FTP

Experiment : 3

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

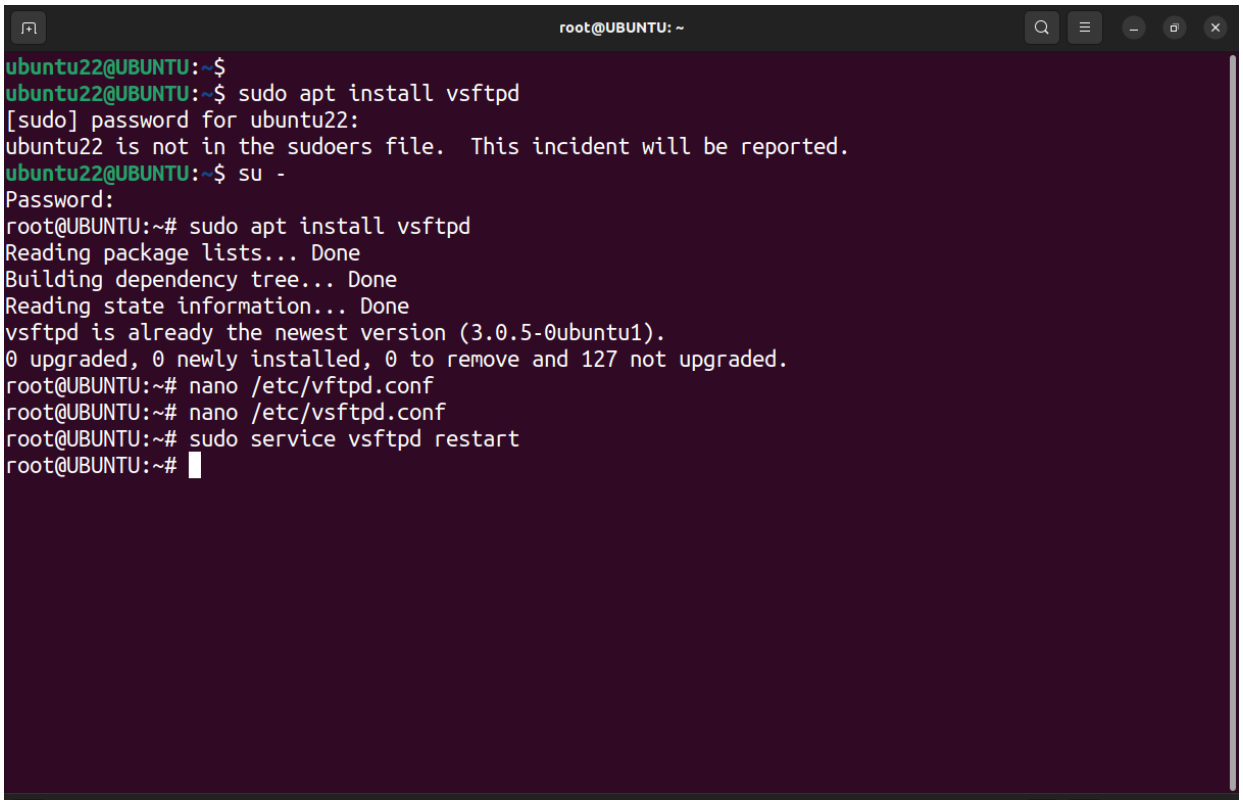
$sudo service vsftpd status

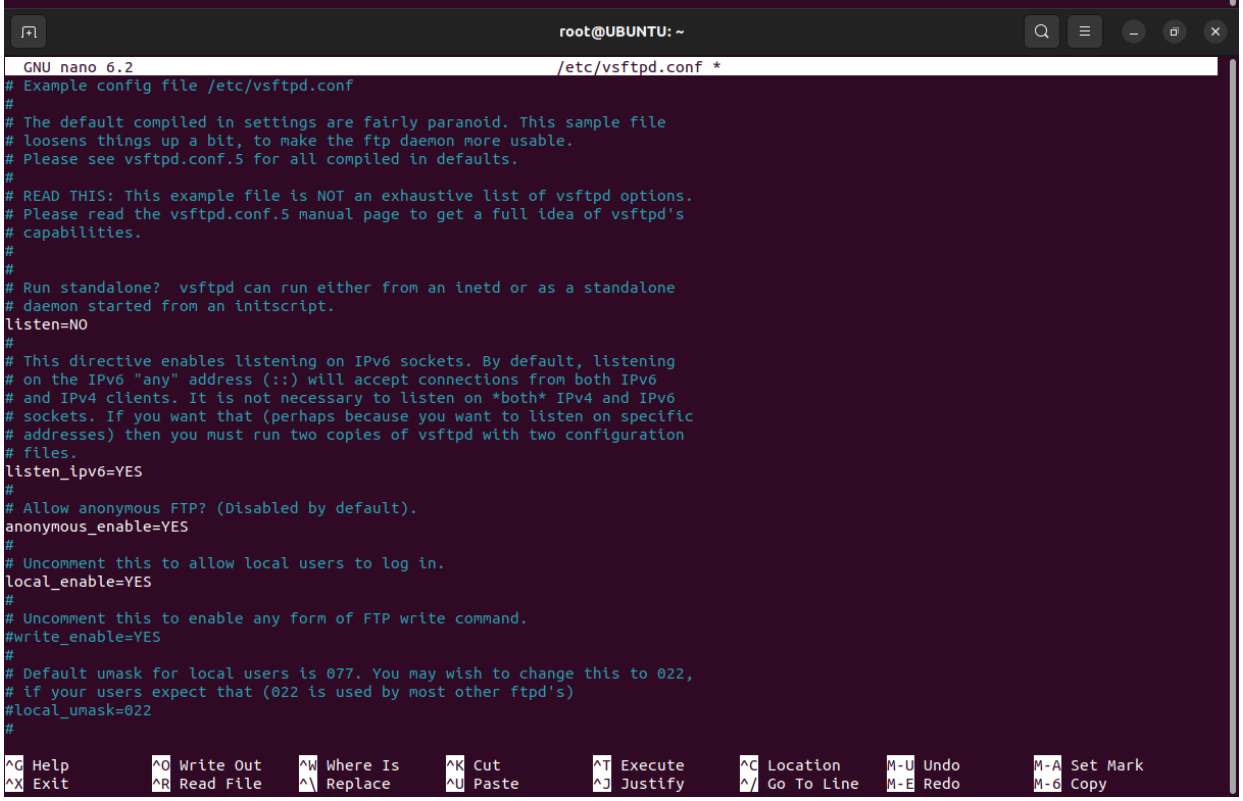
12. Now connect to ftp by the command

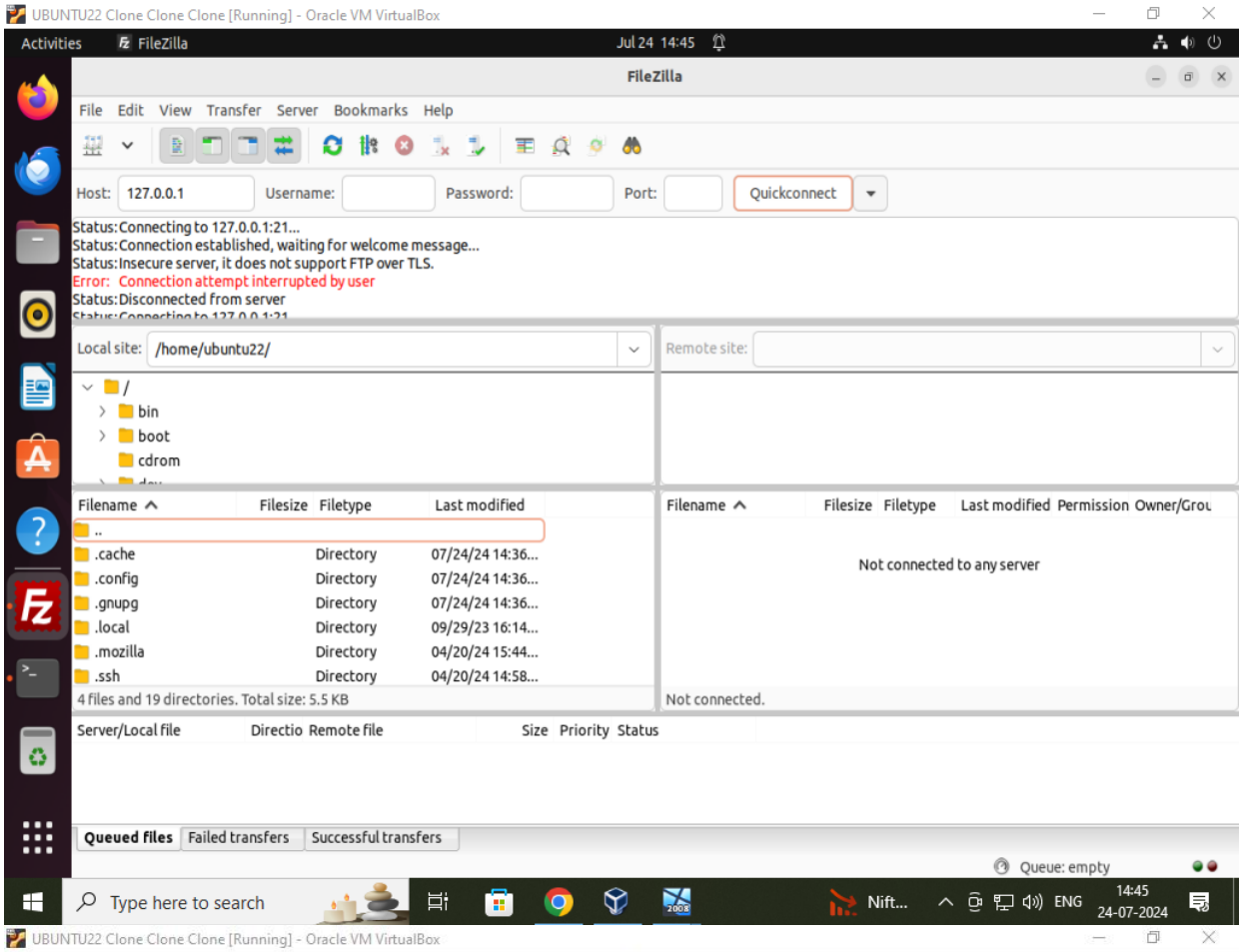
$ftp -p 192.168.234.128

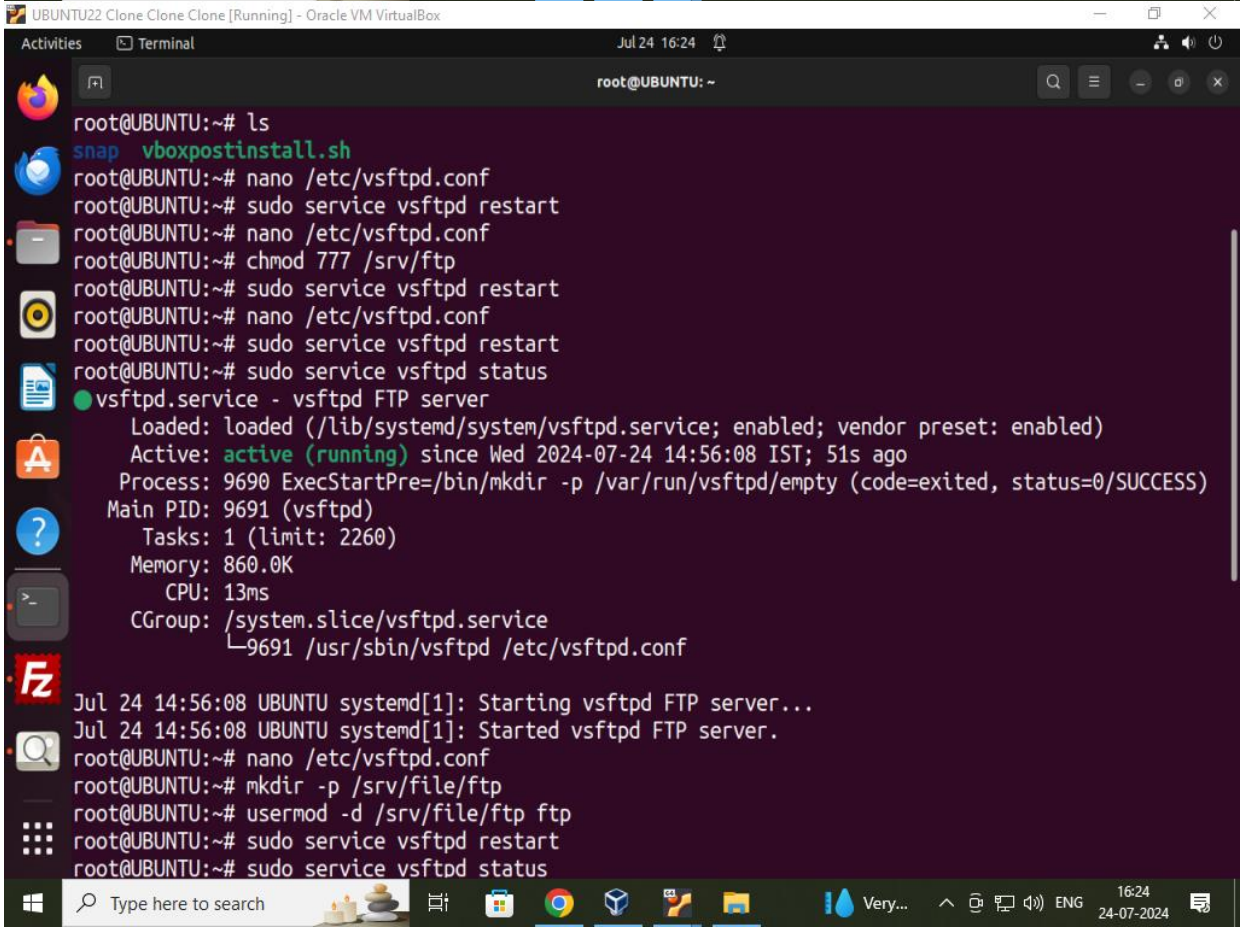
13. Now install filezilla in ubuntu and open the filezilla and specify the ip addressand port number of the ftp server then click connect

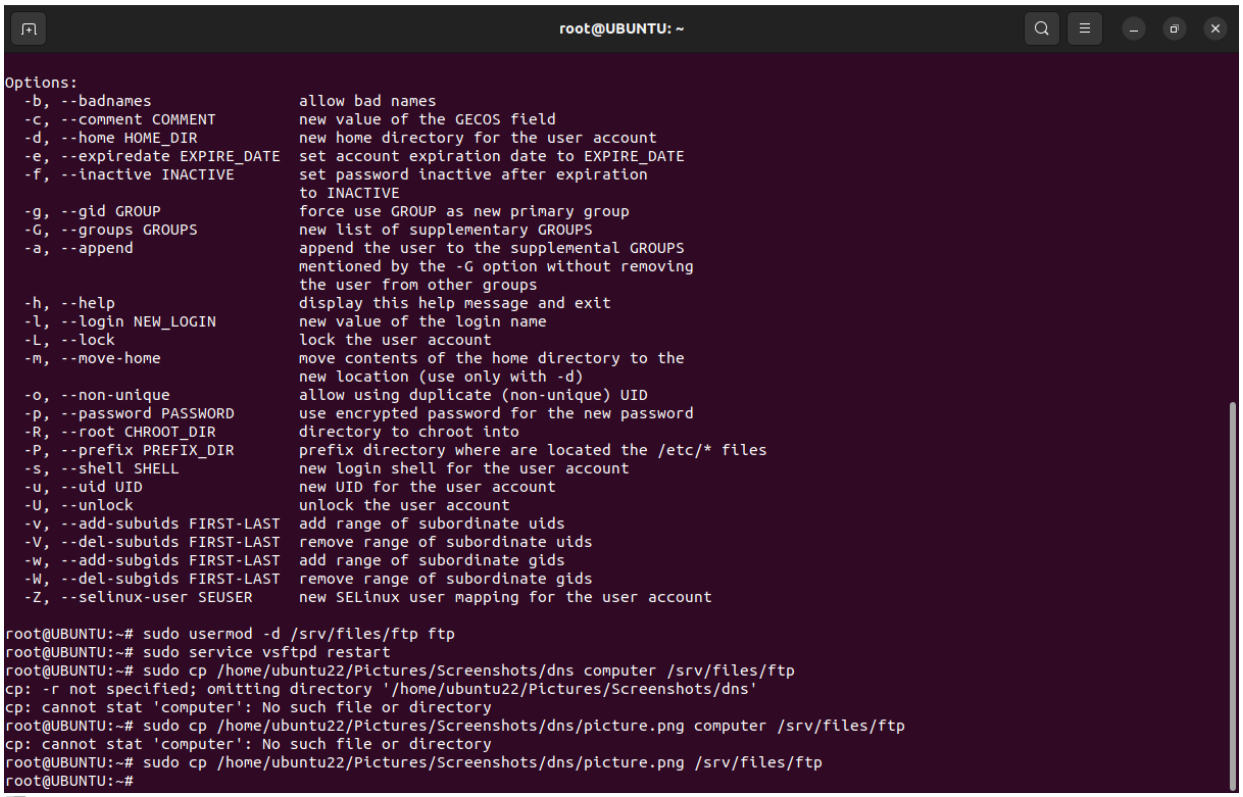
Result:

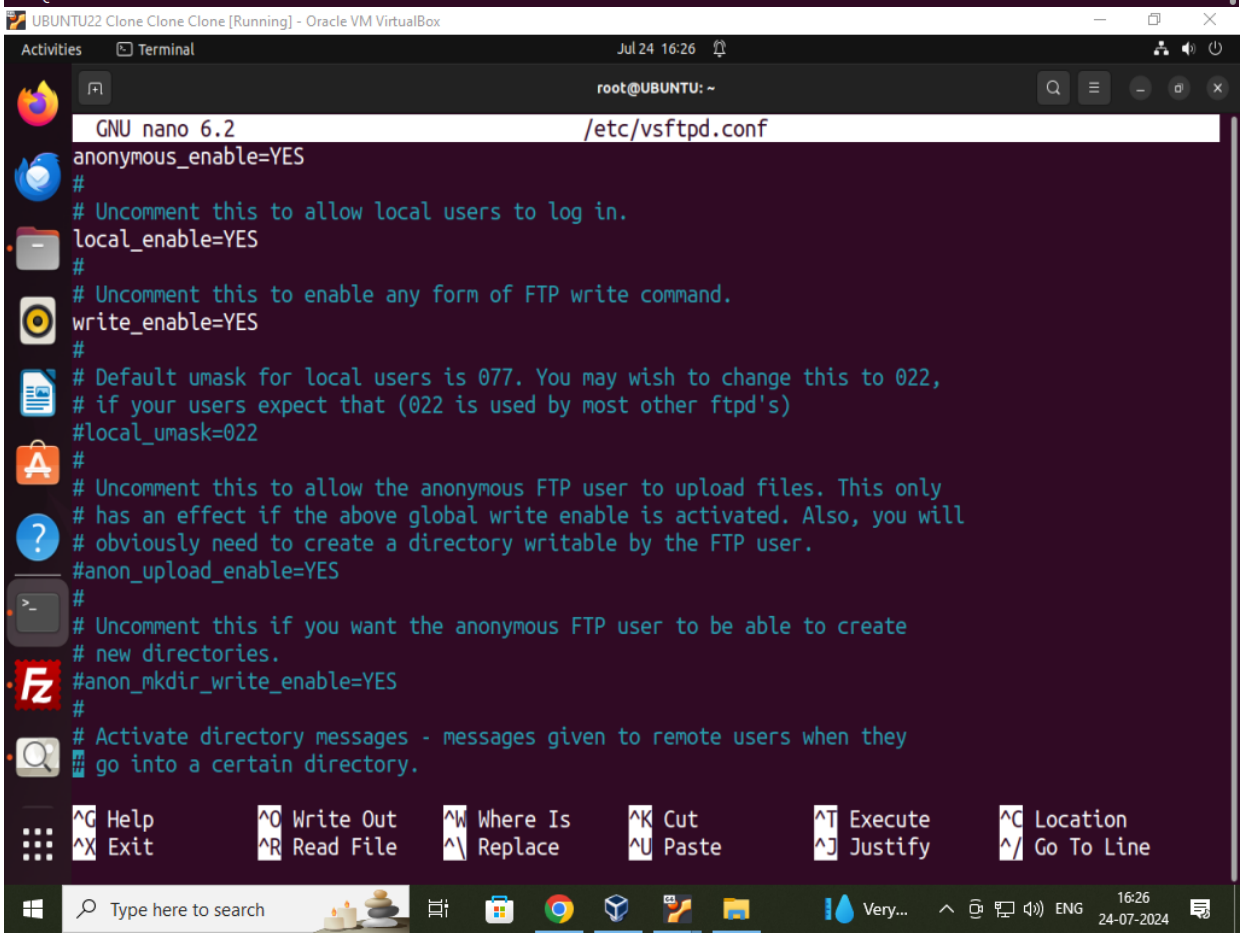

root@UBUNTU: ~
ubuntu22@UBUNTU:~$
ubuntu22@UBUNTU:~$ sudo apt install vsftpd
[sudo] password for ubuntu22:
ubuntu22 is not in the sudoers file. This incident will be reported.
ubuntu22@UBUNTU:~$ su -
Password:
root@UBUNTU:~# sudo apt install vsftpd
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
vsftpd is already the newest version (3.0.5-0ubuntu1).
0 upgraded, 0 newly installed, 0 to remove and 127 not upgraded.
root@UBUNTU:~# nano /etc/vftpd.conf
root@UBUNTU:~# nano /etc/vsftpd.conf
root@UBUNTU:~# sudo service vsftpd restart
root@UBUNTU:~#

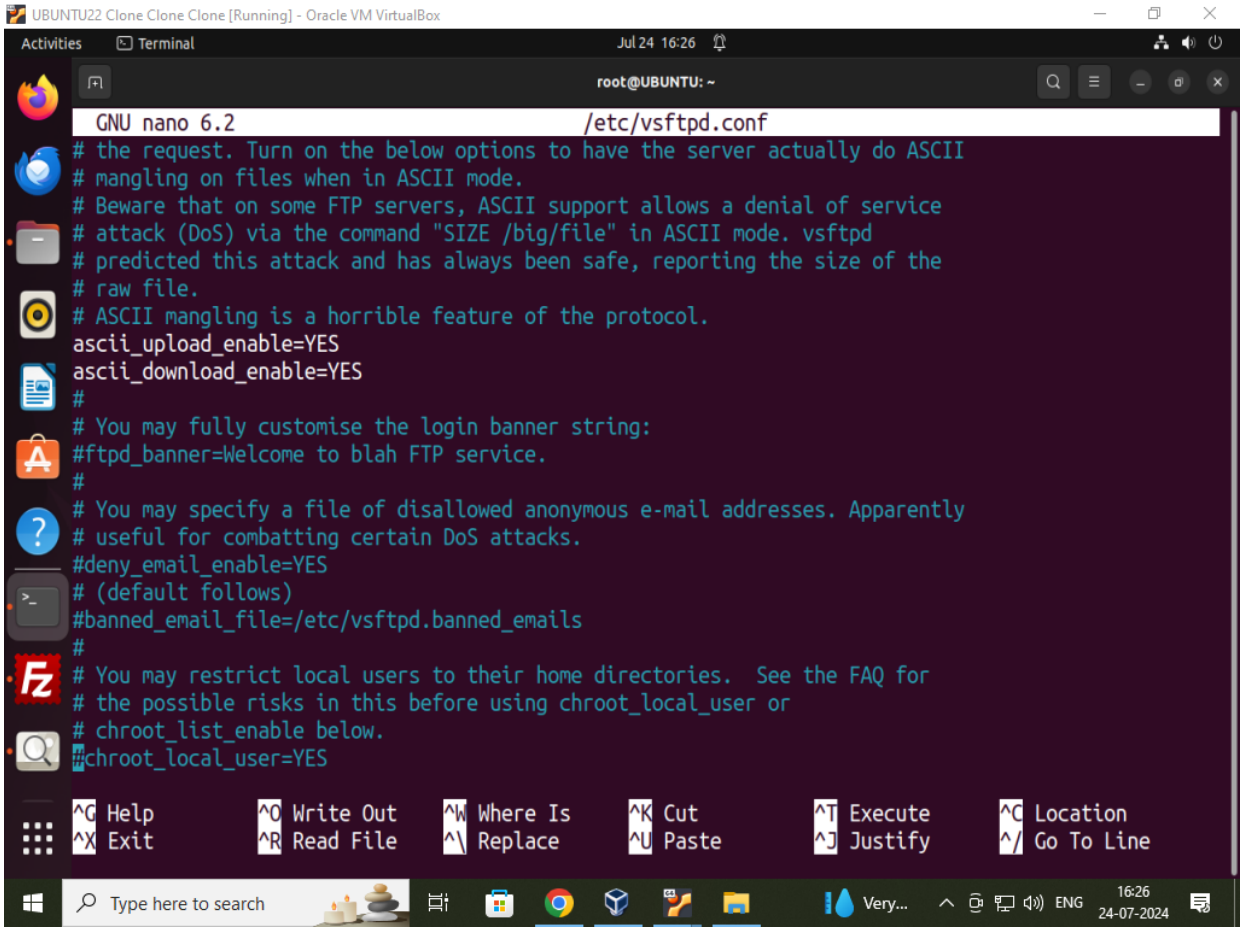

root@UBUNTU: ~
GNU nano 6.2 /etc/vsftpd.conf *
Example config file /etc/vsftpd.conf
#
The default compiled in settings are fairly paranoid. This sample file
loosens things up a bit, to make the ftp daemon more usable.
Please see vsftpd.conf.5 for all compiled in defaults.
#
READ THIS: This example file 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=YES
#
# 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
#
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo M-A Set Mark
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line M-E Redo M-6 Copy

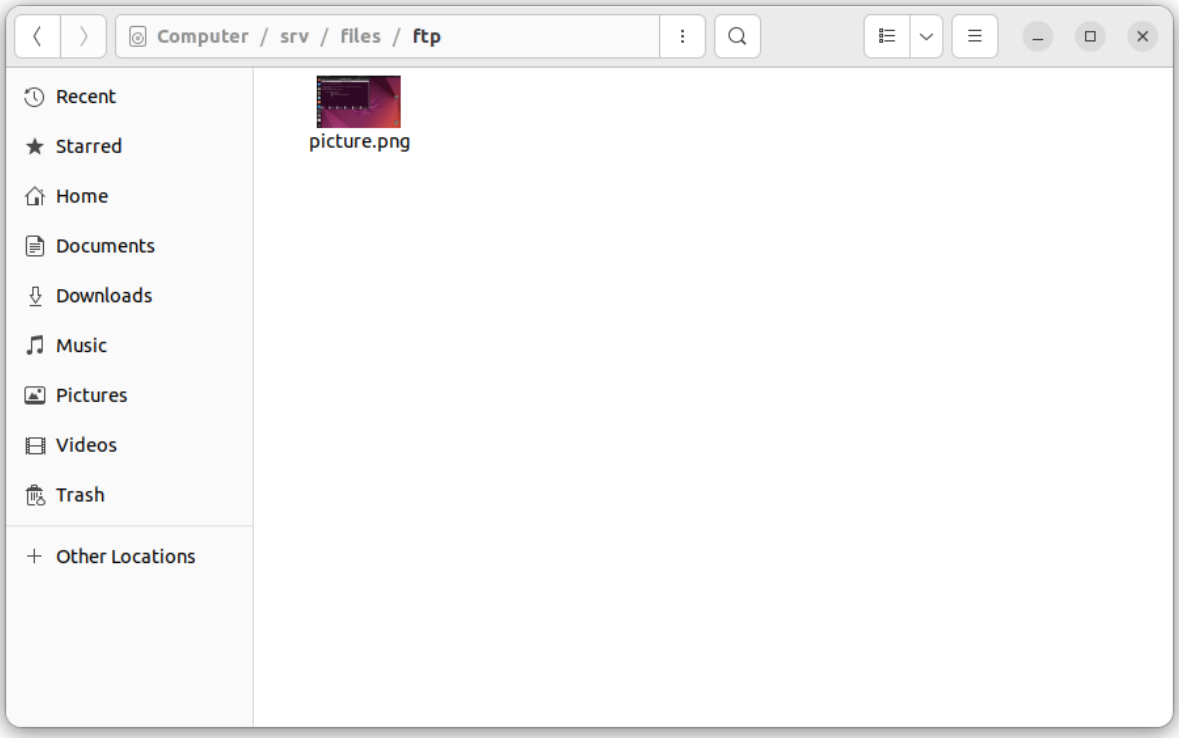

UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox
Activities
FileZilla
Jul 24 14:45
FileZilla
File Edit View Transfer Server Bookmarks Help
Host: 127.0.0.1
Username:
Password:
Port:
Quickconnect
Status: Connecting to 127.0.0.1:21...
Status: Connection established, waiting for welcome message...
Status: Insecure server, it does not support FTP over TLS.
Error: Connection attempt interrupted by user
Status: Disconnected from server
Local site: /home/ubuntu22/
Remote site:
/
bin
boot
cdrom
Filename Filesize Filetype Last modified
.cache Directory 07/24/24 14:36...
.config Directory 07/24/24 14:36...
.gnupg Directory 07/24/24 14:36...
.local Directory 09/29/23 16:14...
.mozilla Directory 04/20/24 15:44...
.ssh Directory 04/20/24 14:58...
4 files and 19 directories. Total size: 5.5 KB
Filename Filesize Filetype Last modified Permission Owner/Grou
Not connected to any server
Not connected.
Server/Local file Directio Remote file Size Priority Status
Queued files
Failed transfers
Successful transfers
Queue: empty
Type here to search
Nift...
ENG
14:45
24-07-2024

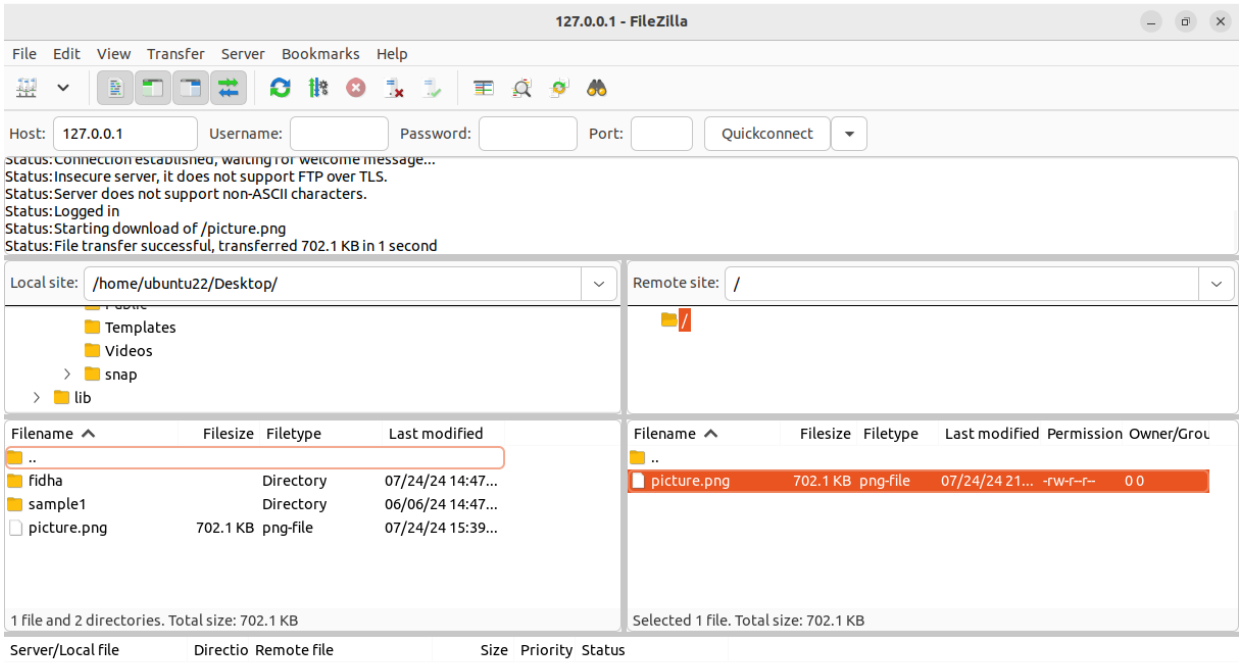

UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox
Activities
Terminal
Jul 24 16:24
root@UBUNTU: ~
root@UBUNTU:~# ls
snap vboxpostinstall.sh
root@UBUNTU:~# nano /etc/vsftpd.conf
root@UBUNTU:~# sudo service vsftpd restart
root@UBUNTU:~# nano /etc/vsftpd.conf
root@UBUNTU:~# chmod 777 /srv/ftp
root@UBUNTU:~# sudo service vsftpd restart
root@UBUNTU:~# nano /etc/vsftpd.conf
root@UBUNTU:~# sudo service vsftpd restart
root@UBUNTU:~# 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 2024-07-24 14:56:08 IST; 51s ago
Process: 9690 ExecStartPre=/bin/mkdir -p /var/run/vsftpd/empty (code=exited, status=0/SUCCESS)
Main PID: 9691 (vsftpd)
Tasks: 1 (limit: 2260)
Memory: 860.0K
CPU: 13ms
CGroup: /system.slice/vsftpd.service
└─9691 /usr/sbin/vsftpd /etc/vsftpd.conf
Jul 24 14:56:08 UBUNTU systemd[1]: Starting vsftpd FTP server...
Jul 24 14:56:08 UBUNTU systemd[1]: Started vsftpd FTP server.
root@UBUNTU:~# nano /etc/vsftpd.conf
root@UBUNTU:~# mkdir -p /srv/file/ftp
root@UBUNTU:~# usermod -d /srv/file/ftp ftp
root@UBUNTU:~# sudo service vsftpd restart
root@UBUNTU:~# sudo service vsftpd status
Type here to search
Very...
ENG
16:24
24-07-2024

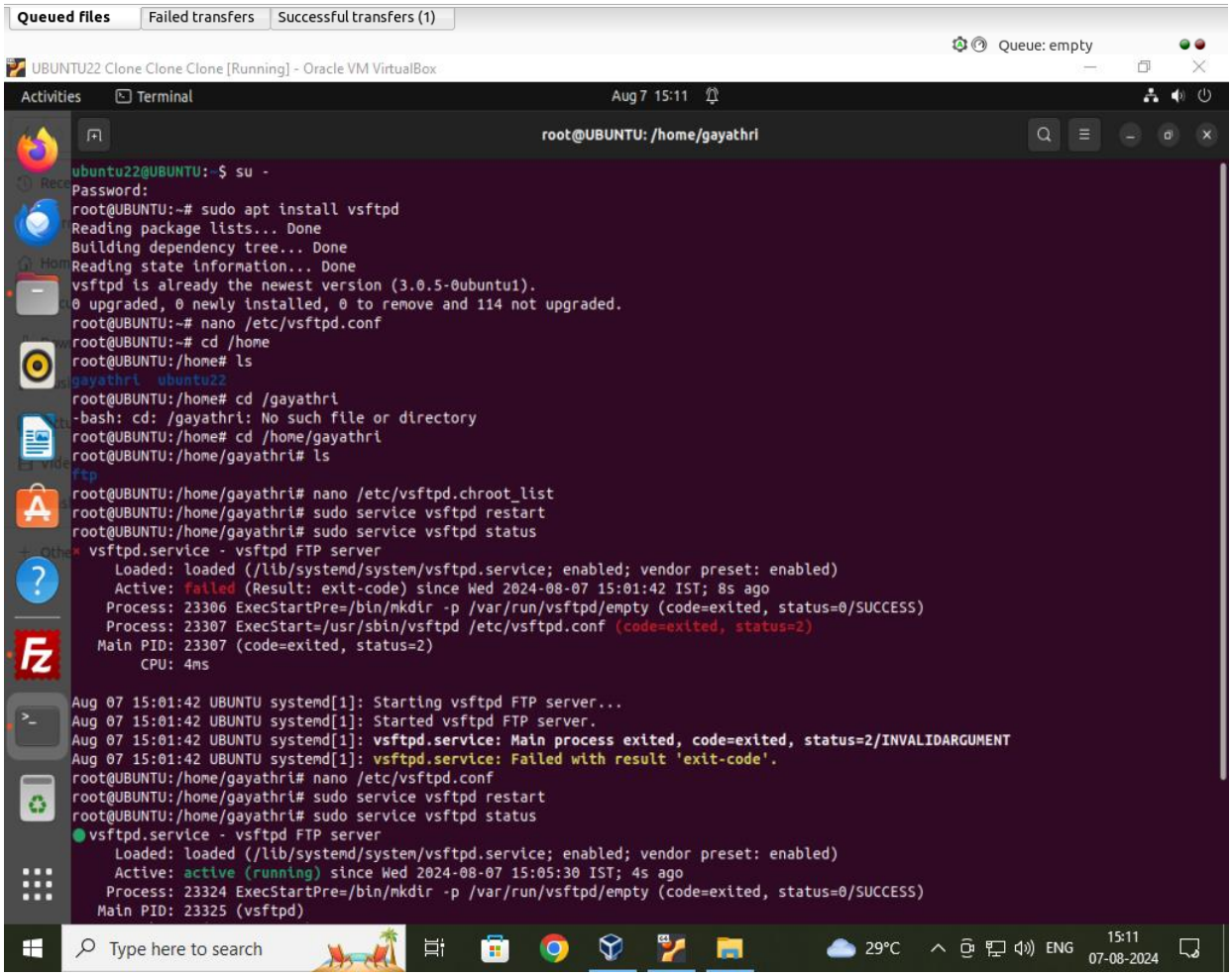

root@UBUNTU: ~
Options:
-b, --badnames allow bad names
-c, --comment COMMENT new value of the GECOS field
-d, --home HOME_DIR new home directory for the user account
-e, --expiredate EXPIRE_DATE set account expiration date to EXPIRE_DATE
-f, --inactive INACTIVE set password inactive after expiration
to INACTIVE
-g, --gid GROUP force use GROUP as new primary group
-G, --groups GROUPS new list of supplementary GROUPS
-a, --append append the user to the supplemental GROUPS
mentioned by the -G option without removing
the user from other groups
-h, --help display this help message and exit
-l, --login NEW_LOGIN new value of the login name
-L, --lock lock the user account
-m, --move-home move contents of the home directory to the
new location (use only with -d)
-o, --non-unique allow using duplicate (non-unique) UID
-p, --password PASSWORD use encrypted password for the new password
-R, --root CHROOT_DIR directory to chroot into
-P, --prefix PREFIX_DIR prefix directory where are located the /etc/* files
-s, --shell SHELL new login shell for the user account
-u, --uid UID new UID for the user account
-U, --unlock unlock the user account
-v, --add-subuids FIRST-LAST add range of subordinate uids
-V, --del-subuids FIRST-LAST remove range of subordinate uids
-w, --add-subgids FIRST-LAST add range of subordinate gids
-W, --del-subgids FIRST-LAST remove range of subordinate gids
-Z, --selinux-user SEUSER new SELinux user mapping for the user account
root@UBUNTU:~# sudo usermod -d /srv/files/ftp ftp
root@UBUNTU:~# sudo service vsftpd restart
root@UBUNTU:~# sudo cp /home/ubuntu22/Pictures/Screenshots/dns computer /srv/files/ftp
cp: -r not specified; omitting directory '/home/ubuntu22/Pictures/Screenshots/dns'
cp: cannot stat 'computer': No such file or directory
root@UBUNTU:~# sudo cp /home/ubuntu22/Pictures/Screenshots/dns/picture.png computer /srv/files/ftp
cp: cannot stat 'computer': No such file or directory
root@UBUNTU:~# sudo cp /home/ubuntu22/Pictures/Screenshots/dns/picture.png /srv/files/ftp
root@UBUNTU:~#

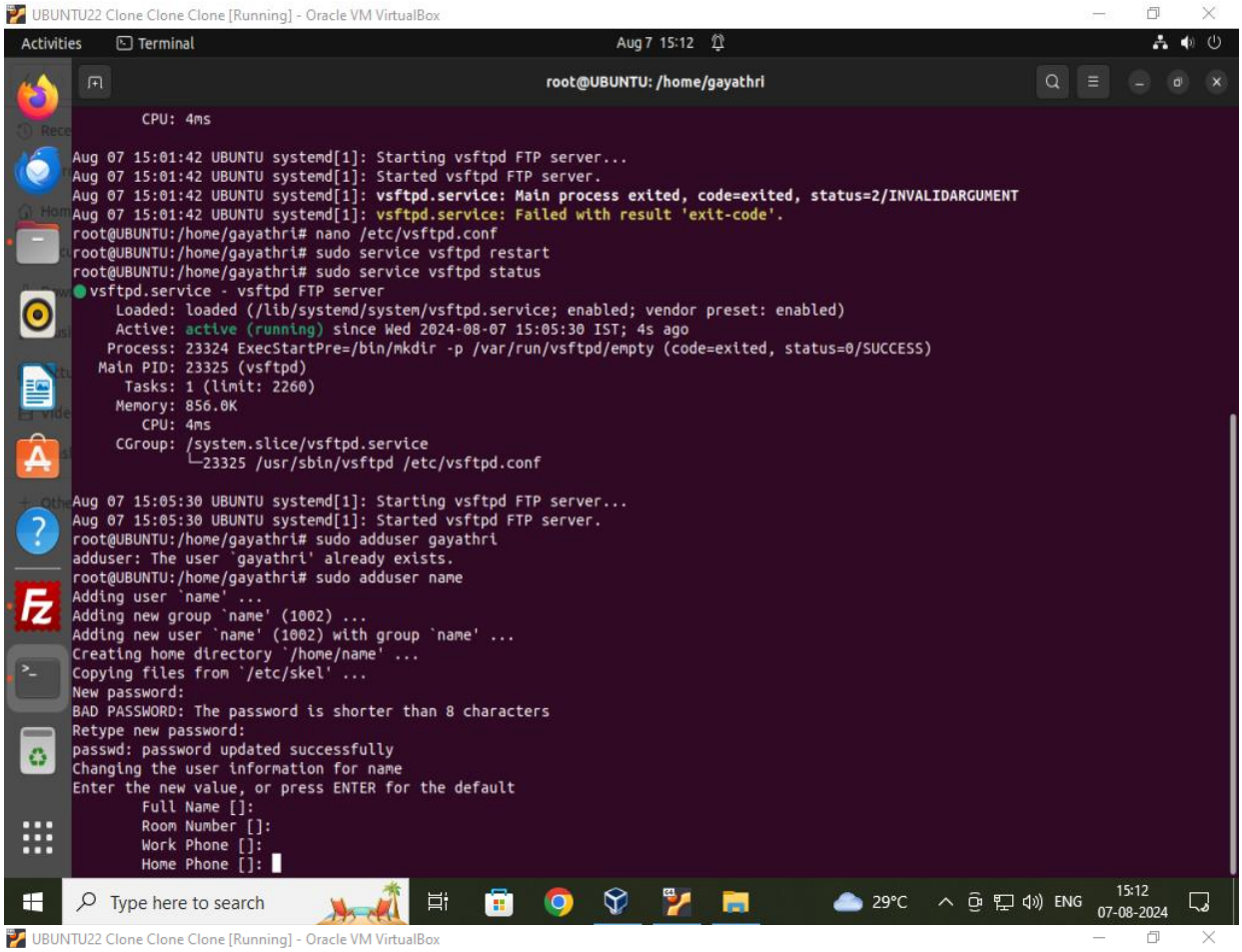

UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox
Activities
Terminal
Jul 24 16:26
root@UBUNTU: ~
GNU nano 6.2 /etc/vsftpd.conf
anonymous_enable=YES
#
# Uncomment this to allow local users to log in.
local_enable=YES
#
# Uncomment this to enable any form of FTP write command.
write_enable=YES
#
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
obviously need to create a directory writable by the FTP user.
#anon_upload_enable=YES
#
Uncomment this if you want the anonymous FTP user to be able to create
new directories.
#anon_mkdir_write_enable=YES
#
Activate directory messages - messages given to remote users when they
go into a certain directory.
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line
Type here to search
Very...
ENG
16:26
24-07-2024

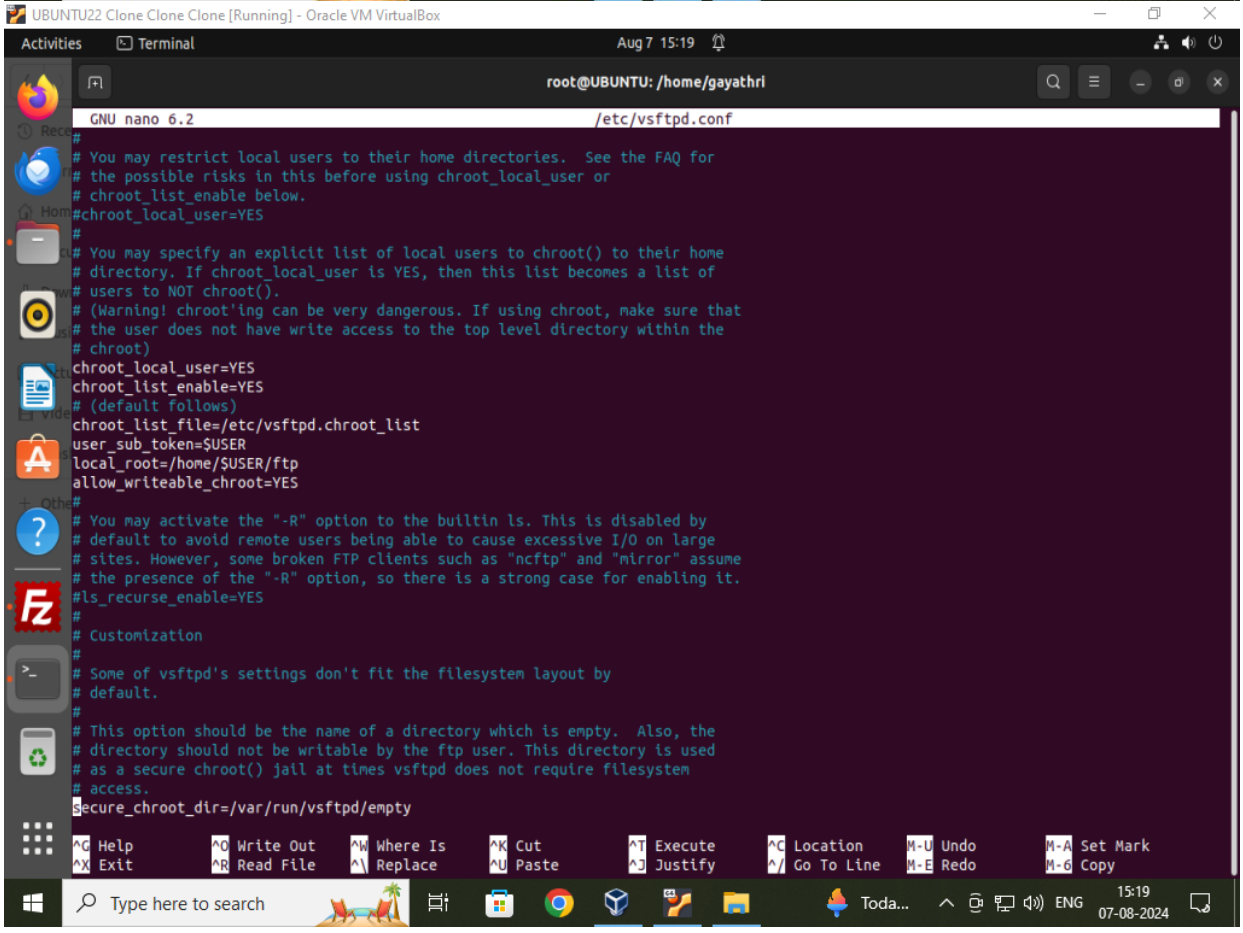

UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox
Activities
Terminal
Jul 24 16:26
root@UBUNTU: ~
GNU nano 6.2 /etc/vsftpd.conf
# the request. Turn on the below options to have the server actually do ASCII
# mangling on files when in ASCII mode.
# Beware that on some FTP servers, ASCII support allows a denial of service
# attack (DoS) via the command "SIZE /big/file" in ASCII mode. vsftpd
# predicted this attack and has always been safe, reporting the size of the
# raw file.
# ASCII mangling is a horrible feature of the protocol.
ascii_upload_enable=YES
ascii_download_enable=YES
#
You may fully customise the login banner string:
#ftpd_banner=Welcome to blah FTP service.
#
You may specify a file of disallowed anonymous e-mail addresses. Apparently
useful for combatting certain DoS attacks.
#deny_email_enable=YES
(default follows)
#banned_email_file=/etc/vsftpd.banned_emails
#
You may restrict local users to their home directories. See the FAQ for
the possible risks in this before using chroot_local_user or
chroot_list_enable below.
#chroot_local_user=YES
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line
Type here to search
Very...
ENG
16:26
24-07-2024

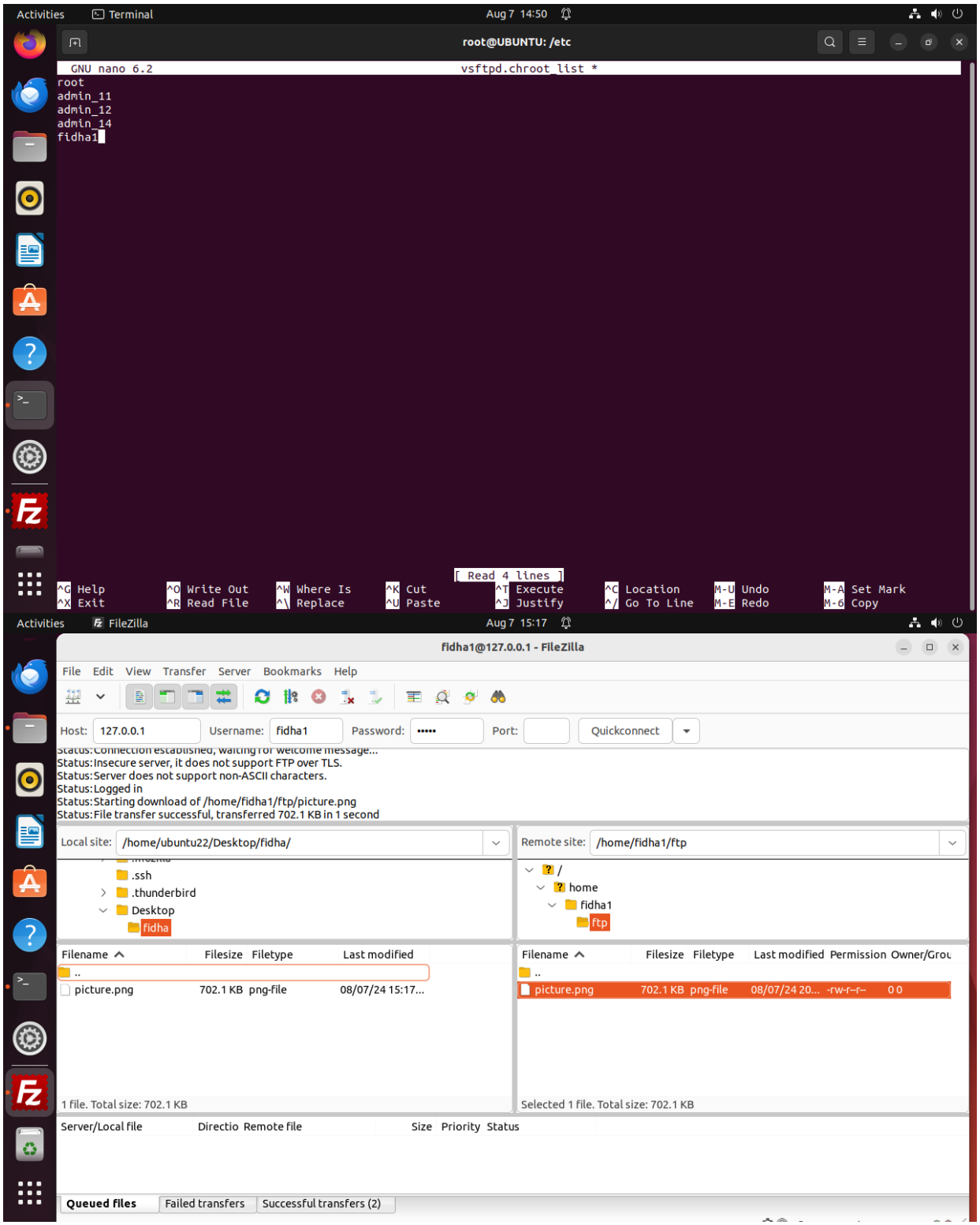

Computer / srv / files / ftp
Recent
Starred
Home
Documents
Downloads
Music
Pictures
Videos
Trash
Other Locations
picture.png


127.0.0.1 - FileZilla
File Edit View Transfer Server Bookmarks Help
Host: 127.0.0.1 Username: Password: Port: Quickconnect
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 /picture.png
Status: File transfer successful, transferred 702.1 KB in 1 second
Local site: /home/ubuntu22/Desktop/
Templates
Videos
snap
lib
Remote site: /
Filename Filesize Filetype Last modified
..
fidha Directory 07/24/24 14:47...
sample1 Directory 06/06/24 14:47...
picture.png 702.1 KB png-file 07/24/24 15:39...
1 file and 2 directories. Total size: 702.1 KB
Filename Filesize Filetype Last modified Permission Owner/Grou
..
picture.png 702.1 KB png-file 07/24/24 21... -rw-r--r-- 0 0
Selected 1 file. Total size: 702.1 KB
Server/Local file Directio Remote file Size Priority Status


Queued files
Failed transfers
Successful transfers (1)
Queue: empty
UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox
Activities
Terminal
Aug 7 15:11
root@UBUNTU: /home/gayathri
ubuntu22@UBUNTU:~$ su -
Password:
root@UBUNTU:~# sudo apt install vsftpd
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
vsftpd is already the newest version (3.0.5-0ubuntu1).
0 upgraded, 0 newly installed, 0 to remove and 114 not upgraded.
root@UBUNTU:~# nano /etc/vsftpd.conf
root@UBUNTU:~# cd /home
root@UBUNTU:/home# ls
gayathri ubuntu22
root@UBUNTU:/home# cd /gayathri
-bash: cd: /gayathri: No such file or directory
root@UBUNTU:/home# cd /home/gayathri
root@UBUNTU:/home/gayathri# ls
ftp
root@UBUNTU:/home/gayathri# nano /etc/vsftpd.chroot_list
root@UBUNTU:/home/gayathri# sudo service vsftpd restart
root@UBUNTU:/home/gayathri# sudo service vsftpd status
vsftpd.service - vsftpd FTP server
Loaded: loaded (/lib/systemd/system/vsftpd.service; enabled; vendor preset: enabled)
Active: failed (Result: exit-code) since Wed 2024-08-07 15:01:42 IST; 8s ago
Process: 23306 ExecStartPre=/bin/mkdir -p /var/run/vsftpd/empty (code=exited, status=0/SUCCESS)
Process: 23307 ExecStart=/usr/sbin/vsftpd /etc/vsftpd.conf (code=exited, status=2)
Main PID: 23307 (code=exited, status=2)
CPU: 4ms
Aug 07 15:01:42 UBUNTU systemd[1]: Starting vsftpd FTP server...
Aug 07 15:01:42 UBUNTU systemd[1]: Started vsftpd FTP server.
Aug 07 15:01:42 UBUNTU systemd[1]: vsftpd.service: Main process exited, code=exited, status=2/INVALIDARGUMENT
Aug 07 15:01:42 UBUNTU systemd[1]: vsftpd.service: Failed with result 'exit-code'.
root@UBUNTU:/home/gayathri# nano /etc/vsftpd.conf
root@UBUNTU:/home/gayathri# sudo service vsftpd restart
root@UBUNTU:/home/gayathri# 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 15:05:30 IST; 4s ago
Process: 23324 ExecStartPre=/bin/mkdir -p /var/run/vsftpd/empty (code=exited, status=0/SUCCESS)
Main PID: 23325 (vsftpd)
Type here to search
29°C
ENG
15:11
07-08-2024


UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox
Activities
Terminal
Aug 7 15:12
root@UBUNTU: /home/gayathri
CPU: 4ms
Aug 07 15:01:42 UBUNTU systemd[1]: Starting vsftpd FTP server...
Aug 07 15:01:42 UBUNTU systemd[1]: Started vsftpd FTP server.
Aug 07 15:01:42 UBUNTU systemd[1]: vsftpd.service: Main process exited, code=exited, status=2/INVALIDARGUMENT
Aug 07 15:01:42 UBUNTU systemd[1]: vsftpd.service: Failed with result 'exit-code'.
root@UBUNTU:/home/gayathri# nano /etc/vsftpd.conf
root@UBUNTU:/home/gayathri# sudo service vsftpd restart
root@UBUNTU:/home/gayathri# 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 15:05:30 IST; 4s ago
Process: 23324 ExecStartPre=/bin/mkdir -p /var/run/vsftpd/empty (code=exited, status=0/SUCCESS)
Main PID: 23325 (vsftpd)
Tasks: 1 (limit: 2260)
Memory: 856.0K
CPU: 4ms
CGroup: /system.slice/vsftpd.service
└─23325 /usr/sbin/vsftpd /etc/vsftpd.conf
Aug 07 15:05:30 UBUNTU systemd[1]: Starting vsftpd FTP server...
Aug 07 15:05:30 UBUNTU systemd[1]: Started vsftpd FTP server.
root@UBUNTU:/home/gayathri# sudo adduser gayathri
adduser: The user `gayathri' already exists.
root@UBUNTU:/home/gayathri# sudo adduser name
Adding user `name' ...
Adding new group `name' (1002) ...
Adding new user `name' (1002) with group `name' ...
Creating home directory `/home/name' ...
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 name
Enter the new value, or press ENTER for the default
Full Name []:
Room Number []:
Work Phone []:
Home Phone []:
Type here to search
29°C
ENG
15:12
07-08-2024


UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox
Activities
Terminal
Aug 7 15:19
root@UBUNTU: /home/gayathri
GNU nano 6.2 /etc/vsftpd.conf
You may restrict local users to their home directories. See the FAQ for
the possible risks in this before using chroot_local_user or
chroot_list_enable below.
#chroot_local_user=YES
# 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
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
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo M-A Set Mark
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line M-E Redo M-6 Copy
Type here to search
Toda...
ENG
15:19
07-08-2024



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