

Assignment - 04

⇒ Title : DHCP.

⇒ Problem Statement : Initialising and Configure DHCP server and Write a Program (C/C++/Python/Java) to install software on remote machine.

⇒ Objective : To understand DHCP and its configuration on a Server.

⇒ Outcome : One will be able to dynamically / automatically assign IP addresses to machines in a network.

⇒ Theory

→ DHCP stands for dynamic Host Configuration Protocol.

→ It is used to dynamically / automatically assign IP address to hosts in a network.

→ When a network is consisting of a large number of hosts, assigning IP addresses manually is not feasible.

→ In a DHCP based network, following ports are assigned

1) Server : 67

2) Client : 68.

→ In DHCP, client & Server exchange 4 messages to establish a connection & this process is called DORA.

Steps in DORA

- ① Discover → generated by client machine to check for any server in the Network.
→ message is broadcasted by host & host with port 67 accepts it.
- ② Offer → The server responds by sending a message specifying the IP address assigned to the host.
- ③ Request → The client responds with a request message to see whether the IP address assigned to it is not being used by any other host.
- ④ Acknowledge → In response to the request the server binds the IP address with the client IP & the client obtains the IP address.

Advantages

- Centralised Management of IP Addresses
- Easy to add new Clients.
- IP Address reused.

- Simple Configuration of DHCP Server

Test Cases

Input	Expected O/p	Actual o/p
⇒ Server gives IP: 192.168.1.1		
→ Client 1 requests for IP using DHCP	IP assigned 192.168.1.2	Success
→ Client 2 requests for IP dynamically	IP assigned 192.168.1.3	Success

Conclusion

Thus, we were able to assign the IP addresses dynamically using DHCP configuration on a Server.