**Read about IP address, port, HTTP methods, MAC address**

**IP Address**

An IP address is a unique numerical label assigned to each device (e.g., computers, printers, smartphones) connected to a computer network that uses the Internet Protocol for communication. An IP address serves two main functions:

* **Network Identification:** It identifies a specific device on the network and allows it to communicate with other devices.
* **Location Addressing:** It helps route data traffic to the correct destination.

There are two main types of IP addresses:

* **IPv4:** The most common version of IP addresses, consisting of four sets of numbers separated by periods (e.g., 192.168.1.1).
* **IPv6:** The newer version of IP addresses, designed to accommodate the growing number of internet-connected devices. It uses hexadecimal digits separated by colons (e.g., 2001:0db8:85a3:0000:0000:8a2e:0370:7334).

## Port

A port is a virtual endpoint on a network device, such as a computer or router. It is used to identify different applications or services running on a single device. Each port is assigned a unique number, ranging from 0 to 65535. Common ports include:

* **HTTP (80):** Used for web browsing
* **HTTPS (443):** Secure version of HTTP for encrypted communication
* **FTP (21):** File Transfer Protocol for transferring files
* **SSH (22):** Secure Shell for remote access and file management

## HTTP Methods

HTTP methods, also known as HTTP verbs, are specific actions or requests that can be performed on a web server. They are specified by the client (e.g., web browser) to indicate the desired operation on a particular resource. Common HTTP methods include:

* **GET:** Retrieves data from a specified resource
* **POST:** Submits data to be processed to a specified resource
* **PUT:** Updates an existing resource with new data
* **DELETE:** Removes a specified resource
* **HEAD:** Retrieves only the header information of a resource, not the content

## **MAC Address**

A MAC address (Media Access Control address) is a unique identifier assigned to a network interface controller (NIC) for use as a network address in communications within a network segment. MAC addresses are used in most IEEE 802 networks, including Ethernet and Wi-Fi.

MAC addresses are typically formatted as a series of six hexadecimal digits, separated by colons or hyphens. For example, 00:11:22:33:44:55 is a valid MAC address.

MAC addresses are used for several purposes, including:

* **Addressing network devices:** MAC addresses are used to uniquely identify network devices on a network segment. This allows devices to communicate with each other without the need for an IP address.
* **Access control:** MAC addresses can be used to control access to a network. For example, a network administrator can configure a router to only allow devices with specific MAC addresses to connect to the network.
* **Troubleshooting:** MAC addresses can be used to troubleshoot network problems. For example, if a device is unable to connect to the network, the network administrator can check the device's MAC address to see if it is being blocked by a firewall or other security device.