

Configuring Multiple Subnets in DHCP

LPIC-2: Linux Engineer (202-450)

Objectives:

At the end of this episode, I will be able to:

1. Describe the process of DHCP pool selection.
2. Create multiple DHCP subnets and static IP address mappings in Linux.

Additional resources used during the episode can be obtained using the download link on the overview episode.

- Hosting Multiple Subnets
 - DHCP uses broadcasts
 - Clients only identify themselves with their MAC
 - DHCP determines their subnet
- Assigning Client Addresses
 - Each address pool defines a subnet
 - When *dhcpcd* starts, it matches the subnets to network interfaces
 - Requests received on an interface get an address from the matching pool
 - The server must have an interface in each subnet it serves
- Defining Multiple Subnets
 - Use the `subnet` operator in the configuration
 - Cannot overlap
- Troubleshooting *dhcpcd*
 - The lease database
 - `/var/lib/dhcp/dhcpd.leases`
 - The *systemd* journal
 - `journalctl -u isc-dhcp-server`
 - `journalctl -xeu isc-dhcp-server`
- Static IP Mappings
 - Also called "DHCP reservations"
 - Ensure a client always receives the same IP
 - Maps a MAC address to an IP address
 - Defined as a separate range
 - Requirements:
 - Host name
 - Host MAC Address
 - Desired IP Address
 - NOTE: Host names are not used, but must be unique or *dhcpcd* fails to start

Example Static IP

```
host dons-laptop {  
    hardware ethernet 12:34:56:AB:CD:EF;  
    fixed-address 172.16.0.222;  
}
```

Example Configuration

```
default-lease-time 28800;
max-lease-time 86400;
subnet 172.16.1.0 netmask 255.255.255.0 {
    option subnet-mask 255.255.255.0;
    range 172.16.1.100 172.16.1.200;
}
subnet 10.222.0.0 netmask 255.255.255.0 {
    option subnet-mask 255.255.255.0;
    option routers 10.222.0.1;
    option domain-search "lab.itpro.tv";
    option domain-name-servers 8.8.8.8, 8.8.4.4;
    range 10.222.0.100 10.222.0.200;
}
```