

Lab #2 : Your first network

Communication Networks
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Academic Year : 2025/2026
Duration : 1 sessions

Objectives : (1) Understand the role of the commands ping and ipconfig. (2) Understand how to test the connection status between two devices. (3) Use the simulation mode and understand the encapsulation process.

Exercise #1 :

Step 1: Open Packet Tracer

1. Open Cisco Packet Tracer on your computer.
2. You will see a blank workspace where you can drag and drop devices.

Step 2: Add two computers

3. In the bottom-left corner of Packet Tracer, locate the "**End Devices**" section.
4. Drag and drop **two PCs** (PC0 and PC1) onto the workspace.
 - a. Click on the "**End Devices**" icon.
 - b. Select "**PC**" and drag it to the workspace.
 - c. Repeat to add a second PC.
 - d. You should obtain the following result



Step 3: Connect the two computers

5. In the bottom-left corner, locate the "**Connections**" section.
6. Select the "**Copper Straight-Through**" cable (or "**Crossover Cable**" if connecting two PCs directly).
 - Note: A crossover cable is typically used to connect two PCs directly.
7. Click on PC0, then click on PC1 to connect them.
 - A link should appear between the two PCs, indicating they are connected.

Step 4: Display the IP addresses

8. Display the IP address of PC0 using a command.
 - a. Click on PC0.
 - b. Go to the "Desktop" tab.
 - c. Click on "Command Prompt".
 - d. In the Command prompt, type the following command and press Enter : **ipconfig**
 - e. Record the IP address of PC0.

IP address of PC0 :

- f. Record the Subnet Mask.

Subnet Mask for PC0 :

- g. Record the Link-local IPv6 address

Link local IPv6 address for PC0 :

9. Display the IP address of PC1.
 - a. Do the same thing to PC1.
 - b. Record the IP address of PC1.

IP address of PC1 :

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Step 5: Explanation

10. Explain why the ipconfig does display the IP address during step 4 :

Your Answer :

Step 6: Dynamic IP address configuration

11. On PC0, go to the "Desktop" tab, click on "IP Configuration", and set select DHCP IP Configuration.

12. On PC1, do the same thing.

Step 7: Display the IP addresses

13. Run again step 4.

Step 8: Test the connectivity

14. Test the connection from PC0 to PC1:

- Click on PC0.
- Select "Desktop" tab.
- Click on "Command Prompt" icon.
- Type and run the following command : **ping PC1_IP_address**

Report the result :

15. Do same thing to test the connection in the opposite direction (from PC1 to PC0).

Step 9: Static IP address configuration

16. On PC0, go to the "Desktop" tab, click on "IP Configuration", and set a static IP address (e.g., 192.168.1.10).

17. On PC1, set a static IP address (e.g., 192.168.1.20).

Step 10: Display the IP addresses.

18. Run again step 4.

Step 11: Display the IP addresses.

19. Run again step 8.

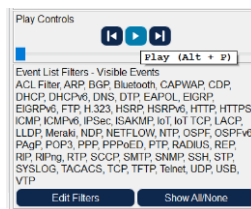
Step 12: Simulation mode

20. You can also test the connectivity using simulation mode.

- a. Select simulation mode



- b. Start the simulation.
- c. What is a PDU ?

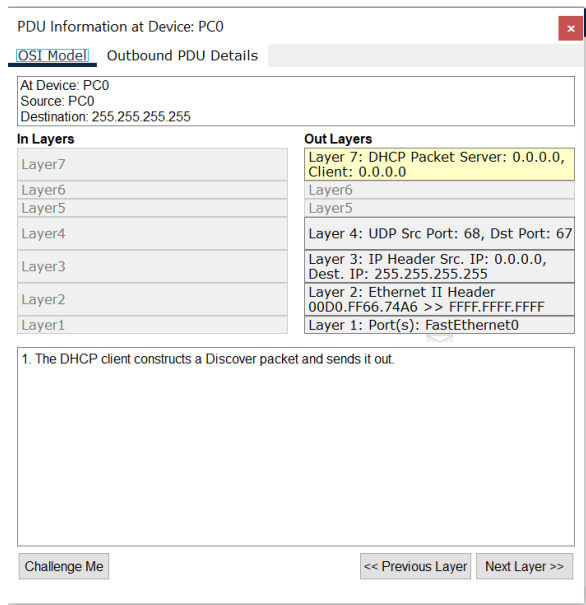


from the event list, you can visualize the PDU Information.

Your Answer :

- d. From the list, select the first event. The following window is displayed

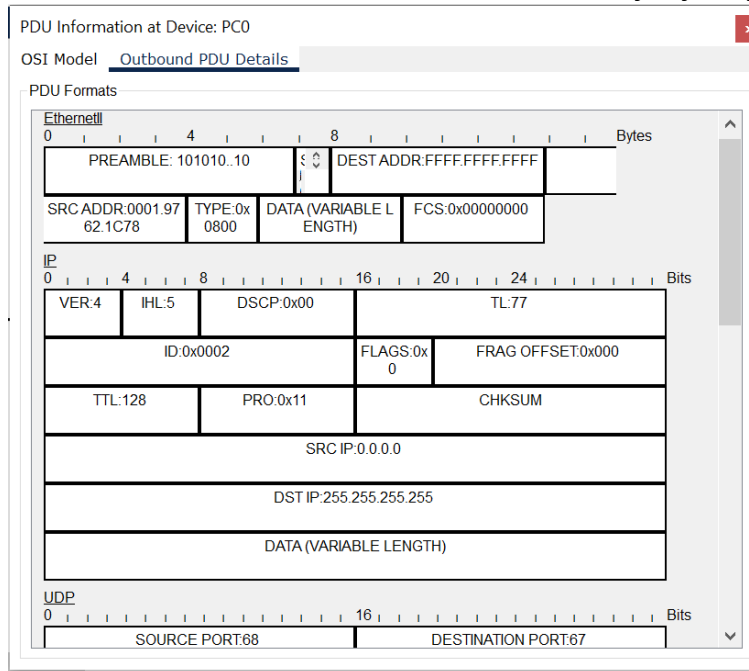
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- e. You can track the PDU and the encapsulation process by selecting the next layers.
- f. What are the protocols used at layer 7, 4, 3, 2?

Your Answer :

- g. You can visualize the format of the PDU at every layer by selecting PDU details.



Discussion Questions:

1. What is the purpose of an IP address in a network?
2. What is a subnet mask ?
3. What does **ipconfig** command do ?
4. Why is the **ping** command used, and what does it indicate when it succeeds or fails?
5. What would happen if you used the wrong type of cable to connect the two PCs?