

## Practical 5

### Setting up DHCP

#### DHCP Server Configuration

1) Check the IP address configuration

```
abc@localhost:~  
File Edit View Search Terminal Help  
[root@localhost ~]# ifconfig  
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500  
    inet 10.0.0.100 netmask 255.0.0.0 broadcast 10.255.255.255  
    inet6 fe80::20c:29ff:feaf:d3cb prefixlen 64 scopeid 0x20<link>  
    ether 00:0c:29:af:d3:cb txqueuelen 1000 (Ethernet)  
    RX packets 2122 bytes 131695 (128.6 KiB)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 58 bytes 8184 (7.9 KiB)  
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536  
    inet 127.0.0.1 netmask 255.0.0.0  
    inet6 ::1 prefixlen 128 scopeid 0x10<host>  
    loop txqueuelen 1 (Local Loopback)  
    RX packets 104 bytes 9856 (9.6 KiB)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 104 bytes 9856 (9.6 KiB)  
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
virbr0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500  
    inet 192.168.122.1 netmask 255.255.255.0 broadcast 192.168.122.255  
    ether 52:54:00:6f:a7:8a txqueuelen 1000 (Ethernet)  
    RX packets 0 bytes 0 (0.0 B)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 0 bytes 0 (0.0 B)
```

2) Check for the dhcp package, if not found install it.

**#rpm -q dhcp**

```
File Edit View Search Terminal Help  
[root@localhost ~]# rpm -q dhcp  
package dhcp is not installed  
[root@localhost ~]# clear  
  
[root@localhost ~]# yum install dhcp  
Loaded plugins: langpacks, product-id, search-disabled-repos, subscription-  
: manager  
This system is not registered with an entitlement server. You can use subscrip  
on-manager to register.  
Resolving Dependencies  
--> Running transaction check  
---> Package dhcp.x86_64 12:4.2.5-58.el7 will be installed  
--> Finished Dependency Resolution  
  
Dependencies Resolved  
  
=====
```

Package	Arch	Version	Repository	Size
Installing:				
dhcp	x86_64	12:4.2.5-58.el7	myrepo	513 k

```
=====
```

```
[root@localhost ~]# rpm -q dhcp  
dhcp-4.2.5-58.el7.x86_64
```

3) Go to dhcp directory. Open configuration file dhcpd.conf

```
[root@localhost network-scripts]# cd /etc/dhcp
[root@localhost dhcp]# ls
dhclient.d  dhclient-exit-hooks.d  dhcpd6.conf  dhcpd.conf  scripts
[root@localhost dhcp]# vi dhcpd.conf
```

4) Configure dhcp configuration file.

```
subnet 10.0.0.0 netmask 255.255.255.0{
range 10.0.0.50 10.0.0.60;
option subnet-mask 255.255.255.0;
option routers 10.0.0.254;
option domain-name-servers 10.0.0.254;
}
```

Press **esc :wq** to save and exit from vi editor.

5) Give command **#dhcp -t** to check for any errors in configuration file of dhcp.

```
[root@localhost dhcp]# dhcpd -t
Internet Systems Consortium DHCP Server 4.2.5
Copyright 2004-2013 Internet Systems Consortium.
All rights reserved.
For info, please visit https://www.isc.org/software/dhcp/
Not searching LDAP since ldap-server, ldap-port and ldap-base-dn were not specified in the config file
```

6) Restart the dhcpd service, check its status and disable firewall.

```
[root@localhost dhcp]# systemctl restart dhcpd
[root@localhost dhcp]# systemctl status dhcpd
● dhcpd.service - DHCPv4 Server Daemon
   Loaded: loaded (/usr/lib/systemd/system/dhcpd.service; disabled; vendor preset: disabled)
   Active: active (running) since Mon 2024-09-02 09:48:01 IST; 17s ago
     Docs: man:dhcpd(8)
           man:dhcpd.conf(5)
   Main PID: 7340 (dhcpd)
   Status: "Dispatching packets..."
   CGroup: /system.slice/dhcpd.service
           └─7340 /usr/sbin/dhcpd -f -cf /etc/dhcp/dhcpd.conf -user dhcpd -gr...

Sep 02 09:48:01 localhost.localdomain dhcpd[7340]: No subnet declaration for ...
Sep 02 09:48:01 localhost.localdomain dhcpd[7340]: ** Ignoring requests on vi...
Sep 02 09:48:01 localhost.localdomain dhcpd[7340]: you want, please write ...
Sep 02 09:48:01 localhost.localdomain dhcpd[7340]: in your dhcpd.conf file...
Sep 02 09:48:01 localhost.localdomain dhcpd[7340]: to which interface virb...
Sep 02 09:48:01 localhost.localdomain dhcpd[7340]:
Sep 02 09:48:01 localhost.localdomain dhcpd[7340]: Listening on LPF/ens33/00:...
Sep 02 09:48:01 localhost.localdomain dhcpd[7340]: Sending on LPF/ens33/00:...
Sep 02 09:48:01 localhost.localdomain dhcpd[7340]: Sending on Socket/fallba...
Sep 02 09:48:01 localhost.localdomain systemd[1]: Started DHCPv4 Server Daemon.
Hint: Some lines were ellipsized, use -l to show in full.
[root@localhost dhcp]# systemctl stop firewalld
```

## DHCP Client Configuration

1) Check network configuration of server and identify network card.

```
File Edit View Search Terminal Help
[root@localhost ~]# ifconfig
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    ether 00:0c:29:06:60:f7 txqueuelen 1000 (Ethernet)
    RX packets 69 bytes 4333 (4.2 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1 (Local Loopback)
    RX packets 28 bytes 2732 (2.6 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 28 bytes 2732 (2.6 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

virbr0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 192.168.122.1 netmask 255.255.255.0 broadcast 192.168.122.255
    ether 52:54:00:a2:de:86 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
```

2) Go to network scripts directory and open ifcfg-ens33.

**#cd /etc/sysconfig/network-scripts**

**#vi ifcfg-ens33**

```
[root@localhost ~]# cd /etc/sysconfig/network-scripts
[root@localhost network-scripts]# vi ifcfg-ens33
```

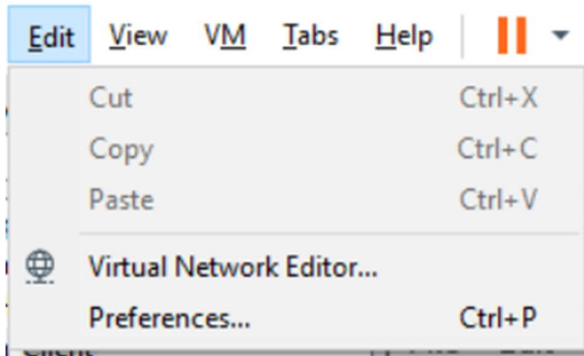
```
File Edit View Search Terminal Help
DEVICE=ens33
ONBOOT=yes
BOOTPROTO=DHCP
HWADDR=00:0c:29:06:60:f7
```

Press **esc :wq** to save and exit from vi editor.

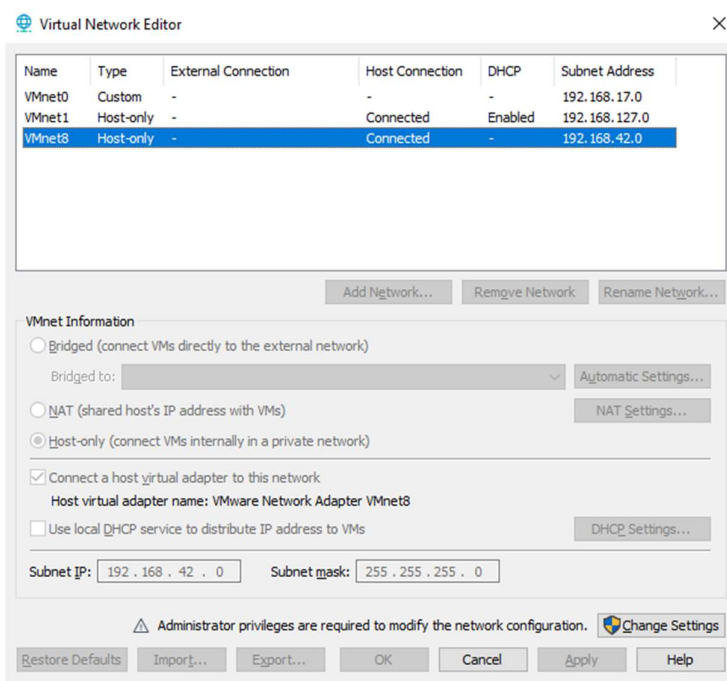
3) Check network configuration again.

```
[root@localhost network-scripts]# systemctl restart network
[root@localhost network-scripts]# ifconfig
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.42.128 netmask 255.255.255.0 broadcast 192.168.42.255
    inet6 fe80::20c:29ff:fe06:60f7 prefixlen 64 scopeid 0x20<link>
    ether 00:0c:29:06:60:f7 txqueuelen 1000 (Ethernet)
    RX packets 641 bytes 43902 (42.8 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 166 bytes 21183 (20.6 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

4) If your client is taking IP from dhcp of base machine, then disable base machine dhcp of base machine, then disable base machine dhcp by using Virtual network editor.



5) Select host-only and uncheck the **Use local DHCP service**.



6) Again, restart the network and check IP Address.

```
File Edit View Search Terminal Help
[root@localhost network-scripts]# systemctl restart network
[root@localhost network-scripts]# ifconfig
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.0.51 netmask 255.255.255.0 broadcast 10.0.0.255
    inet6 fe80::20c:29ff:fe06:60f7 prefixlen 64 scopeid 0x20<link>
    ether 00:0c:29:06:60:f7 txqueuelen 1000 (Ethernet)
    RX packets 973 bytes 66066 (64.5 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 290 bytes 40293 (39.3 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```