

Week 8 – Final Project

- **Task 25: Virtual Lab with Multiple Services**
 - Set up an integrated virtual network running Web, DNS, Mail, and FTP services.
- **Task 27: Submit Report & Presentation**
 - Submit a comprehensive report including configurations, screenshots, and network diagrams.

TASK 27 – Final Report & Presentation (With Screenshot Sections)

1. Introduction

Task 27 focuses on preparing the final documentation and presentation of the virtual lab created earlier.

This includes explaining the configuration of all services, testing steps, and security measures, along with screenshots for verification.

2. Project Overview

A virtual lab with multiple servers and services was created.

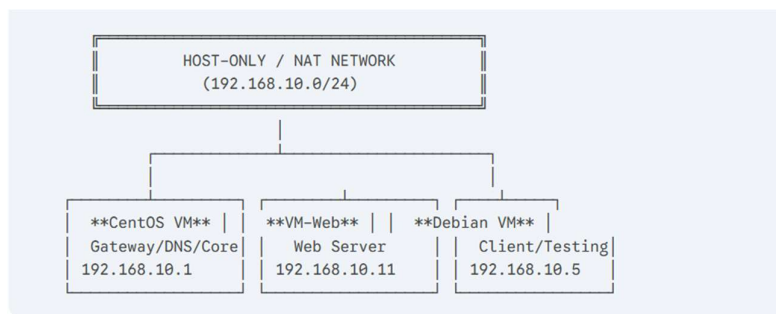
The final report includes:

- Web Server
- DNS Server
- Mail Server
- FTP Server
- Security Hardening
- Testing & Results

3. Network Topology (Explanation)

The environment contains:

- Server 1 → Web + DNS
- Server 2 → Mail + FTP
- Client Machine → Testing all services



4. Service Configuration

4.1 Web Server (Apache)

Explanation

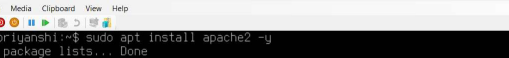
The Apache web server was installed to serve webpages to users inside the network. A custom HTML page was created, and the service was accessed through the client machine.

Tasks Performed

- Installed Apache
- Started and enabled the service
- Edited /var/www/html/index.html
- Tested using browser/curl

Screenshots :

- Apache installation



```

Internship on PRIYANSHI - Virtual Machine
File Action Media Clipboard View Help
ubuntu@priyanshi:~$ sudo apt install apache2 -y
Reading package lists... Done
Building dependency tree... Done
Building state information... Done
apache2 is already the newest version (2.4.52-1ubuntu4.16).
0 upgraded, 0 newly installed, 0 to remove and 58 not upgraded.
ubuntu@priyanshi:~$
```

```
File Action View Extensions Help
seg 1 prio class 0
[ 1011.316862] Buffer I/O error on dev fd0, logical block 0, async page read
[ 1011.556615] blk_update_request: I/O error, dev fd0, sector 0 op 0x0:(READ) flags 0x0700
vus_seg 1 prio class 0
[ 1011.556615] blk_update_request: I/O error, dev fd0, sector 0 op 0x0:(READ) flags 0x0 phys
seg 1 prio class 0
[ 1011.558899] Buffer I/O error on dev fd0, logical block 0, async page read
Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.service → /
o/systemd/system/apache-htcacheclean.service.
[ 1011.917841] blk_update_request: I/O error, dev fd0, sector 0 op 0x0:(READ) flags 0x0700
vus_seg 1 prio class 0
[ 1011.958909] blk_update_request: I/O error, dev fd0, sector 0 op 0x0:(READ) flags 0x0 phys
seg 1 prio class 0
[ 1011.919426] Buffer I/O error on dev fd0, logical block 0, async page read
[ 1012.145905] Buffer I/O error on dev fd0, logical block 0, async page read
[ 1012.457479] Buffer I/O error on dev fd0, logical block 0, async page read
[ 1012.688277] Buffer I/O error on dev fd0, logical block 0, async page read
[ 1012.916565] Buffer I/O error on dev fd0, logical block 0, async page read
Processing triggers for ufu (0.36-1-dubuntu0.1) ...
Processing triggers for nan-db (2.10.2-1) ...
Processing triggers for libc-bin (2.35-0ubuntu3.11) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

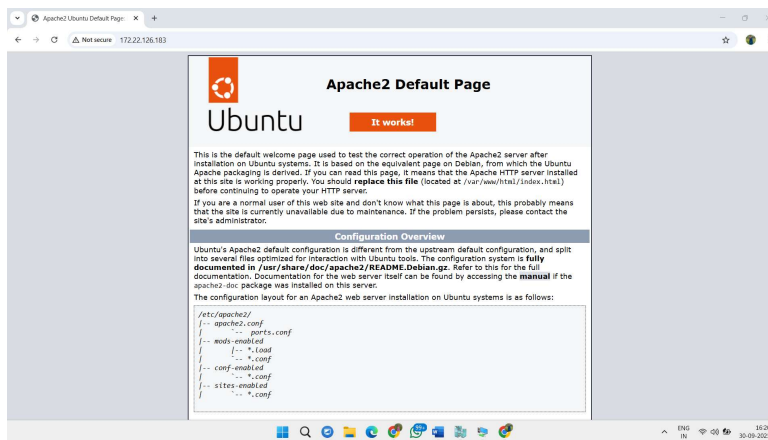
No VM guests are running outdated hypervisor (qemu) binaries on this host.
```

- Apache service status

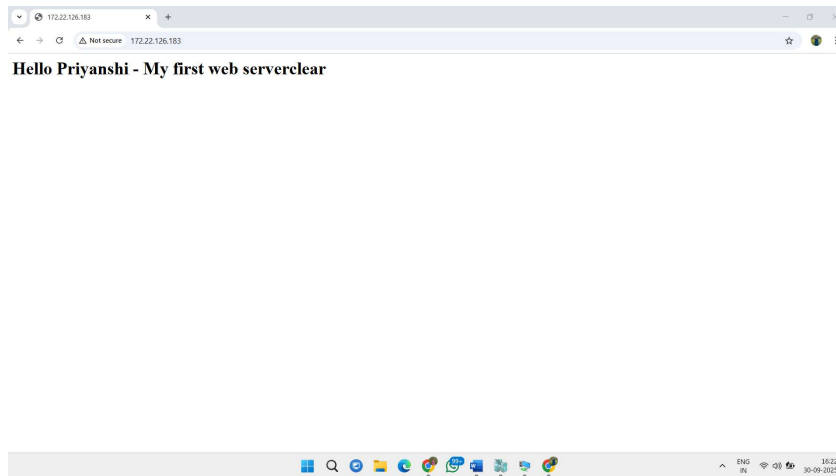
```
Intership on PRIYANSHI - Virtual Machine Connection
File Action Media Clipboard View Help
ubuntu@priyanshi:~$ systemctl status apache2
* apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Tue 2025-09-30 10:43:30 UTC; 4min 13s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 17130 (apache2)
    Tasks: 55 (limit: 4557)
   Memory: 5.3M
      CPU: 39ms
   CGroup: /system.slice/apache2.service
           └─17130 /usr/sbin/apache2 -k start
             └─17131 /usr/sbin/apache2 -k start
               └─17132 /usr/sbin/apache2 -k start

Sep 30 10:43:30 priyanshi systemd[1]: Starting The Apache HTTP Server...
Sep 30 10:43:30 priyanshi apache2[17129]: AH00558: apache2: Could not reliably determine the
Sep 30 10:43:30 priyanshi systemd[1]: Started The Apache HTTP Server.
lines 1-16/16 (END)
```

- Webpage output



```
Intership on PRIYANSHI - Virtual Machine Connection
File Action Media Clipboard View Help
ubuntu@priyanshi:~$ echo "<h1>Hello Priyanshi - My first web server!!</h1>" | sudo tee /var/www/html/index.html
echo "<h1>Hello Priyanshi - My first web serverclear</h1>" | sudo tee /var/www/html/index.html
<h1>Hello Priyanshi - My first web serverclear</h1>
ubuntu@priyanshi:~$
```



4.2 DNS Server (Bind9)

Explanation

Bind9 DNS server was configured to resolve internal domain names. All services (web, mail, ftp) were assigned DNS entries to make access easier.

Tasks Performed

- Installed Bind9
- Created a forward lookup zone
- Added A records for www, mail, ftp
- Configured client to use this DNS server

Screenshots :

- Zone file (db.yourdomain)

Forward Zone file:

```
GNU nano 8.1 priyanshi.zone
$TTL 1D
@      IN SOA  server1.priyanshi.com. admin.priyanshi.com. (
                                0      ; serial
                                1D     ; refresh
                                1H     ; retry
                                1W     ; expire
                                3H )   ; minimum

@      NS   server1.priyanshi.com.
server1 A   192.168.10.1
base    A   192.168.10.5
```

Reverse Zone Example:

```
DNS on PRIYANSHI - Virtual Machine Connection
File Action Media Clipboard View Help

Oct 29 11:03 AM
root@172:/var/named ~ sudo su
file:///172.27.12.255/home/priyanshi

GNU nano 8.1 priyanshi.g.zone
STTL 1D
@      IN SOA  priyanshi.com. admin.server1.priyanshi.com. (
                                0      ; serial
                                1D     ; refresh
                                1H     ; retry
                                1W     ; expire
                                3H )   ; minimum

@      NS     server1.priyanshi.com.
1      PTR    server1.priyanshi.com.
2      PTR    base.priyanshi.com.
```

- named.conf.local configuration

```
DNS on PRIYANSHI - Virtual Machine Connection
File Action Media Clipboard View Help

Oct 29 10:40 AM
root@172:/ ~ sudo su
file:///172.27.12.255/home/priyanshi

GNU nano 8.1 /etc/named.conf Modified

// named.conf
//
// Provided by Red Hat bind package to configure the ISC BIND named(8) DNS
// server as a caching only nameserver (as a localhost DNS resolver only).
//
// See /usr/share/doc/bind*/sample/ for example named configuration files.
//

options {
    listen-on port 53 { 127.0.0.1; 192.168.10.1; };
    listen-on-v6 port 53 { ::1; };
    directory "/var/named";
    dump-file "/var/named/data/cache_dump.db";
    statistics-file "/var/named/data/named_stats.txt";
    memstatistics-file "/var/named/data/named_mem_stats.txt";
    secroots-file "/var/named/data/named.secrets";
    recursing-file "/var/named/data/named.recursing";
    allow-query { localhost; 192.168.10.0/24; };

    /*
     - If you are building an AUTHORITATIVE DNS server, do NOT enable recursion.
     - If you are building a RECURSIVE (caching) DNS server, you need to enable
       recursion.
     - If your recursive DNS server has a public IP address, you MUST enable access
       control to limit queries to your legitimate users. Failing to do so will
```

```
DNS on PRIYANSHI - Virtual Machine Connection
File Action Media Clipboard View Help

Oct 29 10:45 AM
root@172:/ ~ sudo su
file:///172.27.12.255/home/priyanshi

GNU nano 8.1 /etc/named.conf Modified

    channel default_debug {
        file "data/named.run";
        severity dynamic;
    };

};

zone "." IN {
    type hint;
    file "named.ca";
};

zone "priyanshi.com" {
    type master;
    file "priyanshi.zone";
    allow-update { none; };
};

zone "10.168.192.in-addr.arpa" {
    type master;
    file "priyanshi.g.zone";
    allow-update { none; };
};

include "/etc/named.rfc1912.zones";
include "/etc/named.root.key";

```

- dig / nslookup results

```
DNS on PRIYANSHI - Virtual Machine Connection
File Action Media Clipboard View Help
Oct 29 11:09 AM
root@172:/ ~ sudo su
file:/172.17.0.255/home/priyanshi

root@localhost:/# nslookup 192.168.10.1
1.10.168.192.in-addr.arpa      name = server1.priyanshi.com.

root@localhost:/# nslookup base.priyanshi.com
Server:      192.168.10.1
Address:     192.168.10.1#53

Name: base.priyanshi.com
Address: 192.168.10.5

root@localhost:/# nslookup 192.168.10.2
2.10.168.192.in-addr.arpa      name = base.priyanshi.com.

root@localhost:/#
```

4.3 Mail Server (Postfix + Dovecot)

Explanation

A fully functional internal mailing system was built using Postfix for sending emails and Dovecot for reading emails.

Tasks Performed

- Installed Postfix with domain name
- Enabled IMAP/POP via Dovecot
- Created test users
- Verified internal mail flow

Screenshots :

- Postfix installation

```
DNS on PRIYANSHI - Virtual Machine Connection
File Action Media Clipboard View Help
Oct 29 5:29 PM
root@localhost:/ ~ sudo su

root@172:/# yum install postfix dovecot mailx -y
CentOS Stream 10 - BaseOS                284 B/s | 4.5 kB    00:16
CentOS Stream 10 - AppStream              6.6 kB/s | 4.6 kB    00:00
CentOS Stream 10 - Extras packages        6.8 kB/s | 6.3 kB    00:00
Dependencies resolved.
=====
Package                Architecture Version      Repository    Size
=====
Installing:
dovecot                x86_64      1:2.3.21-16.el10 appstream     4.9 M
postfix                x86_64      2:3.8.5-8.el10 appstream     1.5 M
s-nail                 x86_64      14.9.24-12.el10 appstream     634 k
Installing dependencies:
postfix-lmdb            x86_64      2:3.8.5-8.el10 appstream     26 k
=====
Transaction Summary
=====
Install 4 Packages

Total download size: 7.1 M
Installed size: 24 M
Downloading Packages:
(1/4): postfix-lmdb-3.8.5-8.el10.x86_64.rpm 4.5 kB/s | 26 kB    00:05
(2/4): s-nail-14.9.24-12.el10.x86_64.rpm    305 kB/s | 634 kB   00:02
(3/4): postfix-3.8.5-8.el10.x86_64.rpm      147 kB/
s | 1.5 MB    00:10
(4/4): dovecot-2.3.21-16.el10.x86_64.rpm    147 kB/
s | 4.9 MB    00:34
=====
```

```
DNS on PRIYANSHI - Virtual Machine Connection
File Action Media Clipboard View Help

Oct 29 5:29 PM
root@localhost/~ sudo su

Running transaction test
Transaction test succeeded.
Running transaction
  Preparing      : 1/1
  Installing     : postfix-lmdb-2:3.8.5-8.el10.x86_64 1/4
  Running scriptlet: postfix-2:3.8.5-8.el10.x86_64 2/4
  Installing     : postfix-2:3.8.5-8.el10.x86_64 2/4
  Running scriptlet: postfix-2:3.8.5-8.el10.x86_64 2/4
  Running scriptlet: s-nail-14.9.24-12.el10.x86_64 3/4
  Installing     : s-nail-14.9.24-12.el10.x86_64 3/4
  Running scriptlet: dovecot-1:2.3.21-16.el10.x86_64 4/4
  Installing     : dovecot-1:2.3.21-16.el10.x86_64 4/4
  Running scriptlet: dovecot-1:2.3.21-16.el10.x86_64 4/4

Installed:
dovecot-1:2.3.21-16.el10.x86_64 postfix-2:3.8.5-8.el10.x86_64 postfix-lmdb-2:3.8.5-8.el10.x86_64
s-nail-14.9.24-12.el10.x86_64

Complete!
```

- Dovecot service status

```
DNS on PRIYANSHI - Virtual Machine Connection
File Action Media Clipboard View Help

Oct 29 5:38 PM
root@localhost/~ sudo su

root@l72:~# systemctl enable postfix.service
root@l72:~# systemctl start postfix.service
root@l72:~# systemctl status postfix.service
● postfix.service - Postfix Mail Transport Agent
   Loaded: loaded (/usr/lib/systemd/system/postfix.service; enabled; preset: disabled)
   Active: active (running) since Wed 2025-10-29 17:38:33 IST; 6s ago
 Invocation: a0bffe877fe7466dbbbff4bffe58cd5
   Process: 4774 ExecStartPre=/usr/sbin/restorecon -R /var/spool/postfix/pid (code=exited, status=0/SUCCESS)
   Process: 4775 ExecStartPre=/usr/libexec/postfix/aliasesdb (code=exited, status=0/SUCCESS)
   Process: 4781 ExecStartPre=/usr/libexec/postfix/chroot-update (code=exited, status=0/SUCCESS)
   Process: 4783 ExecStart=/usr/sbin/postfix start (code=exited, status=0/SUCCESS)
 Main PID: 4851 (master)
   Tasks: 3 (limit: 23016)
  Memory: 2.4M (peak: 4.2M)
    CPU: 442ms
   CGroup: /system.slice/postfix.service
           └─4851 /usr/libexec/postfix/master -w
             └─4852 pickup -l -t unix -u
               └─4853 qmgr -l -t unix -u

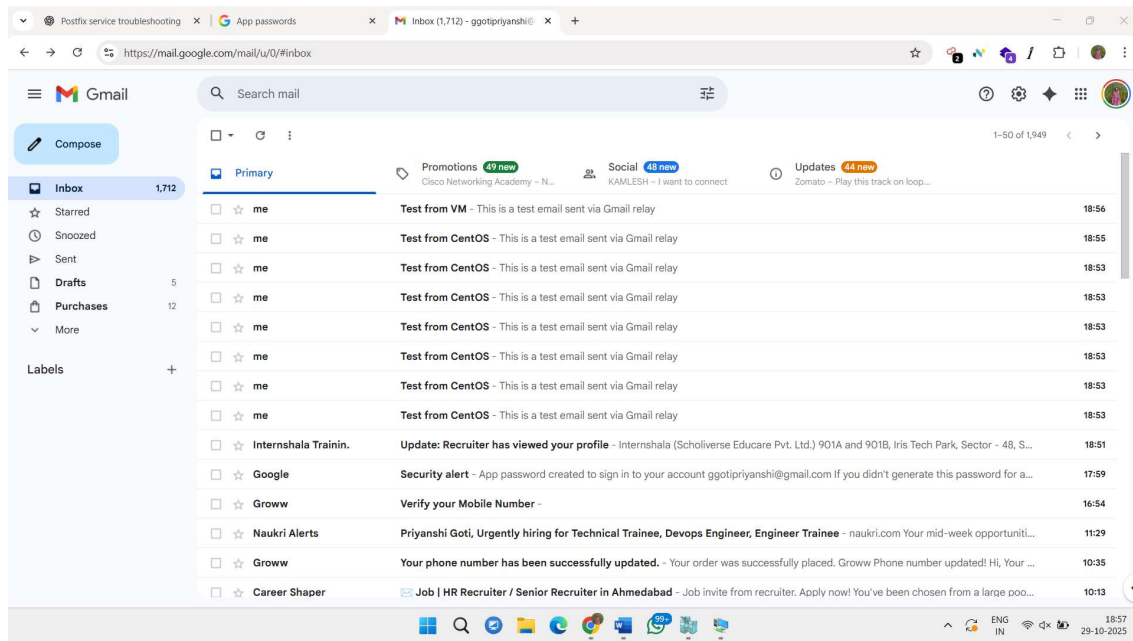
Oct 29 17:38:33 mail.priyanshi.com systemd[1]: Starting postfix.service - Postfix Mail Transport Agent:
Oct 29 17:38:33 mail.priyanshi.com postfix[4849]: postfix/postlog: starting the Postfix mail system
Oct 29 17:38:33 mail.priyanshi.com postfix/postfix-script[4849]: starting the Postfix mail system
Oct 29 17:38:33 mail.priyanshi.com postfix/master[4851]: daemon started -- version 3.8.5, configurat
Oct 29 17:38:33 mail.priyanshi.com systemd[1]: Started postfix.service - Postfix Mail Transport Age
lines 1-22/22 (END)
```

- Mail sent successfully

```
DNS on PRIYANSHI - Virtual Machine Connection
File Action Media Clipboard View Help

Oct 29 6:03 PM
root@localhost/~ sudo su

[smtplib.smtp.gmail.com]:587 ggotipriyanshi@gmail.com:lveluygfsrxpqwil
~
~
~
~
~
```



4.4 FTP Server (vsftpd)

Explanation

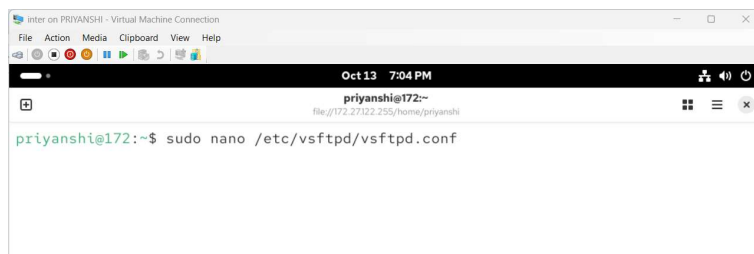
The FTP server allows users to upload and download files within the network. vsftpd was configured with security (no anonymous login, chroot enabled).

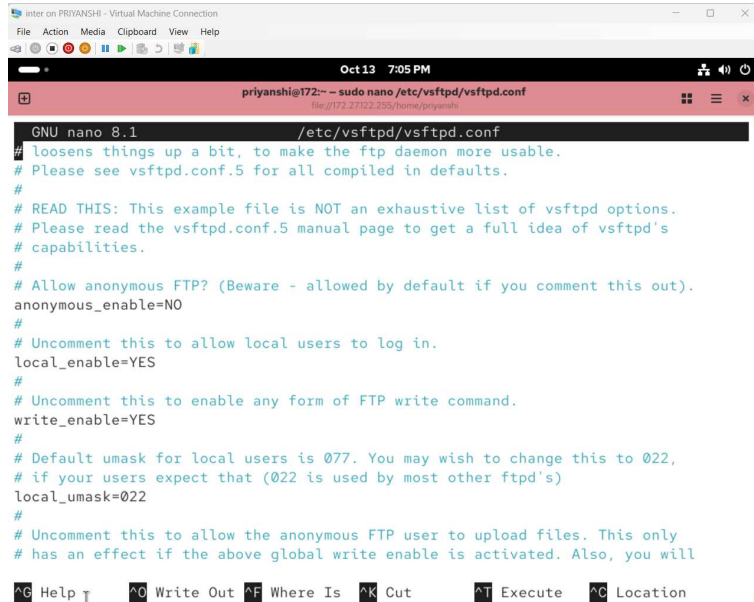
Tasks Performed

- Installed vsftpd
- Enabled local user login
- Allowed write permission
- Configured user isolation
- Tested file transfer

Screenshots:

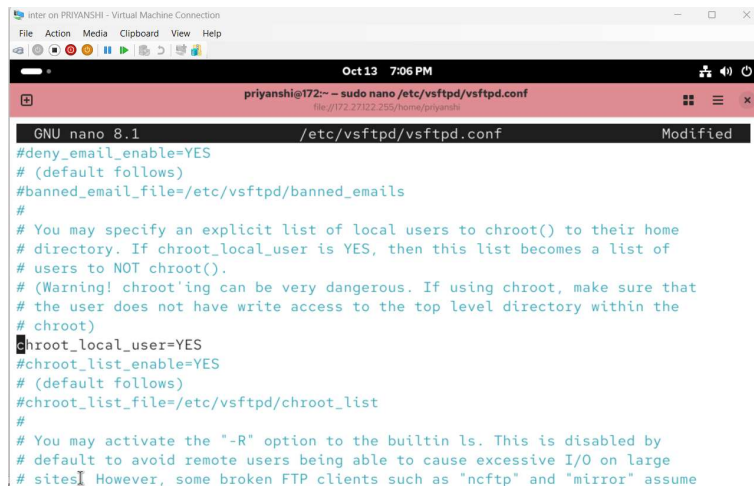
- vsftpd.conf settings





The screenshot shows a terminal window titled "Enter on PRIYANSHI - Virtual Machine Connection". The terminal displays the command `priyanshi@172:~ - sudo nano /etc/vsftpd/vsftpd.conf`. The nano editor is open, showing the configuration file `/etc/vsftpd/vsftpd.conf`. The file contains several commented-out lines and some active settings. The active settings are `anonymous_enable=NO`, `local_enable=YES`, `write_enable=YES`, and `local_umask=022`. The terminal shows the nano editor's status bar at the bottom with various keyboard shortcuts.

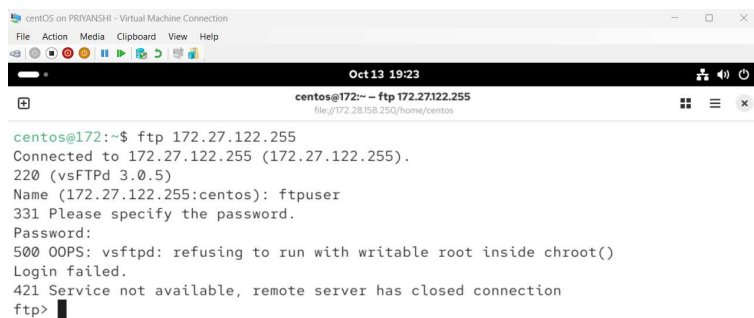
```
GNU nano 8.1 /etc/vsftpd/vsftpd.conf
# loosens things up a bit, to make the ftp daemon more usable.
# Please see vsftpd.conf.5 for all compiled in defaults.
#
# READ THIS: This example file is NOT an exhaustive list of vsftpd options.
# Please read the vsftpd.conf.5 manual page to get a full idea of vsftpd's
# capabilities.
#
# Allow anonymous FTP? (Beware - allowed by default if you comment this out).
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 ftpd's)
local_umask=022
#
# Uncomment this to allow the anonymous FTP user to upload files. This only
# has an effect if the above global write enable is activated. Also, you will
```



The screenshot shows a terminal window titled "Enter on PRIYANSHI - Virtual Machine Connection". The terminal displays the command `priyanshi@172:~ - sudo nano /etc/vsftpd/vsftpd.conf`. The nano editor is open, showing the configuration file `/etc/vsftpd/vsftpd.conf`. The file contains several commented-out lines and some active settings. The active settings are `#deny_email_enable=YES`, `#(default follows)`, `#banned_email_file=/etc/vsftpd/banned_emails`, `#chroot_local_user=YES`, `#chroot_list_enable=YES`, and `#chroot_list_file=/etc/vsftpd/chroot_list`. The terminal shows the nano editor's status bar at the bottom with various keyboard shortcuts.

```
GNU nano 8.1 /etc/vsftpd/vsftpd.conf Modified
#deny_email_enable=YES
# (default follows)
#banned_email_file=/etc/vsftpd/banned_emails
#
# You may specify an explicit list of local users to chroot() to their home
# directory. If chroot_local_user is YES, then this list becomes a list of
# users to NOT chroot().
# (Warning! chroot'ing can be very dangerous. If using chroot, make sure that
# the user does not have write access to the top level directory within the
# chroot)
chroot_local_user=YES
#chroot_list_enable=YES
# (default follows)
#chroot_list_file=/etc/vsftpd/chroot_list
#
# 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
```

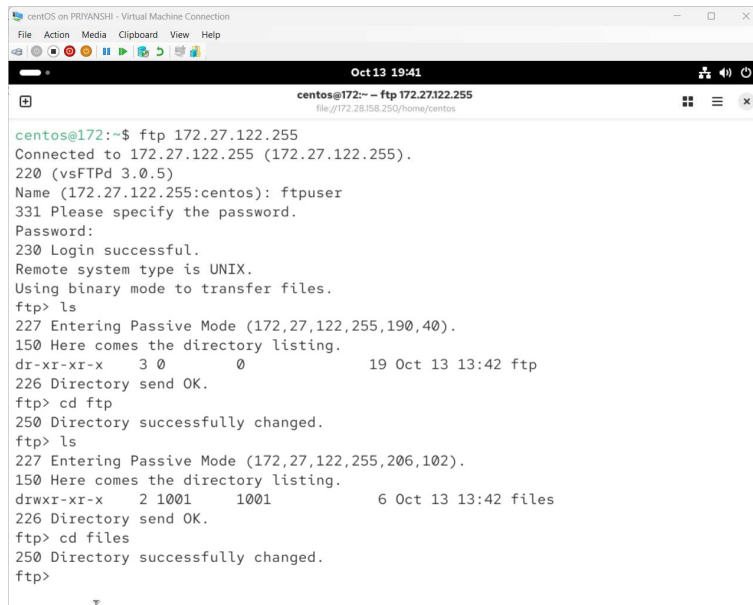
- FTP login from client



The screenshot shows a terminal window titled "centOS on PRIYANSHI - Virtual Machine Connection". The terminal displays the command `centos@172:~$ ftp 172.27.122.255`. The output shows the connection to the remote server, the user name, the password, and the login failure message. The terminal shows the output of the `ftp>` command.

```
centos@172:~$ ftp 172.27.122.255
Connected to 172.27.122.255 (172.27.122.255).
220 (vsFTPD 3.0.5)
Name (172.27.122.255:centos): ftpuser
331 Please specify the password.
Password:
500 OOPS: vsftpd: refusing to run with writable root inside chroot()
Login failed.
421 Service not available, remote server has closed connection
ftp>
```

- File upload confirmation



```
centOS on PRIVANSHI - Virtual Machine Connection
File Action Media Clipboard View Help
Oct 13 19:41
centos@172:~ - ftp 172.27.122.255
file:///172.28.158.250/home/centos

centos@172:~$ ftp 172.27.122.255
Connected to 172.27.122.255 (172.27.122.255).
220 (vsFTPd 3.0.5)
Name (172.27.122.255:centos): ftpuser
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> ls
227 Entering Passive Mode (172,27,122,255,190,40).
150 Here comes the directory listing.
dr-xr-xr-x  3 0      0          19 Oct 13 13:42 ftp
226 Directory send OK.
ftp> cd ftp
250 Directory successfully changed.
ftp> ls
227 Entering Passive Mode (172,27,122,255,206,102).
150 Here comes the directory listing.
drwxr-xr-x  2 1001   1001          6 Oct 13 13:42 files
226 Directory send OK.
ftp> cd files
250 Directory successfully changed.
ftp>
```

Upload a file from client → server

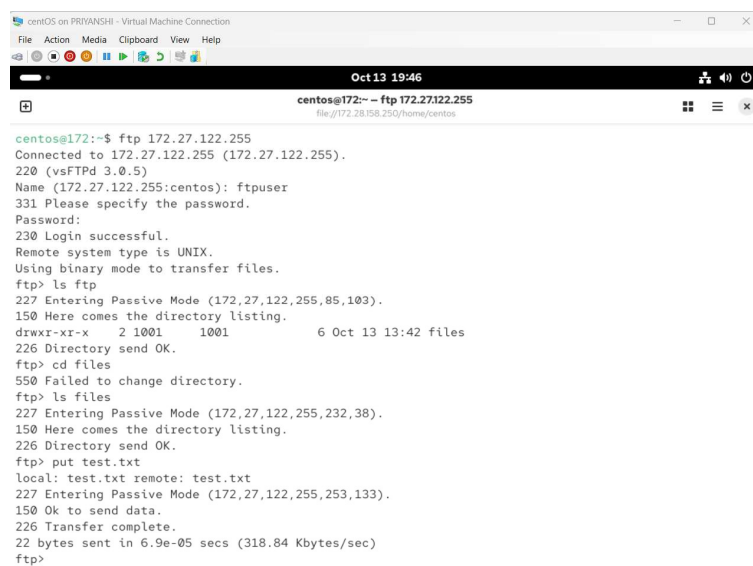
- Create one file on client machine than upload it into FTP server [172.27.122.255]:



```
centOS on PRIVANSHI - Virtual Machine Connection
File Action Media Clipboard View Help
Oct 13 19:44
centos@172:~
file:///172.28.158.250/home/centos

centos@172:~$ echo "Hello I am FTP client" > test.txt
centos@172:~$
```

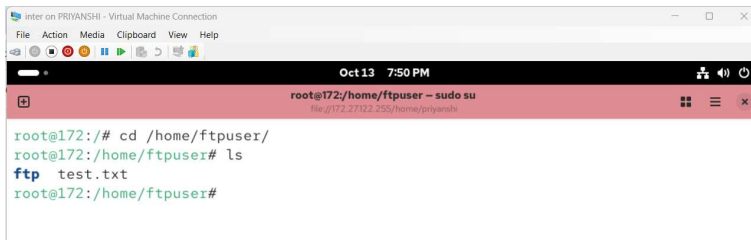
Put test.txt



```
centOS on PRIVANSHI - Virtual Machine Connection
File Action Media Clipboard View Help
Oct 13 19:46
centos@172:~ - ftp 172.27.122.255
file:///172.28.158.250/home/centos

centos@172:~$ ftp 172.27.122.255
Connected to 172.27.122.255 (172.27.122.255).
220 (vsFTPd 3.0.5)
Name (172.27.122.255:centos): ftpuser
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> ls ftp
227 Entering Passive Mode (172,27,122,255,85,103).
150 Here comes the directory listing.
drwxr-xr-x  2 1001   1001          6 Oct 13 13:42 files
226 Directory send OK.
ftp> cd files
550 Failed to change directory.
ftp> ls files
227 Entering Passive Mode (172,27,122,255,232,38).
150 Here comes the directory listing.
226 Directory send OK.
ftp> put test.txt
local: test.txt remote: test.txt
227 Entering Passive Mode (172,27,122,255,253,133).
150 Ok to send data.
226 Transfer complete.
22 bytes sent in 6.9e-05 secs (318.84 Kbytes/sec)
ftp>
```

On FTP server [172.27.122.255]:

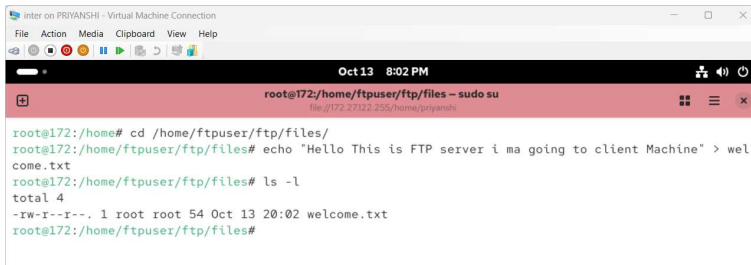


The screenshot shows a terminal window titled "Enter on PRIYANSHI - Virtual Machine Connection". The terminal displays the following commands and output:

```
root@172:/# cd /home/ftpuser/
root@172:/home/ftpuser# ls
ftp test.txt
root@172:/home/ftpuser#
```

Download a file from server → client [On FTP server: 172.27.122.255]

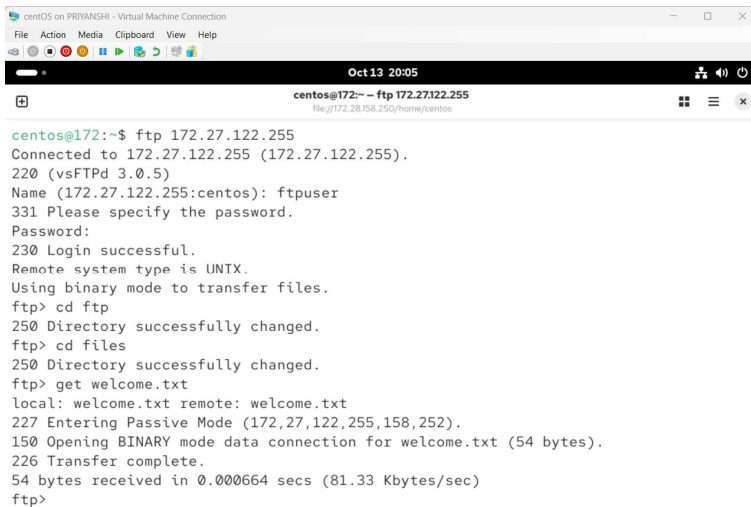
- Create a file on FTP server and download it on client machine



The screenshot shows a terminal window titled "Enter on PRIYANSHI - Virtual Machine Connection". The terminal displays the following commands and output:

```
root@172:/home/ftpuser/ftp/files - sudo su
root@172:/home/ftpuser/ftp/files# echo "Hello This is FTP server i ma going to client Machine" > welcome.txt
root@172:/home/ftpuser/ftp/files# ls -l
total 4
-rw-r--r--. 1 root root 54 Oct 13 20:02 welcome.txt
root@172:/home/ftpuser/ftp/files#
```

On client:



The screenshot shows a terminal window titled "centOS on PRIYANSHI - Virtual Machine Connection". The terminal displays the following commands and output:

```
centos@172:~$ ftp 172.27.122.255
Connected to 172.27.122.255 (172.27.122.255).
220 (vsFTPd 3.0.5)
Name (172.27.122.255:centos): ftpuser
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> cd ftp
250 Directory successfully changed.
ftp> cd files
250 Directory successfully changed.
ftp> get welcome.txt
local: welcome.txt remote: welcome.txt
227 Entering Passive Mode (172,27,122,255,158,252).
150 Opening BINARY mode data connection for welcome.txt (54 bytes).
226 Transfer complete.
54 bytes received in 0.000664 secs (81.33 Kbytes/sec)
ftp>
```



The screenshot shows a terminal window titled "centOS on PRIYANSHI - Virtual Machine Connection". The terminal displays the following commands and output:

```
centos@172:~$ ls -l
total 4
drwxr-xr-x. 2 centos centos 6 Oct 3 13:20 Desktop
drwxr-xr-x. 2 centos centos 6 Oct 3 13:20 Documents
drwxr-xr-x. 2 centos centos 6 Oct 3 13:20 Downloads
drwxr-xr-x. 2 centos centos 6 Oct 3 13:20 Music
drwxr-xr-x. 2 centos centos 6 Oct 3 13:20 Pictures
drwxr-xr-x. 2 centos centos 6 Oct 3 13:20 Public
drwxr-xr-x. 2 centos centos 6 Oct 3 13:20 Templates
drwxr-xr-x. 2 centos centos 6 Oct 3 13:20 Videos
-rw-r--r--. 1 centos centos 54 Oct 13 20:05 welcome.txt
centos@172:~$
```

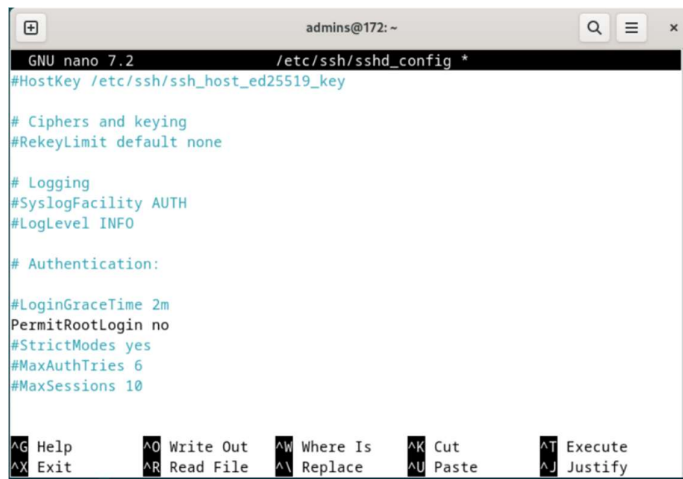
5. Security Hardening (Explanation + Screenshot Areas)

Steps Performed

- Disabled root SSH login
- Allowed only necessary firewall ports
- Installed Fail2ban for brute-force protection
- Protected directories and FTP users
- Enabled automatic service startup

Screenshots:

- /etc/ssh/sshd_config showing PermitRootLogin no



```
admins@172: ~
GNU nano 7.2 /etc/ssh/sshd_config *
#HostKey /etc/ssh/ssh_host_ed25519_key

# Ciphers and keying
#RekeyLimit default none

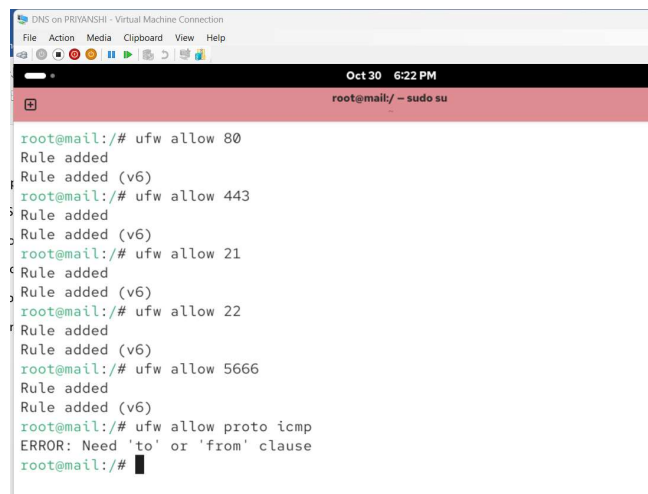
# Logging
#SyslogFacility AUTH
#LogLevel INFO

# Authentication:

#LoginGraceTime 2m
PermitRootLogin no
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10

^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute
^X Exit      ^R Read File ^N Replace   ^U Paste     ^J Justify
```

- Firewall rules (ufw/nftables output)



```
DNS on PRIVANSHI - Virtual Machine Connection
File Action Media Clipboard View Help
Oct 30 6:22 PM
root@mail:~ - sudo su

root@mail:/# ufw allow 80
Rule added
Rule added (v6)
root@mail:/# ufw allow 443
Rule added
Rule added (v6)
root@mail:/# ufw allow 21
Rule added
Rule added (v6)
root@mail:/# ufw allow 22
Rule added
Rule added (v6)
root@mail:/# ufw allow 5666
Rule added
Rule added (v6)
root@mail:/# ufw allow proto icmp
ERROR: Need 'to' or 'from' clause
root@mail:/#
```

sudo ufw status numbered

```
DNS on PRIVANSHI - Virtual Machine Connection
File Action Media Clipboard View Help
Oct 30 6:24 PM
root@mail:/ - sudo su

root@mail:/# ufw status numbered
Status: active

      To      Action      From
      --      -
[ 1] SSH      ALLOW IN    Anywhere
[ 2] 224.0.0.251 mDNS ALLOW IN    Anywhere
[ 3] 80        ALLOW IN    Anywhere
[ 4] 443       ALLOW IN    Anywhere
[ 5] 21        ALLOW IN    Anywhere
[ 6] 22        ALLOW IN    Anywhere
[ 7] 5666      ALLOW IN    Anywhere
[ 8] SSH (v6)  ALLOW IN    Anywhere (v6)
[ 9] ff02::fb mDNS ALLOW IN    Anywhere (v6)
[10] 80 (v6)   ALLOW IN    Anywhere (v6)
[11] 443 (v6)  ALLOW IN    Anywhere (v6)
[12] 21 (v6)   ALLOW IN    Anywhere (v6)
[13] 22 (v6)   ALLOW IN    Anywhere (v6)
[14] 5666 (v6) ALLOW IN    Anywhere (v6)

root@mail:/#
```

```
DNS on PRIVANSHI - Virtual Machine Connection
File Action Media Clipboard View Help
Oct 30 6:27 PM
root@mail:/ - sudo su

root@mail:/# ufw status numbered
Status: active

      To      Action      From
      --      -
[ 1] SSH      ALLOW IN    Anywhere
[ 2] 224.0.0.251 mDNS ALLOW IN    Anywhere
[ 3] 80        ALLOW IN    Anywhere
[ 4] 443       ALLOW IN    Anywhere
[ 5] 21        ALLOW IN    Anywhere
[ 6] 22        ALLOW IN    Anywhere
[ 7] 5666      ALLOW IN    Anywhere
[ 8] ff02::fb mDNS ALLOW IN    Anywhere (v6)
[ 9] 80 (v6)   ALLOW IN    Anywhere (v6)
[10] 443 (v6)  ALLOW IN    Anywhere (v6)
[11] 21 (v6)   ALLOW IN    Anywhere (v6)
[12] 22 (v6)   ALLOW IN    Anywhere (v6)
[13] 5666 (v6) ALLOW IN    Anywhere (v6)

root@mail:/# ufw delete 4
Deleting:
  allow 443
Proceed with operation (y|n)? y
Rule deleted
root@mail:/# ufw delete 6
Deleting:
  allow 5666
Proceed with operation (y|n)? y
Rule deleted
```