

SACRED HEART COLLEGE THEVARA



**SERVER OPERATING SYSTEM
19U5VCBCA04**

**BCA (Mobile Applications and Cloud
Technology)**

PRACTICAL RECORD

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Certificate

*This is to certify that it is a bonafied record of practical work done by Sri **P V MOHAMED NASEEHUDEEN** bearing the Roll No. **22UBCA7308** of 5th Semester BCA(Mobile Applications and Cloud Technology) in the Server Operating System laboratory during the academic under our supervisor.*

Signature of Internal Examiner

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Date:

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BASIC COMMANDS

Experiment: 1

Aim: Understand basic commands

- **IPCONFIG COMMAND**

To see the IP address

Syntax: ipconfig

- **PING COMMAND**

To see the existing the IP

Syntax: ping 192.168.87.1

- **TO UPDATE**

Sudo apt update

- **TO INSTALL**

Sudo apt install openSSH.server

- **TO PRINT THE SSH SERVER STATUS**

Sudo systemctl status ssh

- **TO EDIT SETTINGS**

Sudo nano /etc/ssh/sshd-config

- **TO RESTART**

Sudo service ssh restart

- **TO TEST**

ssh localhost

- **UPTIME COMMAND**

In Linux uptime command shows since how long your system is running and the number of users are currently logged in and also displays load average for 1,5- and 15-minutes intervals.

Syntax: uptime

- **W COMMAND**

It will display users currently logged in and their process along-with shows load averages. Also shows the login name, tty name, remote host, login time, idle time, JCPU, PCPU, command and processes.

Syntax: w

- **USERS COMMAND**

Users command displays currently logged in users. This command don't have other parameters other than help and version.

Syntax: users

- **WHO COMMAND**

who command simply return user name, date, time and host information who command is similar to w command. Unlike w command who doesn't print what users are doing. Let's illustrate and see the different between who and w commands.

Syntax: who

- **WHOAMI COMMAND**

whoami command print the name of current user. You can also use "who am i" command to display the current user. If you are logged in as a root using sudo command "whoami" command return root as current user. Use "who am i" command if you want to know the exact user logged in.

Syntax: whoami

- **LS COMMAND**

ls command display list of files in human readable format.

Syntax: ls -l

- **CRONTAB COMMAND**

List schedule jobs for current user with crontab command and -l option.

Syntax: crontab -l

- **LESS COMMAND**

less command allows quickly view file. You can page up and down. Press 'q' to quit from less window.

Syntax: less install.log

- **MORE COMMAND**

more command allows quickly view file and shows details in percentage. You can page up and down. Press 'q' to quit out from more window.

Syntax: more install.log

- **CP COMMAND**

Copy file from source to destination preserving same mode.

Syntax: cp -p fileA fileB

- **MV COMMAND**

Rename fileA to fileB. -i options prompt before overwrite. Ask for confirmation if exist already.

Syntax: mv -i fileA fileB

- **CAT COMMAND**

cat command used to view multiple file at the same time.

Syntax: cat fileA fileB

- **CD COMMAND (CHANGE DIRECTORY)**

with cd command (change directory) it will goes to fileA directory.

Syntax: cd /fileA

Result:

All the commands have been executed and the output has been obtained successfully.

SAMBA SHARE

Experiment: 2

Aim: Installation and configuration of Samba share.

Description:

SAMBA

One of the most common ways to network Ubuntu and Windows computers is to configure Samba as a File Server. This section covers setting up a Samba server to share files with Windows clients.

The server will be configured to share files with any client on the network without prompting for a password. If your environment requires stricter Access Controls see [Share Access Control](#)

Port No: 139

Package name: samba

Configuration file: /etc/samba/smb.conf.

Procedure:

1. To install Samba, we can run:

```
$sudo apt update  
$sudo apt install samba
```

2. We can check if the installation was successful by running:

```
$whereis samba
```

3. Now that Samba is installed, we need to create a directory for it to share:

```
$mkdir /home/<username>/sambashare/
```

The command above creates a new folder samba share in our home directory which we will share later. The configuration file for Samba is located at /etc/samba/smb.conf. To add the new directory as a share, we edit the file by running:

```
$sudo nano /etc/samba/smb.conf
```

At the bottom of the file, add the following lines:

```
[sambashare]  
comment = Samba on Ubuntu  
path = /home/username/sambashare  
read only = no  
browsable = yes
```

4. Then press Ctrl-O to save and Ctrl-X to exit from the nano text editor.

5. Now that we have our new share configured, save it and restart Samba for it to take effect:

```
$sudo service smbd restart
```

6. Update the firewall rules to allow Samba traffic:

```
$sudo ufw allow samba
```

SETTING UP USER ACCOUNTS AND CONNECTING TO SHARE

7. Since Samba doesn't use the system account password, we need to set up a Samba password for our user account:

```
$ sudo smbpasswd -a username
```

CONNECTING TO SHARE

8. On Ubuntu: Open up the default file manager and click Connect to Server then enter: Connecting to samba via smb://127.0.0.1/sambashare

Note: ip-address is the Samba server IP address and sambashare is the name of the share. You'll be prompted for your credentials. Enter them to connect!

Result:

```
UBUNTU22 Clone Clone [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal Jun 6 15:52 root@UBUNTU: /etc/samba
root@UBUNTU:/home/ubuntu22# ps
  PID TTY      TIME CMD
 6484 pts/0    00:00:00 su
 6485 pts/0    00:00:00 bash
 6493 pts/0    00:00:00 ps
root@UBUNTU:/home/ubuntu22# kill 6485
root@UBUNTU:/home/ubuntu22# sudo apt install samba
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  attr ibverbs-providers libcephfs2 libgfrpc0 libgfrpc0 libglusterfs0 libibverbs1 librados2 librbdmacm1 libsmcclient
  liburing2 libwbcclient0 python3-dnspython python3-gpg python3-markdown python3-pygments python3-requests-toolbelt python3-samba
  python3-tdb samba-common samba-common-bin samba-dsdb-modules samba-lbs samba-vfs-modules tdb-tools
Suggested packages:
  python3-sniffio python3-trio python-markdown-doc python-pygments-doc ttf-bitstream-vera ctdb ldb-tools ntp | chrony
  smbldap-tools winbind heimdal-clients
The following NEW packages will be installed:
  attr ibverbs-providers libcephfs2 libgfrpc0 libgfrpc0 libglusterfs0 libibverbs1 librados2 librbdmacm1 liburing2
  python3-dnspython python3-gpg python3-markdown python3-pygments python3-requests-toolbelt python3-samba python3-tdb samba
  samba-common samba-common-bin samba-dsdb-modules samba-vfs-modules tdb-tools
The following packages will be upgraded:
  libsmcclient libwbcclient samba-libs
3 upgraded, 24 newly installed, 0 to remove and 315 not upgraded.
Need to get 18.9 MB of additional disk space will be used.
After this operation, 72.1 MiB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 libsmcclient amd64 2:4.15.13+dfsg-0ubuntu1.6 [65.9 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 libwbcclient0 amd64 2:4.15.13+dfsg-0ubuntu1.6 [266 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 samba-libs amd64 2:4.15.13+dfsg-0ubuntu1.6 [6,276 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy/main amd64 python3-dnspython all 2.1.0-1ubuntu1 [123 kB]
Get:5 http://archive.ubuntu.com/ubuntu jammy/main amd64 python3-tdb amd64 1.4.5-2build1 [15.5 kB]
Get:6 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 python3-samba amd64 2:4.15.13+dfsg-0ubuntu1.6 [3,115 kB]
Get:7 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 samba-common all 2:4.15.13+dfsg-0ubuntu1.6 [75.7 kB]
Get:8 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 samba-common-bin amd64 2:4.15.13+dfsg-0ubuntu1.6 [620 kB]
Get:9 http://archive.ubuntu.com/ubuntu jammy/main amd64 tdb-tools amd64 1.4.5-2build1 [26.2 kB]
Get:10 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 samba amd64 2:4.15.13+dfsg-0ubuntu1.6 [1,192 kB]
Get:11 http://archive.ubuntu.com/ubuntu jammy/main amd64 attr amd64 1:2.5.1-1ubuntu1 [22.6 kB]
Get:12 http://archive.ubuntu.com/ubuntu jammy/main amd64 libibverbs1 amd64 39.0-1 [69.3 kB]
Get:13 http://archive.ubuntu.com/ubuntu jammy/main amd64 ibverbs-providers amd64 39.0-1 [341 kB]
Type here to search 28°C Light rain 15:52 06-06-2024 Right Ctrl
```

```
UBUNTU22 Clone Clone [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal Jun 6 15:53 root@UBUNTU: /etc/samba
root@UBUNTU:~# ls
snap vboxpostinstall.sh
root@UBUNTU:~# cd /etc
root@UBUNTU:/etc# cd samba
root@UBUNTU:/etc/samba# ls
gdbcommands smb.conf tls
root@UBUNTU:/etc/samba# vim smb.conf
Command 'vim' not found, but can be installed with:
apt install vim           # version 2:8.2.3995-1ubuntu2.13, or
apt install vim-tiny       # version 2:8.2.3995-1ubuntu2.13
apt install vim-athena     # version 2:8.2.3995-1ubuntu2.13
apt install vim-gtk3        # version 2:8.2.3995-1ubuntu2.13
apt install vim-nox         # version 2:8.2.3995-1ubuntu2.13
apt install neovim          # version 0.6.1-3
root@UBUNTU:/etc/samba# nano smb.conf
root@UBUNTU:/etc/samba# nano smb.conf
root@UBUNTU:/etc/samba# sudo service smbd restart
root@UBUNTU:/etc/samba# sudo ufw allow samba
Rules updated
Rules updated (v6)
root@UBUNTU:/etc/samba# ipconfig
Command 'ipconfig' not found, did you mean:
  command 'iconfig' from deb iputils (3.1.8-1)
  command 'iconfig' from deb net-tools (1.60-gitz20181103.eeebce-1ubuntu5)
  command 'iwconfig' from deb wireless-tools (30-pre9-13.1ubuntu4)
Try: apt install <deb name>
root@UBUNTU:/etc/samba# ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.2.15  netmask 255.255.255.0  broadcast 10.0.2.255
        inet6 fe80::babff:beb255:e5ba:c37c  prefixlen 64  scopeid 0x20<link>
          ether 08:00:27:0e:3c:4f  txqueuelen 1000  (Ethernet)
            RX packets 43470  bytes 42915821 (42.9 MB)
            RX errors 0  dropped 0  overruns 0  frame 0
            TX packets 22367  bytes 3987425 (3.9 MB)
            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 1000  (Local Loopback)
            RX packets 3000  bytes 17544 (17.5 KB)
            TX packets 3000  bytes 17544 (17.5 KB)
```

UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox

```
root@UBUNTU: /etc/samba
apt install vim      # version 2:8.2.3995-1ubuntu2.13, or
apt install vim-tiny # version 2:8.2.3995-1ubuntu2.13
apt install vim-athena # version 2:8.2.3995-1ubuntu2.13
apt install vim-gtk3 # version 2:8.2.3995-1ubuntu2.13
apt install vim-nox  # version 2:8.2.3995-1ubuntu2.13
apt install neovim   # version 0.6.1-3
root@UBUNTU:/etc/samba# nano smb.conf
root@UBUNTU:/etc/samba# sudo service smbd restart
root@UBUNTU:/etc/samba# sudo ufw allow samba
Rules updated
Rules updated (v6)
root@UBUNTU:/etc/samba# ipconfig
Command 'ipconfig' not found, did you mean:
  command 'lconfig' from deb libnl-3.2-20181103.oebece-1ubuntu5)
  command 'l2config' from deb net-tools (1.60+git20181103.oebece-1ubuntu5)
  command 'lwconfig' from deb wireless-tools (30-pre9-13.ubuntu4)
Try: apt install <deb name>
root@UBUNTU:/etc/samba# ifconfig
enp0s3: flags=4163  mtu 1500
        inet 10.0.2.15  netmask 255.255.255.0 broadcast 10.0.2.255
                inet6 fe80::1baf:b255:feba:c37c  prefixlen 64  scopelid 0x20<link>
        ether 08:00:27:0e:3c:4f  txqueuelen 1000  (Ethernet)
        RX packets 43470  bytes 42915821 (42.9 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 22367  bytes 3987425 (3.9 MB)
        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  scopelid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 3929  bytes 475411 (475.4 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 3929  bytes 475411 (475.4 KB)
        TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0
root@UBUNTU:/etc/samba# apt install net-tools
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox

```
root@UBUNTU: /etc/samba
GNU nano 6.2
; guest ok = no
; browseable = no
; create mask = 0600
; directory mask = 0700

[printers]
comment = All Printers
browseable = no
path = /var/spool/samba
printable = yes
guest ok = no
read only = yes
create mask = 0700

# Windows clients look for this share name as a source of downloadable
# printer drivers
[print$]
comment = Printer Drivers
path = /var/lib/samba/printers
browseable = yes
read only = yes
guest ok = no

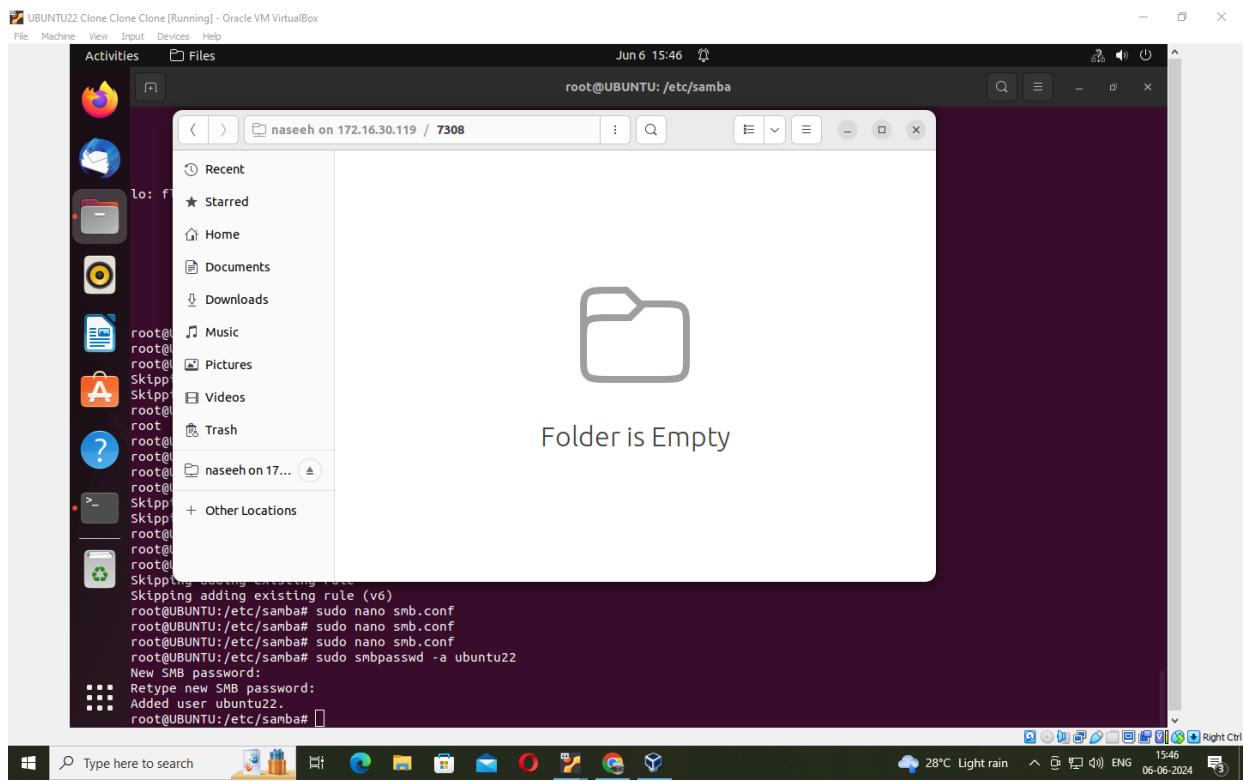
# Uncomment to allow remote administration of Windows print drivers.
# You may need to replace 'lpadmin' with the name of the group your
# admin users are members of.
# Please note that you also need to set appropriate Unix permissions
# to the drivers directory for these users to have write rights in it
; write list = root, @lpadmin

[naseeh]
path= /home/ubuntu22/share

browseable = yes
read only = yes
guest ok = yes
```

```
UBUNTU22 Clone Clone [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal Jun 6 15:56 root@UBUNTU:/etc/samba
root@UBUNTU: /etc/samba# 
92 kill 6485
93 sudo apt install samba
94 ls
95 cd \etc
96 cd
97 ls
98 cd /etc
99 cd samba
100 ls
101 vim smb.conf
102 nano smb.conf
103 sudo service smbd restart
104 sudo ufw allow samba
105 ipconfig
106 ifconfig
107 apt install net-tools
108 ifconfig
109 nano smb.conf
110 sudo service smbd restart
111 sudo ufw allow samba
112 ifconfig
113 nano smb.conf
114 sudo service smbd restart
115 sudo ufw allow samba
116 whoami
117 sudo nano smb.conf
118 sudo service smbd restart
119 sudo ufw allow samba
120 sudo nano smb.conf
121 sudo service smbd restart
122 sudo ufw allow samba
123 sudo nano smb.conf
124 sudo smbpasswd -a ubuntu22
125 history
root@UBUNTU:/etc/samba# sudo nano smb.conf
root@UBUNTU:/etc/samba# sudo service smbd restart
root@UBUNTU:/etc/samba# sudo ufw allow samba
Skipping adding existing rule
Skipping adding existing rule (v6)
root@UBUNTU:/etc/samba# 
```

```
UBUNTU22 Clone Clone [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Files Jun 6 15:46 root@UBUNTU:/etc/samba
root@UBUNTU: /etc/samba
< > + Other Locations
Recent
Starred
Home
Documents
Downloads
Music
Pictures
Videos
Trash
naseeh on 17...
+ Other Locations
On This Computer
Computer 11.0 GB / 25.7 GB available /
Networks
naseeh on 172.16.30.119
EPSON WF-C5790 Series
EPSON WF-C579R Series
LENOVO-THINKCENTRE-M720T
SERVER-07
new
Windows Network
Connect to Server smb://172.16.30.119/naseeh/ Connect
root@UBUNTU: /etc/samba# 
92 kill 6485
93 sudo apt install samba
94 ls
95 cd \etc
96 cd
97 ls
98 cd /etc
99 cd samba
100 ls
101 vim smb.conf
102 nano smb.conf
103 sudo service smbd restart
104 sudo ufw allow samba
105 ipconfig
106 ifconfig
107 apt install net-tools
108 ifconfig
109 nano smb.conf
110 sudo service smbd restart
111 sudo ufw allow samba
112 ifconfig
113 nano smb.conf
114 sudo service smbd restart
115 sudo ufw allow samba
116 whoami
117 sudo nano smb.conf
118 sudo service smbd restart
119 sudo ufw allow samba
120 sudo nano smb.conf
121 sudo service smbd restart
122 sudo ufw allow samba
123 sudo nano smb.conf
124 sudo smbpasswd -a ubuntu22
125 history
root@UBUNTU:/etc/samba# sudo nano smb.conf
root@UBUNTU:/etc/samba# sudo service smbd restart
root@UBUNTU:/etc/samba# sudo nano smb.conf
root@UBUNTU:/etc/samba# sudo service smbd restart
root@UBUNTU:/etc/samba# sudo ufw allow samba
New SMB password:
Retype new SMB password:
Added user ubuntu22.
root@UBUNTU:/etc/samba# 
```



Conclusion:

All the commands have been executed and the output has been obtained successfully.

SSH

Experiment: 3

Aim: Installation of Open SSH between two ubuntu machines.

Description:

Remote File Sharing using SSH

OpenSSH is a powerful collection of tools for the remote control of, and transfer of data between, networked computers. You will also learn about some of the configuration settings possible with the OpenSSH server application and how to change them on your Ubuntu system.

OpenSSH is a freely available version of the Secure Shell (SSH) protocol family of tools for remotely controlling, or transferring files between computers. Traditional tools used to accomplish these functions, such as telnet or rcp, are insecure and transmit the user's password in cleartext when used. OpenSSH provides a server daemon and client tools to facilitate secure, encrypted remote control and file transfer operations, effectively replacing the legacy tools.

Port No: 22

Package name: openssh-client

Configuration file: /etc/ssh/sshd_config

Procedure:

1. create two EC2 instance of ubuntu ssh client and ssh server
2. Create the password for the instance of ssh server by \$sudo passwd ubuntu
3. Now check whether the ssh server is running by the command \$sudo service ssh status
4. configure the sshd_config file by the following command \$sudo vim /etc/ssh/sshd_config and include the following changes
PasswordAuthentication yes , KbdInteractiveAuthentication no ,KerberosGetAFSToken no
5. Now check the status of the ssh server by the command \$sudo service ssh status
6. Now create a text file by the command \$touch text.txt
7. Now log in to the ssh_client and create a ssh_keygen by the command \$ssh_keygen
8. Now copy the ssh_keygen form the ssh_client \$ssh-copy-id ubuntu@privateip
9. Now restart the client machine
10. Then connect to the ssh_server by ssh_client
11. then type ls you will be prompted with the screen with your text file which you have created

Result:

The screenshot shows the AWS EC2 Instances page. On the left, there's a navigation sidebar with various EC2-related options like Dashboard, Global View, Events, and Instance Types. The main area displays a table of instances. There are two entries: 'ssh-client' and 'ssh-server'. Both instances are listed as 'Running' with a green status icon. They are both t2.micro type, located in us-east-1b and us-east-1a respectively. Their public IP addresses are visible: ec2-23-22-218-154.co... and ec2-44-212-0-98.com... The table has columns for Name, Instance ID, Instance state, Instance type, Status check, Alarm status, Availability Zone, Public IPv4 DNS, Public IPv4 IP, and Elastic IP.

Server-side:

```
ubuntu@ip-172-31-84-44: ~
Microsoft Windows [Version 10.0.19045.3930]
(c) Microsoft Corporation. All rights reserved.

C:\Users\PC-1>cd Downloads

C:\Users\PC-1\Downloads>Master
'Master' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\PC-1\Downloads>ssh -i "serssh.pem" ubuntu@ec2-3-86-164-212.compute-1.amazonaws.com
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1012-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

System information as of Wed Sep 4 10:34:30 UTC 2024

System load: 0.0 Processes: 147
Usage of /: 23.1% of 6.71GB Users logged in: 1
Memory usage: 33% IPv4 address for enX0: 172.31.84.44
Swap usage: 0%

=> There are 10 zombie processes.

Expanded Security Maintenance for Applications is not enabled.

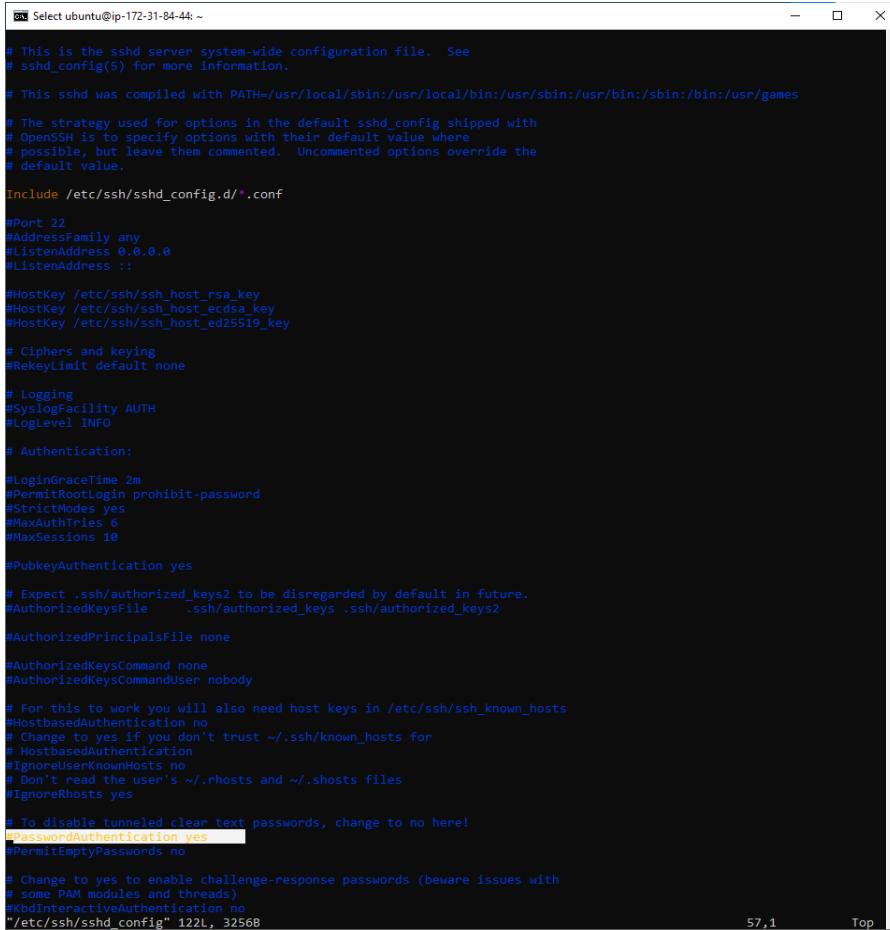
0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

Last login: Wed Sep 4 09:57:53 2024 from 103.135.95.46
ubuntu@ip-172-31-84-44:~$ sudo vim /etc/ssh/sshd_config
ubuntu@ip-172-31-84-44:~$ ubuntu@ip-172-31-84-44:~$ touch text.txt
ubuntu@ip-172-31-84-44:~$ sudo service ssh status
● ssh.service - OpenBSD Secure Shell server
    Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled; preset: enabled)
    Drop-In: /usr/lib/systemd/system/ssh.service.d
              └─ec2-instance-connect.conf
      Active: inactive (dead) since Wed 2024-09-04 10:27:34 UTC; 15min ago
    TriggeredBy: ● ssh.socket
      Docs: man:sshd(8)
             man:sshd_config(5)
    Main PID: 1844 (sshd)
       Tasks: 1 (limit: 1130)
      Memory: 4.5M (peak: 7.3M)
         CPU: 268ms
        CGroup: /system.slice/ssh.service
                  └─1844 "sshd: /usr/sbin/sshd -D -o AuthorizedKeysCommand /usr/share/ec2-instance-connect/eic_run_author
```

sudo vim /etc/ssh/sshd_config file opened



```
# This is the sshd server system-wide configuration file. See
# sshd_config(5) for more information.

# This sshd was compiled with PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games

# The strategy used for options in the default sshd_config shipped with
# OpenSSH is to specify options with their default value where
# possible, but leave them commented. Uncommented options override the
# default value.

Include /etc/ssh/sshd_config.d/*.conf

#Port 22
#AddressFamily any
#ListenAddress 0.0.0.0
#ListenAddress ::

#HostKey /etc/ssh/ssh_host_rsa_key
#HostKey /etc/ssh/ssh_host_ecdsa_key
#HostKey /etc/ssh/ssh_host_ed25519_key

# Ciphers and keying
#RekeyLimit default none

# Logging
#SyslogFacility AUTH
#LogLevel INFO

# Authentication:

#LoginGraceTime 2m
#PermitRootLogin prohibit-password
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10

#PubkeyAuthentication yes

# Expect .ssh/authorized_keys2 to be disregarded by default in future.
#AuthorizedKeysFile      .ssh/authorized_keys .ssh/authorized_keys2

#AuthorizedPrincipalsFile none

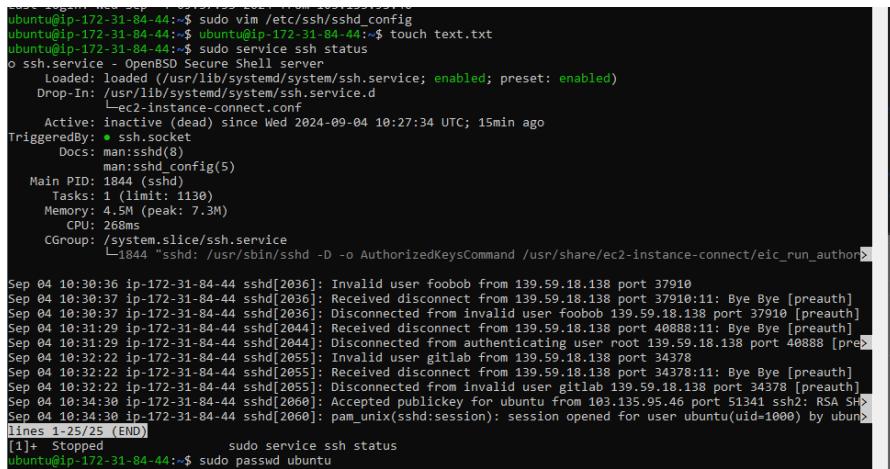
#AuthorizedKeysCommand none
#AuthorizedKeysCommandUser nobody

# For this to work you will also need host keys in /etc/ssh/ssh_known_hosts
#HostbasedAuthentication no
# Change to yes if you don't trust ~/.ssh/known_hosts for
# HostbasedAuthentication
#IgnoreUserKnownHosts no
# Don't read the user's ~/.rhosts and ~/.shosts files
#IgnoreRhosts yes

# To disable tunneled clear text passwords, change to no here!
#PasswordAuthentication yes
#PermitEmptyPasswords no

# Change to yes to enable challenge-response passwords (beware issues with
# some PAM modules and threads)
#KbdInteractiveAuthentication no
"/etc/ssh/sshd_config" 122L, 3256B
```

Save & Exit



```
ubuntu@ip-172-31-84-44:~$ sudo vim /etc/ssh/sshd_config
ubuntu@ip-172-31-84-44:~$ touch text.txt
ubuntu@ip-172-31-84-44:~$ sudo service ssh status
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled; preset: enabled)
   Drop-In: /usr/lib/systemd/system/ssh.service.d
             └─ec2-instance-connect.conf
     Active: inactive (dead) since Wed 2024-09-04 10:27:34 UTC; 15min ago
TriggeredBy: ● ssh.socket
   Docs: man:sshd(8)
         man:sshd_config(5)
 Main PID: 1844 (sshd)
   Tasks: 1 (limit: 1130)
    Memory: 4.5M (peak: 7.3M)
       CPU: 268ms
      CGroup: /system.slice/ssh.service
              └─ 1844 sshd: /usr/sbin/sshd -D -o AuthorizedKeysCommand /usr/share/ec2-instance-connect/eic_run_author

Sep 04 10:30:36 ip-172-31-84-44 sshd[2036]: Invalid user foobob from 139.59.18.138 port 37910
Sep 04 10:30:37 ip-172-31-84-44 sshd[2026]: Received disconnect from 139.59.18.138 port 37910:11: Bye Bye [preauth]
Sep 04 10:30:37 ip-172-31-84-44 sshd[2036]: Disconnected from invalid user foobob 139.59.18.138 port 37910 [preauth]
Sep 04 10:31:29 ip-172-31-84-44 sshd[2044]: Received disconnect from 139.59.18.138 port 40888:11: Bye Bye [preauth]
Sep 04 10:31:29 ip-172-31-84-44 sshd[2044]: Disconnected from authenticating user root 139.59.18.138 port 40888 [preauth]
Sep 04 10:32:22 ip-172-31-84-44 sshd[2055]: Invalid user gitlab from 139.59.18.138 port 34378
Sep 04 10:32:22 ip-172-31-84-44 sshd[2055]: Received disconnect from 139.59.18.138 port 34378:11: Bye Bye [preauth]
Sep 04 10:32:22 ip-172-31-84-44 sshd[2055]: Disconnected from invalid user gitlab 139.59.18.138 port 34378 [preauth]
Sep 04 10:34:38 ip-172-31-84-44 sshd[2060]: Accepted publickey for ubuntu from 103.135.95.40 port 51341 ssh2: RSA SHA256:...
Sep 04 10:34:38 ip-172-31-84-44 sshd[2060]: pam_unix(sshd:session): session opened for user ubuntu(uid=1000) by ubuntu(uid=0) [priv]
lines 1-25/25 (END)
[1]+  Stopped                  sudo service ssh status
ubuntu@ip-172-31-84-44:~$ sudo passwd ubuntu
```

Client-Side Login:

```
on ubuntu@ip-172-31-84-44: ~
Microsoft Windows [Version 10.0.19045.3930]
(c) Microsoft Corporation. All rights reserved.

C:\Users\PC-1>cd Downloads

C:\Users\PC-1\Downloads>Client
'Client' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\PC-1\Downloads>ssh -i "sshKey.pem" ubuntu@ec2-174-129-170-133.compute-1.amazonaws.com
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1012-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

System information as of Wed Sep 4 10:34:49 UTC 2024

System load: 0.0      Processes:          105
Usage of /: 22.9% of 6.71GB  Users logged in:    0
Memory usage: 19%           IPv4 address for enX0: 172.31.91.151
Swap usage:  0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

Last login: Wed Sep 4 09:58:55 2024 from 103.135.95.46
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1012-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

System information as of Wed Sep 4 10:34:49 UTC 2024

System load: 0.0      Processes:          105
Usage of /: 22.9% of 6.71GB  Users logged in:    0
Memory usage: 19%           IPv4 address for enX0: 172.31.91.151
Swap usage:  0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

Last login: Wed Sep 4 09:58:55 2024 from 103.135.95.46
ubuntu@ip-172-31-91-151:~$ sudo vim /etc/sshd/sshd_config
```

```
[root] stopped          ssas service bin started
ubuntu@ip-172-31-91-151:~$ ssh ubuntu@172.31.84.44
(ubuntu@172.31.84.44) Password:
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1012-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

System information as of Wed Sep 4 10:44:05 UTC 2024

System load: 0.0      Processes:          153
Usage of /: 23.1% of 6.71GB  Users logged in:    1
Memory usage: 34%           IPv4 address for enX0: 172.31.84.44
Swap usage:  0%

=> There are 10 zombie processes.

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

Last login: Wed Sep 4 10:34:31 2024 from 103.135.95.46
ubuntu@ip-172-31-84-44:~$ ls
text.txt
ubuntu@ip-172-31-84-44:~$ ls
naseeh.txt  text.txt
ubuntu@ip-172-31-84-44:~$
```

```

[1] ubuntu@ip-172-31-84-44:~ 
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1012-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

System information as of Wed Sep 4 10:34:30 UTC 2024

System load: 0.0          Processes:           147
Usage of /: 23.1% of 6.71GB Users logged in: 1
Memory usage: 33%          IPv4 address for enX0: 172.31.84.44
Swap usage: 0% 

=> There are 10 zombie processes.

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

Last login: Wed Sep 4 09:57:53 2024 from 103.135.95.46
ubuntu@ip-172-31-84-44:~$ sudo vim /etc/ssh/sshd_config
ubuntu@ip-172-31-84-44:~$ ubuntu@ip-172-31-84-44:~$ touch text.txt
ubuntu@ip-172-31-84-44:~$ sudo service ssh status
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled; preset: enabled)
   Drop-In: /usr/lib/systemd/system/ssh.service.d
             └─ec2-instance-connect.conf
     Active: inactive (dead) since Wed 2024-09-04 10:27:34 UTC; 15min ago
       Docs: man:sshd(8)
             man:sshd_config(5)
             Main PID: 1345
               Tasks: 1 (limit: 1138)
             Memory: 4.5M (peak: 7.3M)
             CPU: 268ms
            CGroup: /system.slice/ssh.service
                      └─1345 sshd: /usr/sbin/sshd -D -o AuthorizedKeysCommand /usr/share/ec2-instance-connect/elc_run_authoriza

Sep 04 10:41:49 ip-172-31-91-151 systemd[1]: Starting ssh.service - OpenBSD Secure Shell server...
Sep 04 10:41:49 ip-172-31-91-151 sshd[1345]: Server listening on :: port 22.
Sep 04 10:41:49 ip-172-31-91-151 systemd[1]: Started sshd: OpenBSD Secure Shell server.
[lines 1-18/19 (END)]

[2]+ Stopped                  sudo service ssh status
ubuntu@ip-172-31-91-151:~$ sudo systemctl disable ssh
systemctl: error: failed to open script with '/usr/lib/systemd/system-install'.
Executing: /usr/lib/systemd/system-install disable ssh
['!QARemoved "/etc/systemd/system/multi-user.target.wants/ssh.service".
Removed "/etc/systemd/system/ssh.service".
Warning: 'ssh.service' has been disabled by 'ssh.socket'.
Warning: 'ssh.socket' has been triggered for stopping, but its triggering units are still active:
ssh.socket
ubuntu@ip-172-31-91-151:~$ sudo service ssh status
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: enabled)
   Drop-In: /usr/lib/systemd/system/ssh.service.d
             └─ec2-instance-connect.conf
     Active: inactive (dead) since Wed 2024-09-04 10:41:49 UTC; 1min 11s ago
TriggeredBy: ssh.socket
   Docs: man:sshd(8)
             man:sshd_config(5)
             Main PID: 1345
               Tasks: 1 (limit: 1138)
             Memory: 1.2M (peak: 1.4M)
             CPU: 21ms
            CGroup: /system.slice/ssh.service
                      └─1345 sshd: /usr/sbin/sshd -D -o AuthorizedKeysCommand /usr/share/ec2-instance-connect/elc_run_authoriza

Sep 04 10:41:49 ip-172-31-91-151 systemd[1]: Starting ssh.service - OpenBSD Secure Shell server...
Sep 04 10:41:49 ip-172-31-91-151 sshd[1345]: Server listening on :: port 22.
Sep 04 10:41:49 ip-172-31-91-151 systemd[1]: Started sshd: OpenBSD Secure Shell server.
[lines 1-18/19 (END)]

[3]+ Stopped                  sudo service ssh status
ubuntu@ip-172-31-91-151:~$ ssh ubuntu@172.31.84.44
(ubuntu@ip-172.31.84.44) Password:
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1012-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

System information as of Wed Sep 4 10:44:05 UTC 2024

System load: 0.0          Processes:           153
Usage of /: 23.1% of 6.71GB Users logged in: 1
Memory usage: 34%          IPv4 address for enX0: 172.31.84.44
Swap usage: 0% 

=> There are 10 zombie processes.

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

Last login: Wed Sep 4 10:34:31 2024 from 103.135.95.46
ubuntu@ip-172-31-84-44:~$ ls
text.txt
ubuntu@ip-172-31-84-44:~$
```

Conclusion:

All the commands have been executed and the output has been obtained successfully.

DNS

Experiment: 4

Aim: To create and configure DNS Server

Description:

DNS Server

A DNS server is a computer server that contains a database of public IP addresses and their associated hostnames, and in most cases, serves to resolve, or translate, those common names to IP addresses as requested.

Port No: 53

Package name: bind9

Configuration file: /etc/bind/named.conf. (Primary configuration file),/etc/bind/db.root
(root nameservers)

Procedure:

CASHING NAMESERVER

When configured as a caching nameserver BIND9 will find the answer to name queries and remember the answer when the domain is queried again.

1. Install bind9 by typing

```
$sudo apt install bind9  
$sudo apt install dnsutils
```

2.The default configuration is set up to act as a caching server. All that is required is simply adding the IP Addresses of your ISP's DNS servers. Simply uncomment and edit the following in /etc/bind/named.conf.options:

3.Restart it by typing

```
$sudo systemctl restart bind9.service
```

PRIMARY MASTER

As a primary master server BIND9 reads the data for a zone from a file on its host and is authoritative for that zone.

Forward zone file

To add a DNS zone to BIND9, turning BIND9 into a Primary Master server, the first step is to edit /etc/bind/named.conf.local:

```
$sudo cp /etc/bind/db.local /etc/bind/db.example.com  
$sudo systemctl restart bind9.service
```

Reverse Zone File

Now that the zone is set up and resolving names to IP Addresses, a *Reverse zone* needs to be added to allow DNS to resolve an address to a name.

1. Edit /etc/bind/named.conf.local

2. Now create the /etc/bind/db.192 file:

```
$sudo cp /etc/bind/db.127 /etc/bind/db.192
```

3. edit /etc/bind/db.192 changing the basically the same options as /etc/bind/db.example.com:

4. After creating the reverse zone file restart BIND9:

```
$sudo systemctl restart bind9.service
```

5. Check the status

```
$Sudo service bind9 status
```

6. Check if nslookup can resolve

```
$nslookup ftp.example.com  
$nslookup ubuntu.example.com
```

7. Gather information about your DNS server

```
$dig ubuntu.example.com
```

```
$dig www.example.com
```

```
$dig ftp.example.com
```

Result:

```
root@kali: /etc/bind
File Actions Edit View Help
└─(root㉿kali)-[~]
# sudo apt install bind9
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
bind9 is already the newest version (1:9.19.24-185-g392e7199df2-1).
The following packages were automatically installed and are no longer required:
libkate1 libnsl-dev libtirpc-dev libzxing2
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 1970 not upgraded.

└─(root㉿kali)-[~]
# sudo apt install dnsutils
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
dnsutils is already the newest version (1:9.19.24-185-g392e7199df2-1).
The following packages were automatically installed and are no longer required:
libkate1 libnsl-dev libtirpc-dev libzxing2
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 1970 not upgraded.

└─(root㉿kali)-[~]
# cd /etc/bind
└─(root㉿kali)-[/etc/bind]
# nano named.conf.options
```

```
root@kali:/etc/bind
File Actions Edit View Help
root@kali:/etc/bind x root@kali:/etc/bind x
GNU nano 7.2                                              named.conf.options
options {
    directory "/var/cache/bind";
    // If there is a firewall between you and nameservers you want
    // to talk to, you may need to fix the firewall to allow multiple
    // ports to talk. See http://www.kb.cert.org/vuls/id/808113
    // If your ISP provided one or more IP addresses for stable
    // nameservers, you probably want to use them as forwarders.
    // Uncomment the following block, and insert the addresses replacing
    // the all-0's placeholder.
    forwarders {
        192.168.254.130;
    };
    // If BIND logs error messages about the root key being expired,
    // you will need to update your keys. See https://www.isc.org/bind-keys
    dnssec-validation auto;
};
listen-on-v6 { any; };

[ Read 24 lines ]
```

```
(root@kali)-[/etc/bind]
# systemctl status bind9.service
● bind9.service - BIND Domain Name Server
   Loaded: loaded (/lib/systemd/system/bind9.service; enabled; preset: disabled)
   Active: active (running) since Mon 2024-09-09 14:27:31 EDT; 42s ago
     Docs: man:named(8)
     Main PID: 17382 (named)
        Tasks: 14 (limit: 4587)
       Memory: 59.0M
          CPU: 2.962s
        CGroup: /system.slice/bind9.service
                  └─17382 /usr/sbin/named -f -u bind

(root@kali)-[/etc/bind]
# nano named.conf.local
```

```
// Do any local configuration here
//

// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918";

zone "naseeh.com" IN{
    type master;
    file "/etc/bind/db.naseeh.com";
};

//reverse
zone "254.168.192.in-addr.arpa" IN{
    type master;
    file "/etc/bind/db.254.168.192";
};
```

```
; BIND data file for local loopback interface
;
$TTL    604800
@      IN      SOA     naseeh.com. root.naseeh.com. (
                        2           ; Serial
                        604800      ; Refresh
                        86400       ; Retry
                        2419200     ; Expire
                        604800      ; Negative Cache TTL
);
@      IN      NS      naseeh.com.
@      IN      A       192.168.254.130
@      IN      AAAA   ::1
```

```
root@kali:/etc/bind
GNU nano 7.2
; BIND reverse data file for local loopback interface
;
$TTL    604800
@       IN  SOA   naseeh.com. root.naseeh.com. (
                    1           ; Serial
                   604800      ; Refresh
                  86400       ; Retry
                 2419200     ; Expire
                  604800 )    ; Negative Cache TTL
;
@       IN  NS    naseeh.com.
130    IN  PTR   ftp.naseeh.com.
```

```
(root@kali)-[/etc/bind]
# sudo systemctl restart bind9.service
```

```
(root@kali)-[/etc/bind]
# sudo systemctl restart bind9.service
[root@kali ~]# nslookup naseeh.com
Server: 192.168.254.130
Address: 192.168.254.130#53

Name: naseeh.com
Address: 192.168.254.130
Name: naseeh.com
Address: ::1

[root@kali ~]# nslookup 192.168.254.130
130.254.168.192.in-addr.arpa name = ftp.naseeh.com.
```

Conclusion:

All the commands have been executed and the output has been obtained successfully.

SQUID

Experiment: 5

Aim: To create and configure Squid -proxy server

Description:

SQUID – PROXY SERVER

Squid is a full-featured web proxy cache server application which provides proxy and cache services for HyperText Transport Protocol (HTTP), File Transfer Protocol (FTP), and other popular network protocols. Squid can implement caching and proxying of Secure Sockets Layer (SSL) requests and caching of Domain Name Server (DNS) lookups, and perform transparent caching. Squid also supports a wide variety of caching protocols, such as Internet Cache Protocol (ICP), the HyperText Caching Protocol (HTCP), the Cache Array Routing Protocol (CARP), and the Web Cache Coordination Protocol (WCCP).

The Squid proxy cache server is an excellent solution to various proxy and caching server needs, and scales from the branch office to enterprise-level networks while providing extensive, granular access control mechanisms, and monitoring of critical parameters via the Simple Network Management Protocol (SNMP). When selecting a computer system for use as a dedicated Squid caching proxy server for many users ensure it is configured with a large amount of physical memory as Squid maintains an in-memory cache for increased performance.

Port No: 3128

Package name: squid

Configuration file: /etc/squid/squid.conf

Procedure:

1. At a terminal prompt, enter the following command to install the Squid server:

```
$sudo apt install squid
```

2. Squid is configured by editing the directives contained within the /etc/squid/squid.conf configuration file.
3. Change the access as shown below:

```
acl localnet src 192.168.234.139(your ip address)
acl blocksite dstdomain "/etc/squid/blocksite"
http_access deny blocksite
http_access allow localnet
#http_access deny all
http_access allow all
```

4. To block access to the website we must configure using "etc/squid/blocksite"

we edit the file by running:

```
$cd /etc/squid
```

```
$sudo gedit blocksite
```

5. Add the websites to block:

in this case, I am blocking youtube, facebook, google

6. To check the actual functioning of the proxy server go to the browser and click settings, search proxy in connection settings.

7. To configure Proxy access to the internet

8. Select Manual Proxy configuration

9. Type your HTTP Proxy(IP Address) and Port number as 3128.

10. Select SOCKS v5

CONNECTING TO WEBSITE

11. Search for the blocked websites

12. Access is denied to the above websites.

Result:

```
Activities Terminal Aug 21 14:00
root@UBUNTU:/etc/squid
root@UBUNTU:~-
root@UBUNTU:/home/ubuntu22# cd
root@UBUNTU:~#
root@UBUNTU:~# sudo apt install squid
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
libdbi-perl libcap3 squid-common squid-langpack
Suggested packages:
libldb-perl libnet-daemon-perl libsql-statement-perl squidclient squid-cgi squid-purge resolvconf smbclient winbind
The following NEW packages will be installed:
libdbi-perl libcap3 squid-common squid-langpack
0 upgraded, 5 newly installed, 0 to remove and 150 not upgraded.
Need to get 3,809 kB of archives.
After this operation, 14.9 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu jammy/main amd64 libcap3 amd64 1.0.1-3.2ubuntu4 [17.0 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy/main amd64 squid-langpack all 20200403-1 [170 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 squid-common all 5.9-0ubuntu0.22.04.2 [204 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy/main amd64 libdbi-perl amd64 1.643-3build3 [741 kB]
Get:5 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 squid amd64 5.9-0ubuntu0.22.04.2 [2,678 kB]
Fetched 3,809 kB in 7s (583 kB/s)
Selecting previously unselected package libcap3:amd64.
(Reading database ... 205701 files and directories currently installed.)
Preparing to unpack .../libcap3_1.0.1-3.2ubuntu4_amd64.deb ...
Unpacking libcap3:amd64 (1.0.1-3.2ubuntu4) ...
Selecting previously unselected package squid-langpack.
Preparing to unpack .../squid-langpack_20200403-1_all.deb ...
Unpacking squid-langpack (20200403-1) ...
Selecting previously unselected package squid-common.
Preparing to unpack .../squid-common_5.9-0ubuntu0.22.04.2_all.deb ...
Unpacking squid-common (5.9-0ubuntu0.22.04.2) ...
Selecting previously unselected package libdbi-perl:amd64.
Preparing to unpack .../libdbi-perl_1.643-3build3_amd64.deb ...
Unpacking libdbi-perl:amd64 (1.643-3build3) ...
Selecting previously unselected package squid.
Preparing to unpack .../squid_5.9-0ubuntu0.22.04.2_amd64.deb ...
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
```

```
Activities Terminal Aug 21 14:02
root@UBUNTU:/etc/squid
root@UBUNTU:~-
GNU nano 6.2 squid.conf
WELCOME TO SQUID 5.9
-----
#
# This is the documentation for the Squid configuration file.
# This documentation can also be found online at:
#     http://www.squid-cache.org/doc/config/
#
# You may wish to look at the Squid home page and wiki for the
# FAQ and other documentation:
#     http://www.squid-cache.org/
#     http://wiki.squid-cache.org/SquidFAQ
#     http://wiki.squid-cache.org/ConfigExamples
#
# This documentation shows what the defaults for various directives
# happen to be. If you don't need to change the default, you should
# leave the line out of your squid.conf in most cases.
#
# In some cases "none" refers to no default setting at all,
# while in other cases it refers to the value of the option
# - the comments for that keyword indicate if this is the case.
#
# Configuration options can be included using the "include" directive.
# Include takes a list of files to include. Quoting and wildcards are
# supported.
#
# For example,
#
# include /path/to/include/file/squid.acl.config
#
# Includes can be nested up to a hard-coded depth of 16 levels.
# This arbitrary restriction is to prevent recursive include references
# from causing Squid entering an infinite loop whilst trying to load
[ Read 9184 lines ]
M-H Help      M-O Write Out   M-W Where Is    M-K Cut        M-J Execute   M-C Location   M-U Undo    M-A Set Mark
M-X Exit      M-R Read File   M-V Replace    M-U Paste     M-G Justify   M-Y Go To Line M-E Redo    M-G Copy
```

Activities Terminal Aug 21 14:25

root@UBUNTU:/etc/squid

GNU nano 6.2 squid.conf

```
#http_access deny to_localhost

# Protect cloud servers that provide local users with sensitive info about
# their server via certain well-known link-local (a.k.a. APIPA) addresses.
#http_access deny to_linklocal

#
# INSERT YOUR OWN RULE(S) HERE TO ALLOW ACCESS FROM YOUR CLIENTS
#
include /etc/squid/conf.d/*.conf

# For example, to allow access from your local networks, you may uncomment the
# following rule (and/or add rules that match your definition of "local"):
# http_access allow localnet

#
# And finally deny all other access to this proxy
#http_access deny all
http_access allow all

#
# TAG: adapted_http_access
#   Allowing or Denying access based on defined access lists
#
# Essentially identical to http_access, but runs after redirectors
# and ICAP/eCAP adaptation. Allowing access control based on their
# output.
#
# If not set then only http_access is used.
#Default:
# Allow, unless rules exist in squid.conf.

#
# TAG: http_reply_access
#   Allow replies to client requests. This is complementary to http_access.
#
```

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo ^X Exit ^R Read File ^M Replace ^U Paste ^D Justify ^Y Go To Line M-E Redo M-A Set Mark M-6 Copy

Activities Terminal Aug 21 14:25

root@UBUNTU:/etc/squid

GNU nano 6.2 squid.conf

```
#http_access deny to_localhost

# Protect cloud servers that provide local users with sensitive info about
# their server via certain well-known link-local (a.k.a. APIPA) addresses.
#http_access deny to_linklocal

#
# INSERT YOUR OWN RULE(S) HERE TO ALLOW ACCESS FROM YOUR CLIENTS
#
include /etc/squid/conf.d/*.conf

# For example, to allow access from your local networks, you may uncomment the
# following rule (and/or add rules that match your definition of "local"):
# http_access allow localnet

#
# And finally deny all other access to this proxy
#http_access deny all
http_access allow all

#
# TAG: adapted_http_access
#   Allowing or Denying access based on defined access lists
#
# Essentially identical to http_access, but runs after redirectors
# and ICAP/eCAP adaptation. Allowing access control based on their
# output.
#
# If not set then only http_access is used.
#Default:
# Allow, unless rules exist in squid.conf.

#
# TAG: http_reply_access
#   Allow replies to client requests. This is complementary to http_access.
#
```

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo ^X Exit ^R Read File ^M Replace ^U Paste ^D Justify ^Y Go To Line M-E Redo M-A Set Mark M-6 Copy

Activities Terminal Aug 21 15:20

root@UBUNTU: /etc/squid

GNU nano 6.2 squid.conf

```
#http_access deny to_localhost

# Protect cloud servers that provide local users with sensitive info about
# their server via certain well-known link-local (a.k.a. APIPA) addresses.
#http_access deny to_linklocal

#
# INSERT YOUR OWN RULE(S) HERE TO ALLOW ACCESS FROM YOUR CLIENTS
#
include /etc/squid/conf.d/*.conf

# For example, to allow access from your local networks, you may uncomment the
# following rule (and/or add rules that match your definition of "local"):
# http_access allow localnet

# And finally deny all other access to this proxy
#http_access deny all
http_access allow all
acl localnet src 10.0.2.15
acl blocksite dstdomain "/etc/squid/sites";
http_access deny blocksite

# TAG: adapted_http_access
#     Allowing or Denying access based on defined access lists
#
#     Essentially identical to http_access, but runs after redirectors
#     and ICAP/eCAP adaptation. Allowing access control based on their
#     output.
#
#     If not set then only http_access is used.
#Default:
# Allow, unless rules exist in squid.conf.
```

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo ^A Set Mark
^X Exit ^R Read File ^M Replace ^U Paste ^J Justify ^Y Go To Line M-E Redo M-0 Copy

Activities Terminal Aug 21 15:20

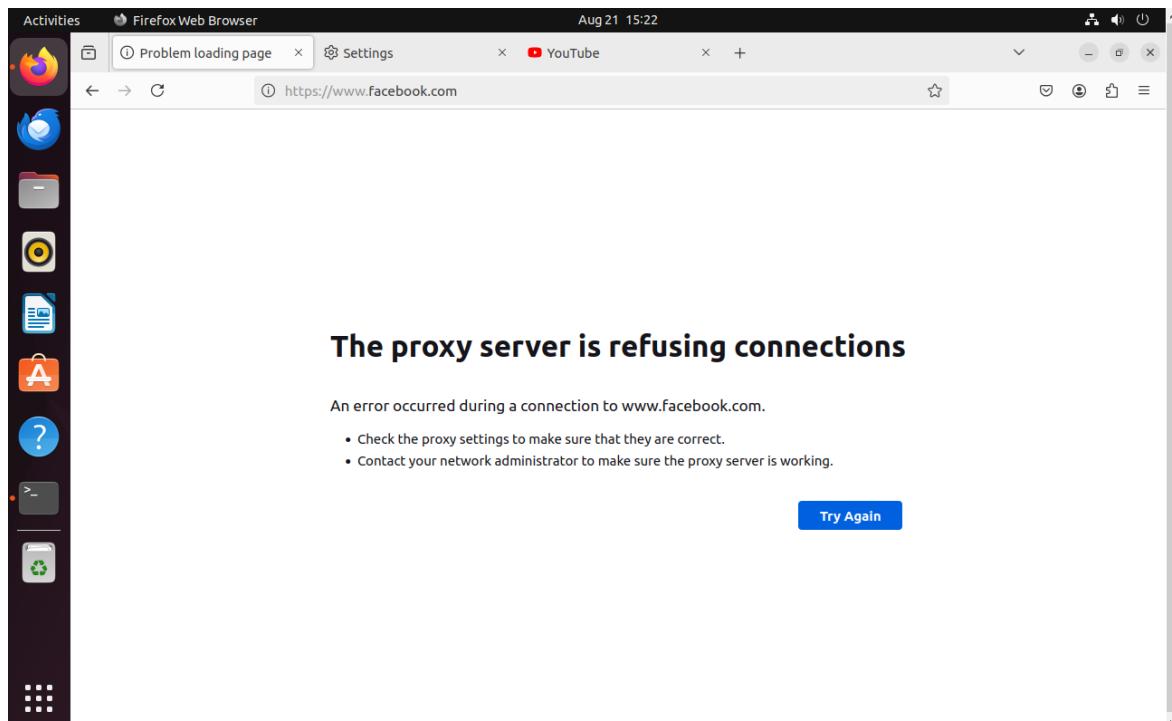
root@UBUNTU: /etc/squid

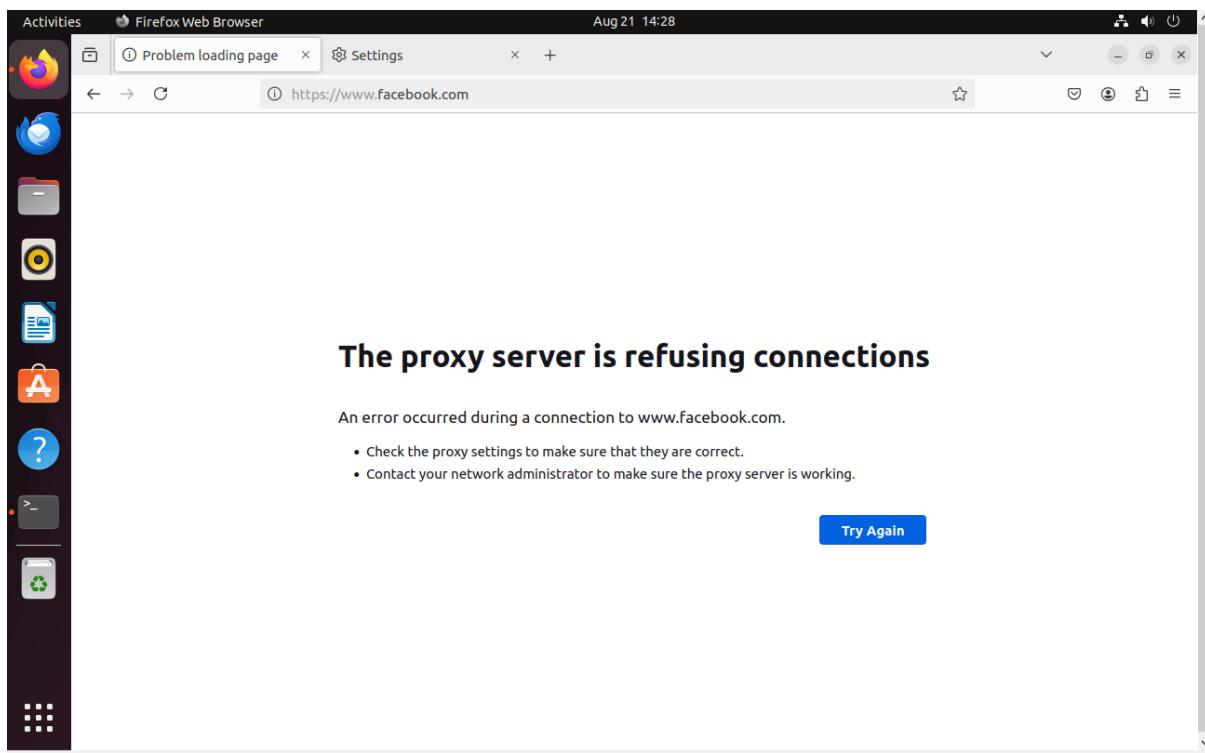
GNU nano 6.2 sites

```
www.youtube.com
www.facebook.com
```

[Wrote 2 lines]

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo ^A Set Mark
^X Exit ^R Read File ^M Replace ^U Paste ^J Justify ^Y Go To Line M-E Redo M-0 Copy





Conclusion:

All the commands have been executed and the output has been obtained successfully.

FTP

Experiment : 6

Aim : To create and configure FTP Server

Description :

FTP Server

File Transfer Protocol (FTP) is a TCP protocol for downloading files between computers. In the past, it has also been used for uploading but, as that method does not use encryption, user credentials as well as data transferred in the clear and are easily intercepted. So if you are here looking for a way to upload and download files securely,

FTP works on a client/server model. The server component is called an *FTP daemon*. It continuously listens for FTP requests from remote clients. When a request is received, it manages the login and sets up the connection. For the duration of the session it executes any of commands sent by the FTP client

Port No: 21

Package name: vsftpd

Configuration file: /etc/vsftpd.conf

Procedure:

1. Install the vsftpd - FTP Server Installation in the ubuntu operating system

```
$sudo apt install vsftpd
```

2. By default vsftpd is *not* configured to allow anonymous download. If you wish to enable anonymous download edit /etc/vsftpd.conf by changing:

```
$anonymous_enable=YES
```

3. During installation a *ftp* user is created with a home directory of /srv/ftp. This is the default FTP directory.

If you wish to change this location, to /srv/files/ftp for example, simply create a directory in another location and change the *ftp* user's home directory:

```
$sudo mkdir -p /srv/files/ftp
```

```
$sudo usermod -d /srv/files/ftp ftp
```

4. After making the change restart vsftpd:

```
$ sudo service vsftpd restart
```

5. User Authenticated FTP Configuration

By default vsftpd is configured to authenticate system users and allow them to download files. If you want users to be able to upload files, edit /etc/vsftpd.conf

```
$write_enable=YES
```

6. Now restart vsftpd:

```
$ sudo service vsftpd restart
```

7. Securing FTP

There are options in /etc/vsftpd.conf to help make vsftpd more secure.

```
$chroot_local_user=YES
```

```
$chroot_list_enable=YES
```

```
$chroot_list_file=/etc/vsftpd.chroot_list
```

8. After uncommenting the above options, create a /etc/vsftpd.chroot_list

containing a list of users one per line.

9. Then restart vsftpd:

```
$sudo service vsftpd restart
```

10. To configure *FTPS*, edit /etc/vsftpd.conf and at the bottom add:

```
$ssl_enable=YES
```

11. Then check the vsftpd status

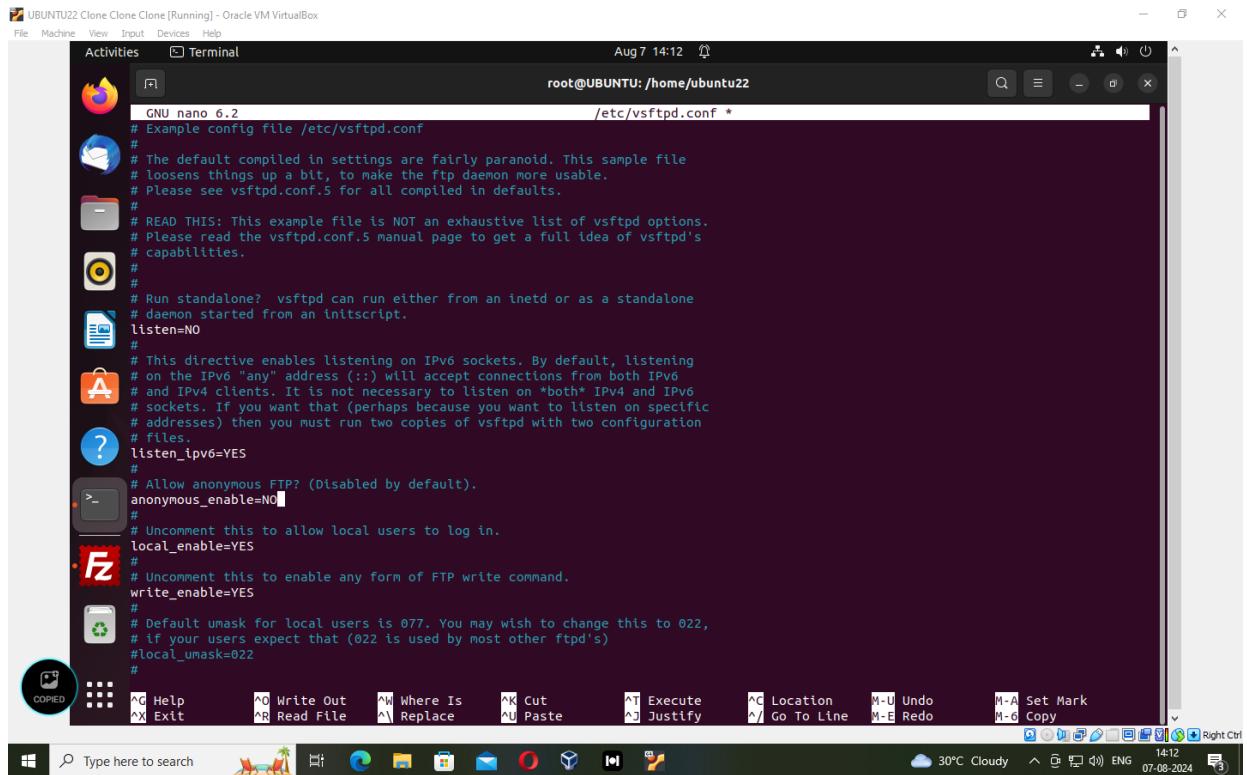
```
$sudo service vsftpd status
```

12. Now connect to ftp by the command

```
$ftp -p 192.168.234.128
```

13. Now install filezilla in ubuntu and open the filezilla and specify the ip address and port number of the ftp server then click connect

Result:

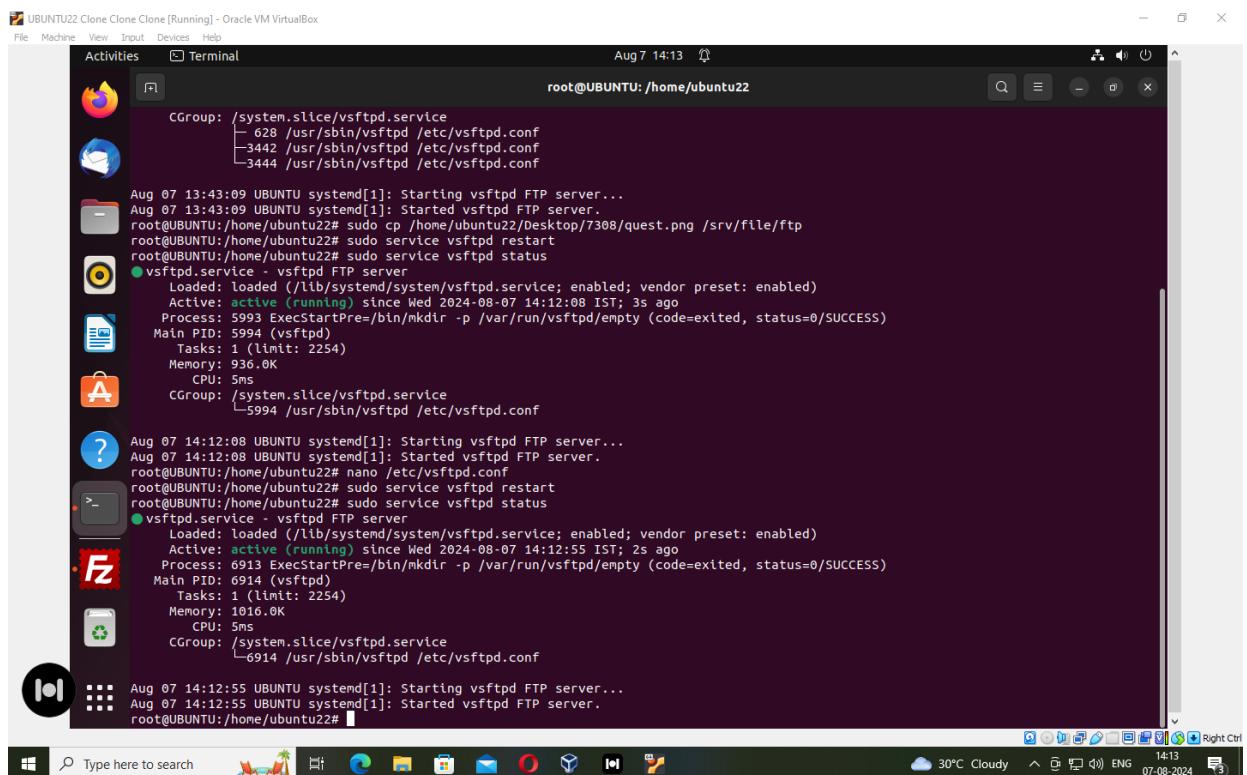


File Machine View Input Devices Help Activities Terminal Aug 7 14:12 root@UBUNTU:/home/ubuntu22

```
GNU nano 6.2
# Example config file /etc/vsftpd.conf
#
# The default compiled in settings are fairly paranoid. This sample file
# loosens things up a bit, to make the ftp daemon more usable.
# Please see vsftpd.conf.5 for all compiled in defaults.
#
# READ THIS: This example file is NOT an exhaustive list of vsftpd options.
# Please read the vsftpd.conf.5 manual page to get a full idea of vsftpd's
# capabilities.
#
# Run standalone? vsftpd can run either from an inetd or as a standalone
# daemon started from an initscript.
listen=NO
#
# This directive enables listening on IPv6 sockets. By default, listening
# on the IPv6 "any" address (::) will accept connections from both IPv6
# and IPv4 clients. It is not necessary to listen on *both* IPv4 and IPv6
# sockets. If you want that (perhaps because you want to listen on specific
# addresses) then you must run two copies of vsftpd with two configuration
# files.
listen_ipv6=YES
#
# Allow anonymous FTP? (Disabled by default).
anonymous_enable=NO
#
# Uncomment this to allow local users to log in.
local_enable=YES
#
# Uncomment this to enable any form of FTP write command.
write_enable=YES
#
# Default umask for local users is 077. You may wish to change this to 022,
# if your users expect that (022 is used by most other ftppd's)
#local_umask=022
#
^G Help ^O Write Out ^W Where Is ^X Cut ^T Execute ^C Location M-U Undo
^X Exit ^R Read File ^A Replace ^U Paste ^J Justify ^G Go To Line M-E Redo
M-A Set Mark M-D Copy

```

Cloud 30°C Cloudy 14:12 07-08-2024



File Machine View Input Devices Help Activities Terminal Aug 7 14:13 root@UBUNTU:/home/ubuntu22

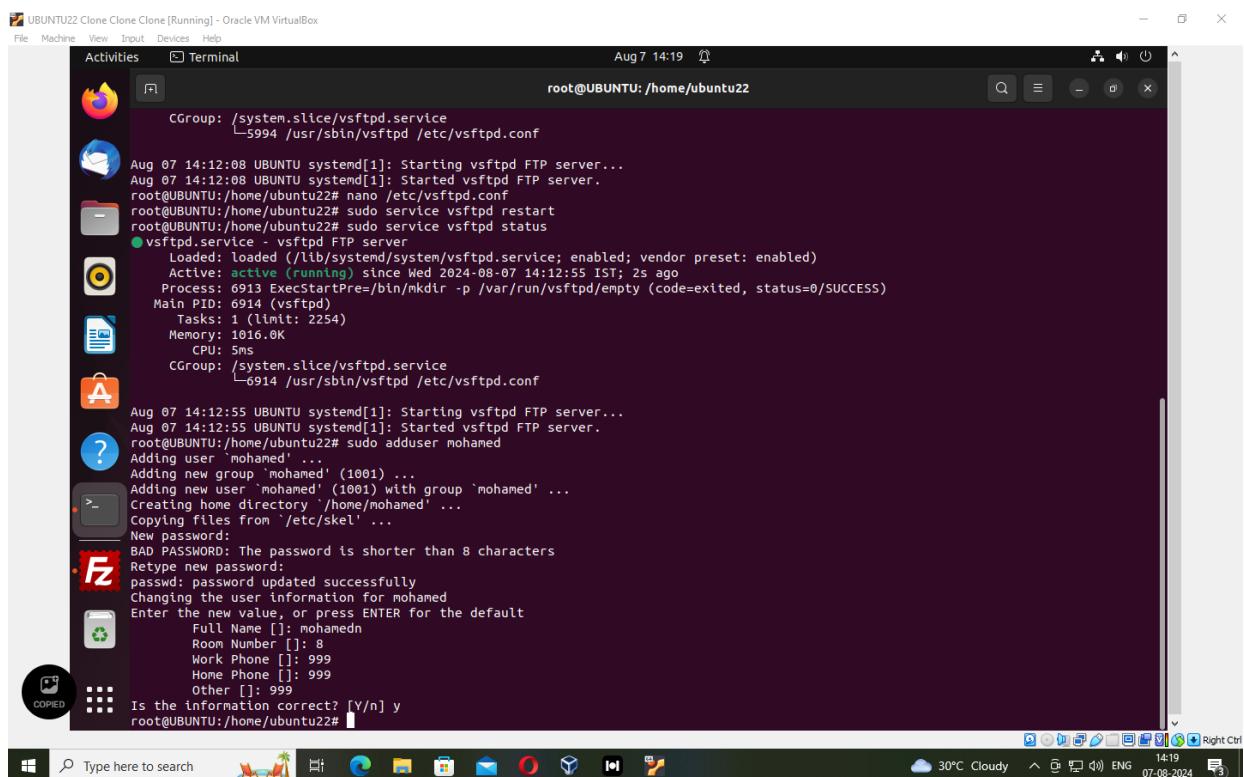
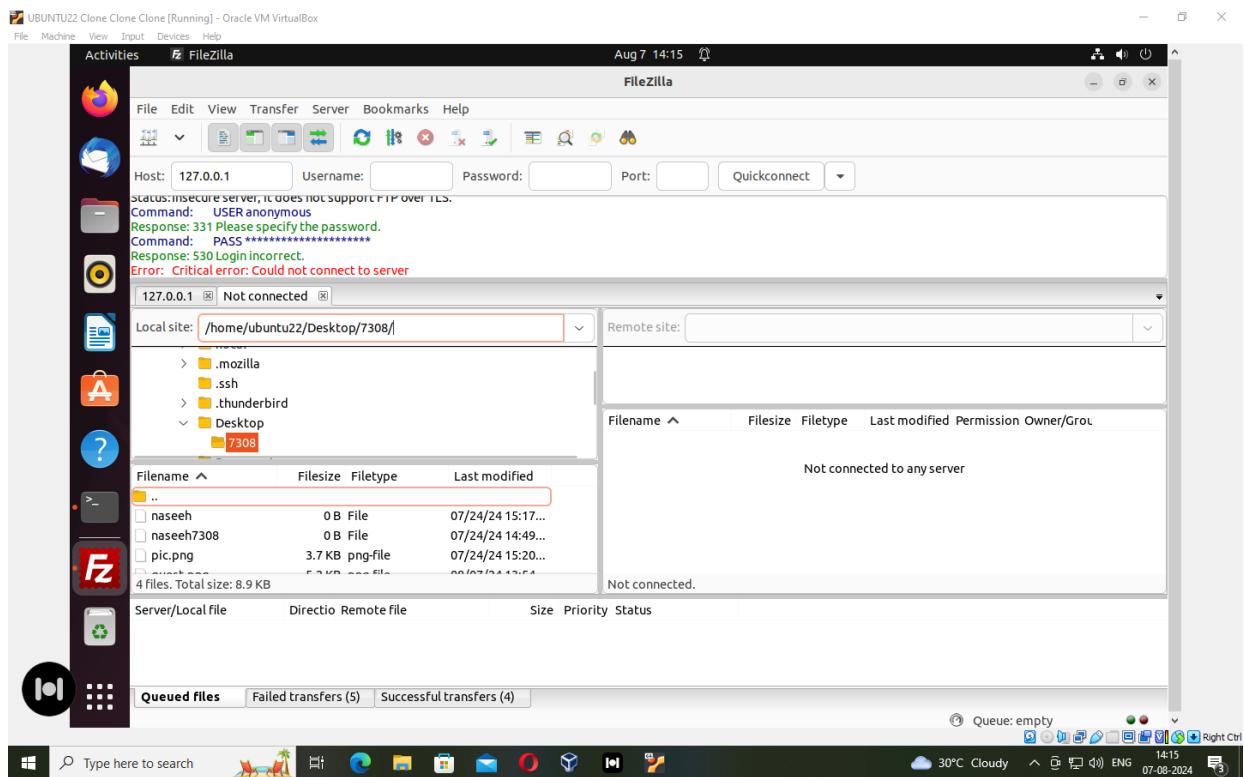
```
CGroub: /system.slice/vsftpd.service
         └─ 628 /usr/sbin/vsftpd /etc/vsftpd.conf
             ├─ 3442 /usr/sbin/vsftpd /etc/vsftpd.conf
             └─ 3444 /usr/sbin/vsftpd /etc/vsftpd.conf

Aug 07 13:43:09 UBUNTU systemd[1]: Starting vsftpd FTP server...
Aug 07 13:43:09 UBUNTU systemd[1]: Started vsftpd FTP server.
root@UBUNTU:/home/ubuntu22# sudo cp /home/ubuntu22/Desktop/7308/quest.png /srv/file/ftp
root@UBUNTU:/home/ubuntu22# sudo service vsftpd restart
root@UBUNTU:/home/ubuntu22# sudo service vsftpd status
● vsftpd.service - vsftpd FTP server
   Loaded: loaded (/lib/systemd/system/vsftpd.service; enabled; vendor preset: enabled)
   Active: active (running) since Wed 2024-08-07 14:12:08 IST; 3s ago
     Process: 5993 ExecStartPre=/bin/mkdir -p /var/run/vsftpd/empty (code=exited, status=0/SUCCESS)
    Main PID: 5994 (vsftpd)
      Tasks: 1 (limit: 2254)
        Memory: 936.0K
       CPU: 5ms
      CGroup: /system.slice/vsftpd.service
              └─ 5994 /usr/sbin/vsftpd /etc/vsftpd.conf

Aug 07 14:12:08 UBUNTU systemd[1]: Starting vsftpd FTP server...
Aug 07 14:12:08 UBUNTU systemd[1]: Started vsftpd FTP server.
root@UBUNTU:/home/ubuntu22# nano /etc/vsftpd.conf
root@UBUNTU:/home/ubuntu22# sudo service vsftpd restart
root@UBUNTU:/home/ubuntu22# sudo service vsftpd status
● vsftpd.service - vsftpd FTP server
   Loaded: loaded (/lib/systemd/system/vsftpd.service; enabled; vendor preset: enabled)
   Active: active (running) since Wed 2024-08-07 14:12:55 IST; 2s ago
     Process: 6913 ExecStartPre=/bin/mkdir -p /var/run/vsftpd/empty (code=exited, status=0/SUCCESS)
    Main PID: 6914 (vsftpd)
      Tasks: 1 (limit: 2254)
        Memory: 1016.0K
       CPU: 5ms
      CGroup: /system.slice/vsftpd.service
              └─ 6914 /usr/sbin/vsftpd /etc/vsftpd.conf

Aug 07 14:12:55 UBUNTU systemd[1]: Starting vsftpd FTP server...
Aug 07 14:12:55 UBUNTU systemd[1]: Started vsftpd FTP server.
root@UBUNTU:/home/ubuntu22#
```

Cloud 30°C Cloudy 14:13 07-08-2024



UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Activities Terminal Aug 7 14:27 root@UBUNTU:/home/mohamed

```
Active: active (running) since Wed 2024-08-07 14:12:55 IST; 2s ago
Process: 6913 ExecStartPre=/bin/mkdir -p /var/run/vsftpd/empty (code=exited, status=0/SUCCESS)
Main PID: 6914 (vsftpd)
Tasks: 1 (limit: 2254)
Memory: 1016.0K
CPU: 5ms
CGroup: /system.slice/vsftpd.service
└─6914 /usr/sbin/vsftpd /etc/vsftpd.conf

Aug 07 14:12:55 UBUNTU systemd[1]: Starting vsftpd FTP server...
Aug 07 14:12:55 UBUNTU systemd[1]: Started vsftpd FTP server.
root@UBUNTU:/home/ubuntu22# sudo adduser mohamed
Adding user 'mohamed' ...
Adding new group 'mohamed' (1001) ...
Adding new user 'mohamed' (1001) with group 'mohamed' ...
Creating home directory '/home/mohamed' ...
Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for mohamed
Enter the new value, or press ENTER for the default
  Full Name []: mohamedn
  Room Number []: 8
  Work Phone []: 999
  Home Phone []: 999
  Other []: 999
Is the information correct? [Y/n] y
root@UBUNTU:/home/ubuntu22# cd ..
root@UBUNTU:/home# ls
mohamed  ubuntu22
root@UBUNTU:/home# cd mohamed
root@UBUNTU:/home/mohamed# ls
root@UBUNTU:/home/mohamed# ls
root@UBUNTU:/home/mohamed# mkdir ftp
root@UBUNTU:/home/mohamed# ls
ftp
root@UBUNTU:/home/mohamed#
```

Windows Type here to search 14:27 07-08-2024 Right Ctrl

UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Activities Terminal Aug 7 14:40 root@UBUNTU:/home/mohamed

```
GNU nano 6.2
/etc/vsftpd.conf *

# chroot
chroot_local_user=YES
chroot_list_enable=YES
# (default follows)
chroot_list_file=/etc/vsftpd.chroot_list
user_sub_token=$USER
local_root=/home/$USER/ftp
allow_writeable_chroot=YES
#
# You may activate the "-R" option to the builtin ls. This is disabled by
# default to avoid remote users being able to cause excessive I/O on large
# sites. However, some broken FTP clients such as "ncFTP" and "mirror" assume
# the presence of the "-R" option, so there is a strong case for enabling it.
#ls_recurse_enable=YES
#
# Customization
#
# Some of vsftpd's settings don't fit the filesystem layout by
# default.
#
# This option should be the name of a directory which is empty. Also, the
# directory should not be writable by the ftp user. This directory is used
# as a secure chroot() jail at times vsftpd does not require filesystem
# access.
secure_chroot_dir=/var/run/vsftpd/empty
#
# This string is the name of the PAM service vsftpd will use.
pam_service_name=vsftpd
```

Help Write Out Where Is Cut Execute Location Undo Exit Read File Replace Paste Go To Line M-U Undo M-E Redo

Windows Type here to search Today's events 14:40 07-08-2024 Right Ctrl

Ubuntu22 Clone Clone Clone [Running] - Oracle VM VirtualBox

```

root@UBUNTU:/etc
root@UBUNTU:/etc# touch vsftpd.chroot_list
root@UBUNTU:/etc# nano vsftpd.chroot_list
root@UBUNTU:/etc# sudo service vsftpd restart
root@UBUNTU:/etc#

```

Ubuntu22 Clone Clone Clone [Running] - Oracle VM VirtualBox

```

mohamed@127.0.0.1 - FileZilla
File Edit View Transfer Server Bookmarks Help
Host: 127.0.0.1 Username: mohamed Password: Port: Quickconnect
Status: File transfer skipped
Status: Disconnected from server
Status: Disconnected from server
Status: Connecting to 127.0.0.1:21...
Status: Connection established, waiting for welcome message...
Status: Insecure server, it does not support FTP over TLS.
Status: Server does not support non-ASCII characters.
Status: Logged in
Status: Starting download of /home/mohamed/pic.png
Status: File transfer successful, transferred 3.7 KB in 1 second

Local site: /home/ubuntu22/Desktop/
Remote site: /home/mohamed

Selected 1 file. Total size: 3.7 KB

```

Conclusion:

All the commands have been executed and the output has been obtained successfully.

