DHCP Server Configuration - Exercise Format

1. What is DHCP?

DHCP (Dynamic Host Configuration Protocol) automatically assigns IP addresses and network parameters such as subnet mask, gateway, DNS, and broadcast address to clients. It removes manual configuration effort and prevents IP conflicts.

2. What is a DHCP Server and Why Do We Need It?

A DHCP server allocates IP addresses dynamically to devices. It ensures consistent configuration, prevents IP conflicts, reduces admin workload, and is essential in enterprise networks, labs, Wi-Fi environments, and virtualized systems.

Exercise Introduction

This exercise is performed on a RHEL system with appropriate privileges (root or sudo). You will install the DHCP server package, configure DHCP settings, activate the service, and validate its behavior.

Step 1 – Install the DHCP Package

Commands:

• dnf install *dhcp*

This installs the DHCP daemon (dhcpd) and related utilities.

Step 2 – Review Default Configuration File

Commands:

• vi /etc/dhcp/dhcpd.conf

The file references the example configuration:
/usr/share/doc/dhcp-server/dhcpd.conf.example

Step 3 – Copy Example Configuration

Commands:

• cp /usr/share/doc/dhcp-server/dhcpd.conf.example /etc/dhcp/dhcpd.conf

(Press 'y' to overwrite)

Loads the documented default configuration.

Step 4 – Edit the DHCP Configuration File

Commands:

• vi /etc/dhcp/dhcpd.conf

Modify:
- Subnet
- Mask

- IP Range
- Domain name
- Gateway
- Broadcast address

Example block:

```
subnet 192.168.1.0 netmask 255.255.255.0 {
    range 192.168.1.10 192.168.1.50;
    option domain-name "example.com";
    option routers 192.168.1.1;
    option broadcast-address 192.168.1.255;
}
```

Step 5 – Allow DHCP Through Firewall

Commands:

• firewall-cmd --permanent --add-service=dhcp

• firewall-cmd --reload

Step 6 – Enable and Start the DHCP Service

Commands:

• systemctl --now enable dhcpd.service

(Optional)
• systemctl status dhcpd.service