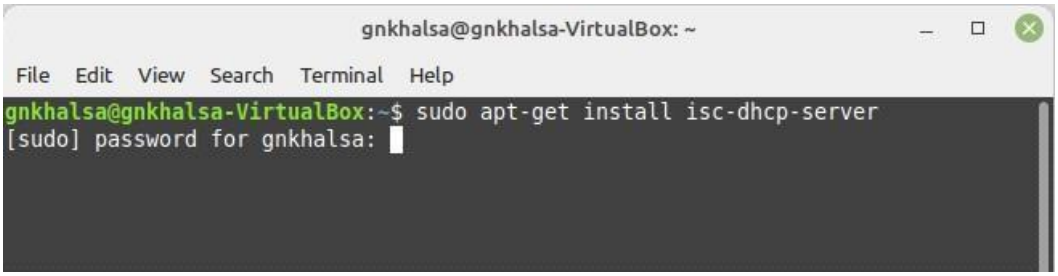
Practical 1

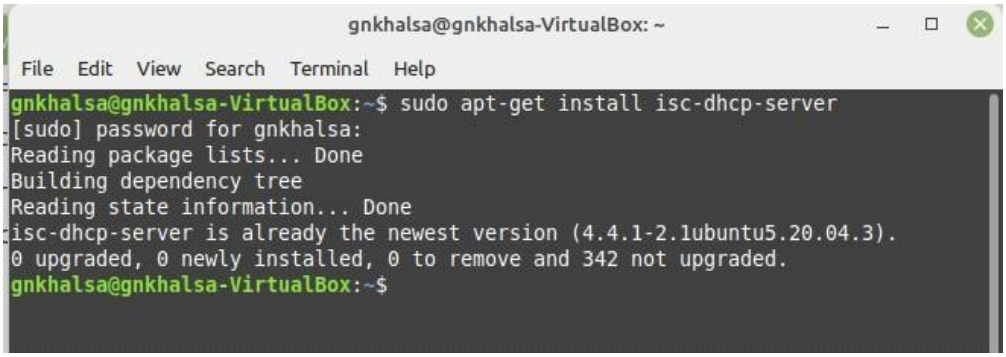
Installing DHCP server in Ubuntu 16.04

Steps to configure DHCP Server, Configure NFS Server to share directories on your network, Configure NFS Client (Ubuntu and Windows OS)

Step1: In your Ubuntu 16.04, open up a terminal and input the following command to install dhcp server.

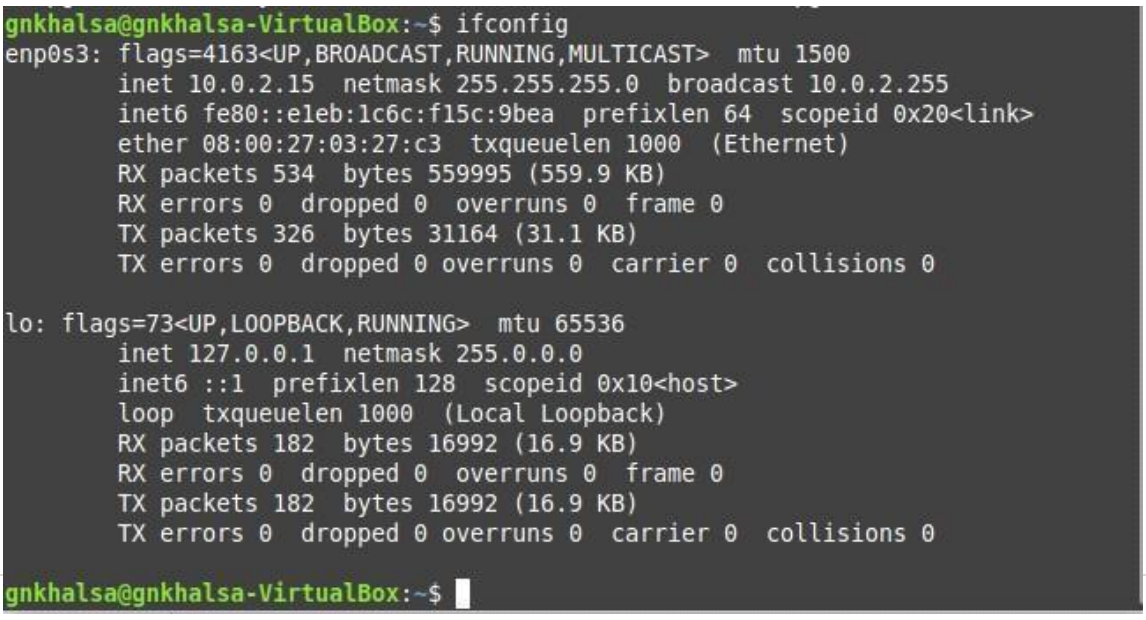
sudo apt-get install isc-dhcp-server





Step2: Once the installation has been done, make sure the network settings of your virtual machine are setto bridged network.

Step3: In the terminal, type inconfig to verify as to weather an ip address has been assigned to your virtual machine.



Step4: Next we need to configure our installed dhcp server to it serve ip address to connecting clients. Follows the following configuration.

```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo nano /etc/dhcp/dhcpd.conf
```

Step5: Look for the section which says "A slightly different configuration for internal subnel".

```
# A slightly different configuration for an internal subnet.
#subnet 10.5.5.0 netmask 255.255.255.224 {
#  range 10.5.5.26 10.5.5.30;
#  option domain-name-servers ns1.internal.example.org;
#  option domain-name "internal.example.org";
#  option subnet-mask 255.255.255.224;
#  option routers 10.5.5.1;
#  option broadcast-address 10.5.5.31;
#  default-lease-time 600;
#  max-lease-time 7200;
#}

# Hosts which require special configuration options can be listed in
# host statements.   If no address is specified, the address will be
# allocated dynamically (if possible), but the host-specific information
# will still come from the host declaration.
```

Step6: Now start by config the subnet line. Set the first ip address to the start of your network range.(The ip address you received in the output of ifconfig be use dto calculated it. Here the ip address was 192.168.0.10 and hence network ip is 192.168.0.0).

Step7: Set the net mask to 255.255.255.0 (This can be done by pressing ctrl+\ which will open a replace prompt wher you will have to type the original net mask which here was 255.255.255.224 and press enter the it will ask what it should be replaced with, then type 255.255.255.0, then press enter).

```
                [ Replaced 4 occurrences ]
^G Get Help  ^O Write Out ^W Where Is  ^K Cut Text  ^J Justify   ^C Cur Pos
^X Exit      ^R Read File ^\ Replace   ^U Paste Text^T To Spell  ^_ Go To Line
```

Step8: In range set a range of ip address you would like server to serve. Here it is set to server 20 addresses ranging from 10.5.5.10 to 10.5.5.30 (For changing the range do the same by replacing the whole range section by typing "range 10.5.5.10 10.5.5.30" in replace it with prompt)

Note: The range for me was 10.5.5.26 10.5.5.30, for your pc/system it might be differnt so change accordingly.

```
# A slightly different configuration for an internal subnet.
#subnet 10.5.5.0 netmask 255.255.255.0 {
#  range 10.5.5.26 10.5.5.30;
#  option domain-name-servers ns1.internal.example.org;
#  option domain-name "internal.example.org";
#  option subnet-mask 255.255.255.0;
#  option routers 10.5.5.1;
#  option broadcast-address 10.5.5.31;
#  default-lease-time 600;
#  max-lease-time 7200;
#}
```

Step9: Configure the routes line to be the default gateway.

Step10: Save the file by exiting it "ctrl+X", then in the prompt enter y and press enter or just press enter.

Step11: Now we have installed and configures our dhcp server. Let's start our dhcp server by using the following command.

sudo /etc/init.d/isc-dhcp-server start

```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo /etc/init.d/isc-dhcp-server start
[sudo] password for gnkhalsa:
Starting isc-dhcp-server (via systemctl): isc-dhcp-server.service.
gnkhalsa@gnkhalsa-VirtualBox:~$
```

Step12: To cross verify that help the ip address is actually served from the dhcp server go back to Ubuntu where the dhcp server has been configured and type in

cat /var/lib/dhcp/dhcpd.leases

```
gnkhalsa@gnkhalsa-VirtualBox:~$ cat /var/lib/dhcp/dhcpd.leases
# The format of this file is documented in the dhcpd.leases(5) manual page.
# This lease file was written by isc-dhcp-4.4.1

# authoring-byte-order entry is generated, DO NOT DELETE
authoring-byte-order little-endian;

gnkhalsa@gnkhalsa-VirtualBox:~$
```

Practical 2

Aim :- Configure NFS Server to share the directories on your Network

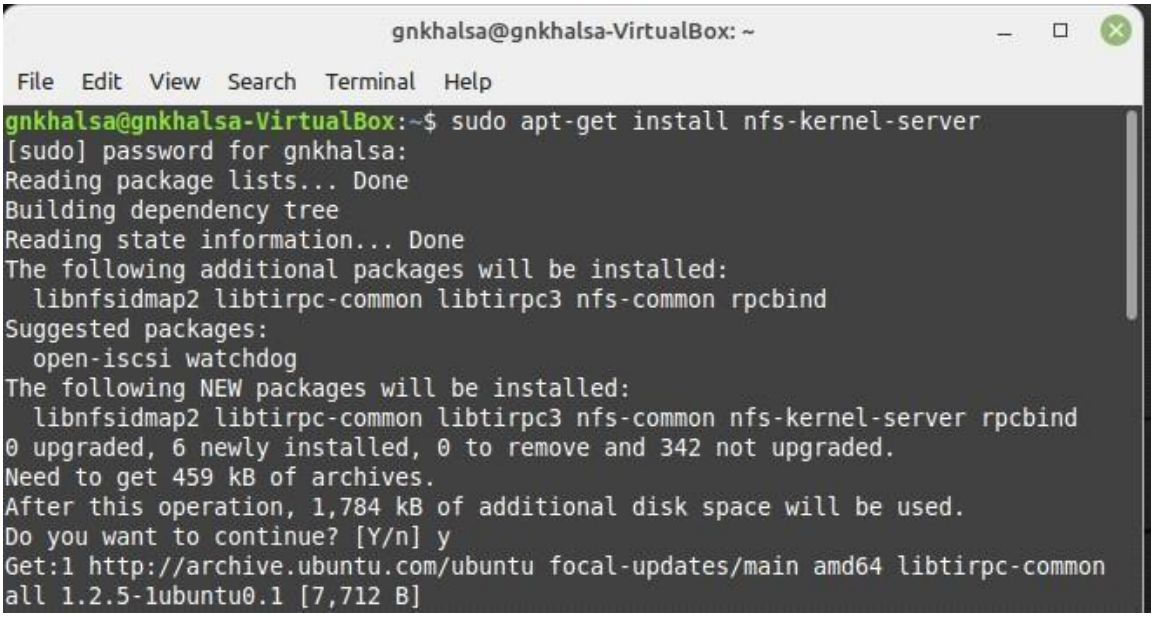
Configure NFS Server on your machine.

We skipped it become its not necessary and the first 3 commands are same as of the execution on Ubuntu machine.

Configure NFS Server on your Ubuntu.

Step 1: Install the NFS server on your Ubuntu 16.04 using the following command.

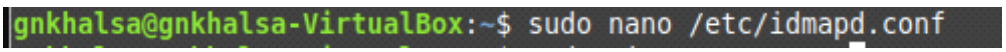
sudo apt-get install nfs-kernel-server



Step 2: Once the installation is done we have to change the domain name of our domain which will be as same as of our root machine.

to change the domain name we will use the following command to get into that file.

sudo nano /etc/idmapd.conf



After pressing enter you will uncomment the line which says

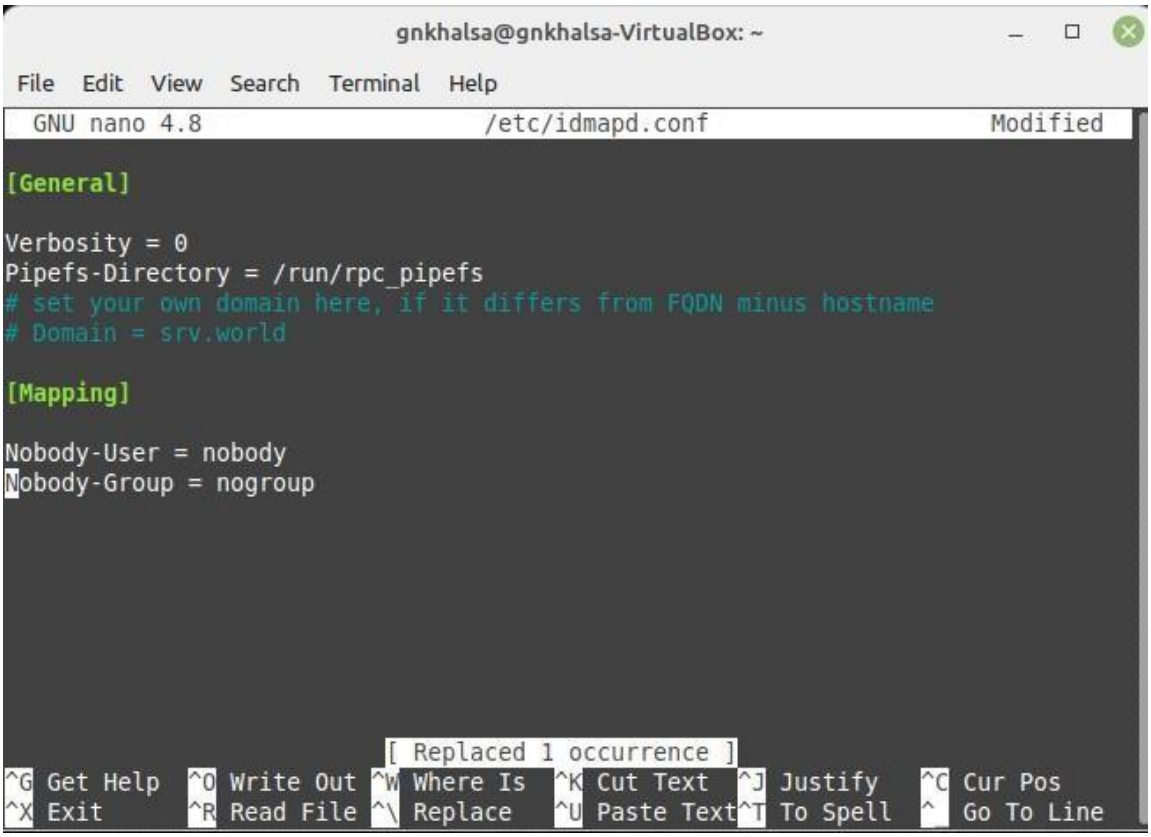
#Domain=localdomain and edit the domain name.

Here is how you edit this vi/vim file.

Press 'i' so that you could go into insert mode after that if you use are A,B,C,D will get inserted but to avoid that we will press delete after pressing the up arrow, then locate to the line #Domain = localdomain, uncomment it by using del and also change the name by deleting the default name (which has to be done by delete) and then rename it to 'srv,.world'

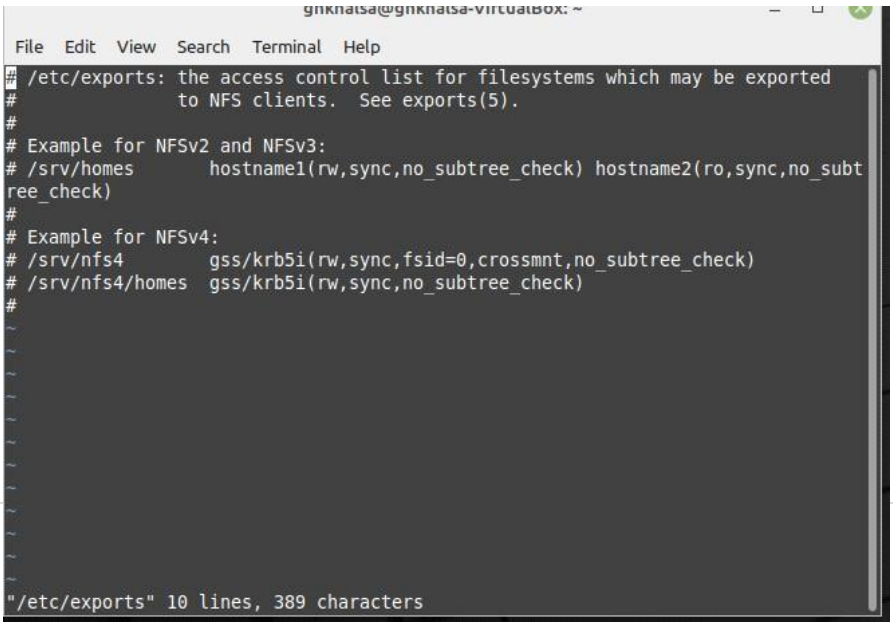
After renaming the domain press 'esc'to get back into command line form and to save and exit press ":" then type "wq!" and press enter to exit. (:+ wq! + enter)

Be careful while you do these steps because one mistake and you might curropt your idmapd.conf file.



Step 3: Now open the exports file to check if it's there or not. It is basically a list for file systems which might be exported via our NFS server.

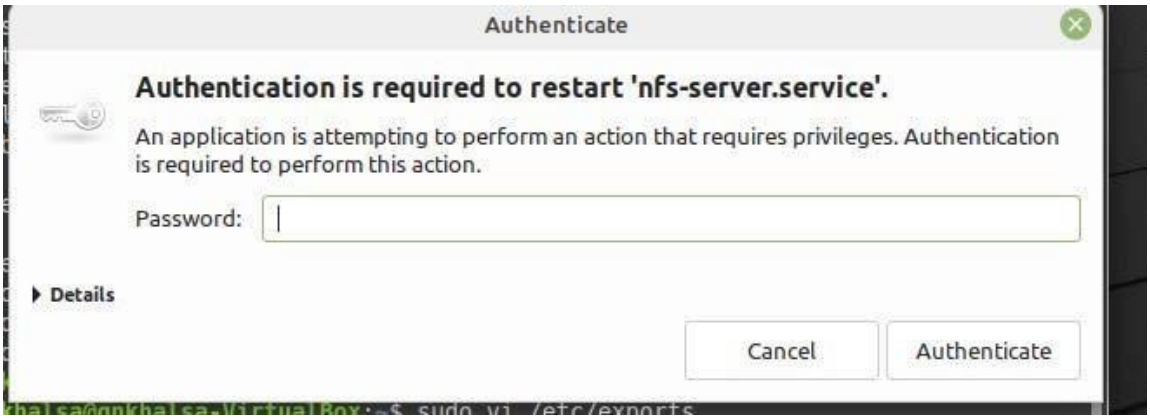
sudo nano /etc/exports



Step 4: Now restart the NFS server you've installed in your Ubuntu at the start of this practical using the following command .

systemctl restart nfs-server

```
gnkhalsa@gnkhalsa-VirtualBox:~$ systemctl restart nfs-server
```



Step 5: In this step we will mount our nfs server into our home directory using the following command.

mount -t nfsdlp.srv.world:/home/home

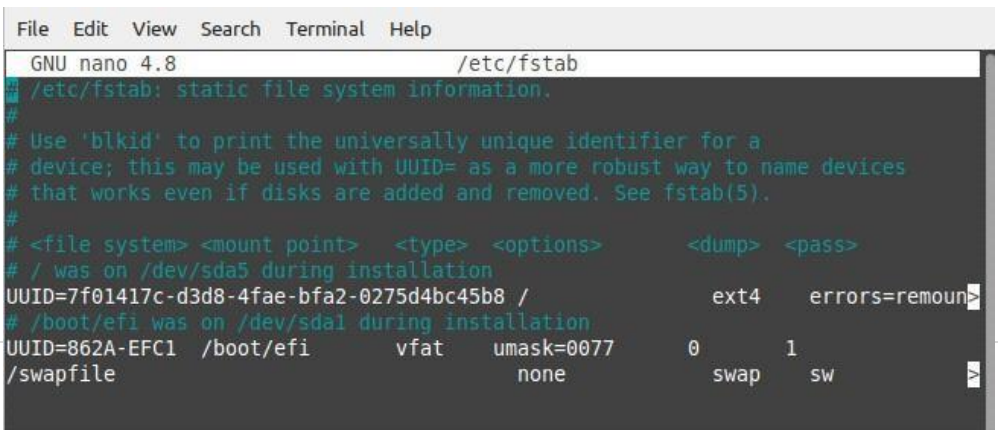
```
gnkhalsa@gnkhalsa-VirtualBox:~$ mount -t nfsdlp.srv.world:/home/home
```

Step 6: In this step we will display the information mounted by our NFS server, the 'df' command is used to display the information about total space and available space on a file system.

```
gnkhalsa@gnkhalsa-VirtualBox:~$ df -hT
Filesystem     Type      Size  Used Avail Use% Mounted on
udev           devtmpfs  1.9G     0  1.9G   0% /dev
tmpfs          tmpfs     394M  1.2M  393M   1% /run
/dev/sda5      ext4       78G  8.7G   66G  12% /
tmpfs          tmpfs     2.0G     0  2.0G   0% /dev/shm
tmpfs          tmpfs     5.0M  4.0K  5.0M   1% /run/lock
tmpfs          tmpfs     2.0G     0  2.0G   0% /sys/fs/cgroup
/dev/sda1      vfat      511M  4.0K  511M   1% /boot/efi
tmpfs          tmpfs     394M   32K  394M   1% /run/user/1000
/dev/sr0       iso9660    59M   59M     0 100% /media/gnkhalsa/VBox_GAs_6.1.34
```

Step 7: In this steop we will configure the mounting on fstab to mount it when the system boot.

```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo nano /etc/fstab
```



Step 8: Now we will install our auto mounting fstab using the following command.

sudo apt-get install autofs

```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo apt-get install autofs
```

```
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  autofs
0 upgraded, 1 newly installed, 0 to remove and 342 not upgraded.
Need to get 515 kB of archives.
After this operation, 3,455 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 autofs amd64 5.1
.6-2ubuntu0.1 [515 kB]
Fetched 515 kB in 0s (1,487 kB/s)
Selecting previously unselected package autofs.
(Reading database ... 276037 files and directories currently installed.)
Preparing to unpack .../autofs_5.1.6-2ubuntu0.1_amd64.deb ...
Unpacking autofs (5.1.6-2ubuntu0.1) ...
Setting up autofs (5.1.6-2ubuntu0.1) ...
```

Step 9: After getting done with the installation we have to open and check whether the auto.master file was created or not. This will be done by uising the following command.

sudo nano /etc/auto.master

```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo nano /etc/auto.master
```

Step 10: After checking the auto.master file we will need to create a directory(file) in which be adding mounted data.

sudo mkdir /mnkdir

```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo mkdir /mntdir
```

After creating this directory we can find this directory in files,computer section.

Step 11: Now after making the directory we will restart the auto mounting fstab, using the following command.

systemctl restart autofs

```
gnkhalsa@gnkhalsa-VirtualBox:~$ systemctl restart autofs
```

Step 12: Now we have to mount the data, before doing that we will need to change the current directory we are in to the directory we made for data mounting purpose (mntdir). For changing directory we will use "cd'

cd/mntdir

```
gnkhalsa@gnkhalsa-VirtualBox:~$ cd /mntdir
gnkhalsa@gnkhalsa-VirtualBox:/mntdir$ 11
```

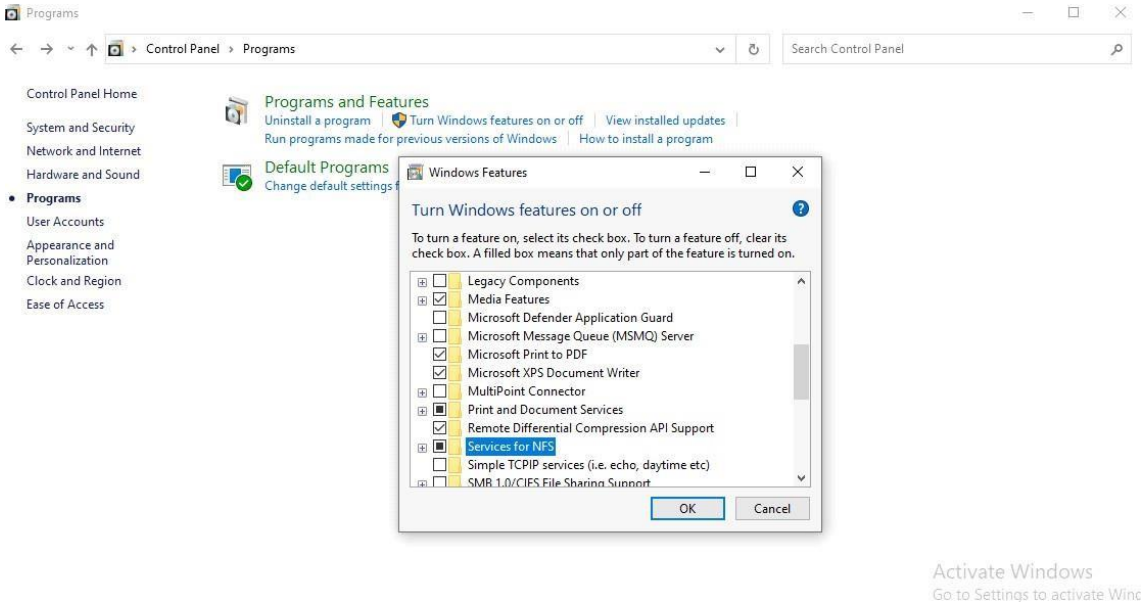
Step 13: We have to mount the data into mntdir which we was mounted we installed the NFS and auto fstab in the mounts directory we will use grep command. it can be done as follows.

cat/proc/mounts |grep mntdir

```
gnkhalsa@gnkhalsa-VirtualBox:/mntdir$ cat /proc/mounts | grep mntdir
```

Step 14- Make sure you start your systems NFS services, which can be done by going into the Control Panel>Programs>Turn Windows features on or off.

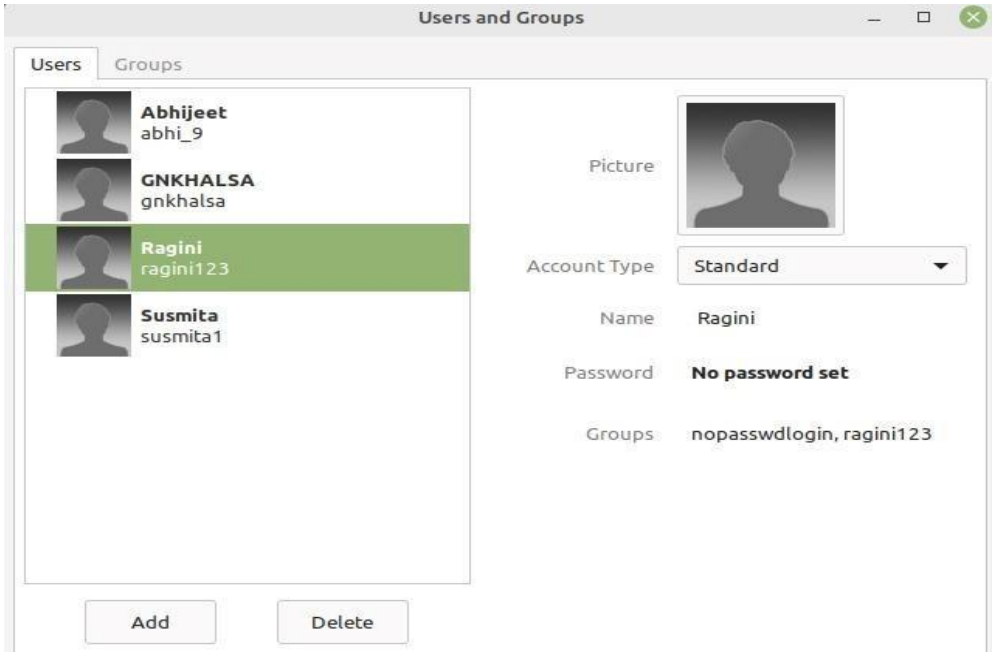
There you will see Services for NFS just tick them both individually and thewn press ok.



Practical 3

Aim:- Intial settings .Add a user. Network Settings, change to static IP address, Disable IPv6 if not needed, Configure Services, during the list of services which are running, stop and turn OFF auto-start setting fora service if you don't need it, Sudo settings.

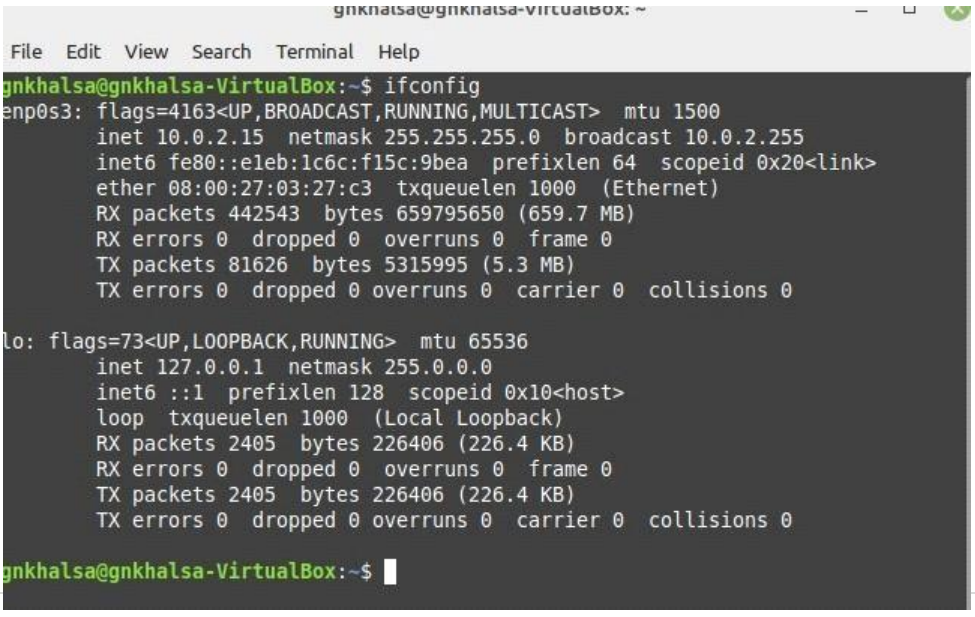
Step 1: Add a User



Step 2: Change to stack IP address

To assign a static ip address to a Ubuntu system, you need to edit the etc/network/interfaces file.

First you'll need to find out your system's static ip address which can be done by the ifconfig command.

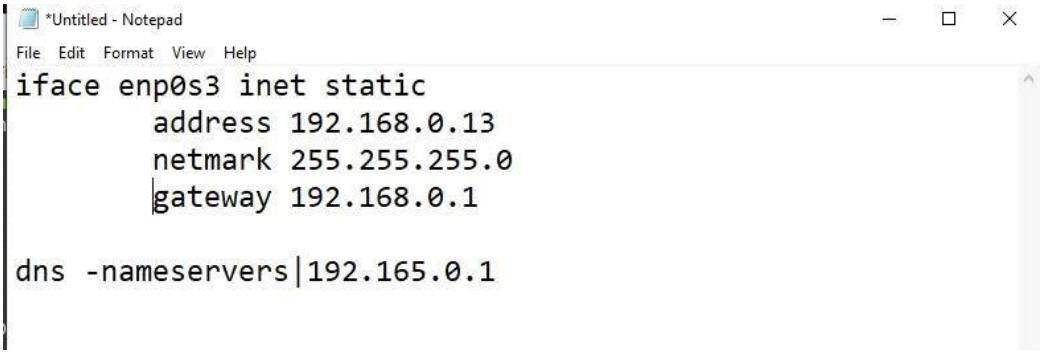


Now copy down the ip address and netmask from the output of ifcionfig command into a notepad, to find out the gateway ip address type the following command.

ip r | grep default

```
gnkhalsa@gnkhalsa-VirtualBox:~$ ip r | grep default
default via 10.0.2.2 dev enp0s3 proto dhcp metric 100
```

Copy them as follows in a notepad.

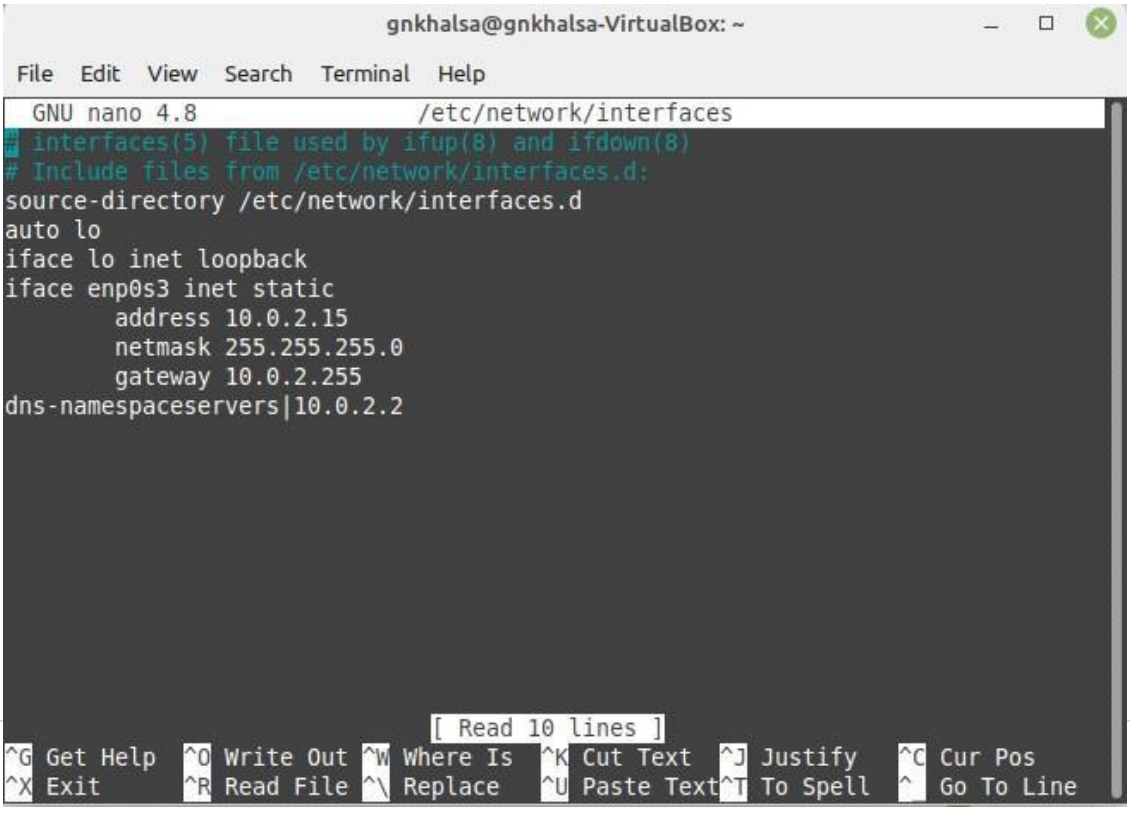


Step 3: Now editing the static IP address, for that you'll need the following command.

sudo nano /etc/network/interfaces

```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo nano /etc/network/interfaces
[sudo] password for gnkhalsa:
```

Write down the data about static ip you copied in notepad into the interfaces file as follows.



Exit the file using ‘ctrl+x’ and then save the file.

Step 4: Now after editing your static IP you should reboot your machine.

Step 5: Now we will disable the IPv6 if not needed. That can be done using the following command.

sudo /bin/su -c”echo ‘net.ipv6.conf.all.disable_ipv6=1’>>/etc/sysctl.conf”

```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo/bin/su-c "echo 'net.ipv6.conf.all.disable_i
pv6=1'>> /etc/sysctl.conf"
```

Step 6: We will check the status of IPv6 using the following command.

sudo sysctl –p

```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo sysctl -p
net.ipv6.conf.all.disable_ipv6 = 1
```

Step 7: Now to show the list of multicast address we will use the following command. **ipmaddr** .

```
gnkhalsa@gnkhalsa-VirtualBox:~$ ipmaddr
1:      lo
        inet  224.0.0.251
        inet  224.0.0.1
        inet6 ff02::1
        inet6 ff01::1
2:      enp0s3
        inet6 ff02::1
        inet6 ff01::1
```

Step 8: Now we will display the list of services which are running and have been stopped. Which will be done using the following command.

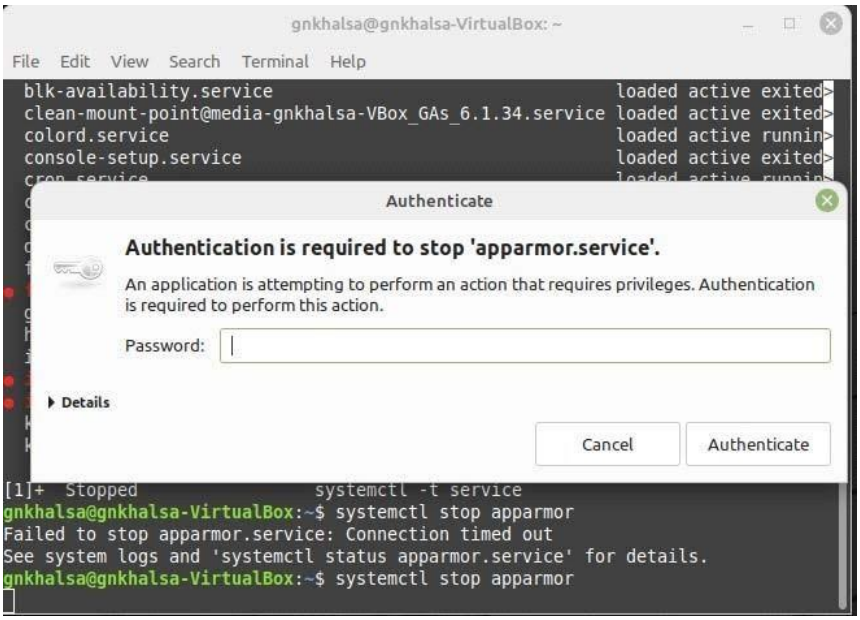
systemctl –t service

```
gnkhalsa@gnkhalsa-VirtualBox:~$ systemctl -t service
  UNIT                                                    LOAD   ACTIVE SUB    >
  accounts-daemon.service                                 loaded active runnin>
  acpid.service                                           loaded active runnin>
  alsa-restore.service                                    loaded active exited>
  autofs.service                                          loaded active runnin>
  avahi-daemon.service                                    loaded active runnin>
  blk-availability.service                                loaded active exited>
  clean-mount-point@media-gnkhalsa-VBox_GAs_6.1.34.service loaded active exited>
  colord.service                                          loaded active runnin>
  console-setup.service                                   loaded active exited>
  cron.service                                            loaded active runnin>
  cups-browsed.service                                    loaded active runnin>
  cups.service                                            loaded active runnin>
  dbus.service                                            loaded active runnin>
  finalrd.service                                         loaded active exited>
  getty@tty1.service                                      loaded active runnin>
  hddtemp.service                                         loaded active exited>
  ifupdown-pre.service                                    loaded active exited>
● isc-dhcp-server.service                                 loaded failed failed>
● isc-dhcp-server6.service                                loaded failed failed>
  kerneloops.service                                      loaded active runnin>
  keyboard-setup.service                                  loaded active exited>
```

Step 9: Now we will stop the apparmor service from the list of services which can be done by using the following command.

systemctl stop apparmor

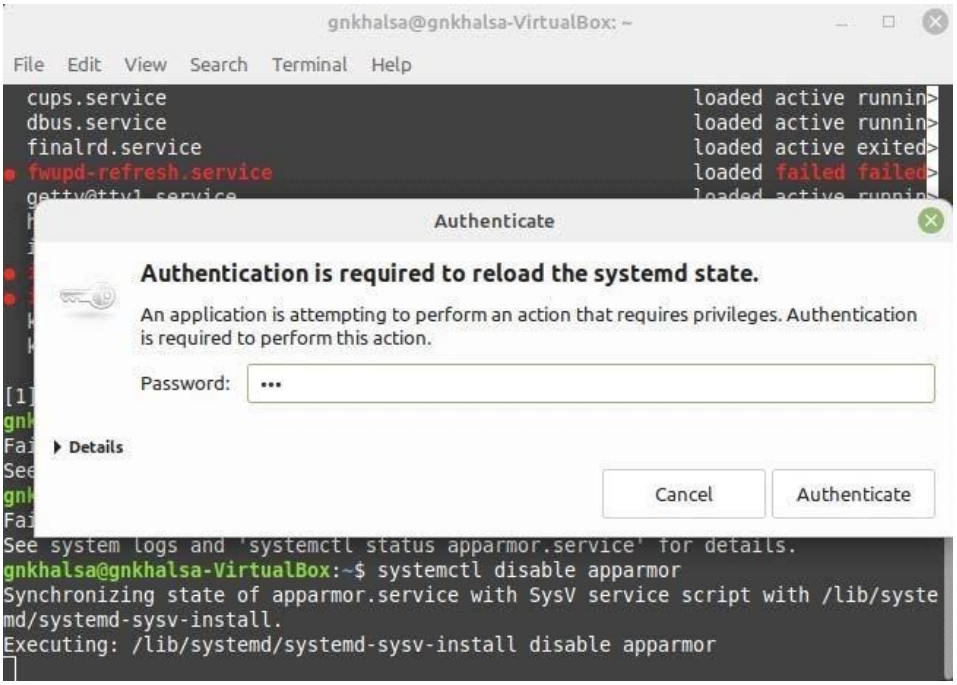
```
gnkhalsa@gnkhalsa-VirtualBox:~$ systemctl stop apparmor
```



Step 10: After stopping the apparmor service we will disable it using the following command.

systemctl disable apparmor

```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo systemctl disable apparmor
```



```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo systemctl disable apparmor
Synchronizing state of apparmor.service with SysV service script with /lib/syste
md/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install disable apparmor
Removed /etc/systemd/system/sysinit.target.wants/apparmor.service.
gnkhalsa@gnkhalsa-VirtualBox:~$
```

Practical No. 4

Aim: To configure NTP Server and configure NTP client Network timing.

Steps to do so.....

Step 1: Step 1 would be installing ntp server on our machine which can be done by the following command. (Also make sure your machine's software are up to date).

sudo apt-get install ntp

```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo apt install ntp
```

```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo apt install ntp
[sudo] password for gnkhalsa:
Reading package lists... Done
Building dependency tree
Reading state information... Done
Suggested packages:
  ntp-doc
The following packages will be REMOVED:
  systemd-timesyncd
The following NEW packages will be installed:
  ntp
0 upgraded, 1 newly installed, 1 to remove and 9 not upgraded.
Need to get 0 B/657 kB of archives.
After this operation, 1,770 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
dpkg: systemd-timesyncd: dependency problems, but removing anyway as you request
ed:
 systemd depends on systemd-timesyncd | time-daemon; however:
  Package systemd-timesyncd is to be removed.
  Package time-daemon is not installed.
  Package systemd-timesyncd which provides time-daemon is to be removed.
  Package ntp which provides time-daemon is not installed.
 systemd depends on systemd-timesyncd | time-daemon; however:
  Package systemd-timesyncd is to be removed.
```

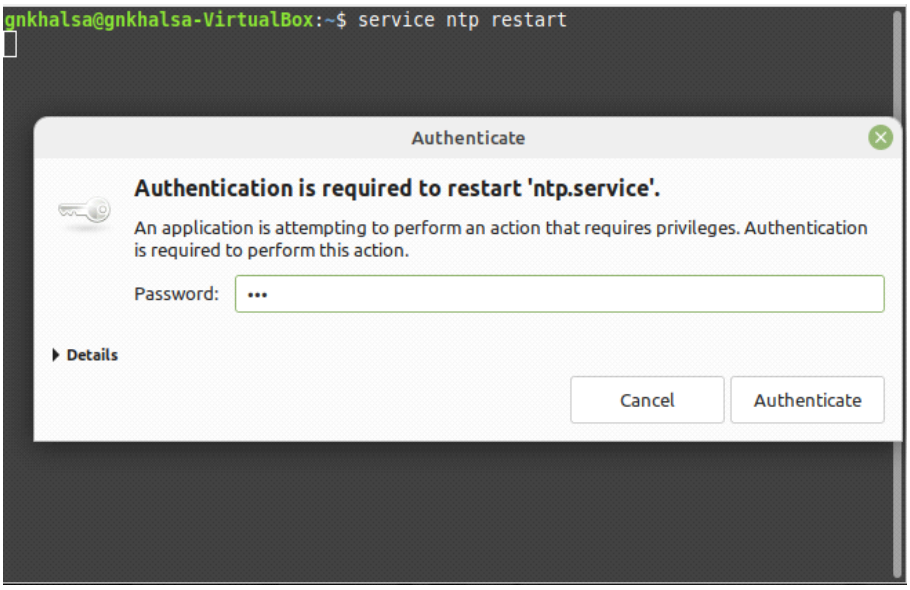
Step 2: To configure ntp the ntp file is stored at '/etc/nano.conf' and can be modified with any editor. The command for that would be as follows.

sudo nano /etc/ntp.conf

```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo nano /etc/ntp.conf
```

```
  GNU nano 4.8                     /etc/ntp.conf
# /etc/ntp.conf, configuration for ntpd; see ntp.conf(5) for help

driftfile /var/lib/ntp/ntp.drift

# Leap seconds definition provided by tzdata
leapfile /usr/share/zoneinfo/leap-seconds.list

# Enable this if you want statistics to be logged.
#statsdir /var/log/ntpstats/

statistics loopstats peerstats clockstats
filegen loopstats file loopstats type day enable
filegen peerstats file peerstats type day enable
filegen clockstats file clockstats type day enable

# Specify one or more NTP servers.

# Use servers from the NTP Pool Project. Approved by Ubuntu Technical Board
# on 2011-02-08 (LP: #104525). See http://www.pool.ntp.org/join.html for
# more information.
                        [ Read 60 lines ]
^G Get Help  ^O Write Out ^W Where Is  ^K Cut Text  ^J Justify   ^C Cur Pos
^X Exit      ^R Read File ^\ Replace   ^U Paste Text^T To Spell  ^_ Go To Line
```

Step 3: After the configuration you will need to restart the ntp service which can be done by the 'service ntp restart' command.



Step 4: Now we will show the NTP servers running on the host.

ntpq –pn

```
gnkhalsa@gnkhalsa-VirtualBox:~$ ntpq -pn
     remote           refid      st t when poll reach   delay   offset  jitter
==============================================================================
 0.ubuntu.pool.n .POOL.          16 p    -   64    0    0.000    0.000   0.000
 1.ubuntu.pool.n .POOL.          16 p    -   64    0    0.000    0.000   0.000
 2.ubuntu.pool.n .POOL.          16 p    -   64    0    0.000    0.000   0.000
 3.ubuntu.pool.n .POOL.          16 p    -   64    0    0.000    0.000   0.000
 ntp.ubuntu.com  .POOL.          16 p    -   64    0    0.000    0.000   0.000
gnkhalsa@gnkhalsa-VirtualBox:~$
```

Step 5: Now we will check the time synchronization on our client (Ubuntu) machine for that you will need to install the ntpdate package first which can be done by following command.

sudo apt-get install ntpdate

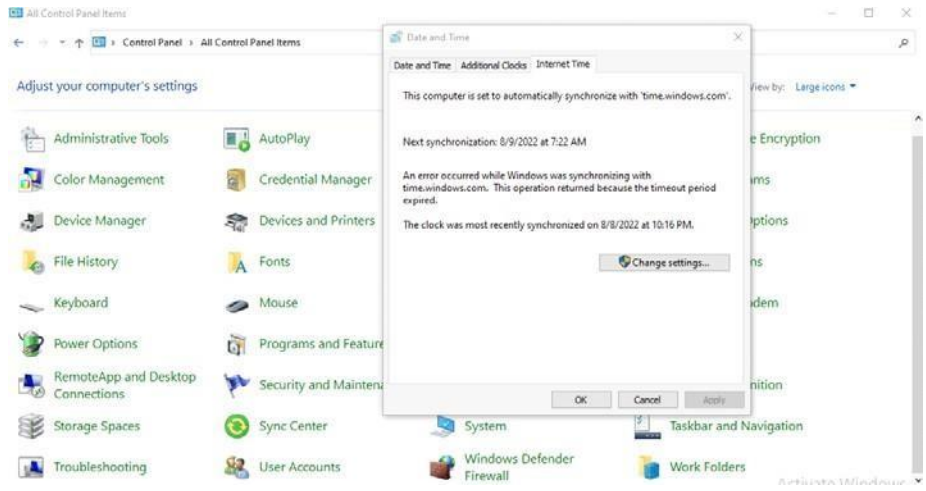
```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo apt-get install ntpdate
[sudo] password for gnkhalsa:
Reading package lists... Done
Building dependency tree
Reading state information... Done
ntpdate is already the newest version (1:4.2.8p12+dfsg-3ubuntu4.20.04.1).
0 upgraded, 0 newly installed, 0 to remove and 9 not upgraded.
gnkhalsa@gnkhalsa-VirtualBox:~$
```

Step 6: To check the time synchronization on our client machine use the following command.

ntpdate ntp1.jst.mfeed.ad.jp

```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo ntpdate ntp1.jst.mfeed.ad.jp
 9 Aug 02:25:17 ntpdate[74269]: the NTP socket is in use, exiting
```

Step 7: Now we will do synchronization on our Windows Client, for that you will need to go to control panel and then open “Date and timing” setting, move to the tab “Internet Time” and click change settings and then update it.



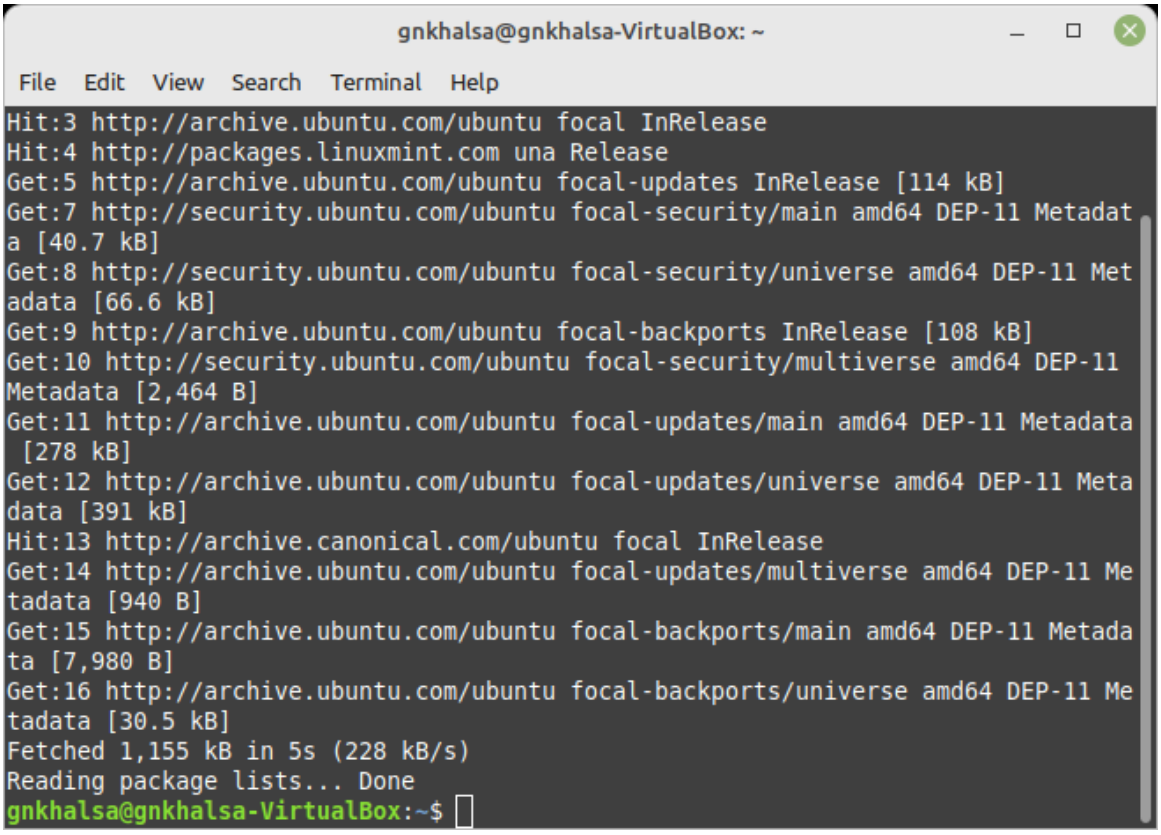
Practical 5

Aim: To Install and configure DNS server in Ubuntu.

Step 1: Make sure your Ubuntu server is up-to-date, if not then use the update and upgrade command.

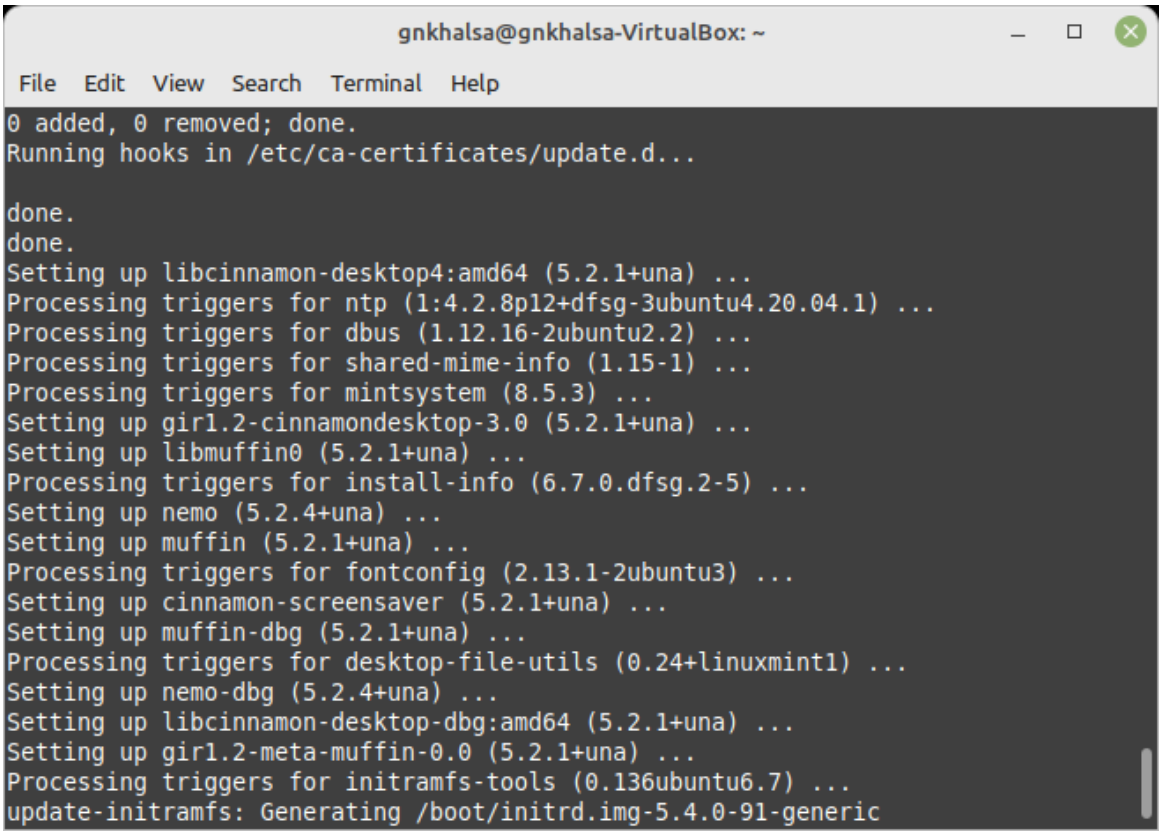
sudo apt-get update

sudo apt-get upgrade



Step 2: After updating the system, run the following command to install BIND9 packages which are used to setup DNS server.

sudo apt-get install bind9 bind9utils bind9

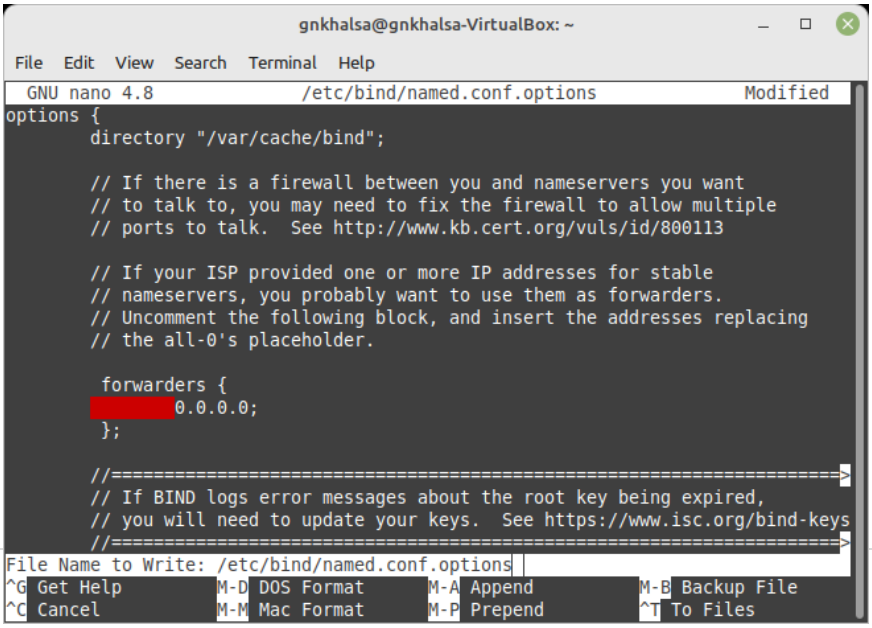


Step 3: Configuring the caching name server, caching name server saves the DNS query results locally for a particular period of time. To configure caching name server, edit/etc/bind/named.conf.options file. Which will be done by the following command.

sudo nano /etc/bind/named,conf.options

Uncomment the following lines and then, add then,add your ISP or Google public DNS server IP addresses.

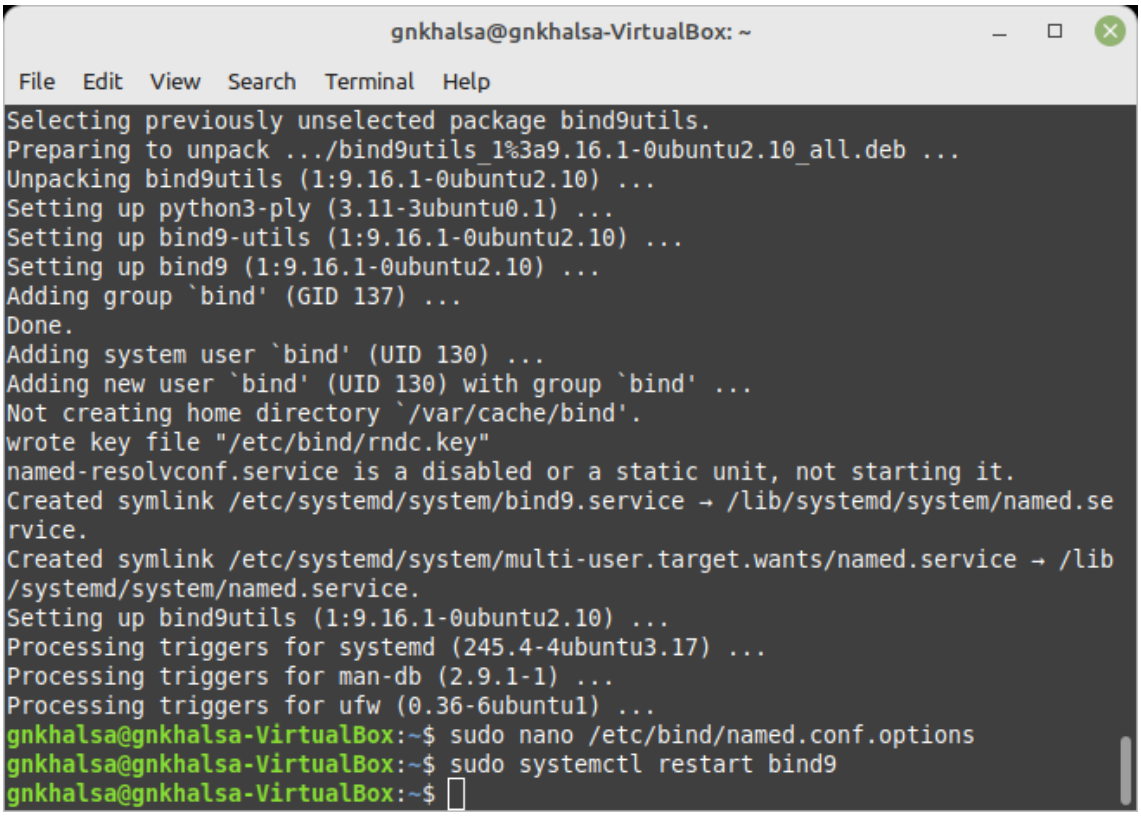
Save and close the file.



Step 4: Now restart the bind9 service to take effect the changes. This will be done by the following command.

sudo systemctl restart bind9

We have successfully installed the caching name server.



Practical 6

Aim :- Install Samba to share folders or files between Windows and Linux.

STEPS'S TO INSTALL SAMBA AND SHARE FOLDER'S ANF FILE'S:

Step1 : This is the basic step and should be performed every time, that is to update system repositories.

sudo apt-get update

sudo apt-get upgrade

Step2: Now after updating system repositories next step is to install samba using command

sudo apt-get install samba

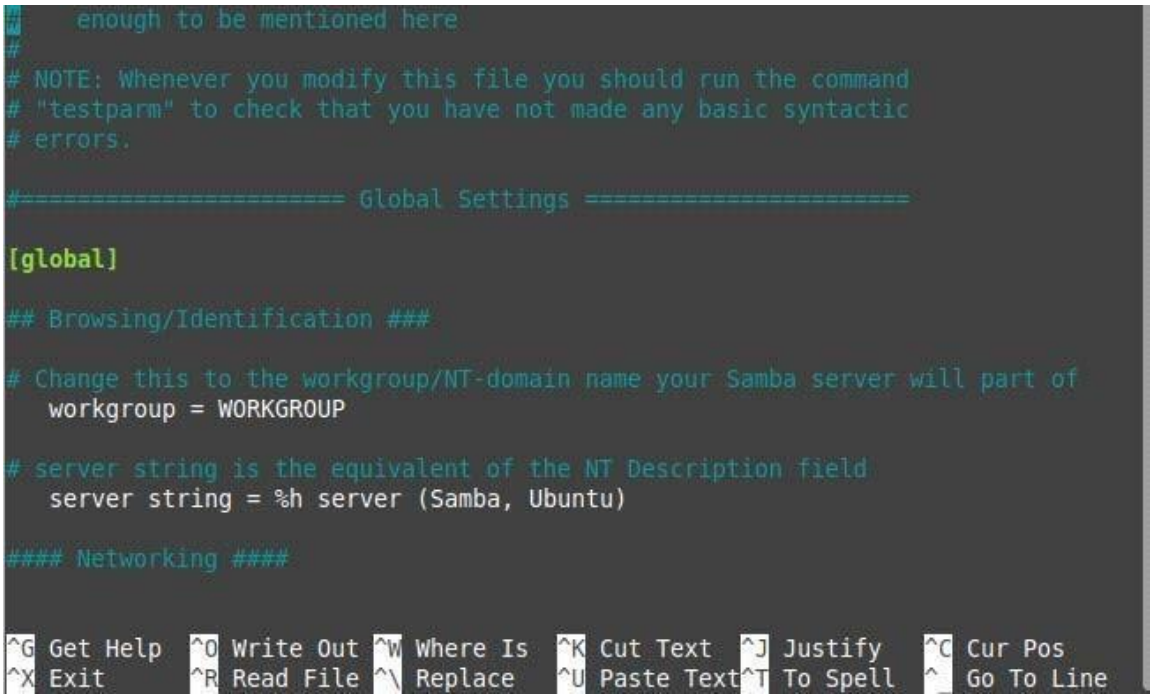
```
File  Edit  View  Search  Terminal  Help
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo apt-get install samba
[sudo] password for gnkhalsa:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  ibverbs-providers libcephfs2 libibverbs1 libldb2 librados2 librdmacm1
  libsmbclient libwbclient0 python3-dnspython python3-ldb python3-markdown
  python3-pygments python3-samba samba-common samba-common-bin
  samba-dsdb-modules samba-libs samba-vfs-modules smbclient tdb-tools
Suggested packages:
  python-markdown-doc python-pygments-doc ttf-bitstream-vera ctdb ldb-tools
  smbldap-tools winbind heimdal-clients
Recommended packages:
  python3-gpg
The following NEW packages will be installed:
  ibverbs-providers libcephfs2 libibverbs1 librados2 librdmacm1
  python3-dnspython python3-markdown python3-pygments samba samba-dsdb-modules
  samba-vfs-modules tdb-tools
The following packages will be upgraded:
  libldb2 libsmbclient libwbclient0 python3-ldb python3-samba samba-common
  samba-common-bin samba-libs smbclient
9 upgraded, 12 newly installed, 0 to remove and 345 not upgraded.
Need to get 16.1 MB of archives.
```

Step 3: Now you need to configure the shared folder so first thing you want to do is to edit the configuration file.

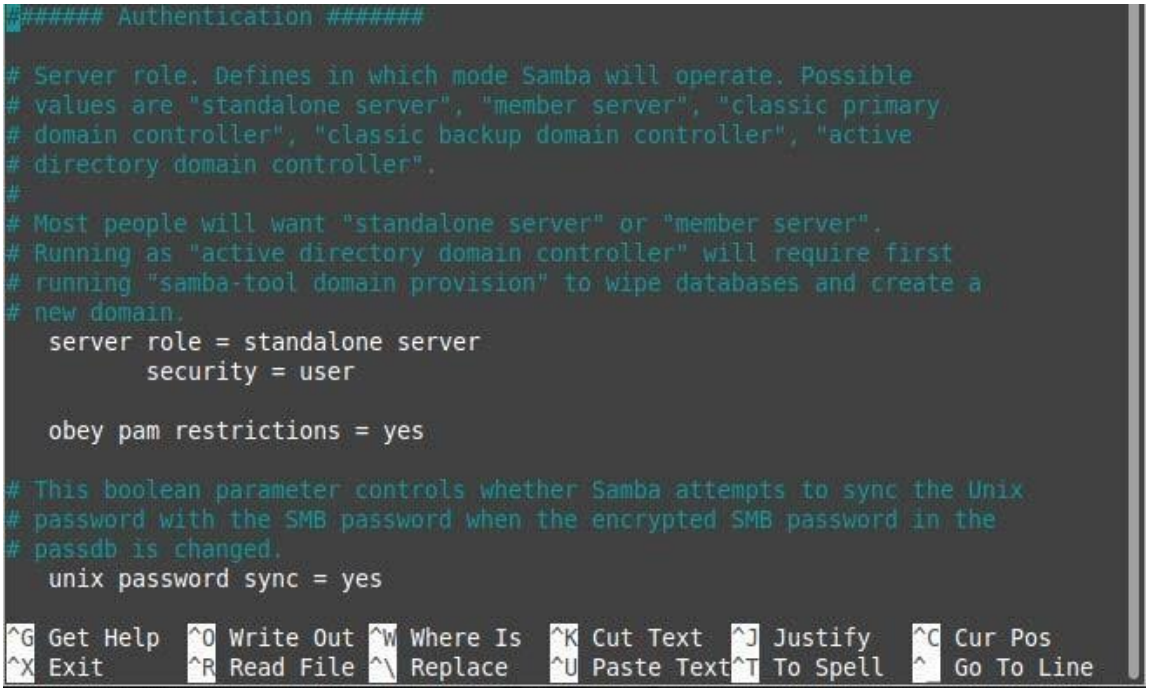
sudo nano /etc/samba/smb.conf

```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo nano /etc/samba/smb.conf
```

Now first things you want to check in this configuration file is: Go to GLobal Settings section in that file and check whether workgroup=WORKGROUP, here WORKGROUP is name of your workgroup windows.



Next is go to authentication part of same configuration file and check whether security=user if this line is present no need to change, if this line is missing then type security=user and save file.



Step4: Now we will make the directory and check if it's created or not.

a) sudo mkdir -p/srv/samba/share

b) cd/srv

c) ls

d) ls samba

```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo mkdir -p /srv/samba/share
gnkhalsa@gnkhalsa-VirtualBox:~$ cd /srv
gnkhalsa@gnkhalsa-VirtualBox:/srv$ ls
samba
gnkhalsa@gnkhalsa-VirtualBox:/srv$ ls samba
share
gnkhalsa@gnkhalsa-VirtualBox:/srv$
```

Step5: Once you have made the directories you need to change ownership so to do that we execute the following command.

sudo chown nobody.nogroup /srv/samba/share

```
gnkhalsa@gnkhalsa-VirtualBox:/srv$ sudo chown nobody.nogroup /srv/samba/share
```

Step6: Now we have to list hte files present the directory we created, so we will use the list long command but before that we will move into the directory.

a) cd/srv/samba

b) ll

```
gnkhalsa@gnkhalsa-VirtualBox:/srv$ cd /srv/samba
gnkhalsa@gnkhalsa-VirtualBox:/srv/samba$ ll
total 12
drwxr-xr-x 3 root   root    4096 Aug 10 22:10 ./
drwxr-xr-x 3 root   root    4096 Aug 10 22:10 ../
drwxr-xr-x 2 nobody nogroup 4096 Aug 10 22:10 share/
```

Step7: Now we will configure the nmbd file for samba, for that we will use the following command.

sudo nano /etc/init/nmbd.conf

```
gnkhalsa@gnkhalsa-VirtualBox:/srv/samba$ sudo nano /etc/init/nmbd.conf
```

Comment out all the lines in pre-start script except one line.

```
 GNU nano 2.5.3          File: /etc/init/nmbd.conf                Modified

description "NetBIOS name server"
author      "Steve Langasek <steve.langasek@ubuntu.com>"

start on (local-filesystems and net-device-up IFACE!=lo)
stop on runlevel [!2345]

expect fork
respawn

pre-start script
#       [ -f /etc/samba/smb.conf ] || { stop; exit 0; }

        install -o root -g root -m 755 -d /var/run/samba
#       NMBD_DISABLED=`testparm -s --parameter-name='disable netbios' 2>/dev/n$

#       [ "x$NMBD_DISABLED" = xYes ] && { stop; exit 0; }

#       exit 0
end script

exec nmbd -D

^G Get Help  ^O Write Out  ^W Where Is  ^K Cut Text  ^J Justify
^X Exit      ^R Read File  ^\ Replace   ^U Uncut Text ^T To Spell
```

Step 8: Now we will restart our nmbd and smbd services uding commands.

sudo service smbd restart

sudo service nmbd restart

```
gnkhalsa@gnkhalsa-VirtualBox:/srv/samba$ sudo service smbd restart
```

Step 9: Now create a file using touch command in /srv/samba/share named test.txt and we will check if our file is created or not.

```
gnkhalsa@gnkhalsa-VirtualBox:/srv/samba/share$ sudo touch /srv/samba/share/test,
txt
```

```
gnkhalsa@gnkhalsa-VirtualBox:/srv/samba/share$ ll /srv/samba/share
total 8
drwxr-xr-x 2 nobody nogroup 4096 Aug 10 23:33 ./
drwxr-xr-x 3 root   root    4096 Aug 10 22:10 ../
-rw-r--r-- 1 root   root       0 Aug 10 23:33 test,txt
gnkhalsa@gnkhalsa-VirtualBox:/srv/samba/share$
```

Practical 7

Aim:- To install SSH (Secure Shell) server on you Ubuntu machine and configure it.

Step1: It is always necessary to keep your machine up-to-date before you install any type of server or service in it.

sudo apt-get update

sudo apt-get upgrade

Step 2: Now we have to install the SSH server, so we use the following command.

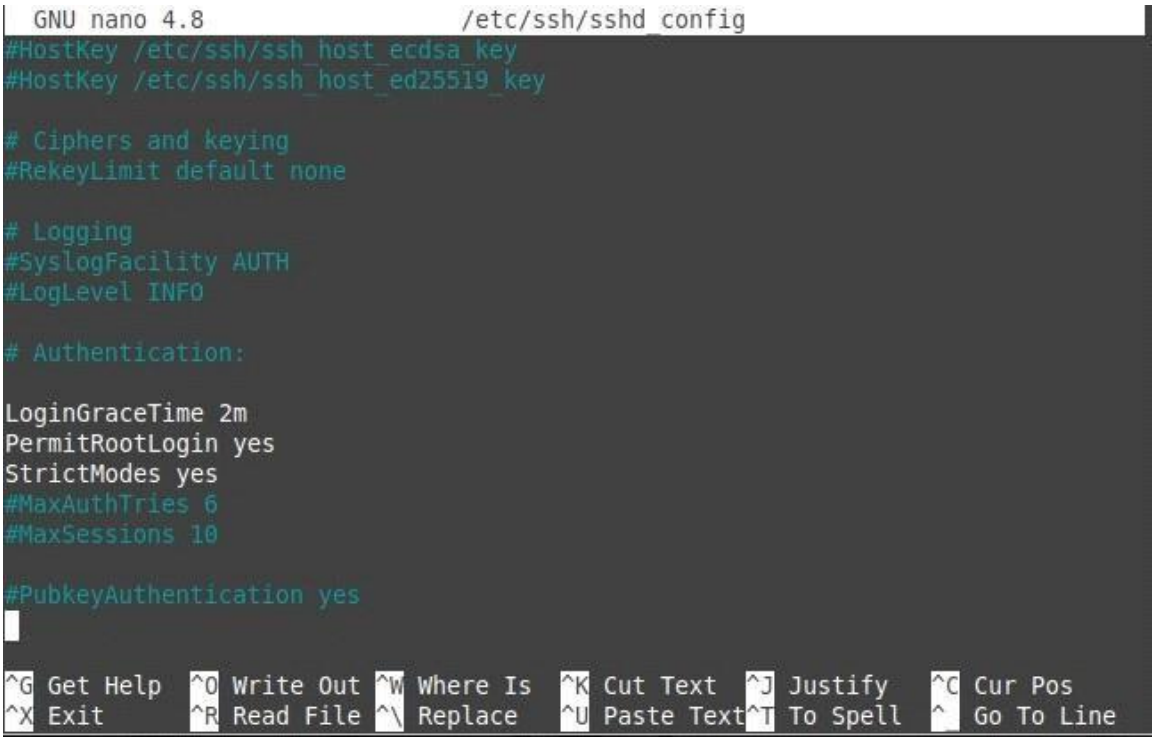
sudo apt-get -y install openssh-server

```
gnkhalsa@gnkhalsa-VirtualBox:~$ sudo apt-get -y install openssh-server
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  ncurses-term openssh-sftp-server ssh-import-id
Suggested packages:
  molly-guard monkeysphere ssh-askpass
The following NEW packages will be installed:
  ncurses-term openssh-server openssh-sftp-server ssh-import-id
0 upgraded, 4 newly installed, 0 to remove and 9 not upgraded.
Need to get 688 kB of archives.
After this operation, 6,010 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu focal/main amd64 ncurses-term all 6.2-0ub
untu2 [249 kB]
Get:2 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 openssh-sftp-ser
ver amd64 1:8.2p1-4ubuntu0.5 [51.5 kB]
Get:3 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 openssh-server a
md64 1:8.2p1-4ubuntu0.5 [377 kB]
Get:4 http://archive.ubuntu.com/ubuntu focal/main amd64 ssh-import-id all 5.10-0
ubuntu1 [10.0 kB]
Fetched 688 kB in 2s (281 kB/s)
Preconfiguring packages ...
Selecting previously unselected package ncurses-term.
```

Step3: Now we have to configure the file SSH server which can be done by editing the 'sshd_config' file for that we have to use the following command.

sudo nano /etc/ssh/sshd_config

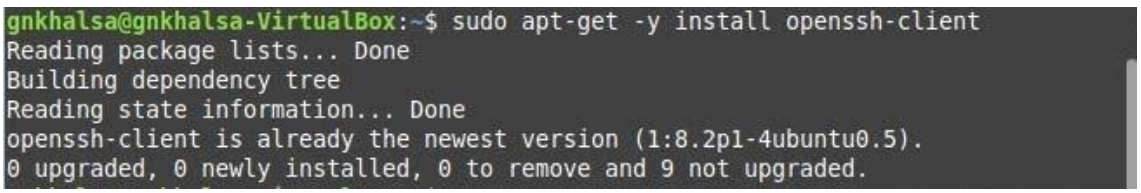
Here we have to edit the file and make a change in the authentication block "Permitrootlogin yes"



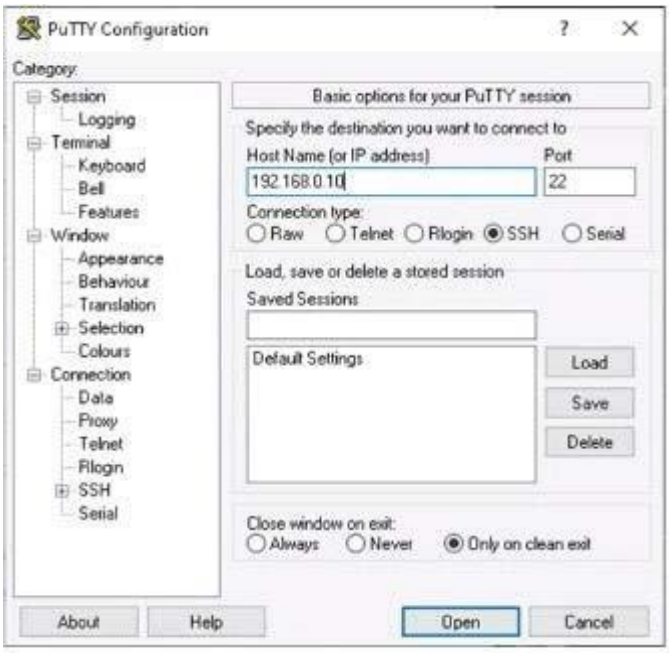
Step4: Now we have to restart the ssh server which can be done by following command..

sudo systemctl restart ssh

Step5: In this step we install openssh-client server on our machine by using the following command.



Step6: After installing all the necessary servers on your ubuntu machine Install Putty on your Windows client and open it put your ubuntu machine's ip address which can be know using ifconfig command.



Practical 8

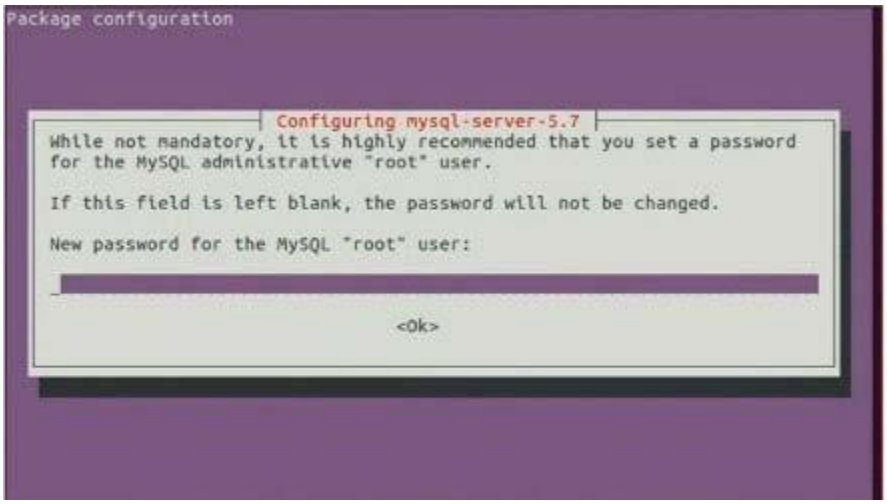
Aim: To install MySQL server to configure database server and install phpMyAdmin to operate MySQL on web browser from clients.

Step 1: First step would be to install MySQL server and configure it.

sudo apt-get -y install mysql-server-5.7

```
roar@roar-VirtualBox:~$ sudo apt-get -y install mysql-server-5.7
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  snapd-login-service
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  libhtml-template-perl mysql-client-5.7 mysql-client-core-5.7 mysql-common
  mysql-server-core-5.7
Suggested packages:
  libipc-sharedcache-perl mailx tinyca
The following NEW packages will be installed:
  libhtml-template-perl mysql-client-5.7 mysql-client-core-5.7 mysql-common
  mysql-server-5.7 mysql-server-core-5.7
0 upgraded, 6 newly installed, 0 to remove and 1 not upgraded.
Need to get 18.1 MB of archives.
After this operation, 152 MB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu xenial-updates/main i386 mysql-common
all 5.7.32-0ubuntu0.16.04.1 [14.8 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu xenial-updates/main i386 mysql-client-
core-5.7 i386 5.7.32-0ubuntu0.16.04.1 [6,365 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu xenial-updates/main i386 mysql-client-
5.7 i386 5.7.32-0ubuntu0.16.04.1 [1,466 kB]
```

During installation it will ask you set he root users password which you will be using when you will be accessing the database. So set the password accordingly.



Step 2: Once the MysSQL server installation is done you can connect to it by opening it.

mysql -u root -p

```
roar@roar-VirtualBox:~$ mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 4
Server version: 5.7.32-0ubuntu0.16.04.1 (Ubuntu)

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql>
```

Step 3: Now we will display the user info and also the ip for our host by using the following command.

select user,host from mysql.user;

```
mysql> select user,host from mysql.user;
+------------------+-----------+
| user             | host      |
+------------------+-----------+
| debian-sys-maint | localhost |
| mysql.session    | localhost |
| mysql.sys        | localhost |
| root             | localhost |
+------------------+-----------+
4 rows in set (0.00 sec)

mysql> exit
Bye
```

SHOW VARIABLES WHERE Variable_name='port';

```
mysql> SHOW VARIABLES WHERE  Variable_name='port';
+---------------+-------+
| Variable_name | Value |
+---------------+-------+
| port          | 3306  |
+---------------+-------+
1 row in set (0.05 sec)

mysql>
```

Enter the mysql promt using 'exit' command.

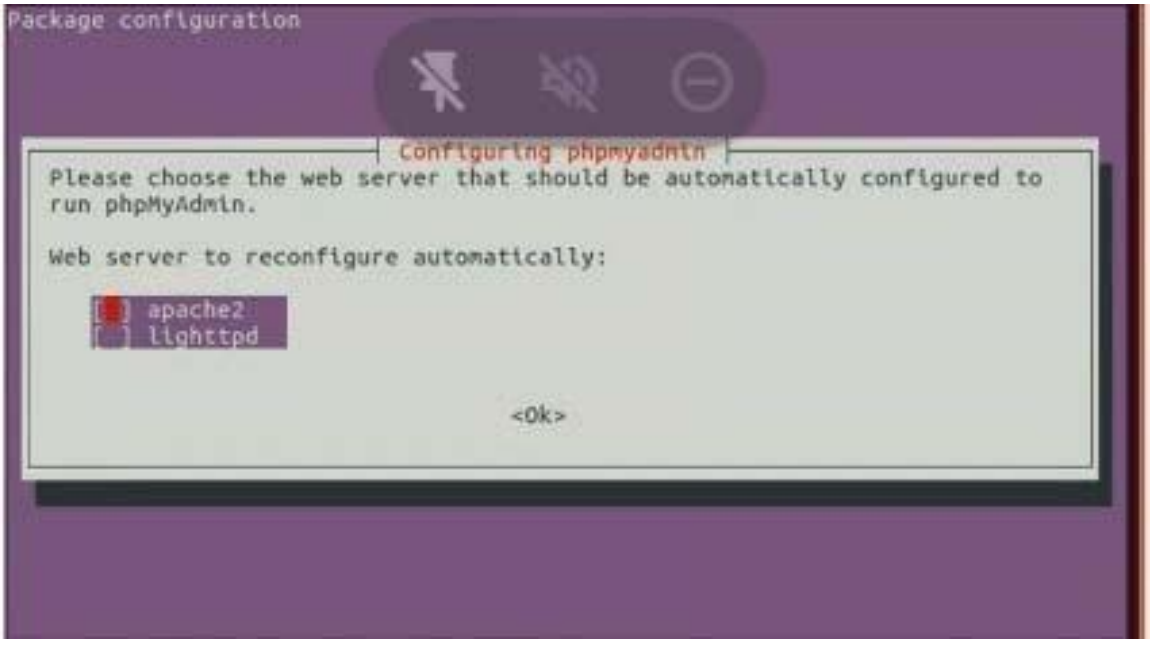
Step 4: Now let's install phypMyAdmin so that we can operate MySQL on web browser from clients.

sudo apt-get -y install phpmyadmin

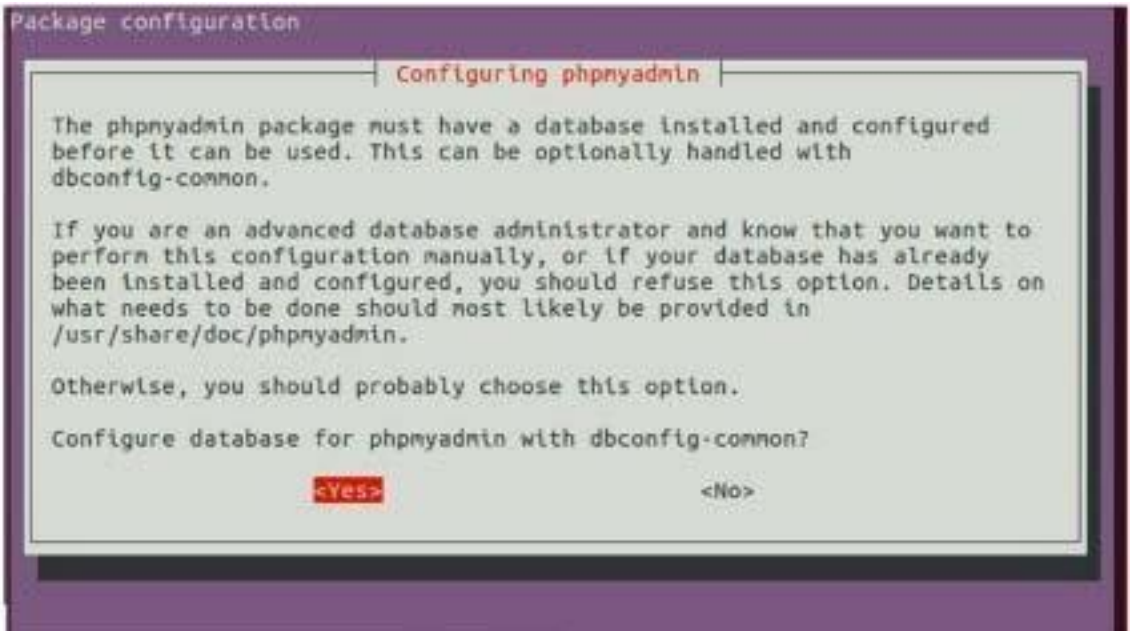
```
roar@roar-VirtualBox:~$ sudo apt-get -y install phpmyadmin
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  snapd-login-service
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils dbconfig-common
  dbconfig-mysql javascript-common libapache2-mod-php libapache2-mod-php7.0
  libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap libjs-jquery
  libjs-sphinxdoc libjs-underscore liblua5.1-0 libmcrypt4 php-common php-gd
  php-gettext php-mbstring php-mcrypt php-mysql php-pear php-phpseclib
  php-tcpdf php-xml php7.0-cli php7.0-common php7.0-gd php7.0-json
  php7.0-mbstring php7.0-mcrypt php7.0-mysql php7.0-opcache php7.0-readline
  php7.0-xml
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom mysql-server
  | mariadb-server libmcrypt-dev mcrypt php-libsodium php-gmp php-imagick
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils dbconfig-common
  dbconfig-mysql javascript-common libapache2-mod-php libapache2-mod-php7.0
  libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap libjs-jquery
```

During installation you'll be asked which web server you want to configure to run phpMyAdmin.

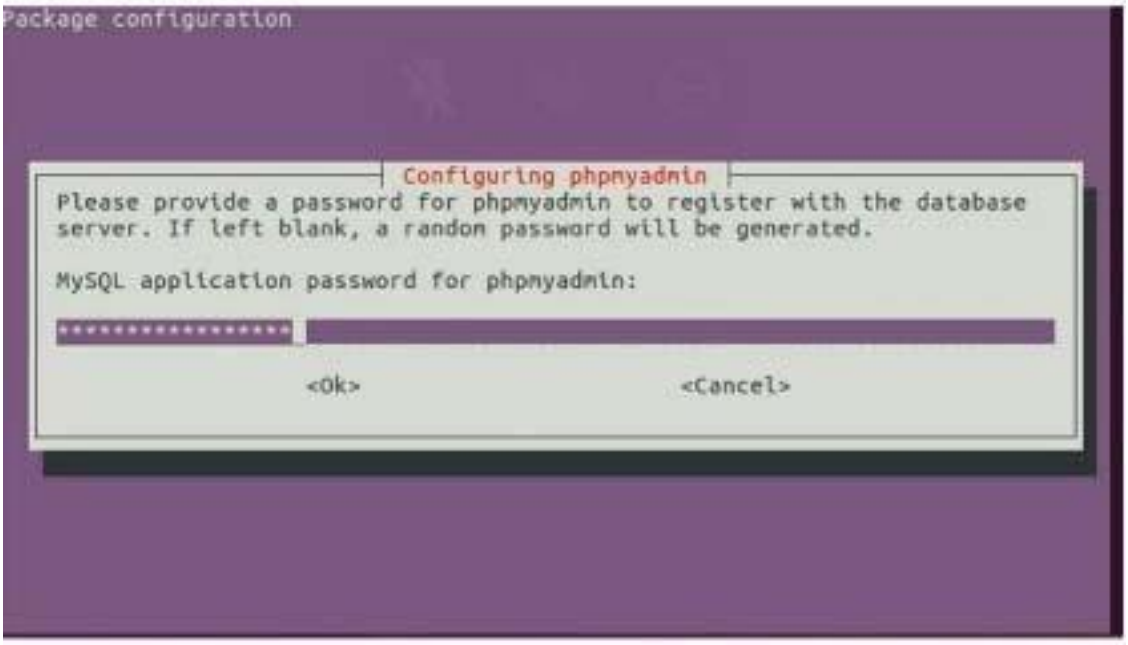
Select "apache2".



After that you'll be asked that if you want dbconfig-common for your phpMyAdmin, select yes and proceed.



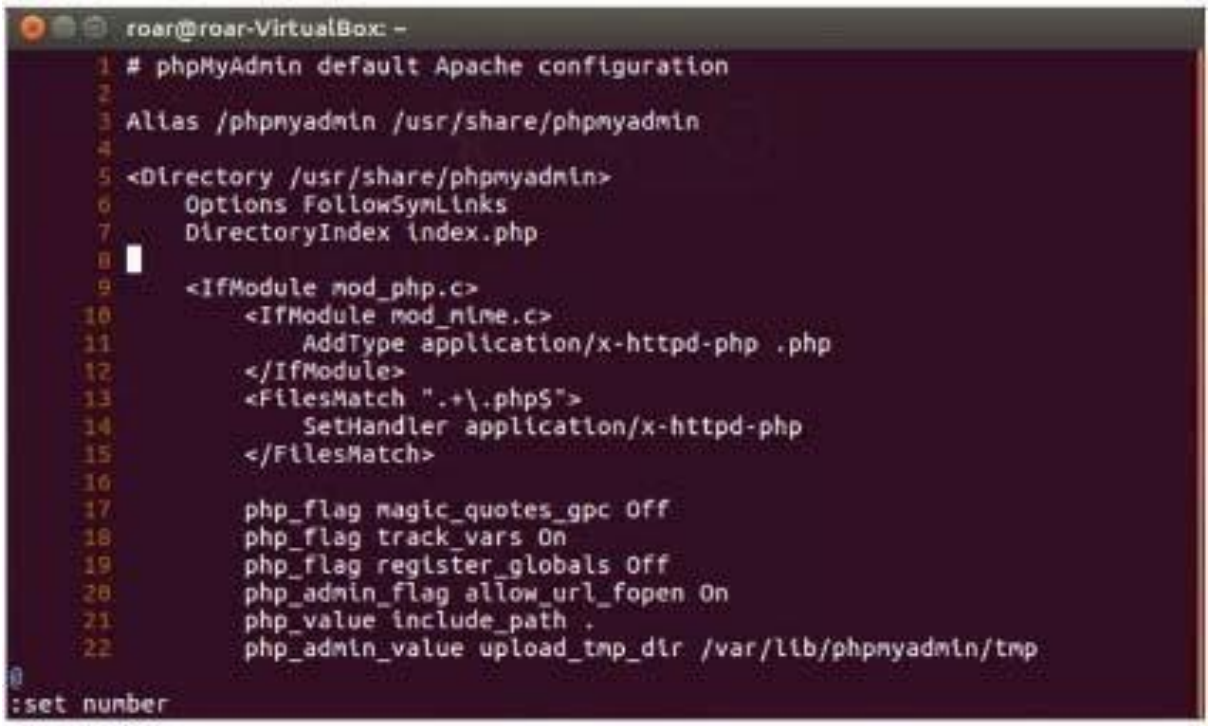
Now set the password for phpmyadmin.



Step 5: Now we have to edit the apache file and set the required ip for our server.

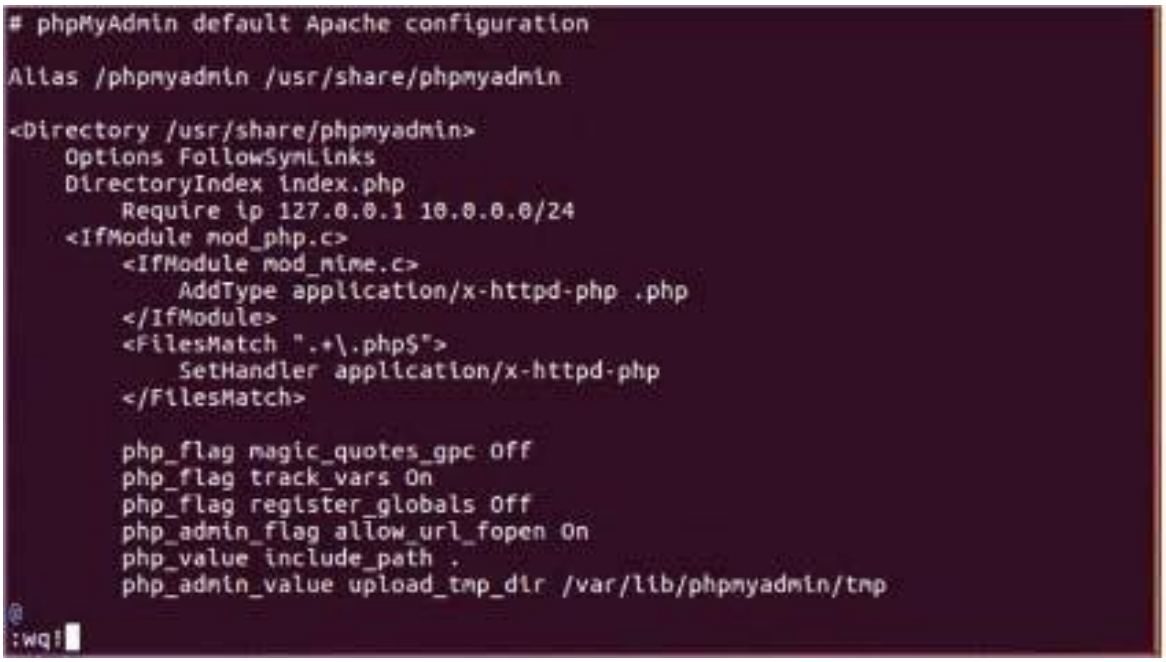
sudo nano /etc/phpmyadmin/apache.conf

Once you open the apache.conf file to get the line numbers type the command ": set number"



Now add the required ip near the 8th line "Require ip 127.0.0.1 10.0.0.0/24".

After adding this,save the file and exit.



Step 6: Now restart the apache server which can be done using the folloing command.

sudo /etc/init.d/apache2 restart

Step 7: Open the browser on your ubuntu machine and type the following in the search bar.

http://localhost:3036/phpmyadmin/

Step 8: If the page opens type your root users name and password.