



DHCP in Linux (RedHat, CentOS, Fedora)

Theory

DHCP is an acronym for Dynamic Host Configuration Protocol. It is used to assign TCP/IP information to clients dynamically. Most administrators configure a DHCP server in their network if they have too many clients. Usually, there is a single DHCP server per subnet, but in some cases there may be more than one or one DHCP server for many subnets.

Objective

This lab will help you Install, configure, test and troubleshoot a DHCP server in Linux.

Tools/Equipment

- Virtual Software (Sun VirtualBox)
- Virtual Hard disk (CentOS5.1_ST5.vdi)
- Network connectivity

Package name: `dhcp`
Daemon: `/usr/sbin/dhcpd`
Ports used: `67 & 68`
Configuration file: `/etc/dhcpd.conf`

Lab Exercise

- i. Copy the virtual hard disk (CentOS5.1_ST5.vdi) from [\\10.100.255.12](http://10.100.255.12). Username to connect is `iis2016`, password `iis2016`
- ii. Start your Sun VirtualBox and configure it to use the virtual hard disk you copied in step i. above
- iii. Before you start the virtual machine make sure you bridge the virtual interface and the physical interface so can you can have outside communication. When you bridge the interfaces use the following settings:

Adapter type: choose the one with Desktop
Attached to: bridged adapter
Name: choose the name of your physical interface card

Note that if you are using a different virtual machine software, different configurations might be required or no additional configurations.

- iv. Start the virtual machine and logon as the `root` user with password `Pa$$w0rd`
- v. Change the IP information to:



IP Address: 10.100.54.x, where x is any number between 181 and 250
Subnet Mask: 255.255.255.0
Default Gateway: 10.100.54.1
Name server(s): 172.28.253.253 and 172.28.253.254

- vi. Test step v. above by pinging 10.100.54.1 and 10.100.255.10
- vii. If the ping test failed troubleshoot. Verify your TCP/IP information.
- viii. Check if the DHCP service is installed. How do you check this?
- ix. If the service is not installed you need to install it. For the installation **yum** is configured on the server and on the client so that you can use it since it will install any dependencies if there are any. Syntax: **yum -y install package_name**
- x. The sample configuration file can be obtained from **/usr/share/doc/dhcp-version/dhcpd.conf.sample**. Copy the sample file to **/etc** and rename it to **dhcpd.conf**. Replace **dhcp-version** with the proper version installed on your machine.
- xi. Open **/etc/dhcpd.conf** file and start configuring the dhcp server. Some of the options you need to set include subnet, netmask, option routers, option subnet mask, option domain name, option domain name-servers, range, default-lease-time, max-lease-time
- xii. Start at least one client and test if it can obtain the IP address among other TCP/IP information. If the results are negative troubleshoot.

Once you are done with the lab and you are satisfied with the results stop your dhcp service or shutdown the machine or uninstall the service so that it will not cause problems within the NUST network.

Evaluation

- ✓ In **/etc/dhcpd.conf** there is a line starting with word **range**. What is the difference in using the word **range** and using **range dynamic-bootp**? [Hint: use two clients and change the pool]
- ✓ Where do you find all the addresses issued to clients?
- ✓ Consider that your DHCP server have two network adapter cards, how do you direct DHCP traffic to only one network card NOT both?
- ✓ How do you check the version of DHCP server running on your machine?

>>>> End Of Lab Exercise <<<<