

MAC Addresses

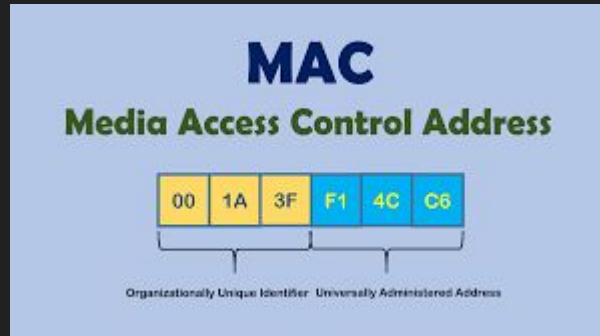
What are they?

Media Access Control addresses, unique identifier assigned to a network interface card (NIC)

All networkable devices have one and are unique (no two devices have the same address)

Made up of 6 bytes.

Each byte is separated by 2 nibbles, each one represented by a hexadecimal digit.

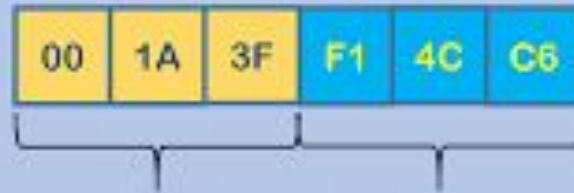


MAC Address Parts

First 3 bytes-**Organizationally Unique Identifier (OUI)**

Last 3 bytes- **Network Interface Controller (NIC) specific**

MAC Media Access Control Address



Organizationally Unique Identifier Universally Administered Address

Formats

Windows-dashes

Mac:semi-colons

Ciso.periods

MAC address

D4-BE-D9-8D-46-9A

ComputerHope.com



Your MAC Address is:
4C:7C:5F:0B:54:05

```
Switch#show mac-add
Switch#show mac-address-table
      Mac Address Table
-----
Vlan  Mac Address      Type      Ports
----  -
1     0007.8580.7456     DYNAMIC   Fa0/1
1     000d.6516.d692     DYNAMIC   Fa0/3
1     000d.bcef.ae82     DYNAMIC   Fa0/4
1     000e.83f6.32da     DYNAMIC   Fa0/2
Total Mac Addresses for this criterion: 4
Switch#
```

Purpose

To allow networked devices to communicate with each other.

IP addresses do the same thing but since they can change (DHCP) they are not reliable.

MAC address-permanent

MAC address-used to identify device

IP Address-used to locate device



ARP

Helps computers find the MAC address of other computers on a network.

Computers broadcast a message to all devices on the same network requesting the MAC address of the computer it wants to communicate with.

Once the MAC address is retrieved then data can be exchanged between the computers.

IP addresses are used to get the MAC address.

Even when data is sent to a router, its MAC address is requested.

Devices use IP address to find the MAC address.

The MAC address is then used for communication.

Finding the MAC

Windows-cmd- `ipconfig /all`

Linux/Mac-terminal-`ifconfig`

A computer can have multiple MAC addresses. One for each communicating device it has i.e. ethernet card, wireless card and a bluetooth device.

QnE

1. What is a MAC address?

Unique hardware address for a network interface

2. Write down 2 examples of MAC addresses. One from a windows machine and one from a Linux machine.

Example (Windows): 00-14-22-01-23-45.

Example (Linux): 00:14:22:01:23:45.

3. Find the MAC addresses from your windows machine. Write it below.

Use ipconfig /all in Command Prompt.

4. Find the MAC addresses from a Linux machine. Write it below.

Use ifconfig or ip addr show in Terminal.

5. Explain the difference between the use of an IP address and a MAC address.

MAC address identifies a device; IP address locates it.

6. Find the MAC address of your class router. Write it below.

Check router settings or use arp -a in Command Prompt.

7. Write down an example of one MAC address using all the different formats available

Example formats: 00-14-22-01-23-45, 00:14:22:01:23:45, 0014.2201.2345.

8. Using your MAC address you found from your router and your computer go to

<https://dnschecker.org/mac-lookup.php> and determine the vendor's name.

Dell Inc

9. On the same page read the description of an OUI and write it below. What does it stand for? Where do you find it?

OUI - Organizationally Unique Identifier; found in the first 3 bytes of the MAC address.

10. Do research and describe how to find the MAC address on your cell phone.

Go to Wi-Fi settings, check Advanced or About phone.

11. What is your phone's MAC address?

Listed under Wi-Fi MAC address or Hardware address in phone settings.