CYBERSECURITY DAILY DAIRY

Day 9: IP Addressing, MAC, and Subnetting Fundamentals (June 27, 2025)

Topics Covered:

- IP Address structure and types (Public, Private, Static, Dynamic).
- MAC Address significance.
- Subnetting basics.
- Classful addressing.
- Classless addressing (CIDR).

What I Did:

I learned about **IP addresses**, **MAC addresses**, and **subnetting**, including **classful** and **classless** addressing. These are key for network administration and security.

IP Address:

- Unique identifier for a device.
- Has Network ID and Host ID.
- IPv4 format: 192.168.1.1.

Types of IP Addresses:

- **Public IP:** Routable over the internet.
- **Private IP:** Used internally (e.g., 192.168.x.x).
- **Static IP:** Manually configured.
- **Dynamic IP:** Automatically assigned.

MAC Address:

- Unique identifier for a network card (NIC).
- Works at Layer 2 (data link layer).
- Hardware-specific, doesn't usually change.

Subnetting:

- Dividing a network into smaller **subnets**.
- Improves **performance**, **security**, and **IP management**.
- Uses a **subnet mask** (e.g., 255.255.255.0 for /24).

Classful Addressing:

Class	Starting Bits	IP Range	Default Subnet Mask
A	0	1.0.0.0 – 126.255.255.255	255.0.0.0
B	10	128.0.0.0 –	255.255.0.0