

Packet Tracer - Identify MAC and IP Addresses

Objectives

Part 1: Gather PDU Information for a Local Network Communication

Part 2: Gather PDU Information for a Remote Network Communication

Instructions

Part 1: Gather PDU Information for a Local Network Communication

In this part, you will study how a device on a local network does not need a default gateway to communicate with another device on the same local network.

Note: Review the Reflection Questions in Part 3 before proceeding with this part. It will give you an idea of the type of information you will need to gather.

- Click host **172.16.31.3** and open the **Command Prompt**.
- Enter the **ping 172.16.31.2** command. This command will issue a series of ICMP echo request packets to the destination. If the packets reach the destination, it will send echo-reply messages back to the source of the ping requests.
- Click the **Simulation** mode button to switch to simulation mode. Repeat the **ping 172.16.31.2** command. An envelope icon that represents a PDU appears next to **172.16.31.3**.
- Click the PDU and locate the following information in both the **OSI Model** and **Outbound PDU Details** tabs. The **Outbound PDU Details** tab shows simplified packet and frame headers for the PDU. You should observe the following details regarding addressing for the PDU.
 - At Device: **172.16.31.3**
 - Source MAC Address: **0060.7036.2849**
 - Destination MAC Address: **000C:85CC:1DA7**
 - Source IP Address: **172.16.31.3**
 - Destination IP Address: **172.16.31.2**
- Click **Capture / Forward (the right arrow followed by a vertical bar)** and the PDU moves to the next step in its journey. Use the OSI model tab to gather the same information from Step 1d. Repeat this process until the PDU reaches its destination. For each step on the path to delivery, record the information for each PDU into a spreadsheet that uses a format like the table shown below. The information for the first step is shown in the table.

Example Spreadsheet Format

At Device	Src MAC	Dest. MAC	Src IPv4	Dest IPv4
172.16.31.3	0060.7036.2849	000C:85CC:1DA7	172.16.31.3	172.16.31.2
Switch 2	0060.7036.2849	000C:85CC:1DA7	N/A	N/A
172.16.31.2 (in)	000C:85CC:1DA7	000C:85CC:1DA7	172.16.31.3	172.16.31.2
172.16.31.2 (out)	0060.7036.2849	0060.7036.2849	172.16.31.2	172.16.31.3

Hide Answer

- You will notice that the information for the inbound PDU is unchanged.

In the PDU information window, click the tab for the outbound PDU. How does the addressing differ, and why? Record the addressing in your table.

The source and destination address are reversed in both the frame and packet because this PDU will be sent back to host 172.16.31.3. This message will be a ping echo-reply.

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- g. Return to **Realtime** mode.

Part 2: Gather PDU Information for a Remote Network Communication

To communicate with remote networks, a gateway device is necessary. The gateway device connects two or more networks together. In this part, you will study the process that takes place when one device communicates with another device that is on a remote network. Pay close attention to the MAC addresses used.

Note: Move your mouse over the **Router**. You will see information about the addressing of the router interfaces. Refer to these addresses as you observe the PDU flow through the router.

- Return to the **Command Prompt** for **172.16.31.3**.
- Enter the **ping 10.10.10.2** command. The first couple of pings may time out.
- Switch to **Simulation** mode and repeat the **ping 10.10.10.2** command. A PDU appears next to **172.16.31.3**.
- Click the PDU and note the following information tab:
 - At Device: 172.16.31.3
 - Source MAC Address: 0060.7036.2849
 - Destination MAC Address: 00D0:BA8E:741A
 - Source IP Address: 172.16.31.3
 - Destination IP Address: 10.10.10.2

What device and interface has the destination MAC address that is shown?

The router interface FastEthernet1/0

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- Click **Capture / Forward (the right arrow followed by a vertical bar)** to move the PDU to the next device. Gather the same information from Step 1d. Repeat this process until the PDU reaches its destination. Record the PDU information you gathered from pinging 172.16.31.5 to 10.10.10.2 into a spreadsheet using a format like the sample table shown below. Enter details for both the inbound and outbound PDUs at the Router.

At Device	Src MAC	Dest. MAC	Src IPv4	Dest IPv4
172.16.31.3	00D0:D311:C788	00D0:BA8E:741A	172.16.31.3	10.10.10.2
Switch 2	0060.7036.2849	00D0:BA8E:741A	N/A	N/A
Router (in)	0060.7036.2849	00D0:BA8E:741A	172.16.31.3	10.10.10.2
Router (out)	00D0:588C:2401	0060:2F84:4AB6	172.16.31.3	10.10.10.2
Switch 1	00D0:588C:2401	0060:2F84:4AB6	N/A	N/A

At Device	Src MAC	Dest. MAC	Src IPv4	Dest IPv4
Access Point	N/A	N/A	N/A	N/A
10.10.10.2	0060:2F84:4AB6	00D0:588C:2401	10.10.10.2	172.16.31.5

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- f. Repeat the process for the echo-reply message that originates from host 10.10.10.2. Complete the table for each step.