

4. what are the basic functionalities of Wi-Fi Access point

**Basic Functionalities of a Wi-Fi Access Point (AP)**

A Wi-Fi Access Point (AP) is a networking device that allows wireless devices to connect to a wired network. It acts as a bridge between wireless clients and a wired LAN.

**Key Functions of a Wi-Fi AP:**

1. Wireless Connectivity – Enables wireless devices (laptops, phones, IoT devices) to access the network.
2. Signal Transmission and Reception – Transmits and receives data using radio frequency (RF) signals.
3. Network Bridging – Connects a wired LAN to wireless clients.
4. Security & Encryption – Supports security protocols like WPA2, WPA3 to protect data.
5. DHCP Relay – Passes DHCP requests from wireless clients to the network DHCP server.
6. Multiple SSID Support – Allows creation of different virtual networks for segmentation (e.g., guest and internal Wi-Fi).
7. Roaming Support – Works in an Extended Service Set (ESS) to enable seamless handoff between APs.
8. Bandwidth Management & QoS – Prioritizes traffic for VoIP, streaming, and critical applications.
9. MAC Filtering – Restricts access based on MAC addresses for security.
10. Power over Ethernet (PoE) Support – Can receive power through the network cable (useful for enterprise setups).