Lab 8

Title: Setup DHCP Server

Objective:

a) To understand about functionality of a DHCP server.

b) To provide different host ip addresses automatically.

Software requirements

SN	Software	Specification
1.	VMWare or VirtualBox	-
2.	Windows OS	Windows 10
3.	Windows Server	2016/2019

Related theory

The **Dynamic Host Configuration Protocol** (**DHCP**) is a network management protocol used on Internet Protocol (IP) networks for automatically assigning IP addresses and other communication parameters to devices connected to the network using a client–server architecture.

The technology eliminates the need for individually configuring network devices manually, and consists of two network components, a centrally installed network DHCP server and client instances of the protocol stack on each computer or device. When connected to the network, and periodically thereafter, a client requests a set of parameters from the DHCP server using the DHCP protocol.

DHCP can be implemented on networks ranging in size from residential networks to large campus networks and regional ISP networks. Many routers and residential gateways have DHCP server capability. Most residential network routers receive a unique IP address within the ISP network. Within a local network, a DHCP server assigns a local IP address to each device.

DHCP services exist for networks running Internet Protocol version 4 (IPv4), as well as version 6 (IPv6). The IPv6 version of the DHCP protocol is commonly called DHCPv6.

Procedure

1. Open Windows Server.
2. Click on Add role and features.
3. Select DHCP server to install.
4. After installation, click on DHCP option.
5. Add DHCP pool i.e. range of IP addresses allowed to hosts.
6. Add Excluded IP addresses.
7. Open other host that are connected with the server.
8. Go to network setting, give ip address automatically.
9. Check if the ip address is in the rang given by the DHCP pool.

Observation:

Commands Used:-

Configuring DHCP

Router(config-if)#ip dhcp pool net

Router(dhcp-config)#network 192.168.1.0 255.255.255.0

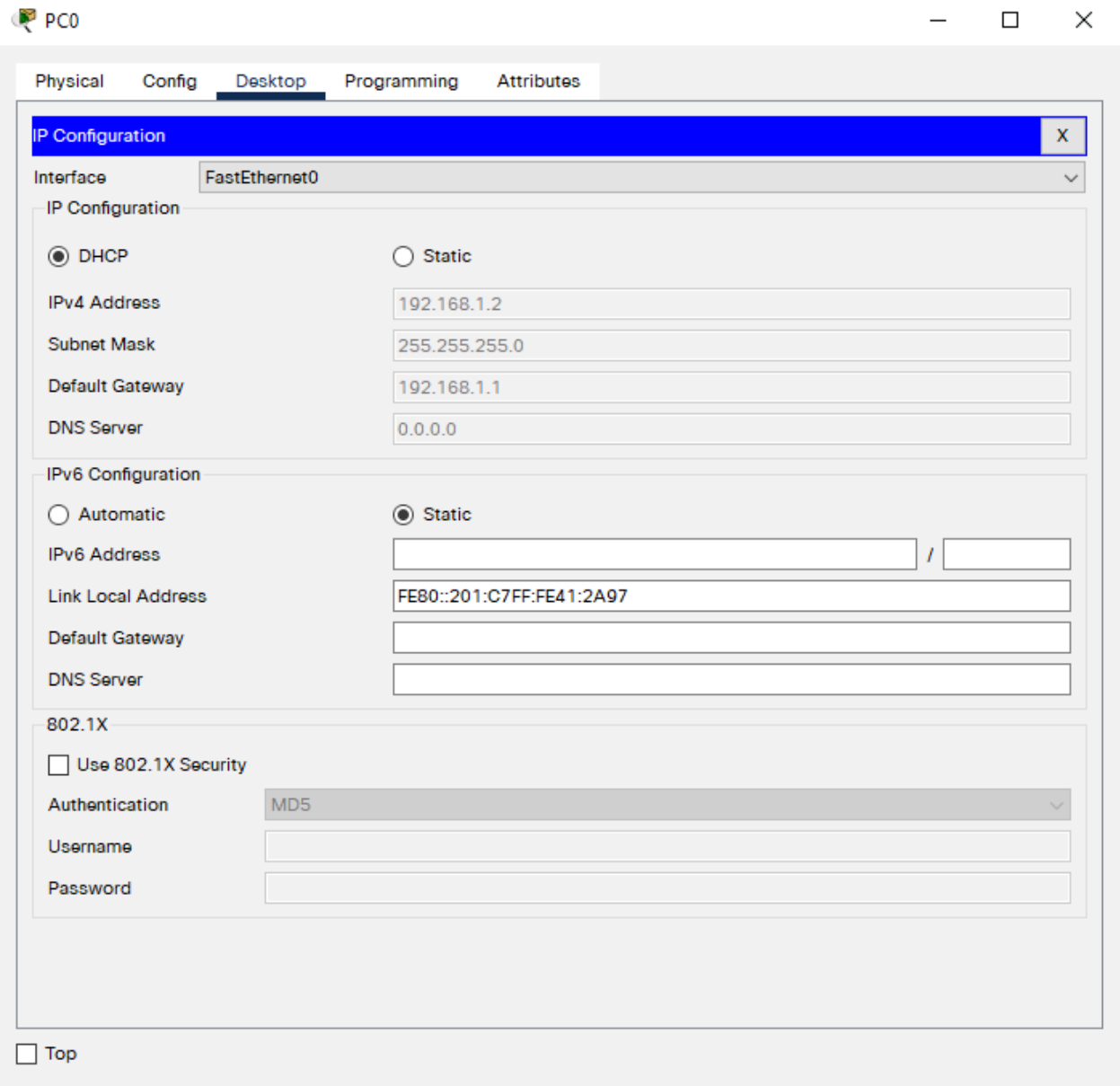
Router(dhcp-config)#default-router 192.168.1.1

Exclude IP

Router(config)#ip dhcp excluded-address 192.168.1.4 192.168.1.10

Remove DHCP

Router(config)#no ip dhcp pool net



Then in Connected nodes we can directly use DHCP instead of giving it static value where it fetches the address from server or router.

Conclusion:

Hence, DCHP server was created making it easier to allocate IP addresses.