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**AIM :- Implement FTP server for given scenario.**

### FTP -

A file transfer protocol (FTP) is a method of downloading, uploading, and transferring files from one computer to another on the internet. FTP, short for File Transfer Protocol, is a network protocol that was once widely used for moving files between a client and server. It has since been replaced by faster, more secure, and more convenient ways of delivering files. Many casual Internet users expect to download directly from their web browser with <https>, and command-line users are more likely to use secure protocols such as the <scp> or <SFTP>.

**The objectives of FTP are**

- 1) to promote sharing of files (computer programs and/or data),
- 2) to encourage indirect or implicit (via programs) use of remote computers,
- 3) to shield a user from variations in file storage systems among hosts, and
- 4) to transfer data reliably and efficiently.

Update system :-  
**sudo apt update**

```
cnlab404@cnlab404-Veriton-M200-H110: ~  
File Edit View Search Terminal Help  
cnlab404@cnlab404-Veriton-M200-H110:~$ sudo apt update  
[sudo] password for cnlab404:  
Hit:1 https://dl.google.com/linux/chrome/deb stable InRelease  
Hit:2 http://security.ubuntu.com/ubuntu bionic-security InRelease  
Hit:3 http://ppa.launchpad.net/webupd8team/java/ubuntu bionic InRelease  
Hit:4 http://in.archive.ubuntu.com/ubuntu bionic InRelease  
Hit:5 http://ppa.launchpad.net/wireshark-dev/stable/ubuntu bionic InRelease  
Hit:6 http://in.archive.ubuntu.com/ubuntu bionic-updates InRelease  
Hit:7 http://in.archive.ubuntu.com/ubuntu bionic-backports InRelease  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
All packages are up to date.
```

### Installing vsftpd

**sudo apt install -yftpd**

When the installation is complete, copy the configuration file so we can start with a blank configuration, saving the original as a backup:

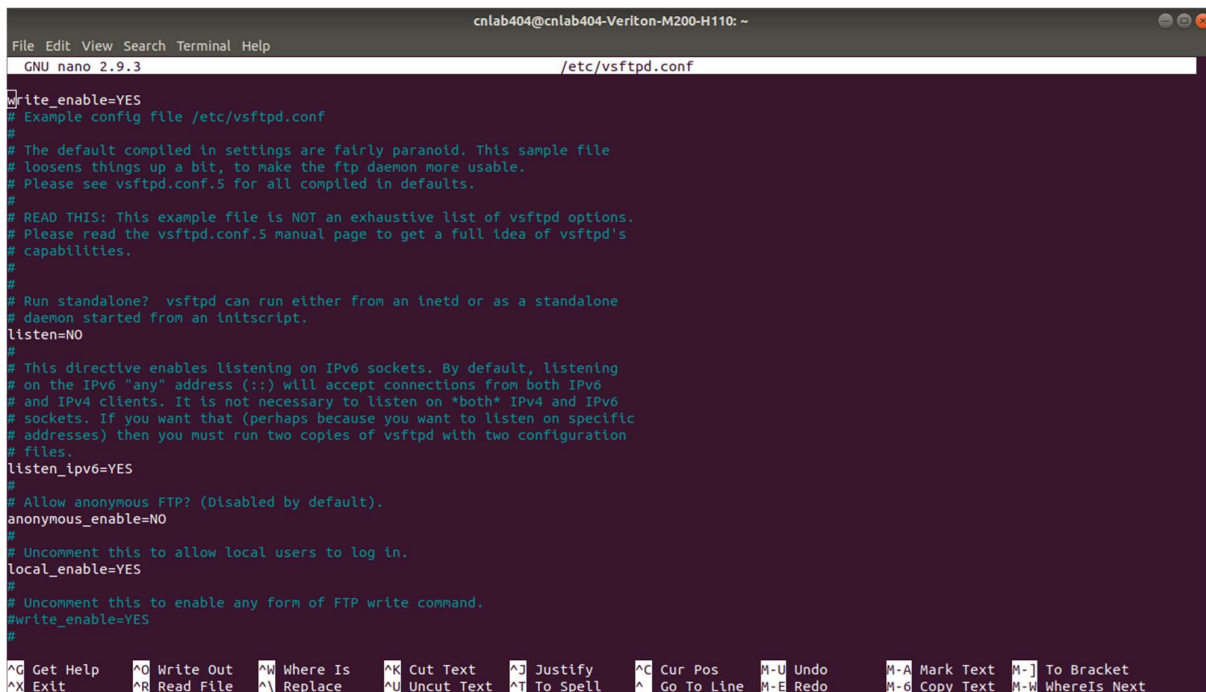
```
cnlab404@cnlab404-Veriton-M200-H110:~$ sudo apt install -y vsftpd  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
vsftpd is already the newest version (3.0.3-9build1).  
The following packages were automatically installed and are no longer required:  
  liblvm9 linux-hwe-5.4-headers-5.4.0-113 linux-hwe-5.4-headers-5.4.0-117 linux-hwe-5.4-headers-5.4.0-120 linux-hwe-5.4-headers-5.4.0-121  
  linux-hwe-5.4-headers-5.4.0-122 linux-hwe-5.4-headers-5.4.0-124 linux-hwe-5.4-headers-5.4.0-125 linux-hwe-5.4-headers-5.4.0-126  
  linux-hwe-5.4-headers-5.4.0-131 linux-hwe-5.4-headers-5.4.0-132 linux-hwe-5.4-headers-5.4.0-135 linux-hwe-5.4-headers-5.4.0-136  
Use 'sudo apt autoremove' to remove them.  
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
```

## sudo nano /etc/vsftpd.conf

With a backup of the configuration in place, we're ready to configure the firewall.

```
cnlab404@cnlab404-Veriton-M200-H110:~$ sudo nano /etc/vsftpd.conf
```

```
listen=NO
anonymous_enable=NO
local_enable=YES
write_enable=YES
local_umask=022
dirmessage_enable=YES
use_localtime=YES
xferlog_enable=YES
connect_from_port_20=YES
chroot_local_user=YES
secure_chroot_dir=/var/run/vsftpd/empty
pam_service_name=vsftpd
rsa_cert_file=/etc/ssl/certs/ssl-cert-snakeoil.pem
rsa_private_key_file=/etc/ssl/private/ssl-cert-snakeoil.key
ssl_enable=Yes
pasv_enable=Yes
pasv_min_port=10000
pasv_max_port=10100
allow_writeable_chroot=YES
ssl_tlsv1=YES
ssl_sslv2=NO
ssl_sslv3=NO
```



```
cnlab404@cnlab404-Veriton-M200-H110: ~
File Edit View Search Terminal Help
GNU nano 2.9.3 /etc/vsftpd.conf
write_enable=YES
# 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
#
^G Get Help  ^O Write Out  ^W Where Is  ^K Cut Text  ^J Justify   ^C Cur Pos   M-U Undo     M-A Mark Text M-] To Bracket
^X Exit      ^R Read File  ^_ Replace  ^U Uncut Text ^T To Spell  ^_ Go To Line M-E Redo     M-G Copy Text M-W WhereIs Next
```

```
cnlab404@cnlab404-Veriton-M200-H110: ~
File Edit View Search Terminal Help
GNU nano 2.9.3 /etc/vsftpd.conf

write_enable=YES
# 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
#
^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos M-U Undo M-A Mark Text M-J To Bracket
^X Exit ^R Read File ^\ Replace ^U Uncut Text ^T To Spell ^_ Go To Line M-E Redo M-G Copy Text M-W WhereIs Next
```

**sudo ufw allow 20/tcp**  
**sudo ufw allow 21/tcp**

```
cnlab404@cnlab404-Veriton-M200-H110:~$ sudo ufw allow 20/tcp
Skipping adding existing rule
Skipping adding existing rule (v6)
cnlab404@cnlab404-Veriton-M200-H110:~$ sudo ufw allow 21/tcp
Skipping adding existing rule
Skipping adding existing rule (v6)
```

**sudo systemctl enable vsftpd.service**

```
cnlab404@cnlab404-Veriton-M200-H110:~$ sudo systemctl enable vsftpd.service
Synchronizing state of vsftpd.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable vsftpd
```

**sudo systemctl start vsftpd.service**

**sudo systemctl status vsftpd.service**

```
cnlab404@cnlab404-Veriton-M200-H110:~$ sudo systemctl start vsftpd.service
cnlab404@cnlab404-Veriton-M200-H110:~$ sudo systemctl status vsftpd.service
● vsftpd.service - vsftpd FTP server
   Loaded: loaded (/lib/systemd/system/vsftpd.service; enabled; vendor preset: enabled)
   Active: active (running) since Fri 2023-02-17 09:19:20 IST; 30min ago
     Main PID: 967 (vsftpd)
       Tasks: 1 (limit: 4915)
    CGroup: /system.slice/vsftpd.service
            └─967 /usr/sbin/vsftpd /etc/vsftpd.conf

Feb 17 09:19:20 cnlab404-Veriton-M200-H110 systemd[1]: Starting vsftpd FTP server...
Feb 17 09:19:20 cnlab404-Veriton-M200-H110 systemd[1]: Started vsftpd FTP server.
```

## Ifconfig

Create ftp user :-

Preparing the User Directory

**sudo add atulkesar**

```
cnlab404@cnlab404-Veriton-M200-H110: ~
File Edit View Search Terminal Help
Try: sudo apt install <deb name>

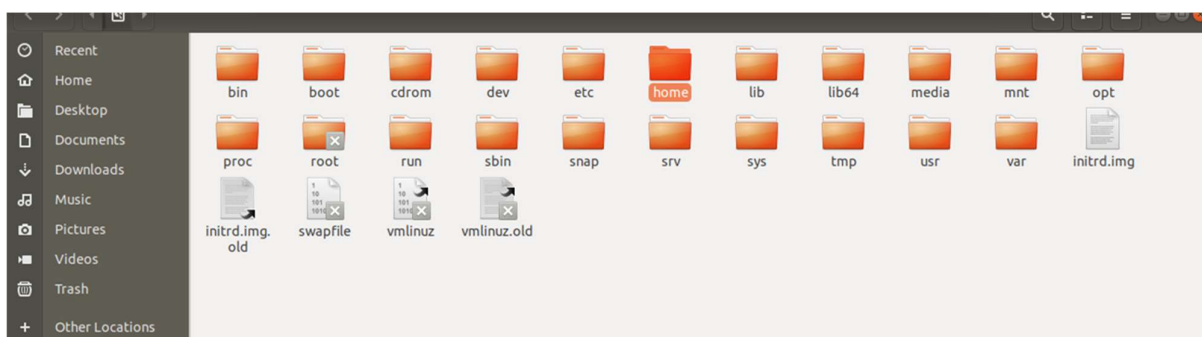
cnlab404@cnlab404-Veriton-M200-H110:~$ ifconfig
enp1s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
    inet 172.16.41.36 netmask 255.255.255.0 broadcast 172.16.41.255
    inet6 fe80::2f60:cef6:2155:fe93 prefixlen 64 scopeid 0x20<link>
    ether f4:4d:30:4e:d6:62 txqueuelen 1000 (Ethernet)
    RX packets 163965 bytes 188104339 (188.1 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 6885 bytes 517092 (517.0 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

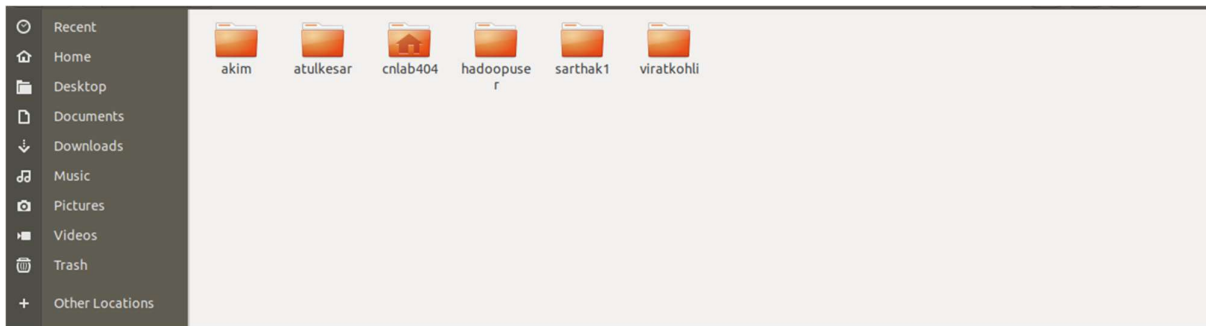
lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    loop txqueuelen 1000 (Local Loopback)
    RX packets 324 bytes 29880 (29.8 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 324 bytes 29880 (29.8 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

cnlab404@cnlab404-Veriton-M200-H110:~$ sudo adduser atulkesar
Adding user 'atulkesar' ...
Adding new group 'atulkesar' (1010) ...
Adding new user 'atulkesar' (1008) with group 'atulkesar' ...
Creating home directory '/home/atulkesar' ...
Copying files from '/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for atulkesar
Enter the new value, or press ENTER for the default
    Full Name []:
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] Y
```

## Connect FTP server on different machine

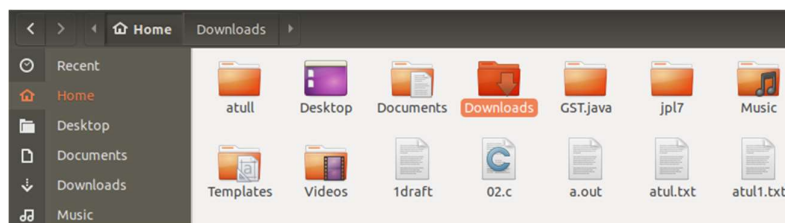
```
cnlab404@cnlab404-Veriton-M200-H110:~$ ftp 172.16.41.36
Connected to 172.16.41.36.
220 (vsFTPd 3.0.3)
Name (172.16.41.36:cnlab404): atulkesar
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> ls
200 PORT command successful. Consider using PASV.
150 Here comes the directory listing.
-rw-r--r--  1 1008   1010   8980 Feb 17 09:59 examples.desktop
226 Directory send OK.
ftp> pwd
257 "/home/atulkesar" is the current directory
ftp>
```





```
File Edit View Search Terminal Help
cnlab404@cnlab404-Veriton-M200-H110: ~
[1]+  Stopped                  ftp 172.16.41.36
cnlab404@cnlab404-Veriton-M200-H110:~$ ftp 172.16.41.36
Connected to 172.16.41.36.
220 (vsFTPd 3.0.3)
Name (172.16.41.36:cnlab404): atulkesar
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> ls
200 PORT command successful. Consider using PASV.
150 Here comes the directory listing.
-rw-r--r--  1 1008  1010    8980 Feb 17 09:59 examples.desktop
226 Directory send OK.
ftp> cp 3atulcn.odt atulkesar
?Invalid command
ftp> pwd
257 "/home/atulkesar" is the current directory
ftp> ls example atul.txt
output to local-file: atul.txt?
200 PORT command successful. Consider using PASV.
150 Here comes the directory listing.
226 Directory send OK.
ftp> put atul.txt atul1.txt
local: atul.txt remote: atul1.txt
200 PORT command successful. Consider using PASV.
150 Ok to send data.
226 Transfer complete.
ftp> lds
?Invalid command
ftp> nds
?Invalid command
ftp> lds
?Invalid command
ftp> lcd
Local directory now /home/cnlab404
ftp> put atul1.txt
```

```
File Edit View Search Terminal Help
cnlab404@cnlab404-Veriton-M200-H110: ~
?Invalid command
ftp> pwd
257 "/home/atulkesar" is the current directory
ftp> ls example atul.txt
output to local-file: atul.txt?
200 PORT command successful. Consider using PASV.
150 Here comes the directory listing.
226 Directory send OK.
ftp> put atul.txt atul1.txt
local: atul.txt remote: atul1.txt
200 PORT command successful. Consider using PASV.
150 Ok to send data.
226 Transfer complete.
ftp> lds
?Invalid command
ftp> nds
?Invalid command
ftp> lds
?Invalid command
ftp> lcd
Local directory now /home/cnlab404
ftp> put atul1.txt
local: atul1.txt remote: atul1.txt
local: atul1.txt: No such file or directory
ftp> put atul1.txt
local: atul1.txt remote: atul1.txt
local: atul1.txt: No such file or directory
ftp> put atul1.txt
local: atul1.txt remote: atul1.txt
local: atul1.txt: No such file or directory
ftp> lcd
Local directory now /home/cnlab404
ftp> get atul1.txt
local: atul1.txt remote: atul1.txt
200 PORT command successful. Consider using PASV.
150 Opening BINARY mode data connection for atul1.txt (0 bytes).
226 Transfer complete.
ftp> 
```



## Conclusion -

In this experiment we used some commands to perform ftp . first we installed vsftpd and then we created ftp user and transferred one file from one computer to another.