinging devices from the command line interface can do the same thing but PDU is quicker for larger topologies.
- Simple PDU is a graphical way to send pings.
- Simple PDU just makes a single ping attempt. Whereas ping command send 4 rounds.

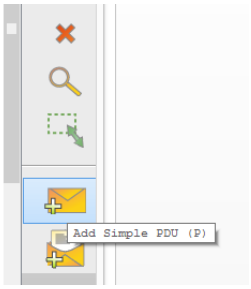
1. Setup the following topology



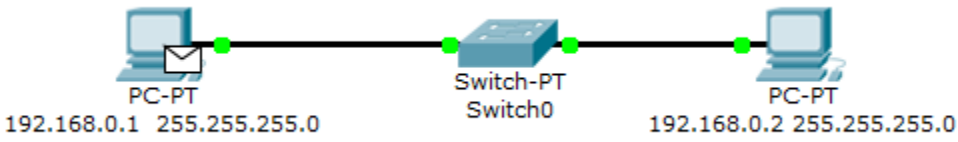
2. Use the standard ping command to verify connection between the PCs



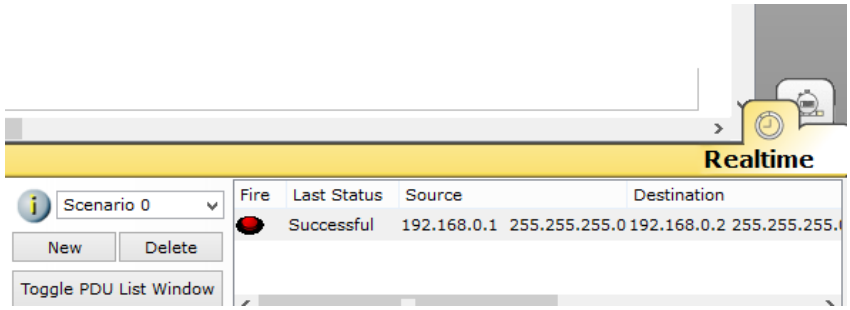
3. From the common toolbar, click the closed envelop or shortcut key *P (Add Simple PDU).*



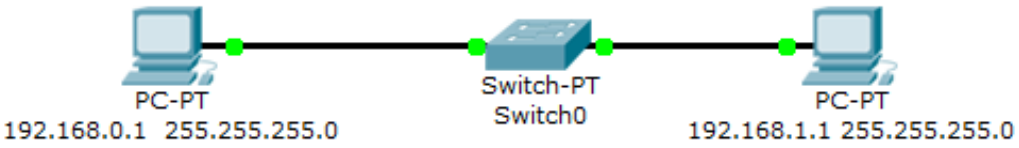
4. The pointer changes to an envelope symbol. Click on PC0 and then on PC1. After clicking on PC0, an envelope will appear on PC0



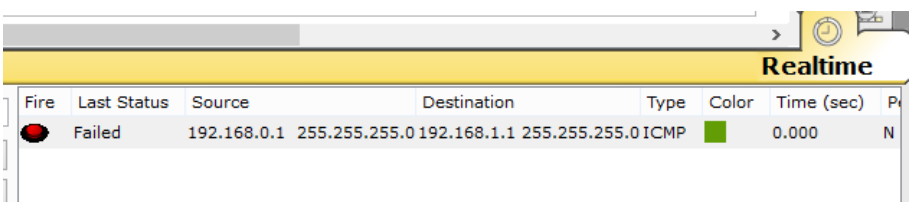
5. After clicking PC1, look at the user created packet box which will show “status = successful”. You can see the source and destination of the packets.



6. Now change the IP address of PC1 to 192.168.1.1 and redo the Add Simple PDU



7. In the user created packet box, it should now say ‘Failed’



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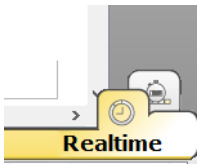
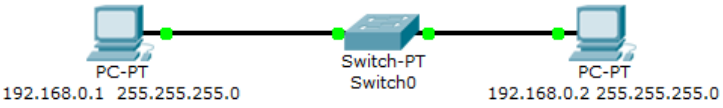
Any idea why the Add Simple PDU failed?

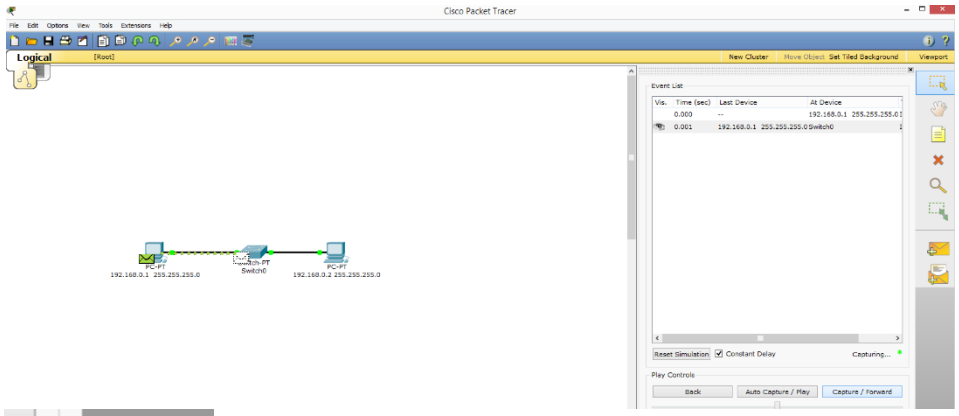
Network Misconfiguration

8. So far, all of what we did was in Realtime mode. The only indication of traffic was the link status blinking green.





9. By using simulation mode, you can see the packets flowing from one node to another. Click the capture/forward button to move the packet along the route.



Screenshot 2

Put you Screenshot 2 in this box

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