

Lab – Determine the MAC Address of a Host

Topology



Addressing Table

Device	Interface	IP Address	Subnet Mask
PC	VLAN 1	192.168.1.2	255.255.255.0

Objectives

- Determine the MAC address of a Windows computer on an Ethernet network using the **ipconfig /all** command.
- Analyze a MAC address to determine the manufacturer.

Background / Scenario

Every computer on an Ethernet local network has a Media Access Control (MAC) address that is burned into the Network Interface Card (NIC). Computer MAC addresses are usually displayed as 6 sets of two hexadecimal numbers separated by dashes or colons (example: 15-EF-A3-45-9B-57). The **ipconfig /all** command displays the computer MAC address. You may work individually or in teams.

Required Resources

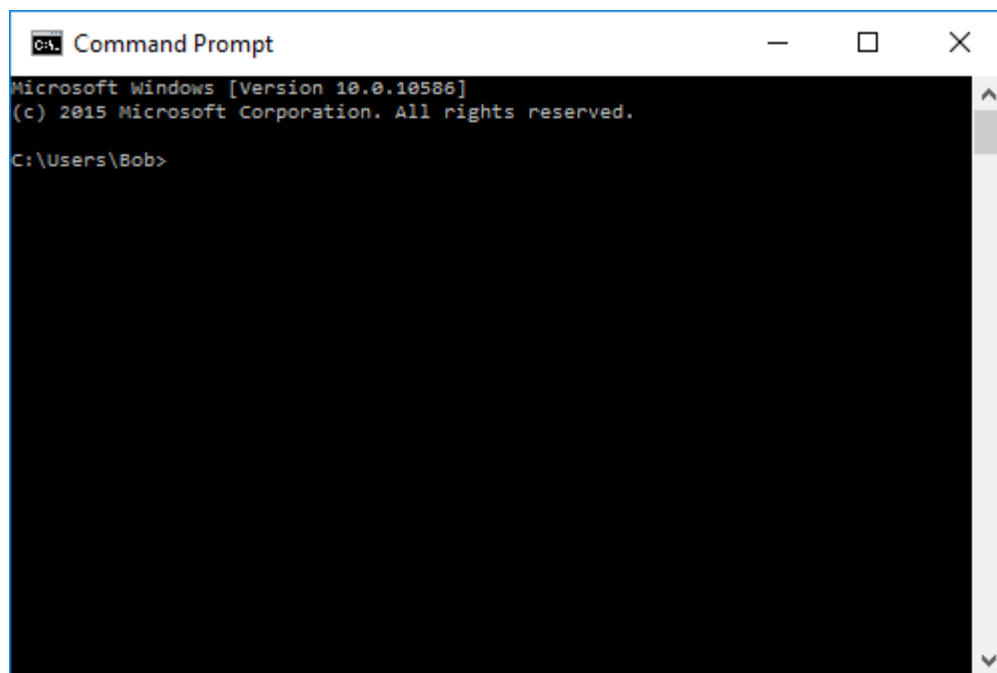
- PC running Windows 10 with at least one Ethernet network interface card (NIC)
- Connectivity to the Internet

Part 1: Locating the MAC Address on a Computer

In this part of the lab, you will determine the MAC address of a computer using the Windows **ipconfig** command.

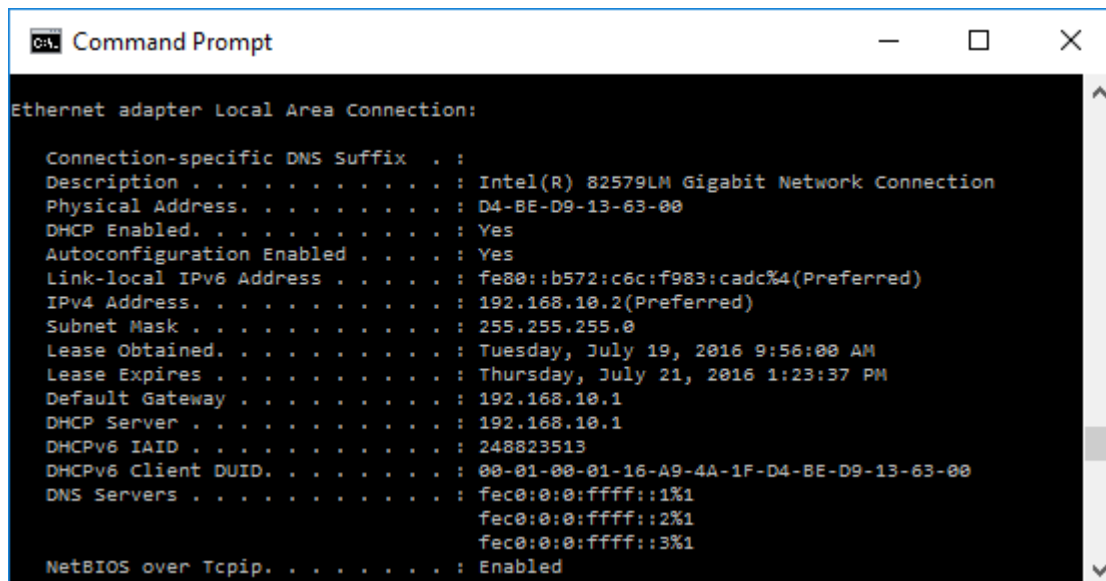
Step 1: Open a Windows command prompt window

Right-click on the **Start** button and select **Command Prompt**.



Step 2: Use the *ipconfig /all* command

Enter the **ipconfig /all** command at the command prompt. Press Enter. (Typical results are shown in the following figure, but your computer will display different information.)



Step 3: Locate the MAC (physical) address(es) in the output from the *ipconfig /all* command

Use the table below to fill in the description of the Ethernet adapter and the Physical (MAC) Address:

Description	Physical Address

How many MAC addresses did you discover in your PC? _____

Part 2: Analyzing the Parts of a MAC Address

Every Ethernet network interface has a physical address assigned to it when it is manufactured. These addresses are 48 bit (6 bytes) long and are written in hexadecimal notation. MAC addresses are made up of two parts. One part of the MAC address, the first 3 bytes, represents the vendor who manufactured the network interface. This part of the MAC is called the OUI (Organizationally Unique Identifier). Each vendor who wants to make and sell Ethernet network interfaces must register with the IEEE in order to be assigned an OUI.

The second part of the address, the remaining 3 bytes are the unique ID for the interface. All MAC addresses that begin with the same OUI must have unique values in the last 3 bytes.

In the example shown in the lab, the physical MAC address for the Ethernet LAN interface is D4-BE-D9-13-63-00.

Manufacturer OUI	Unique Identifier for the Interface	Vendor Name
D4-BE-D9	13-63-00	Dell Incorporated

Step 1: List MAC addresses discovered by you and your classmates in Part 1, Step 3a.

List the 3-byte Manufacturer OUI and the 3-byte unique interface identifier. You will fill in the Vendor name in Step 2.

Manufacturer OUI	Unique Identifier for the Interface	Vendor Name
D4-BE-D9	13-63-00	Dell Incorporated

Step 2: Lookup the vendors who are the registered owners of the OUI that you listed in the table.

- a. Wireshark.org provides an easy to use lookup tool at <https://www.wireshark.org/tools/oui-lookup.html>. Use this tool, or use the Internet to search for other ways to identify an OUI.

The screenshot shows the Wireshark OUI Lookup Tool interface. At the top is the Wireshark logo and navigation links: NEWS, Get Acquainted, and Get Help. The main heading is "OUI Lookup Tool". Below it, a description states: "The Wireshark OUI lookup tool provides an easy way to look up OUIs and other MAC address prefixes. It uses the Wireshark manufacturer database, which is a list of OUIs and MAC addresses compiled from a number of sources." The "Directions:" section says: "Type or paste in a list of OUIs, MAC addresses, or descriptions below. OUIs and MAC addresses may be colon-, hyphen-, or period-separated." The "Examples:" section lists: "0000.0c", "08:00:20", "01-00-0C-CC-CC-CC", and "missouri". Below this is a large text input area labeled "OUI search". At the bottom left is a blue "Find" button. Below the button, it says "Results" and "No matches". A footer note states: "Wireshark and the 'fin' logo are registered trademarks of the Wireshark Foundation".

- b. Use the information that you found to update the vendor column in the chart in Step 1a. How many different vendors did you discover? _____

Reflection

1. Why might a computer have more than one MAC address?

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2. The sample output from the **ipconfig /all** command shown previously had only one MAC address. Suppose the output was from a computer that also had wireless Ethernet capability. How might the output change?

3. Try connecting and disconnecting the network cable(s) to your network adapter(s) and use the **ipconfig /all** again. What changes do you see? Does the MAC address still display? Will the MAC address ever change?

4. What are other names for the MAC address?
