Linux Operating System

DHCP Installation

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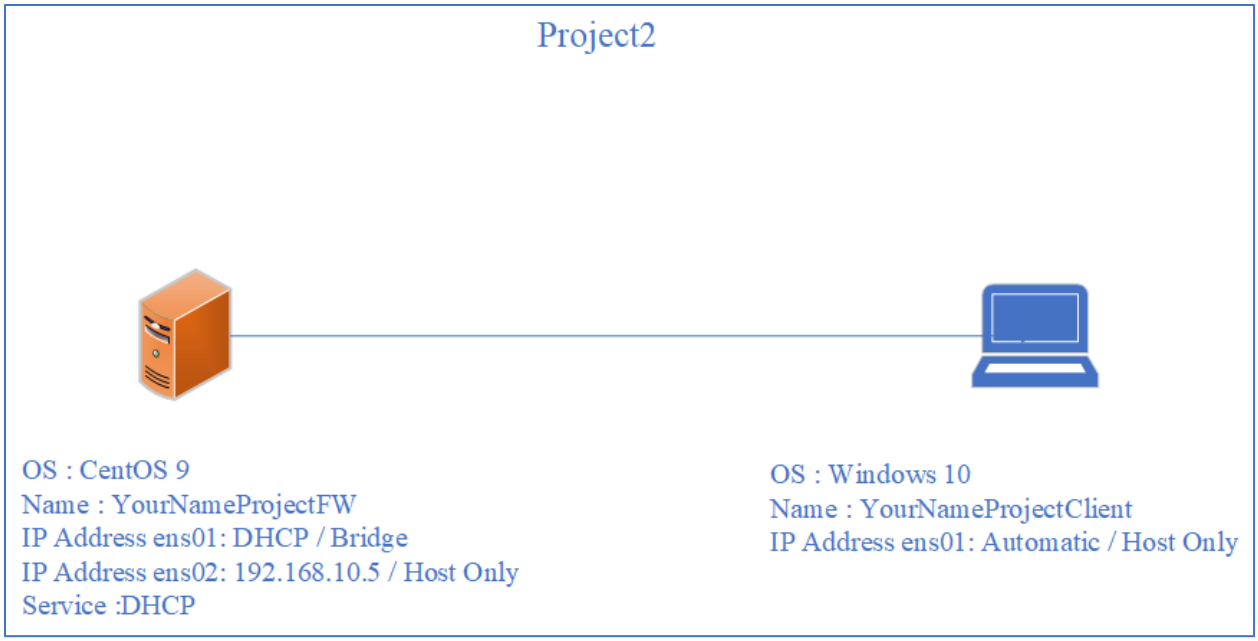
2024



Step 1: Install the DHCP Server

Configuring DHCP Service

DHCP (Dynamic Host Configuration Protocol) service is one of the basic services for advanced network management, which is defined in RFC 2131.

The main task of this service is to manage and assign IPs to machines on a computer network. This protocol saves time and money on managing users and network systems by using a dynamic IP repository. When making changes to the structure of networks based on this service (such as changing the default gateway or DNS server address), it is enough to apply the changes only to the DHCP server and there is no need to apply a new configuration to each machine.

How DHCP service works

1- First, each machine on the network and under the DHCP server at the time of system startup, requests to receive an IP from this server.

2- DHCP server by referring to its IP repository and from among the available IPs, selects and assigns IP to the request sent by the Client machine.

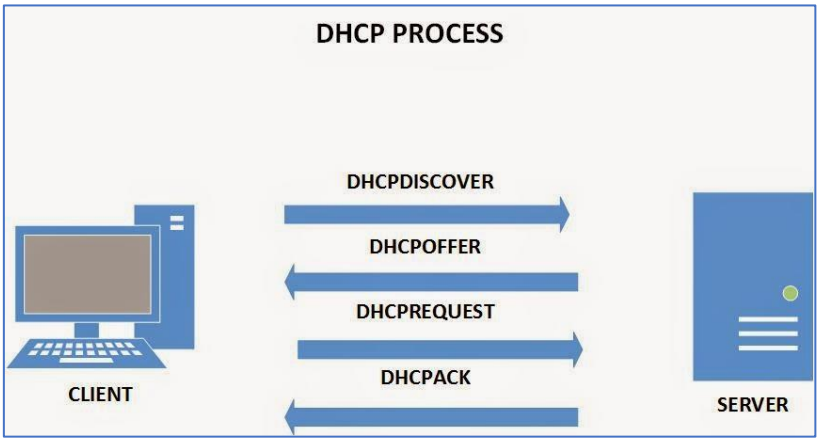
3- The DHCP requesting machine completes the IP assignment process by announcing the IP and MAC record of the requesting computer. Other information required from the requesting machine, including the default gateway address and the network's DNS server , are also provided by the DHCP server. Each of the assigned IP addresses is leased to a specific machine.

If the machine does not use this IP within the specified time, the assigned IP will be revoked. Typically, your DHCP server must be present in the subnet that gives the IP to its systems. Therefore, this service is considered as a local service.

Today, using the capabilities that network tools such as switches and routers provide to network administrators, it is possible to provide this service to other existing networks that do not have this server.

The DHCP service is installed and usable by default on other Linux distributions. This service is usually used in standalone form and its configuration file is placed in the /etc directory .

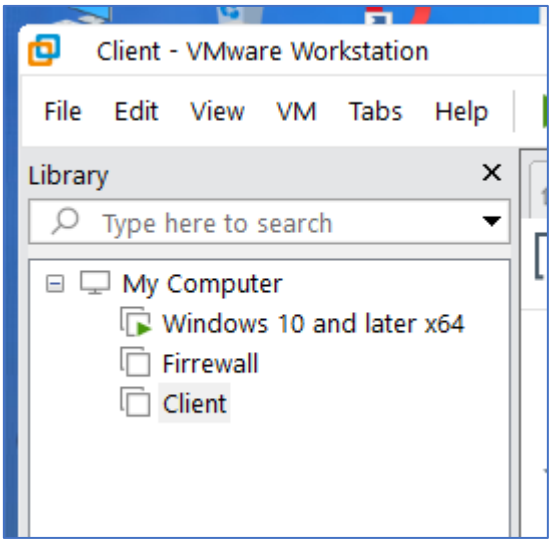
This guide describes how to install and configure a Dynamic Host Configuration Protocol (DHCP) server in a CentOS 7 Linux distribution. Note that all steps are performed with root user access. Here in this lab, we will configure a DHCP server on the SRV02 server . The configuration will be used to give a network configuration to the client.



Prerequisites

DNS servers must be configured and functional in order to successfully install the DHCP server.

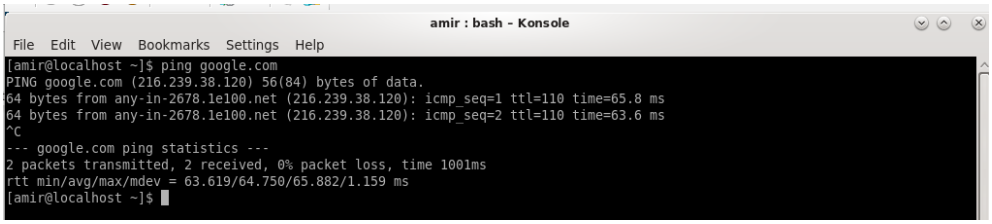
Make sure the machines below are working:



DHCP Server Installation and Configuration (SRV02)

To install a DHCP server, run the following command in the terminal:

ping google.com



Check if the dnf is updated and do it:

dnf check-update

dnf upgrade

```
[root@chaosnet amir]# dnf check-update
Updating Subscription Management repositories.
Unable to read consumer identity

This system is not registered with an entitlement server. You can use "rhc" or "subscription-manager" to regis
ter.

Last metadata expiration check: 0:06:05 ago on Wed 11 Sep 2024 09:58:33 AM.
[root@chaosnet amir]#
[root@chaosnet amir]#
[root@chaosnet amir]# dnf upgrade
Updating Subscription Management repositories.
Unable to read consumer identity

This system is not registered with an entitlement server. You can use "rhc" or "subscription-manager" to regis
ter.

Last metadata expiration check: 0:06:46 ago on Wed 11 Sep 2024 09:58:33 AM.
Dependencies resolved.
Nothing to do.
Complete!
[root@chaosnet amir]#
```

dnf install dhcp - server - y

```
[root@localhost amir]# dnf install dhcp-server -y
Updating Subscription Management repositories.
Unable to read consumer identity

This system is not registered with an entitlement server. You can use "rhc" or "subscription-manager" to register
.

Last metadata expiration check: 1:08:57 ago on Sun 08 Sep 2024 06:27:24 PM.
Dependencies resolved.
================================================================================================================
 Package                  Architecture          Version                          Repository             Size
================================================================================================================
Installing:
 dhcp-server              x86_64                12:4.4.2-19.b1.el9               baseos                1.2 M

Transaction Summary
================================================================================================================
Install  1 Package

Total download size: 1.2 M
Installed size: 3.9 M
Downloading Packages:
dhcp-server-4.4.2-19.b1.el9.x86_64.rpm                                  8.7 MB/s | 1.2 MB     00:00
----------------------------------------------------------------------------------------------------------------
Total                                                                   3.7 MB/s | 1.2 MB     00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing        :                                                                             1/1
  Running scriptlet: dhcp-server-12:4.4.2-19.b1.el9.x86_64                                       1/1
  Installing       : dhcp-server-12:4.4.2-19.b1.el9.x86_64                                       1/1
  Running scriptlet: dhcp-server-12:4.4.2-19.b1.el9.x86_64                                       1/1
```

Look at the contents of the DHCP server configuration file.

Copy the sample file to the configuration directory and use it as a reference.

#cp / usr / share /doc/ dhcp */ dhcpd.conf.example / etc / dhcp

```
amir : bash - Konsole
File  Edit  View  Bookmarks  Settings  Help
[root@localhost amir]# cp /usr/share/doc/dhcp*/dhcpd.conf.example /etc/dhcp
[root@localhost amir]#
```

Once the copy is done, we will not have to make a backup copy because the original file will still be one in the / usr / share /doc/ dhcp */ folder.

We will create our own configuration as follows:

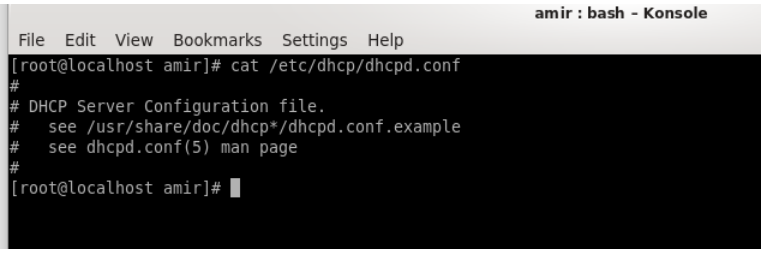
#cat /etc/dhcp/dhcpd.conf

To follow up on the command, you will have a result similar to this:

#DHCP Server Configuration file.

see / usr /share/doc/ dhcp */ dhcpd.conf.example

see dhcpd.conf (5) man page

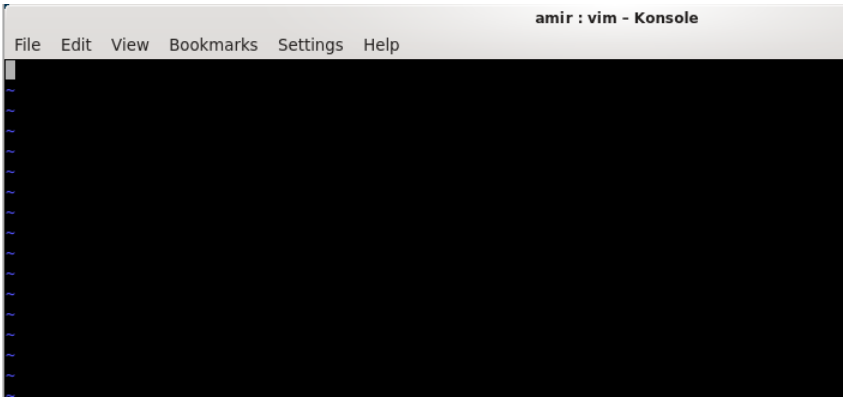


The DHCP service configuration file is located at /etc/dhcp/dhcpd.conf .

is usually empty after installation, but there is an example configuration file in the path /usr/share/doc/dhcp/dhcpd.conf.example where you can see the configuration settings along with the description .

Edit the /etc/dhcp/dhcpd.conf file .

#vim /etc/dhcp/dhcpd.conf



The message indicates that there is a sample configuration file that we can use to start our configuration.

authoritative; ..

default-lease-time 28800;

max-lease-time 86400;

subnet 192.168.10.0 netmask 255.255.255.0 {

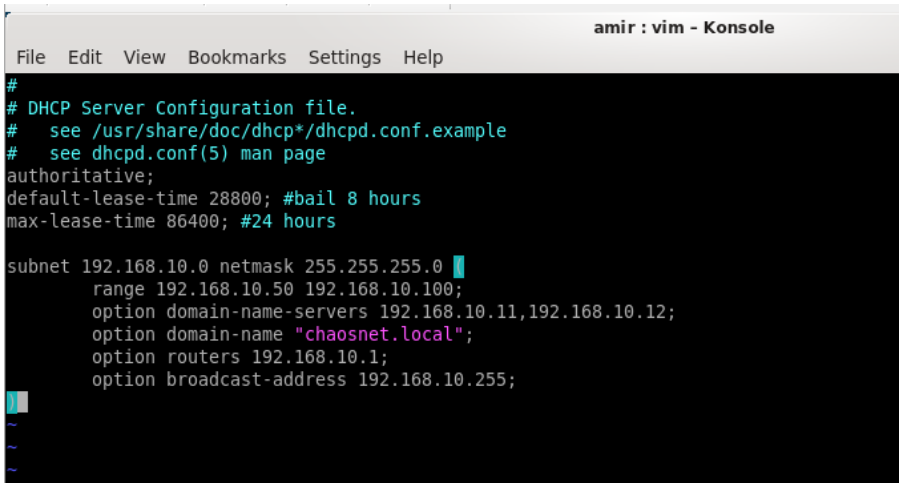
. range 192.168.10.50 192.168.10.100;

. option domain-name-servers 192.168.10.11,192.168. 10.12;

. option domain-name " chaosnet.local ";

. option routers 192.168.10.1;

. option broadcast-address 192.168.10.255;



Setup Description

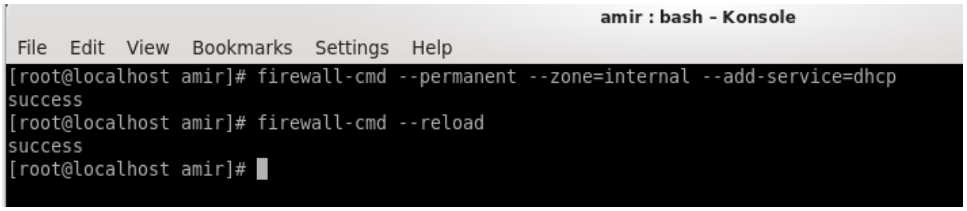
• Authority: Used to specify a primary DHCP server. This is usually to prevent interference from users and service providers.
• default lease time : how long an IP ADDRESS is leased to each network machine (in seconds)
• maximum rental time : specifies the maximum time to assign an IP address to a machine (in seconds)
• subnet : setting the network on which the DHCP server should respond to requests
• scope : IP address range for clients
• optional domain name servers : IP addresses of DNS servers
• option domain name : Domain in which they are
• Options routers : Default gateway
• broadcast address option : Broadcast address

Zone Configuration

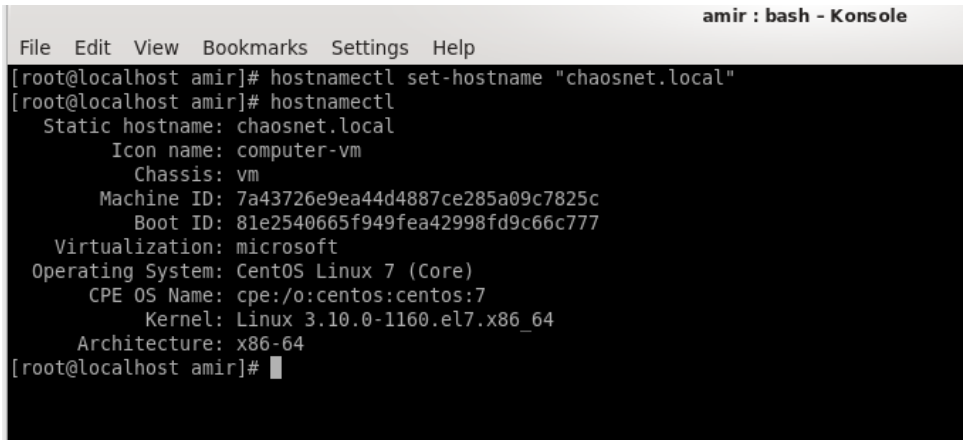
Run the following commands (on srv02) to open access to the service in the firewall:

firewall -cmd --permanent --zone=internal --add-service= dhcp

firewall -cmd --reload



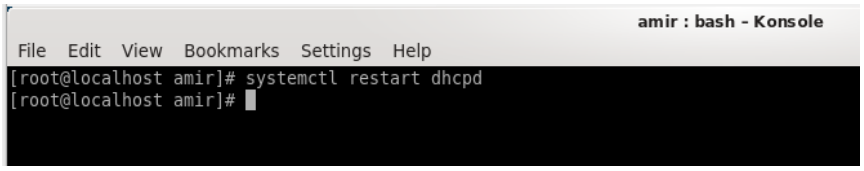
Set the hostname as: chaosnet.local



Run DHCP service

Run the following command to run the DHCP service.

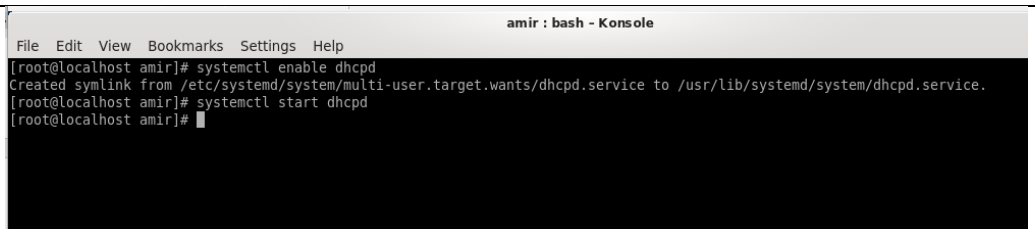
#systemctl restart dhcpd



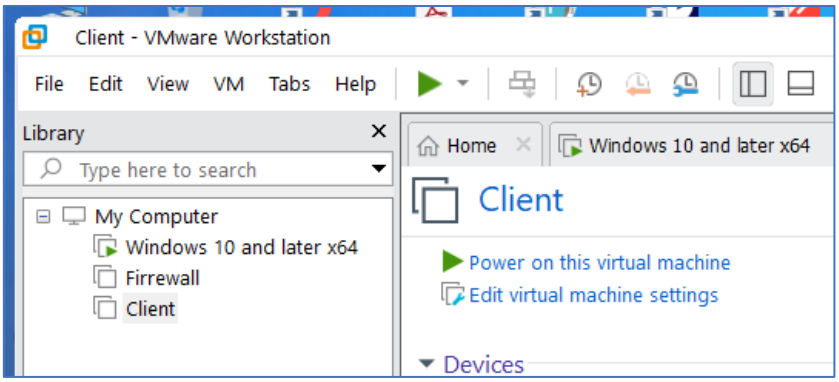
Also use the following command to automatically run the DHCP service on system startup:

#systemctl enable dhcpd

#systemctl start dhcpd



Step 2: Test our DHCP server configuration



Run cmd

ipconfig