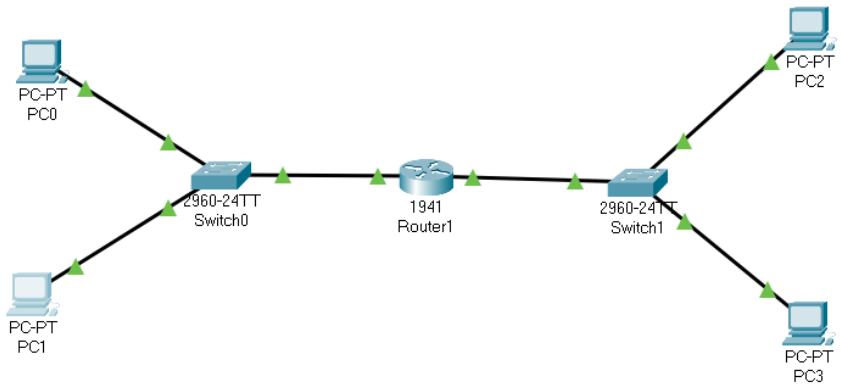
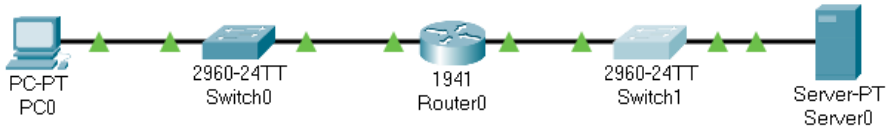
CO323 - Lab 02
Basic Routing and Investigating the OSI Model

1) Create the network topology shown below. (Note: Many of you were confused about using VLANs for these simple networks. Do not configure any VLAN by yourself on the switches.)

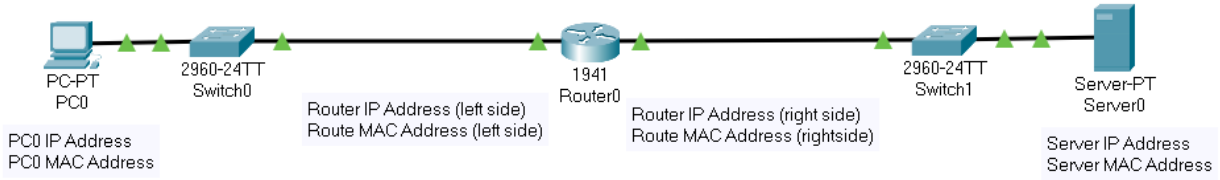


a) Assign IP addresses appropriately and label the network properly. Take a screenshot of the labeled network.
b) Try to ping from PC1 to PC2. What do you notice? If you can not ping, explain the reason briefly.
c) What is the configuration that needs to be done to route the traffic properly? Fix that and verify that you can ping. Take a screenshot of the ping response.

2) Create the network below. (No VLANs involved)



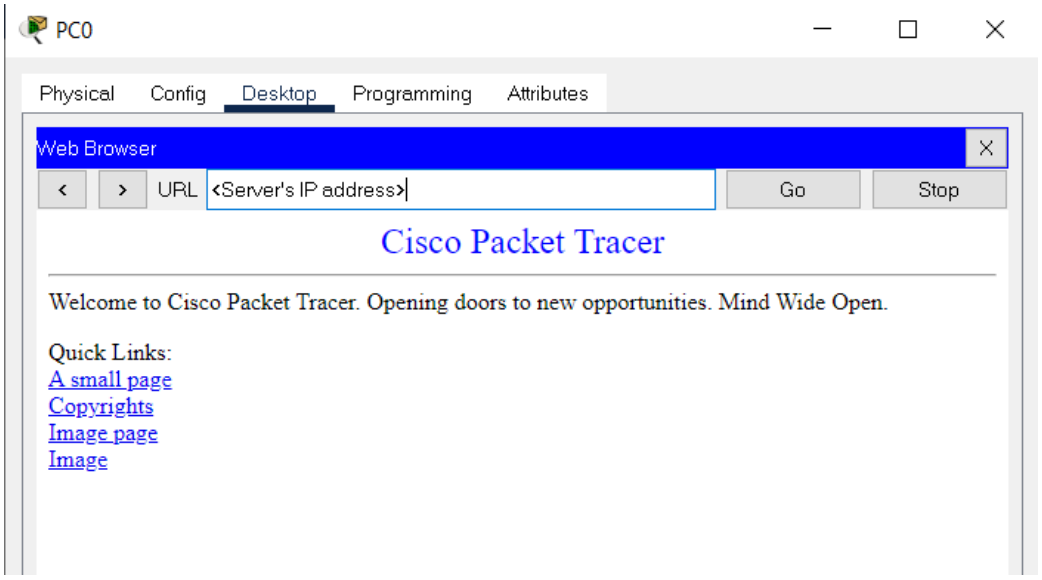
a) Assign IP addresses appropriately.
b) Label the network as shown in the figure below. Take a screenshot of the labeled network.



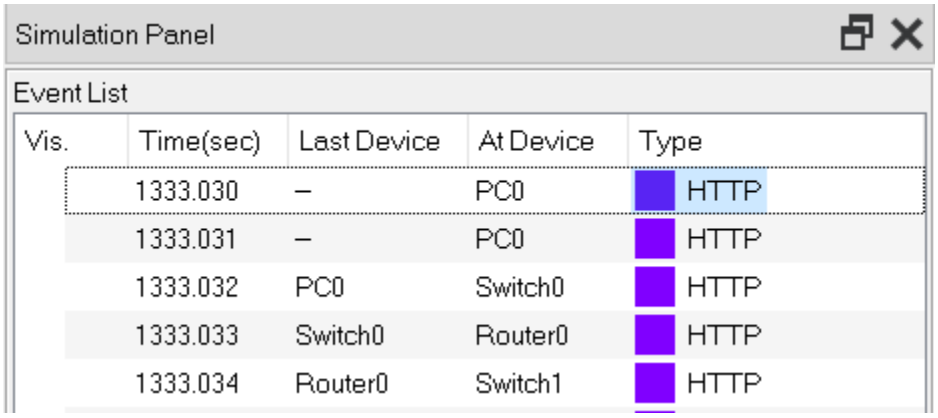
c) Do the remaining configurations to ping successfully from PC0 to Server0. Take a screenshot of the output.

d) Check the Buffer Filtered Events Only in “Options => Preferences => Miscellaneous” to prevent buffer overflows during the simulation.

- Then, create a filter for HTTP packets in the simulation.
- Start the simulation. Open a web browser in PC0 and type the server’s IP address in the browser’s address bar.
- Wait until the simulation is over. Your output should be similar to the figure shown below. Stop the simulation.



e) Click on one of the purple-colored boxes found in the captured events to see more details on each event.



f) Click on the first event at PC0.

- How many layers in the OSI model have been utilized? Name them.
- What are the source and destination ports in the transport layer?

- What are the source and destination IP addresses?
- What are the source and destination MAC addresses? What is the source device? What is the destination device? (Look at the labeled network diagram)
- Take a screenshot of the OSI model.

g) Click on the event at Switch0.
   - How many layers in the OSI model have been used? Name them.
   - What are the input and output ports in the physical layer?
   - Take a screenshot of the OSI model.

h) Click on the event at Router0.
   - How many layers in the OSI model have been used? Name them.
   - Click on Layer 2 of In-layer to see what happens in that layer.
   - Notice how MAC addresses are changed at the router. Take a screenshot of the OSI model.

i) Click on the event at Server0.
   - How many layers in the OSI model have been used? Name them.
   - Take a screenshot of the OSI model. Explain how the input PDU is read and parsed at the server and converted to an output PDU. Explain what happens at each layer.

Create a small report renamed as E17XXX_report.pdf (XXX is your E Number) including the screenshots for your observations, simulations, and answers.

Submit a zip file **E17XXX_Lab02.zip** (XXX is your E Number) which contains the following.

- **E17XXX_report.pdf**
- **E17XXX_Q1.pkt** (Packet Tracer Activity File for Q1)
- **E17XXX_Q2.pkt** (Packet Tracer Activity File for Q2)