Ubuntu 16.04

BY SK · AUGUST 4, 2016

DHCP, abbreviation of **D**ynamic **H**ost **C**ontrol **P**rotocol, is a network protocol that assigns IP addresses automatically to client systems in the network. This

reduces the tedious task of manually assigning IP addresses in a large network that has hundreds of systems. We can define the IP range (Scopes) in the DHCP server, and distribute them across the network. The client systems in the network will automatically get the IP address.

In this tutorial, we will see how to install DHCP server in Ubuntu 16.04 LTS server, and configure the DHCP clients.

Install DHCP Server in Ubuntu 16.04 LTS server

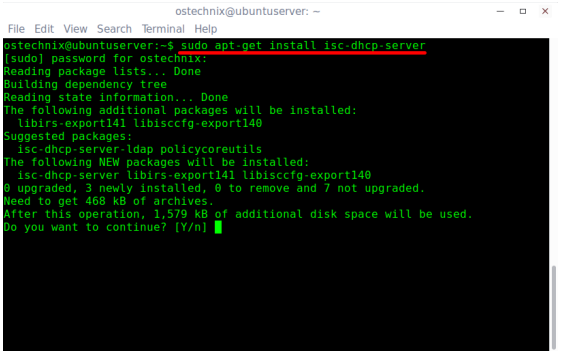
For the purpose of this tutorial, I will be using the following system as DHCP server.

My DHCP Server:

- **OS** – Ubuntu 16.04 LTS 64 bit
- **IP Address** – 192.168.1.105/24
- **Hostname** – ubuntuserver.ostechnix.lan

Open Terminal and run the following command to install DHCP server:

```
sudo apt-get install is
```



Install DHCP server in Ubuntu

DHCP server has been installed. Now, let us go further and configure it to suit our needs.

Configure DHCP server

The default configuration file of DHCP server is **/etc/default/isc-dhcp-server**. We need to edit and modify it as per our requirements.

If you have more than one Network interface card in your DHCP server, you need to mention on which interface should the DHCP server serve DHCP requests.

As I have only one NIC in my server, I assigned **'enp0s3'** as the

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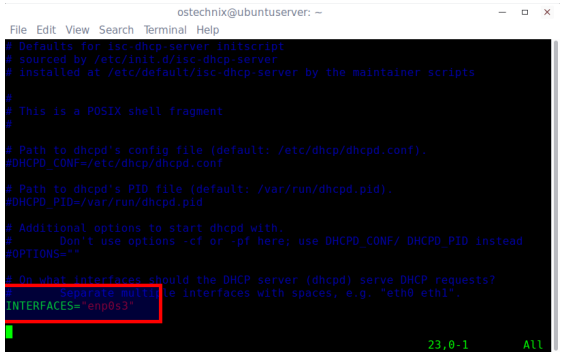
listening interface. Here, **enp0s3** is network card's name.

To do so, edit **/etc/default/isc-dhcp-server** configuration file:

```
sudo vi /etc/default/is
```

Assign the network interface:

```
[...]
INTERFACES="enp0s3"
```



If you have more than one interfaces, mention them with spaces, for example "eth0 eth1".

Save and close the file.

Then, edit **dhcpd.conf** file,

```
sudo vi /etc/dhcp/dhcpd
```

Modify it as shown below. Replace the domain name with your own

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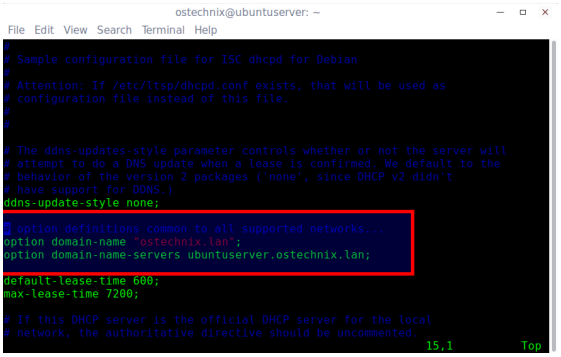
values.

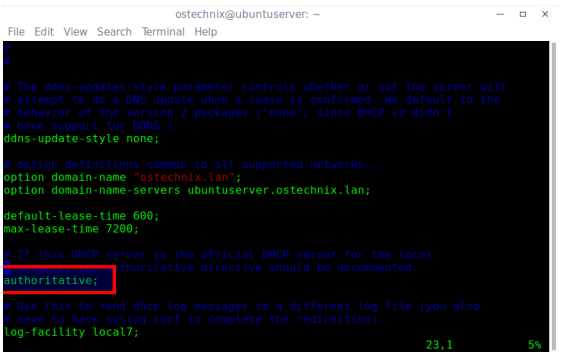
Enter the **domain name** and **domain-name-servers**:

```
[...]

# option definitions co
 option domain-name "os
 option domain-name-ser

[...]
```



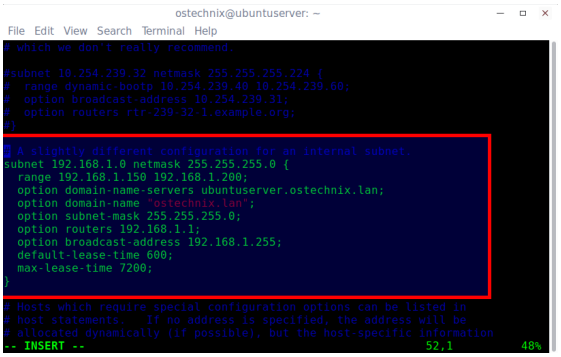
To make this server as official DHCP for your clients, find and uncomment the following line:

```
[...]
authoritative;
[...]
```



Scroll down little bit, and define the subnet, IP range, domain and domain name servers like below.

```
[...]
# A slightly different
 subnet 192.168.1.0 net
 range 192.168.1.20 192
 option domain-name-ser
 option domain-name "os
 option routers 192.168
 option broadcast-addre
 default-lease-time 600
 max-lease-time 7200;
 }
[...]
```



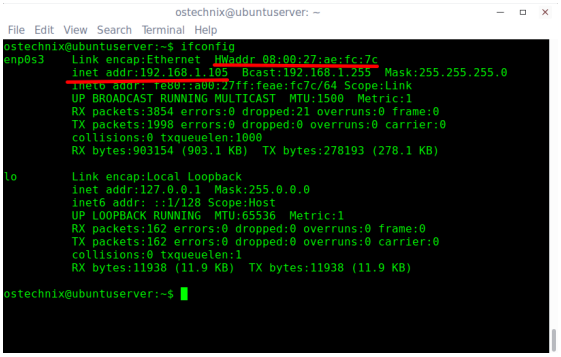
As you see in the above configuration, I have assigned IP range from 192.168.1.150 to 192.168.1.200. So, the DHCP clients will get the IP address from this range. But, what if you want assign a specific IP (fixed IP address) to a particular client? It's easy too. You can easily assign a specific IP to a client of your network by adding the MAC id of

that client with fixed IP address as shown below.

For example, let us say we want to assign IP 192.168.1.160 to client that has MAC id **00:22:64:4f:e9:3a**. To find out the IP ann MAC addresses, use **'ifconfig'** command.

```
ifconfig
```

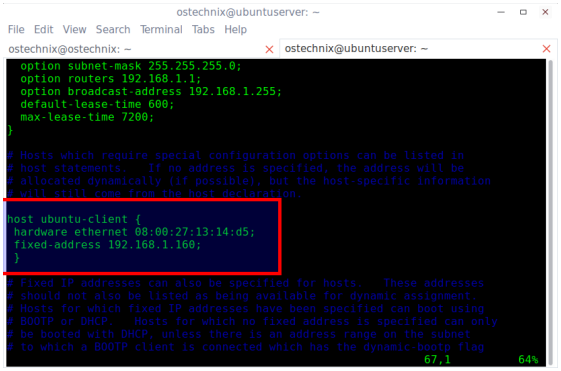
Sample output:



See the underlined words. Those are the IP and MAC addresses.

Assign the fixed IP and MAC id of the client as shown below.

```
[...]
host ubuntu-client {
 hardware ethernet 08:0
 fixed-address 192.168.
 }
[...]
```



Once you modified all settings as per your requirements, save and close the file.

Now, restart dhcp service:

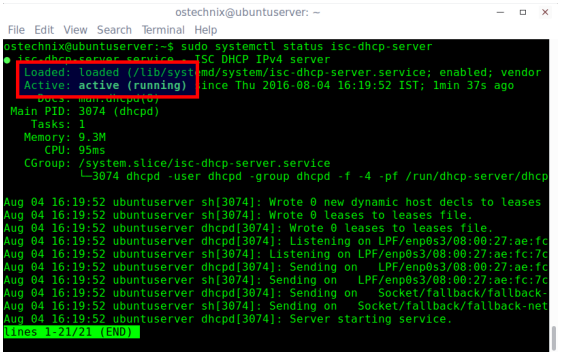
```
sudo systemctl restart
```

Make sure you haven't left any unused entries in the **dhcpd.conf** file. If there is any unused or unnecessary lines, just comment them out. Otherwise, DHCP service will not start.

Let us check if our DHCP service has been started or not using command:

```
sudo systemctl status i
```

Sample output:



As you see in the above screenshot, DHCP server is running!

To start or stop DHCP service, use the following commands:

```
sudo systemctl start is
```

```
sudo systemctl stop isc
```

At this stage, you will have a working DHCP server. The server side configuration part is over. Let's go ahead and configure the DHCP clients.

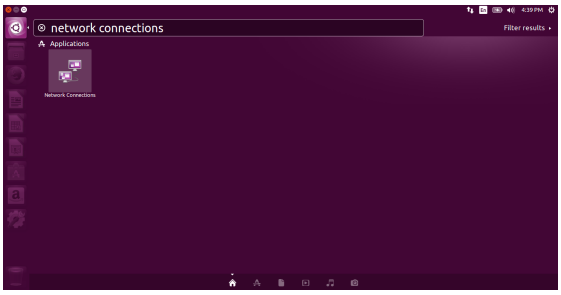
Configure DHCP Clients

For the purpose of this tutorial, I will be using Ubuntu 16.04 LTS desktop as my DHCP client.

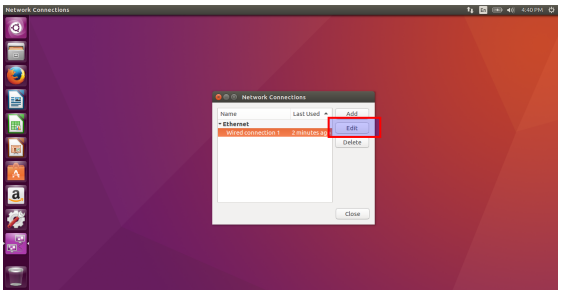
My DHCP client:

- **OS** – Ubuntu 16.04 LTS desktop
- **IP Address** – DHCP enabled

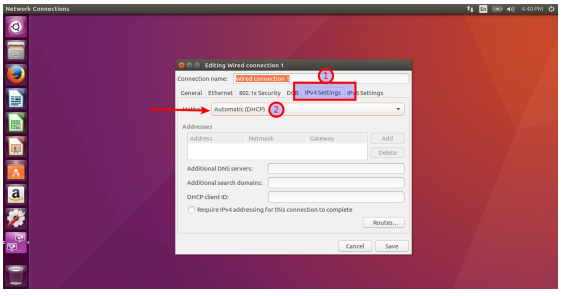
Open Network Connections either from Unity dash or Menu.



In the Network connections window, Select your Ethernet card and click **Edit**.



Click **IPv4 Settings**, and select **"Automatic (DHCP)"** option. Finally click **Save**.

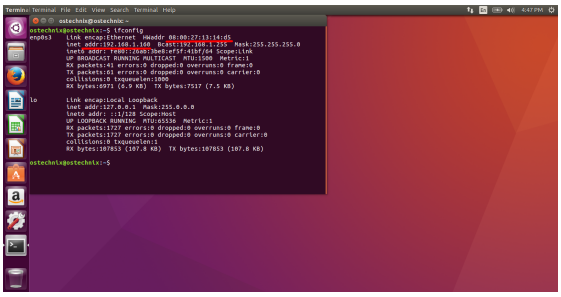


Now, restart your client system, and check the IP address of your client system.

```
ifconfig
```

Sample output:

You will see a new IP address from IP range, which we defined in the DHCP server, is assigned to your client system.



As you see in the above screenshot, My Ubuntu 16.04 LTS desktop system, which has MAC id **08:00:27:13:14:d5**, has been assigned with a fixed IP address (**192.168.1.160**) from the DHCP server. Remember we have mentioned these values in **dhcpd.conf** file of our DHCP server.

Congratulations! DHCP server is working!!

Also read – **How to monitor DHCP server usage**

That's all for now. I will be here soon with another article. Until then, stay tuned with OSTechNix.

Cheers!

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AlekseyShi

August 4, 2016 at 7:09 pm

Pleasant usefull manual, but DHCP is simple and rare in using, but DNS must be up to show how to do

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SK

August 4, 2016 at 8:00 pm

We will publish DNS article for Ubuntu soon. Thanks for your positive feedback. Keep visiting.

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AlekseyShi

August 4, 2016 at 8:21 pm

I've been subscribed to all your articles published and I read them with pleasure but I prefer Arch Linux.

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SK

August 5, 2016 at 11:11 am

Thank you brother. Your kindest feedback motivates me to write more stuffs. Keep visiting.

Reply

Murad April 2, 2018 at 11:17 pm

Thank you but i used the same steps but the isc field in running i don't no way.
these is the status
isc-dhcp-server.service – ISC DHCP IPv4 server
Loaded: loaded (/lib/systemd/system/isc-dhcp-server.service; enabled; vendor preset: enabled)

Active: failed (Result: exit-code) since 13:44:14 02-04-2018 الاثنين EDT; 3s ago
Docs: man:dhcpd(8)
Process: 2574 ExecStart=/bin/sh -ec CONFIG_FILE=/etc/dhcp/dhcpd.conf; if [-f /etc/ltsp/dhcpd.conf]; then CONFIG_FILE=/etc/ltsp/dh
Main PID: 2574 (code=exited, status=1/FAILURE)

Reply

fips June 13, 2018 at 8:06 pm

Nicely done, just configured a tiny 16.04 LTS machine (old HP microserver) for a friend with the help of your articles.

Appreciate the effort you put in this.

Reply

sk

June 14, 2018 at 1:40 pm

You're welcome. Glad it helped you.

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