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COMPUTER SYSTEMS UD7: NETWORKS COMPUTER A01: LINUX FTP SERVER	CFGS DAW DPT INF

What is an FTP Server used for in Linux?

- ***Upload and editing web pages***: FTP is the way in which we can upload and edit our web pages that are in our hosting.
- ***Store and share files in the cloud***: another important factor of this server is that we can store any type of file in the cloud in order to be able to share it quickly with other users. If you upload a file or folder to the FTP, other people will see it immediately and will be able to download it to their computer.
- ***Backup copies***: In addition, an FTP can be used as a backup of the files on our website so that if a problem occurs, we can go back very easily..

Although FTP is an old protocol, and there are many against its use, it is still widely used by the webmaster community.

Before the server, comes the FTP

An FTP client is used on the user side allowing us to perform various actions on our files such as uploading, modifying, renaming, deleting, etc.. in a few words to be able to use an FTP Server we need a Client to interact with it.

There are several FTP clients for any operating system such as Windows, Linux or Mac. Although many of them have a cost there are also many that are free.

Currently there are web browsers that have an integrated FTP client, but it will always work faster if we use desktop software such as Filezilla , since it connects directly to the server.

Filezilla is the most widely used FTP client in the world since it has different versions for all the aforementioned operating systems one hundred percent free of charge. In addition, it has a group of developers who apply updates to this software to correct bugs or errors that are detected.

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Installation of an FTP Server in Linux

Currently there are several **FTP servers** that we can install to connect and be able to upload our files to our server, such as Proftpd, Vsftpd, Pureftpd, Crushftp, among others.

Datos más importantes del servidor VSFTP.	
Nombre del servicio:	vsftpd
Fichero de configuración:	/etc/vsftpd.conf
Puerto utilizado:	21/tcp

This activity will cover how to install and configure ***VSFTPD.***

First of all we will access our server where we want to install vsftpd .

1. On Debian-based systems like Ubuntu, we install the ftp server by executing:
   sudo apt-get install vsftpd
2. If we want the service to start together with the system boot, we must execute the following command:
   systemctl enable vsftpd.service

Commands to handle the vsftpd server on Linux

Start service

Systemctl start vsftpd.service

Stop service

systemctl stop vsftpd.service

Know about the service status

systemctl status vsftpd.service

Configuration file for vsftpd

By default on all Linux operating systems the FTP configuration file is located at the address mentioned below, so if we want to adjust it, we only have to edit this file:

/etc/vsftpd.conf

sudo cp /etc/vsftpd.conf /etc/vsftpd.conf.original # before modifying the file

The most important parameters that we must uncomment in the FTP server are the following:

- **write_enable**=YES –> This directive allows us to write (copy files and folders) to the FTP server.
- **local_umask**=022 –> This directive allows us to enable the new permissions when we copy data to the FTP server, by default the umask is 077 but we can modify it to the value we want, 022 is the most used umask in other FTP servers.
- **ftpd_banner** –> This directive allows you to put a login banner.

- **chroot_list_enable**=YES –> It allows us to enable the chroot of the different users of the system, so that only one user enters their /home/user folder and no others, it is a security measure, but it must be used with great care since if a user has permissions in higher directories he will have access to the rest.
- **chroot_list_enable**=YES –> It allows us to create a list with the users in chroot, all those that appear here will be able to connect to you.
- **chroot_list_file**=/etc/vsftpd.chroot_list –> It is the list of users with their default paths.

https://linux.die.net/man/5/vsftpd.conf

How to connect to an FTP Server in Linux?

To be able to connect from our computer to the FTP Server that we have installed, we must make sure that the Firewall is not going to block our connection, so in this case we must enable ports 20 and 21, which are the ones that FTP uses by default to connect. (Command Netcat-> **nc -zv {IP} {PORT}** allows you to check if a port is open on the host with the indicated IP)

```
ubuntu@ubuntu-VB:/etc$ nc -zv 127.0.0.1 20
nc: connect to 127.0.0.1 port 20 (tcp) failed: Connection refused
ubuntu@ubuntu-VB:/etc$ nc -zv 127.0.0.1 21
Connection to 127.0.0.1 21 port [tcp/ftp] succeeded!
ubuntu@ubuntu-VB:/etc$
```

If we install the **nmap** utility:

```
ubuntu@ubuntu-VB:/etc$ sudo nmap -sT -O localhost
Starting Nmap 7.80 ( https://nmap.org ) at 2022-04-27 11:39 CEST
Nmap scan report for localhost (127.0.0.1)
Host is up (0.000099s latency).
Not shown: 996 closed ports
PORT    STATE SERVICE
21/tcp  open  ftp
139/tcp open  netbios-ssn
445/tcp open  microsoft-ds
631/tcp open  ipp
Device type: general purpose
Running: Linux 2.6.X
OS CPE: cpe:/o:linux:linux_kernel:2.6.32
OS details: Linux 2.6.32
Network Distance: 0 hops
```

sudo ufw status # will allow you to know the active ports
sudo ufw allow 20/tcp # will open the port 20

Once we have enabled these two ports in the Firewall on the FTP Server we must create an FTP user and assign it to a certain folder where he can access and make the necessary modifications.

First of all we must create the folder (in my case /var/folderFTP) and create a new user and assign it as the owner of the newly created folder:

useradd -g ftp -d /var/serverFTP userftp
In this line several factors which we explain below:

- ***useradd***: This is the action that allows adding a new user in the system
- ***-g***: Explains to which group the new user that we are going to add will belong to, in this case it will belong to the ***ftp***.
- ***-d***: This indicates which directory you will be able to access when connecting from an FTP client, in this case you will be able to access ***/var/serverFTP***

We assign the user and the group to this folder using the following command:

chown usernameftp:ftp /var/serverFTP -R

Once we have created and assigned the user to the folder, when executing the file listing command, we must see our user and the group assigned to the folder.

```
lrwxrwxrwx  1 root       root        4 ene 18 08:39 run -> /run
drwxrwxrwx  2 usuarioftp ftp      4096 abr 27 10:24 servidorftp
drwxr-xr-x  4 root       root     4096 feb 14 15:42 snap
```

After this we must assign a new password to the FTP user that we have recently created, for this we must execute the following command followed by the new password:

passwd ftpuser

```
[root@3cebb3d2c388 html]# passwd usuarioftp
Changing password for user usuarioftp.
New password:
Retype new password:
passwd: all authentication tokens updated successfully.
```

To verify that the server is working correctly you can connect to the server:

ftp IP_PUBLIC

- ***ftp***: Command to connect to the recently installed FTP server
- ***IP_PUBLIC***: Here we must place the public IP of our server where we are going to connect.

Next, we will be asked for our FTP user and password, in this way we will be able to connect to the folder assigned to this user.

In the image that we will see next, we will notice that our folder has a file called ***Primerdocftp*** .Command **mget** download the file to the folder from where we have called the ftp server.

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```
C:\WINDOWS\system32>ping 192.168.0.106

Haciendo ping a 192.168.0.106 con 32 bytes de datos:
Respuesta desde 192.168.0.106: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.0.106: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.0.106: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.0.106: bytes=32 tiempo<1m TTL=64

Estadísticas de ping para 192.168.0.106:
    Paquetes: enviados = 4, recibidos = 4, perdidos = 0
    (0% perdidos),
Tiempos aproximados de ida y vuelta en milisegundos:
    Mínimo = 0ms, Máximo = 0ms, Media = 0ms

C:\WINDOWS\system32>ftp 192.168.0.106
Conectado a 192.168.0.106.
220 (vsFTPd 3.0.3)
200 Always in UTF8 mode.
Usuario (192.168.0.106:(none)): usuarioftp
331 Please specify the password.
Contraseña:
230 Login successful.
ftp> ls
200 PORT command successful. Consider using PASV.
150 Here comes the directory listing.
Primerdocftp
226 Directory send OK.
ftp: 17 bytes recibidos en 0.00segundos 17000.00a KB/s.
ftp> mget Primerdocftp
200 Switching to ASCII mode.
mget Primerdocftp? y
200 PORT command successful. Consider using PASV.
150 Opening BINARY mode data connection for Primerdocftp (26 bytes).
226 Transfer complete.
ftp: 26 bytes recibidos en 0.00segundos 26000.00a KB/s.
ftp>
```

We have connected from our FTP client to our FTP server.

Remember that you can also connect to the FTP server graphically with any client such as Filezilla. If you want to know how to connect securely, we recommend reading this tutorial: Connect to FTP securely using FTPS

Activities

1. Start the FTP server on the machine and check if we may connect with any user. Test the access from a client in text mode and from graphic mode (on Windows and Linux). To check that users can download files from the server, you have to include some files in the **/var/serverftp**. Also check if they can upload files to the server (**mput**).

2. Configure the welcome message so that when users access it, they read the following: “Welcome to the student_name DAW FTP server”.

3. Activates the display of messages when entering a directory. To do this, it displays the following message when users enter the private directory within **/var/serverftp**: "This directory contains private information that must be treated with total confidentiality."

4. Activate anonymous user access and check its operation. Turn it off again after verification.

5. Enable local user access. Local users will have write permissions, so they can upload files (and create new directories) in their home directory. Users by default will be confined to their home directory, not being able to leave it.

6. We will create a new user on the server so that you can access via FTP. This user will be able to move around the entire directory tree of the computer. (Hint: chroot_list_enable).

7. Configure the FTP server appropriately to allow anonymous users to upload files. Check its correct operation.