

It is a protocol used to automatically assign IP addresses and other network configuration details to devices (hosts) on a network. This connectionless nature makes DHCP more efficient in scenarios where rapid communication is needed without the overhead of establishing and maintaining a connection, as is required with protocols like TCP. When a host requests an IP address from a DHCP server, it can receive various pieces of configuration information, including:

- o IP address
- o Subnet mask
- o Domain name
- o Default gateway (routers)
- o DNS (Domain Name System) servers
- o WINS (Windows Internet Naming Service) information

A DHCP server can provide additional information, but the above list includes the most common parameters. DHCP, on the other hand, dynamically assigns IP addresses without requiring manual input, hence it can be thought of as a more advanced, automated version of BootP. DHCP simplifies network administration by automatically assigning IP addresses to hosts, making it highly efficient for both small and large networks. DHCP operates as a connectionless protocol, meaning it uses the User Datagram Protocol (UDP) at the Transport layer, specifically on ports 67 and 68. DHCP is often compared to Bootstrap Protocol (BootP), which also assigns IP addresses to hosts. The Layer 2 broadcast address is FF:FF:FF:FF:FF:FF (all Fs in hexadecimal), which reaches all devices on the local network segment.