DHCP 13

How to Install a DHCP Server in Ubuntu and Debian

Linux Certifications - RHCSA / RHCE Certification | Ansible Automation Certification | LFCS / LFCE Certification

Dynamic Host Configuration Protocol (DHCP) is a network protocol that is used to enable host computers to be automatically assigned IP addresses and related network configurations from a server.

The IP address assigned by a DHCP server to DHCP client is on a "lease", the lease time normally varies depending on how long a client computer is likely to require the connection or DHCP configuration.

How Does DHCP Work?

The following is a quick description of how DHCP actually works:

- Once a client (that is configured to use DHCP) and connected to a network boots up, it sends a **DHCPDISCOVER** packet to the DHCP server.
- When the DHCP server receives the **DHCPDISCOVER** request packet, it replies with a **DHCPOFFER** packet.

How to Add Linux Host to Nagios Monitoring Server Using NRPE Plugin

How to Install Nagios 4.4.5 on RHEL/CentOS 8/7 and Fedora 30

Install Cacti (Network Monitoring) on RHEL/CentOS 8/7 and Fedora 30

How to Install Google Chrome 75 On RHEL/CentOS 7 and Fedora 30

DHCPOFFER packet, and it sends a DHCPREQUEST packet to the server showing it is ready to receive the network configuration information provided in the DHCPOFFER packet.

- Finally, after the DHCP server receives the DHCPREQUEST packet from the client, it sends the DHCPACK packet showing that the client is now permitted to use the IP address assigned to it.

In this article, we will show you how to setup a DHCP server in Ubuntu/Debian Linux, and we will run all the commands with the sudo command to gain root user privileges.

Testing Environment Setup

We are going to use following testing environment for this setup.

```
DHCP Clients - CentOS 7
```

Step 1: Installing DHCP Server in Ubuntu

1. Run the command below to install the DCHP server package, which was formerly known as **dhcp3-server**.

```
$ sudo apt install isc-d
```

2. When the installation completes, edit the file **/etc/default/isc-dhcp-server** to define the interfaces DHCPD should use to serve DHCP requests, with the INTERFACES option.

For example, if you want the DHCPD daemon to listen on `eth0`, set it like so:

```
INTERFACES="eth0"
```

And also learn how to configure a static IP address for the interface above.

Step 2: Configuring DHCP Server in Ubuntu

3. The main DHCP configuration file is `/etc/dhcp/dhcpd.conf`, you must

sent to clients here.

And, there are two types of statements defined in the DHCP configuration file, these are:

- **parameters** – specify how to perform a task, whether to carry out a task, or what network configuration options to send to the DHCP client.
- **declarations** – define the network topology, state the clients, offer addresses for the clients, or apply a group of parameters to a group of declarations.

4. Now, open and modify the main configuration file, define your DHCP server options:

```
$ sudo vi /etc/dhcp/dhcp
```

Set the following global parameters at the top of the file, they will apply to all the declarations below (do specify values that apply to your scenario):

```
option domain-name "tecm
option domain-name-serve
default-lease-time 3600;
max-lease-time 7200;
authoritative;
```

5. Now, define a subnetwork; here, we'll setup DHCP for **192.168.10.0/24** LAN network (use parameters that apply to your scenario).

```
subnet 192.168.10.0 netr
        option routers
        option subnet-ma
        option domain-se
        option domain-na
        range   192.168.
        range   192.168.
}
```

Step 3: Configure Static IP on DHCP Client Machine

6. To assign a fixed (static) IP address to a particular client computer, add the section below where you need to explicitly specify it's MAC addresses and the IP to be statically assigned:

```
        hardware etherr
        fixed-address 1
 }

host fedora-node {
        hardware etherr
        fixed-address 1
 }
```

Save the file and close it.

7. Next, start the DHCP service for the time being, and enable it to start automatically from the next system boot, like so:

```
------------ SystemD ---
$ sudo systemctl start i
$ sudo systemctl enable


------------ SysVinit --
$ sudo service isc-dhcp-
$ sudo service isc-dhcp-
```

8. Next, do not forget to permit DHCP service (DHCPD daemon listens on port 67/UDP) on firewall as below:

```
$ sudo ufw allow  67/udp
$ sudo ufw reload
$ sudo ufw show
```

Step 4: Configuring DHCP Client Machines

9. At this point, you can configure your clients computers on the network to automatically receive IP addresses from the DHCP server.

Login to the client computers and edit the Ethernet interface configuration file as follows (take note of the interface name/number):

```
$ sudo vi /etc/network/i
```

And define the options below:

```
iface eth0 inet dhcp
```

Save the file and exit. And restart network services like so (or **reboot** the system):

```
------------ SystemD ---
$ sudo systemctl restart

------------ SysVinit --
$ sudo service networkin
```

Alternatively, use the GUI on a desktop machine to perform the settings, set the Method to Automatic (DHCP) as shown in the screenshot below (Fedora 25 desktop).

Set DHCP Network in Fedora

At this point, if all settings are correctly configured, your client machine should be receiving IP addresses automatically from the DHCP server.

how to setup a DHCP server in Ubuntu/Debian. Share your thoughts with us via the feedback section below. If you are using Fedora based distribution, go through how to setup a DHCP server in CentOS/RHEL.

Sharing is Caring...

Tags: DHCP Server

Aaron Kili **View all Posts**

Aaron Kili is a Linux and F.O.S.S enthusiast, an upcoming Linux SysAdmin, web developer, and currently a content creator for TecMint who loves working with computers and strongly believes in sharing knowledge.

PREVIOUS STORY NEXT STORY

Secure MariaDB 10 in CentOS 6

Magento on CentOS 7

YOU MAY ALSO LIKE...

0 7

How to Install and Configure Multihomed ISC DHCP Server on Debian Linux

8 APR, 2015

How to Setup a DNS/DHCP Server Using dnsmasq on CentOS/RHEL 8/7

1 NOV, 2019

How to Setup DHCP Server and Client on CentOS and Ubuntu

30 NOV, 2018

13 RESPONSES

Comments 13

Pingbacks 0

Alan November 8, 2019 at 7:20 pm

Amazing, the guide was easy to follow, thanks.

Reply

Aaron Kili

November 11, 2019 at 1:52 pm

@Alan

Welcome, thanks for the feedback.

Reply

Thank you this article helped me a lot, I found no problems after following the steps in this post. it's just that I'm configuring wrong interfaces..

Reply

Shuvo April 20, 2019 at 12:09 pm

Hello,

I like to add 3/4 different network on the DHCP pool/range.

Here is a example:

```
subnet 192.168.10.0 netmask 255.255.255.0 {
        option routers                  192.168.10.1;
        option subnet-mask              255.255.255.0;
        option domain-search            "tecmint.lan";
        option domain-name-servers      192.168.10.1;
        range   192.168.10.10   192.168.10.200;
        range   192.168.11.10   192.168.11.200;
        range   192.168.12.10   192.168.12.200;
        range   192.168.13.10   192.168.13.200;
}
```

Note: I like to add this because I have over 400 mobile/laptop user so I was thing if filter with different IP series it will be very easy to maintain.

Please let me know is it possible ?

Reply

Lord Randy

August 13, 2019 at 12:59 pm

You could do that, but your configuration is wrong. You need to learn about subnet masking. Your netmask would need to allow for all those clients to fit in the range. After that you could add all the subnets you want and need.

Another issue you will run into is broadcast storms with that many clients on

you are using wireless comms.

If you want to carry on then something like this should do the trick:

A subnet of 255.255.252.0 will yield = 192.168.16.1 – 192.168.19.254

No you can't just start from .10.x because that subnet is in the middle of another one.

```
subnet 192.168.16.0 netmask 255.255.252.0 {
        option routers                  192.168.16.1;
        option subnet-mask              255.255.252.0;
        option domain-search            "tecmint.lan";
        option domain-name-servers      192.168.16.1;
        range   192.168.16.10   192.168.16.255;
        range   192.168.17.10   192.168.17.255;
        range   192.168.18.10   192.168.18.255;
        range   192.168.19.10   192.168.19.254;
}
```

It looks weird to most people but 192.168.16.255 is a usable address in this subnet. This will give you the first 10 IP address in each number range to be static if you want but maximises on usable address in the dhcp server.

I would also recommend looking into splitting this into 2 maybe 4 servers. DHCP works on a race. The first server to respond can issue the IP address. Therefore if one of your servers breaks, then the others can still service your clients.
People don't like it when "the internet" breaks.

gabouter March 19, 2019 at 10:16 pm

Hello,

I installed a Debian 9 on a machine, then I configured my network to be able to download on the internet the packets for the DCHP and the DNS

I installed the 2 packets, then I changed dns to pass on my local network and not that of the company. After I started the network card, now I want to know if we configure the DNS server well before the DHCP server?

Reply

Angel Ascanio

December 18, 2018 at 1:17 am

Thanks for the article. Question: How do I start/stop the DHCP daemon??

Reply

Aaron Kili

December 19, 2018 at 1:59 am

@Angel

Use these commands:

```
$ sudo systemctl start isc-dhcp-server.service
$ sudo systemctl stop isc-dhcp-server.service
```

Reply

wassim June 13, 2018 at 6:36 am

When i try to install DHCP Server in Ubuntu it says.

```
Reading package lists... Done
Building dependency tree
Reading state information... Done
E: Unable to locate package isc-dhcp-server
```

Reply

Aaron Kili

June 13, 2018 at 3:11 pm

@wassim

Try to update your system package list from all

Then try to install isc-dhcp-server once more. If it still fails, let us know.

Reply

Blake March 2, 2018 at 4:44 pm

"And also remember to configure a static IP address for the interface above." — Do you mean an IP for the DHCP Range or a static ip say from my network?

Reply

Blake

March 2, 2018 at 4:44 pm

*from..not for

Reply

Aaron Kili

March 5, 2018 at 12:32 pm

@Blake

Many thanks for the heads up. It is a slight mistake, the sentence is suppose to link to how to configure a static IP address in case you have a server. We will correct it with a more appropriate sentence.

Reply

GOT SOMETHING TO SAY? JOIN THE DISCUSSION.

Comment

Name * **Email ***

Website

Save my name, email, and website in this browser for the next time I comment.

Notify me of followup comments via e-mail. You can also subscribe without commenting.

Post Comment

This site uses Akismet to reduce spam.
Learn how your comment data is processed.

LINUX MONITORING TOOLS

screenFetch – An Ultimate System Information Generator for Linux

LINUX INTERVIEW QUESTIONS

11 Basic Linux Interview Questions and Answers

OPEN SOURCE TOOLS

6 Best PDF Page Cropping Tools For Linux

10 Best Flowchart and Diagramming Software for

Performance Using Netdata on CentOS 7

Install OpenNMS Network Monitoring in Debian and Ubuntu

linux-dash: Monitors "Linux Server Performance" Remotely Using Web Browser

Setting Up Real-Time Monitoring with 'Ganglia' for Grids and Clusters of Linux Servers

Questions on Linux Services and Daemons

10 Useful 'Interview Questions and Answers' on Linux Shell Scripting

10 Interview Questions and Answers on Various Commands in Linux

Practical Interview Questions and Answers on Linux Shell Scripting

6 Online Tools for Generating and Testing Cron Jobs for Linux

5 Best Modern Linux 'init' Systems (1992-2015)

10 Best Markdown Editors for Linux