Media Access Control (MAC)

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Abstract

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Introduction to MAC Addresses

In networking, a Media Access Control (MAC) address plays a crucial role. It enables devices to communicate smoothly on a local network. A MAC address is a unique identifier. This identifier is linked to a network interface controller (NIC) and is essential for communication within a network segment. It's important for the proper operation of network protocols at the data link layer. This ensures that data is delivered accurately to its target.

MAC addresses are often called hardware addresses. They are 48-bit identifiers, usually shown as six pairs of hexadecimal digits like 00:1A:2B:3C:4D:5E. Each network device—whether it's a computer, router, switch, or smartphone—has its own unique MAC address. This number helps it distinguish from other devices in the same network.

The first three octets of a MAC are set by the IEEE to show the manufacturer. The last three octets are given by that manufacturer to keep things unique within their products.[1]

[1] *IEEE Registration Authority: MAC Address*