

DHCP Lab

1. Introduction

In this lab you will set up a DHCP service. Then you will study more closely the functioning of the DHCP servers, as well as the information exchanged between the two servers and the clients.

2. Installation

You install the DHCP server on your gateway VM.

Once you assign a static IP address, the next step is to install the **isc-dhcp-server** package:

```
apt-get install isc-dhcp-server
```

Depending on your configuration, the **isc-dhcp-server** service may have started automatically. You can check the status of the daemon with the following command:

```
systemctl status isc-dhcp-server
```

The output will either show that the service failed or is running. If the service failed to start, that means, we haven't even configured it yet. If it's running, then you need to stop it for now, since it's not a good idea to leave an unconfigured DHCP server running on your network. It might conflict with your existing one.

```
systemctl stop isc-dhcp-server
```

3. Server Configuration

Now that you've installed the **isc-dhcp-server** package, you'll have a default configuration file for it at **/etc/dhcp/dhcpd.conf**.

This file will contain some default configuration, with some example settings. Feel free to take a look at this file to get an idea of some of the settings you can configure.

We'll create our own **dhcpd.conf** file from scratch. So when you're done looking at it, copy the existing file to a new name so we can refer to it later if we ever need to:

```
sudo mv /etc/dhcp/dhcpd.conf /etc/dhcp/dhcpd.conf.old
```

Now you create your own **dhcpd.conf** file. Open your file **/etc/dhcp/dhcp.conf**, and add the different DHCP server parameters :

```
default-lease-time 86400 ;           # the expiration of the lease  
max-lease-time 86400 ;           # default time for devices that don't ask for a specific lease time  
option domain-name "ufaz.az" ;  
  
authoritative ;                   #the host is the primary DHCP server for this network  
  
The following block details the specific information that will be provided to clients:  
subnet x.x.x.0 netmask 255.255.255.0 {           #The network IP address or the network prefix  
    range x.x.x.110 x.x.x.220 ;  
    option routers x.x.x.Z ;           #IP address of your gateway
```

```
option subnet-mask 255.255.255.0  
option domain-name-servers x.x.x.x ;#DNS IP address
```

To finish the configuration, you must declare an interface for which the server can listen the clients requests

Edit the /etc/default/isc-dhcp-server file, where you'll see a line toward the bottom similar to the following:

```
INTERFACESv4=""
```

Simply type the name of the interface within the quotes:

```
INTERFACESv4="enp0s3"
```

Now that we have our DHCP server configured, we should be able to start it:

```
sudo systemctl start isc-dhcp-server
```

Next, double-check that there were no errors; the daemon should report that it's *active (running)* :

```
sudo systemctl status isc-dhcp-server
```

In a new terminal, run « /var/log/syslog », it will record information related to the server function:

```
sudo tail -f /var/log/syslog
```

4. Client configuration

Depending on which method you use to request the IP address

4.1. netplan

you update your yaml file and restart the netplan service

4.2. net-tools package

in this case, you use the « dhclient -v » with the interface

on the DHCP server, check the syslog and note the assigned IP address

- How to do to record a Persistent IP address for a client. Update the dhcpd.conf to permit this task. You can analyse the old dhcp.conf file
- For this exercise, Choose a client host and note its MAC address and assign an IP address that is different to the address range used dynamically by the DHCP server

At each update you restart your DHCP service.