Experiment 3: FTP

AIM:

To create and configure FTP Server

DESCRIPTION:

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:

```
  GNU nano 8.1                                                        /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
#
# 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.
dirmessage_enable=YES

^G Help       ^O Write Out   ^W Where Is    ^K Cut         ^T Execute     M-U Undo       M-A Set Mark   M-] To Bracket   M-Q Previous   ^B Back        ^P Prev Word   ^ Home
^X Exit       ^R Read File   ^\ Replace     ^U Paste       ^J Justify     ^/ Go To Line  M-E Redo       M-G Copy       ^ Where Was     M- Next        ^F Forward     ^ Next Word   ^ End
```



```
     Active: active (running) since Mon 2024-09-09 04:15:21 EDT; 21s ago
 Invocation: 40a471113aa64afe8f5ee838dac236cf
    Process: 14740 ExecStartPre=/bin/mkdir -p /var/run/vsftpd/empty (code-exited, status=0/SUCCESS)
   Main PID: 14741 (vsftpd)
      Tasks: 1 (limit: 2268)
     Memory: 780K (peak: 1.7M)
        CPU: 14ms
     CGroup: /system.slice/vsftpd.service
             └─14741 /usr/sbin/vsftpd /etc/vsftpd.conf

Sep 09 04:15:21 kali systemd[1]: Starting vsftpd.service - vsftpd FTP server ...
Sep 09 04:15:21 kali systemd[1]: Started vsftpd.service - vsftpd FTP server.

┌──(kali@kali)-[/srv/ftp]
└─$ cd /

┌──(kali@kali)-[/]
└─$ cd /srv/ftp

┌──(kali@kali)-[/srv/ftp]
└─$ rm finan
rm: cannot remove 'finan': Is a directory

┌──(kali@kali)-[/srv/ftp]
└─$ sudo rm finan
rm: cannot remove 'finan': Is a directory

┌──(kali@kali)-[/srv/ftp]
└─$ sudo rmdir finan

┌──(kali@kali)-[/srv/ftp]
└─$ sudo service vsftpd restart

┌──(kali@kali)-[/srv/ftp]
└─$ sudo nano /etc/vsftpd.conf

┌──(kali@kali)-[/srv/ftp]
└─$ sudo service vsftpd restart

┌──(kali@kali)-[/srv/ftp]
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┌──(kali@kali)-[/srv/ftp]
└─$ sudo service vsftpd restart

┌──(kali@kali)-[/srv/ftp]
└─$ cd /

┌──(kali@kali)-[/]
└─$ sudo mkdir -p /srv/file/ftp
```

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┌──(kali@kali)-[/srv/ftp]
└─$ sudo service vsftpd restart

┌──(kali@kali)-[/srv/ftp]
└─$ cd /

┌──(kali@kali)-[/]
└─$ sudo mkdir -p /srv/file/ftp

┌──(kali@kali)-[/]
└─$ usermod -d /srv/file/ftp ftp
```

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┌──(kali@kali)-[/srv/ftp]
└─$ sudo rm finan
rm: cannot remove 'finan': Is a directory

┌──(kali@kali)-[/srv/ftp]
└─$ sudo rmdir finan

┌──(kali@kali)-[/srv/ftp]
└─$ sudo service vsftpd restart

┌──(kali@kali)-[/srv/ftp]
└─$ sudo nano /etc/vsftpd.conf

┌──(kali@kali)-[/srv/ftp]
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┌──(kali@kali)-[/srv/ftp]
└─$ sudo service vsftpd restart

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└─$ cd /

┌──(kali@kali)-[/]
└─$ sudo mkdir -p /srv/file/ftp

┌──(kali@kali)-[/]
└─$ usermod -d /srv/file/ftp ftp
usermod: Permission denied.
usermod: cannot lock /etc/passwd; try again later.

┌──(kali@kali)-[/]
└─$ sudo usermod -d /srv/file/ftp ftp

┌──(kali@kali)-[/]
└─$ sudo service vsftpd restart

┌──(kali@kali)-[/]
└─$ cd /srv/file/ftp

┌──(kali@kali)-[/srv/file/ftp]
└─$ sudo mkdir finan

┌──(kali@kali)-[/srv/file/ftp]
└─$ sudo service vsftpd restart

┌──(kali@kali)-[/srv/file/ftp]
└─$ sudo cp /home/kali/Desktop/sos/finan.png /srv/file/ftp/finan
```

```
Sep 09 03:55:16 kali systemd[1]: Started vsftpd.service - vsftpd FTP server.
┌──(kali@kali)-[~]
└─$ sudo service vsftpd restart

┌──(kali@kali)-[~]
└─$ sudo service vsftpd enable
Usage: /etc/init.d/vsftpd {start|stop|restart|reload|status}

┌──(kali@kali)-[~]
└─$ sudo service vsftpd status
● vsftpd.service - vsftpd FTP server
     Loaded: loaded (/usr/lib/systemd/system/vsftpd.service; disabled; preset: disabled)
     Active: active (running) since Mon 2024-09-09 04:00:45 EDT; 10s ago
 Invocation: 7250b80a42fa4abcab90ab66f2895eb3
    Process: 8701 ExecStartPre=/bin/mkdir -p /var/run/vsftpd/empty (code-exited, status=0/SUCCESS)
   Main PID: 8703 (vsftpd)
      Tasks: 1 (limit: 2268)
     Memory: 772K (peak: 1.4M)
        CPU: 8ms
     CGroup: /system.slice/vsftpd.service
             └─8703 /usr/sbin/vsftpd /etc/vsftpd.conf

Sep 09 04:00:45 kali systemd[1]: Starting vsftpd.service - vsftpd FTP server...
Sep 09 04:00:45 kali systemd[1]: Started vsftpd.service - vsftpd FTP server.
┌──(kali@kali)-[~]
└─$ sudo systemctl enable vsftpd
Synchronizing state of vsftpd.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable vsftpd
Created symlink '/etc/systemd/system/multi-user.target.wants/vsftpd.service' → '/usr/lib/systemd/system/vsftpd.service'.

┌──(kali@kali)-[~]
└─$ sudo service vsftpd status
● vsftpd.service - vsftpd FTP server
     Loaded: loaded (/usr/lib/systemd/system/vsftpd.service; enabled; preset: disabled)
     Active: active (running) since Mon 2024-09-09 04:00:45 EDT; 38s ago
 Invocation: 7250b80a42fa4abcab90ab66f2895eb3
   Main PID: 8703 (vsftpd)
      Tasks: 1 (limit: 2268)
     Memory: 772K (peak: 1.4M)
        CPU: 8ms
     CGroup: /system.slice/vsftpd.service
             └─8703 /usr/sbin/vsftpd /etc/vsftpd.conf

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Sep 09 04:00:45 kali systemd[1]: Started vsftpd.service - vsftpd FTP server.
┌──(kali@kali)-[~]
└─$
```
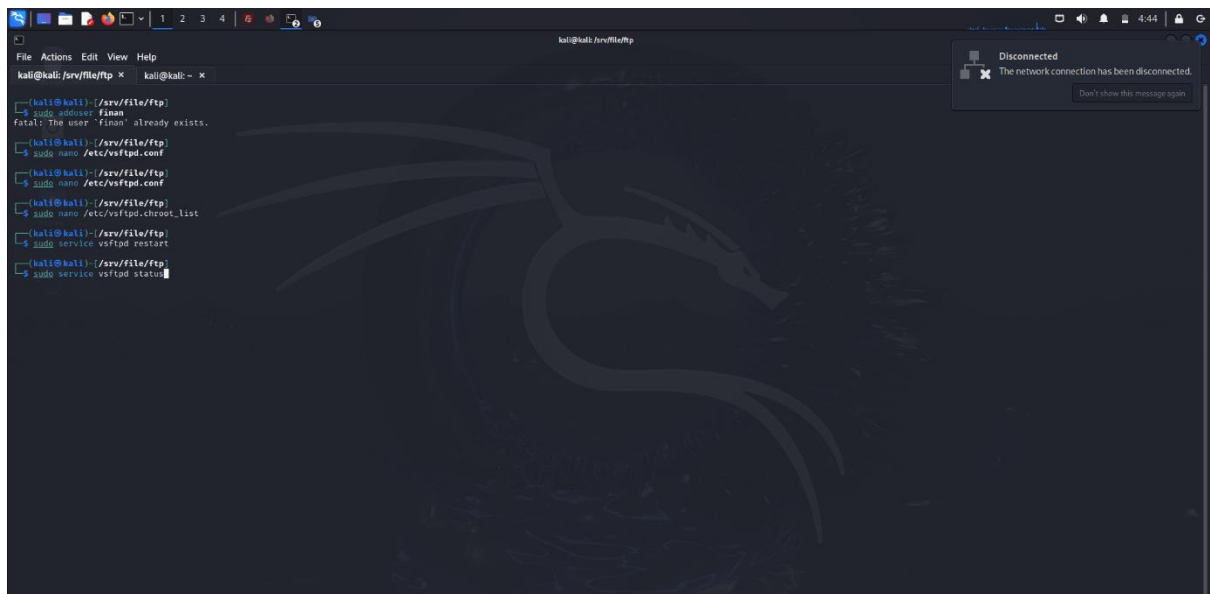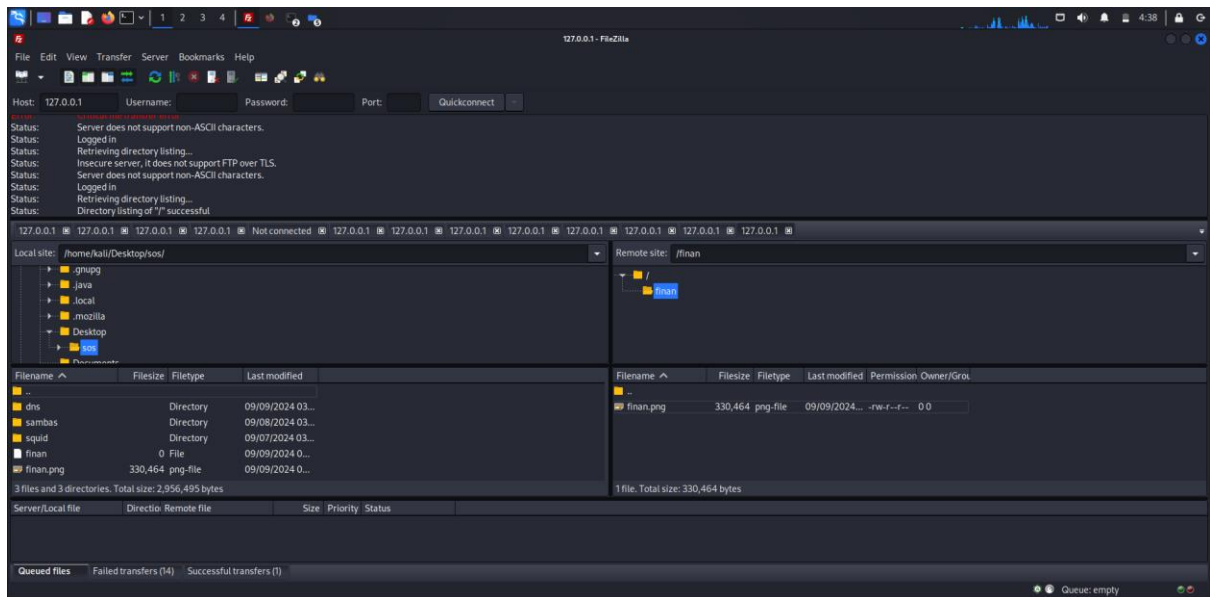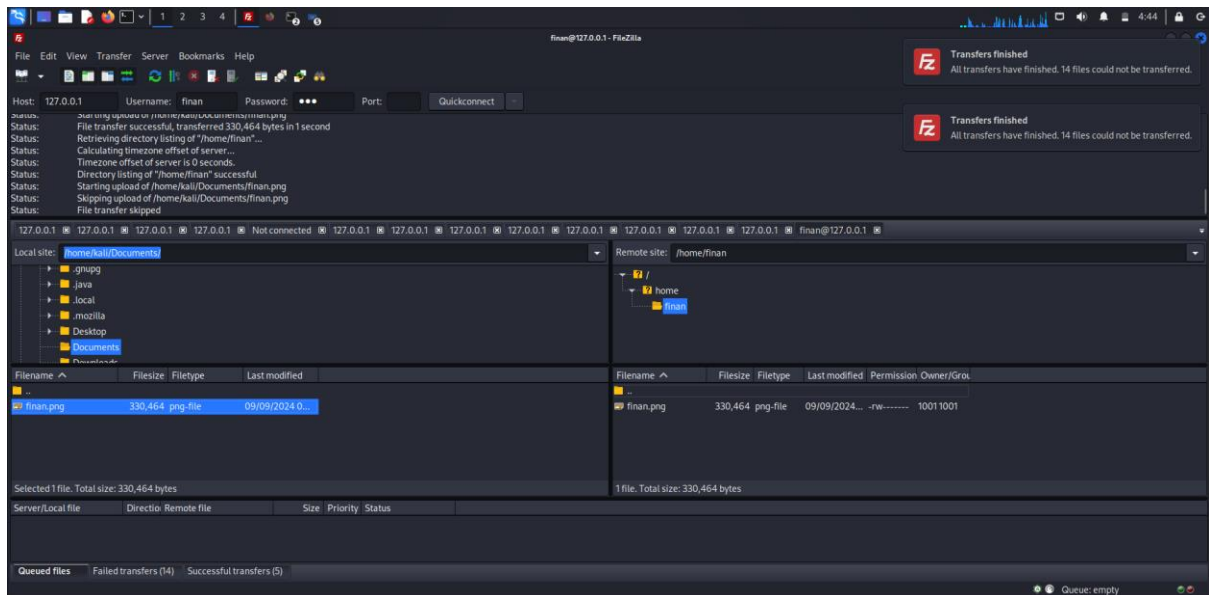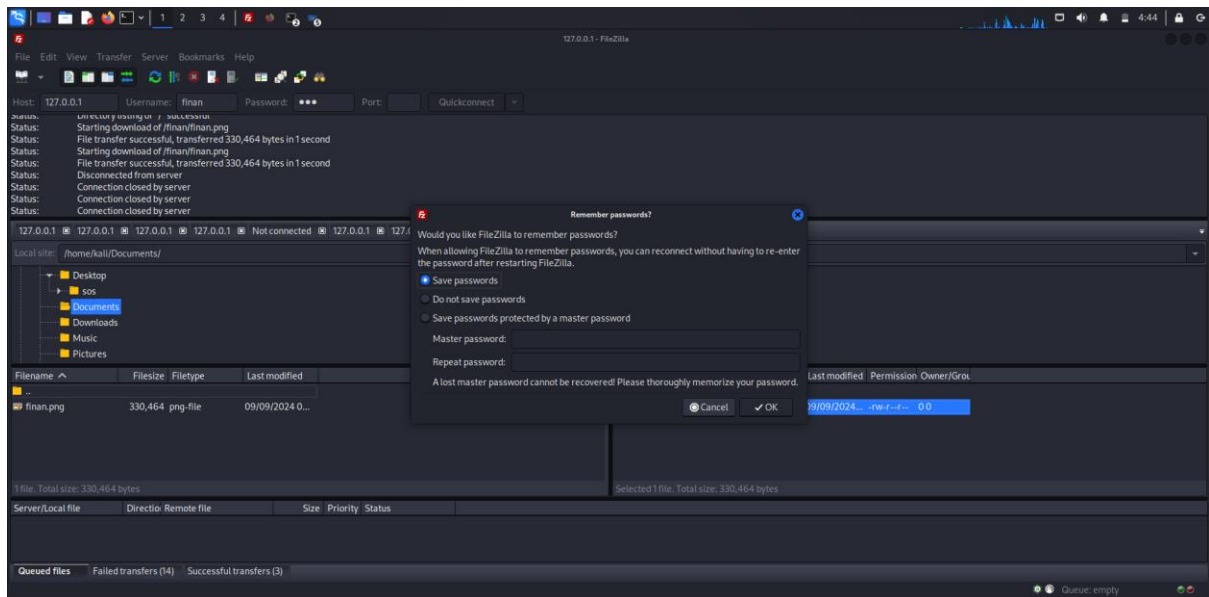
127.0.0.1 - FileZilla

File Edit View Transfer Server Bookmarks Help

Host: 127.0.0.1   Username: Password: Port: Quickconnect ▼

Status: Server does not support non-ASCII characters.
Status: Logged in
Status: Retrieving directory listing...
Status: Insecure server, it does not support FTP over TLS.
Status: Server does not support non-ASCII characters.
Status: Logged in
Status: Retrieving directory listing...
Status: Directory listing of "/" successful

Local site: /home/kali/Desktop/sos/   Remote site: /finan

▶ .gnupg
▶ .java
▶ .local
▶ .mozilla
▼ Desktop
  ▶ sos
  ▶ Documents

Filename ^   Filesize Filetype   Last modified
..
dns   Directory   09/09/2024 03...
sambas   Directory   09/08/2024 03...
squid   Directory   09/07/2024 03...
finan   0   File   09/09/2024 0...
finan.png   330,464 png-file   09/09/2024 0...

3 files and 3 directories. Total size: 2,956,495 bytes

Remote site filename: finan
Filename ^   Filesize Filetype   Last modified Permission Owner/Grou
..
finan.png   330,464   png-file   09/09/2024... -rw-r--r--   0 0

1 file. Total size: 330,464 bytes

Server/Local file   Directio Remote file   Size Priority Status

Queued files   Failed transfers (14)   Successful transfers (1)

Queue: empty

kali@kali: /srv/file/ftp

File Actions Edit View Help

kali@kali: /srv/file/ftp ×   kali@kali: ~ ×

GNU nano 8.1   /etc/vsftpd.conf
# 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
#
# 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.

^G Help   ^O Write Out   ^W Where Is   ^K Cut   ^T Execute   ^C Location   ^U Undo   ^A Set Mark   ^] To Bracket   ^B Previous   ^B Back   ^P Prev Word   ^A Home
^X Exit   ^R Read File   ^\ Replace   ^U Paste   ^J Justify   ^_ Go To Line   ^M-U Redo ^M-A Copy   ^M Where Was   ^M-E Next   ^B Forward   ^N Next Word   ^E End

kali@kali: /srv/file/ftp

File Actions Edit View Help

kali@kali: /srv/file/ftp ×   kali@kali: ~ ×

┌──(kali㉿kali)-[/srv/file/ftp]
└─$ sudo adduser finan
fatal: The user `finan' already exists.

┌──(kali㉿kali)-[/srv/file/ftp]
└─$ sudo nano /etc/vsftpd.conf

┌──(kali㉿kali)-[/srv/file/ftp]
└─$ sudo nano /etc/vsftpd.conf

┌──(kali㉿kali)-[/srv/file/ftp]
└─$ sudo nano /etc/vsftpd.chroot_list

┌──(kali㉿kali)-[/srv/file/ftp]
└─$ sudo service vsftpd restart

┌──(kali㉿kali)-[/srv/file/ftp]
└─$ sudo service vsftpd status

Disconnected
The network connection has been disconnected.
Don't show this message again

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