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Proxecto de configuración de servidor FTP e Cliente de correo

Descrición: No centro educativo se pretende proporcionar un servidor de arquivos sinxelo que permita aos usuarios facer unha copia de seguridade dos seus arquivos empregando comandos ftp

Para realizar este proxecto empregaremos catro máquinas virtuais, como se detalla a continuación:

- **Router:**
 - Máquina virtual
 - Sistema operativo: Debian 11 (CLI)
 - Hostname: server
 - Rede VirtualBox:
 - Adapter 1:
 - Attached to: NAT
 - Network data: DHCP protocol
 - Adapter 2:
 - Attached to: Internal Network
 - Name: intnet
 - IP: 192.168.254.1
- **ftpServer:**
 - Máquina virtual
 - Sistema operativo: Debian 11 (CLI)
 - Hostname: ftpServer
 - Rede VirtualBox:
 - Adapter 1:
 - Attached to: Internal Network
 - Name: intnet
 - IP: 192.168.254.254
 - Rol: servidor de arquivos vsftp
- **Cliente:**
 - Máquina virtual
 - Sistema operativo: Ubuntu
 - Hostname: cliente
 - Rede VirtualBox:
 - Adapter 1:
 - Attached to: Internal Network
 - Name: intnet
 - IP: 192.168.254.253

CA7.5 Utilizáronse os servizos de transferencia de ficheiros (20%)



1. Realiza as seguintes tarefas:

a) Indica que é un servidor ftp

Un servidor FTP es un software instalado en los servidores de internet (o a una red local LAN) que sirve para permitir que los clientes FTP pueda conectarse a él, para luego descargar o subir archivos y datos.

b) Instala na máquina ftpServer o servidor FTP vsftpd.

Antes de instalar el servidor ejecutaremos los siguientes comandos:

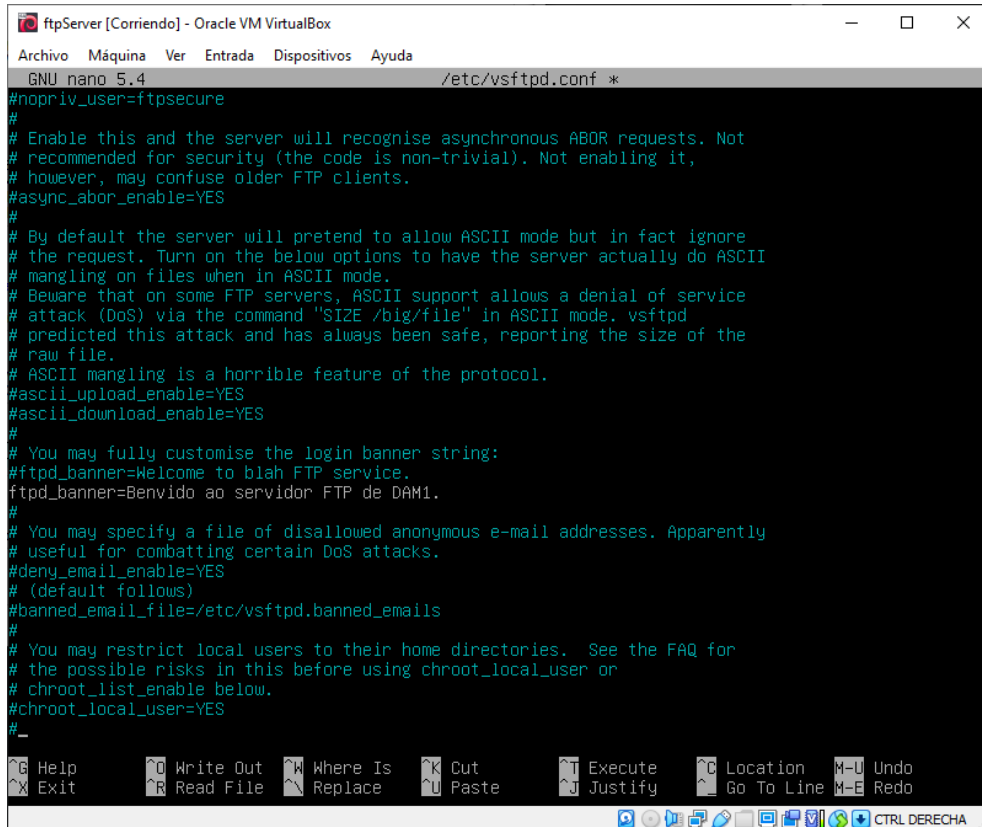
» **apt update --> Actualiza los repositorios**

» **apt dist-upgrade -->**

```
ftpServer [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
root@debian:/# apt install vsftpd
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  linux-image-5.10.0-20-amd64
Use 'apt autoremove' to remove it.
The following additional packages will be installed:
  ssl-cert
The following NEW packages will be installed:
  ssl-cert vsftpd
0 upgraded, 2 newly installed, 0 to remove and 0 not upgraded.
Need to get 174 kB of archives.
After this operation, 424 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
```

c) Configura no servidor FTP a seguinte mensaxe de benvida: Benvido ao servidor FTP de DAM1.

Para configurar el servidor FTP iremos al archivo de configuración que está en `/etc/vsftpd.conf`

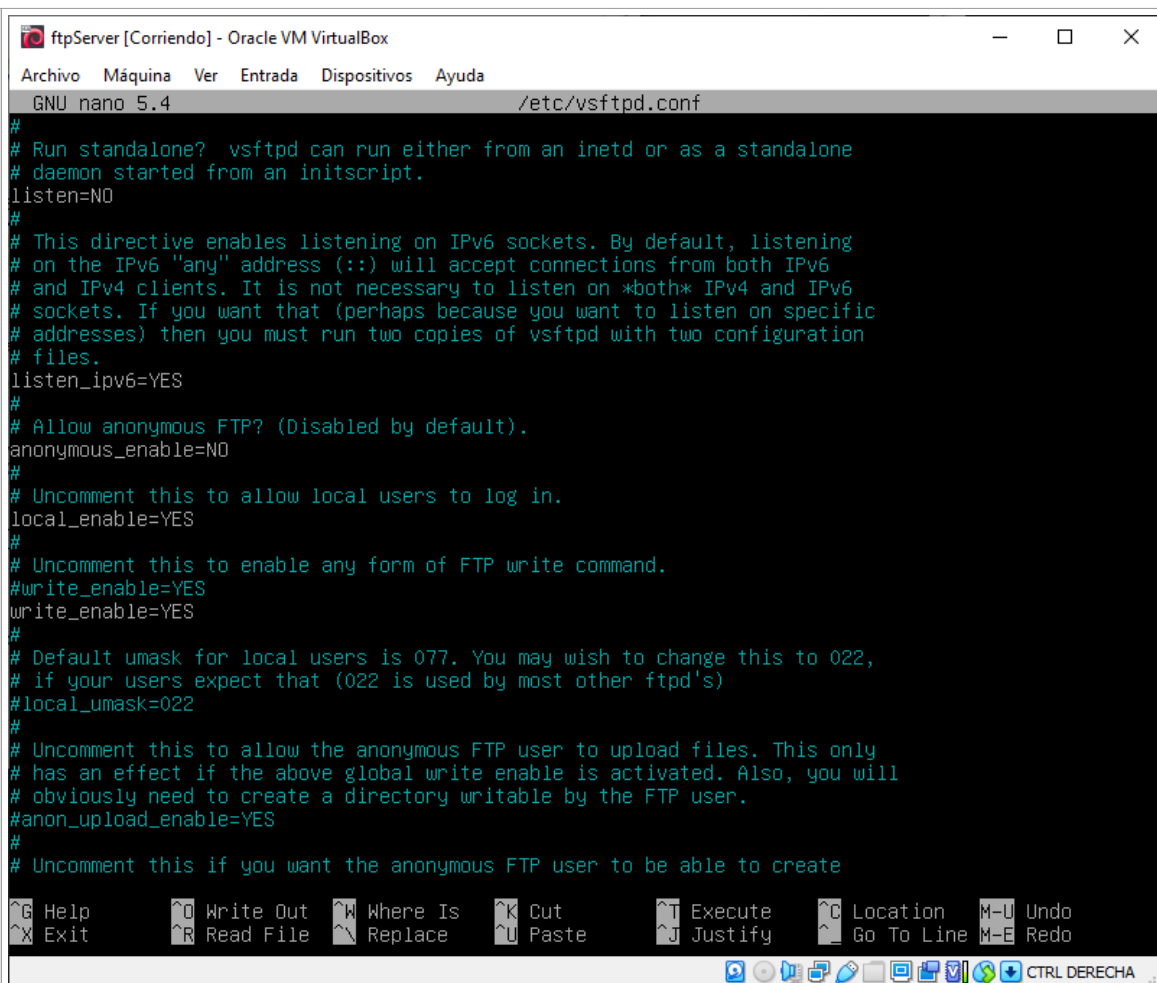


The screenshot shows a terminal window titled 'ftpServer [Corriendo] - Oracle VM VirtualBox'. The window displays the contents of the file `/etc/vsftpd.conf` using the GNU nano 5.4 editor. The configuration file contains various settings for the vsftpd service, including options for asynchronous ABOR requests, ASCII mode, login banners, and email restrictions. The current line being edited is `ftpd_banner=Benvido ao servidor FTP de DAM1.`. The terminal window also shows a menu bar at the bottom with options like Help, Write Out, Where Is, Cut, Execute, Location, Undo, Exit, Read File, Replace, Paste, Justify, Go To Line, and Redo.

```
ftpServer [Corriendo] - Oracle VM VirtualBox
GNU nano 5.4 /etc/vsftpd.conf *
#nopriv_user=ftpsecure
#
# Enable this and the server will recognise asynchronous ABOR requests. Not
# recommended for security (the code is non-trivial). Not enabling it,
# however, may confuse older FTP clients.
#async_abor_enable=YES
#
# By default the server will pretend to allow ASCII mode but in fact ignore
# 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.
ftpd_banner=Benvido ao servidor FTP de DAM1.
#
# 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   M-U Undo
^X Exit      ^R Read File  ^N Replace    ^U Paste      ^J Justify    ^G Go To Line  M-E Redo
CTRL DERECHA
```

d) Configura o servidor FTP para que os usuarios poidan subir arquivos.

En el mismo archivo de configuración descomentamos la línea con `write_enable=YES`



```
ftpServer [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
GNU nano 5.4 /etc/vsftpd.conf
#
# 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
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
```

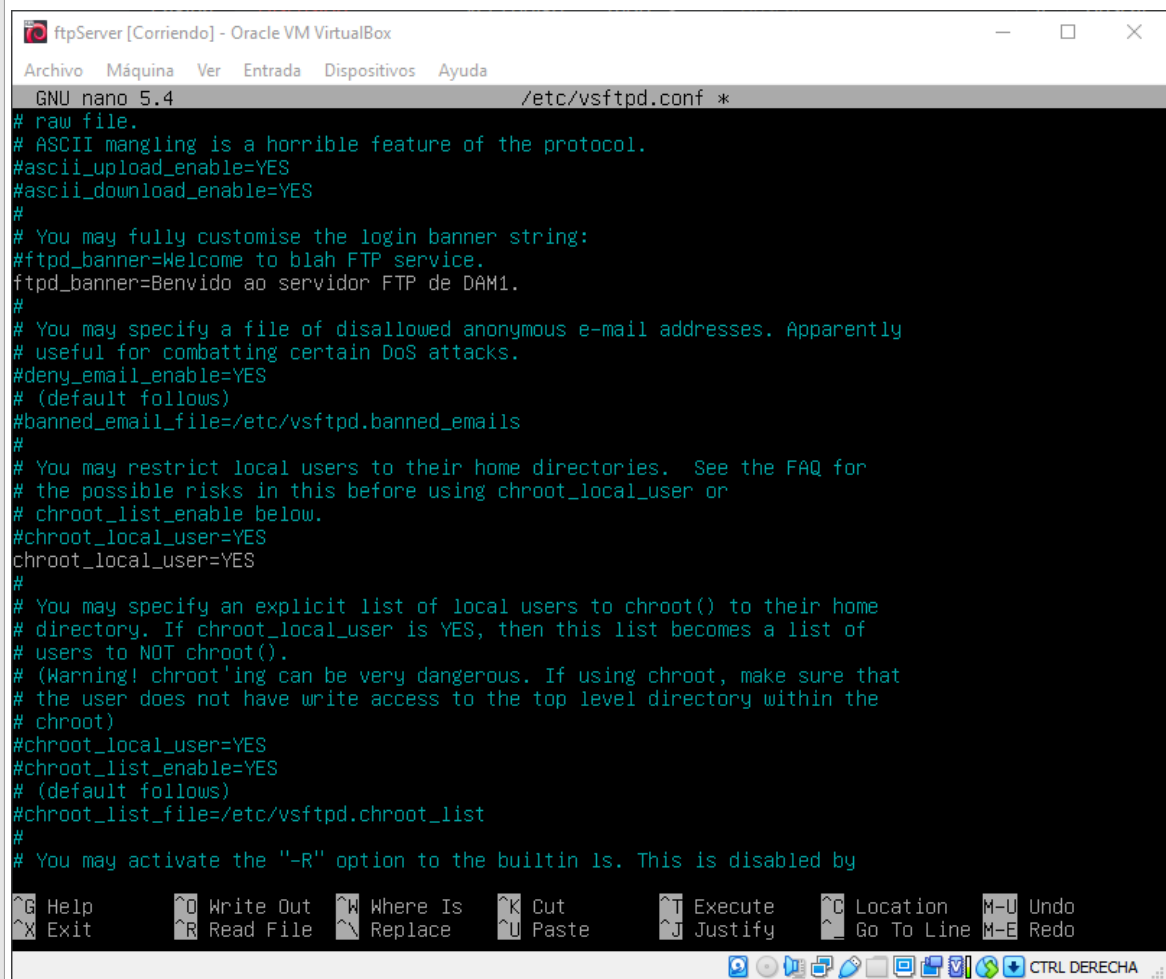
e) Investiga que é unha gaiola chroot.

Chroot (Change root) es una utilidad del sistema Unix que se emplea para cambair el directorio raíz aparente de modo que se pueda crear un nuevo entorno separado lógicamente del directorio raíz del sistema principal.

Es una técnica utilizada para aislar procesos del sistema principal del equipo. En la práctica se utiliza en algunos casos para probar programas sospechosos o peligrosos en un entorno aislado y que no afecte a otros procesos o al sistema operativo.

f) Configura no servidor FTP gaiolas chroot para todos os usuarios.

Para esto descomentaremos la línea con *chroot_local_user=YES*

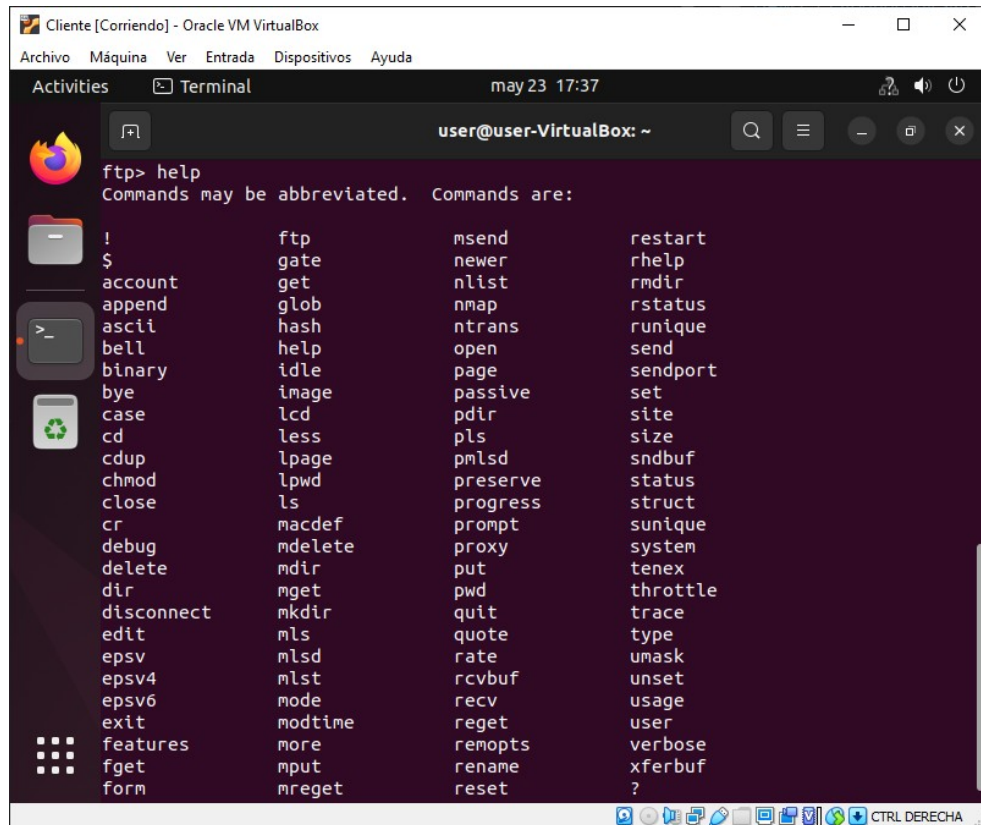


```
ftpServer [Corriendo] - Oracle VM VirtualBox
Archivo  Máquina  Ver  Entrada  Dispositivos  Ayuda
GNU nano 5.4 /etc/vsftpd.conf *
# raw file.
# ASCII mangling is a horrible feature of the protocol.
#ascii_upload_enable=YES
#ascii_download_enable=YES
#
# You may fully customise the login banner string:
#ftpd_banner=Welcome to blah FTP service.
ftpd_banner=Benvido ao servidor FTP de DAM1.
#
# 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
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
#
# You may activate the "-R" option to the builtin ls. This is disabled by
```

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^_ Go To Line M-E Redo

CTRL DERECHA

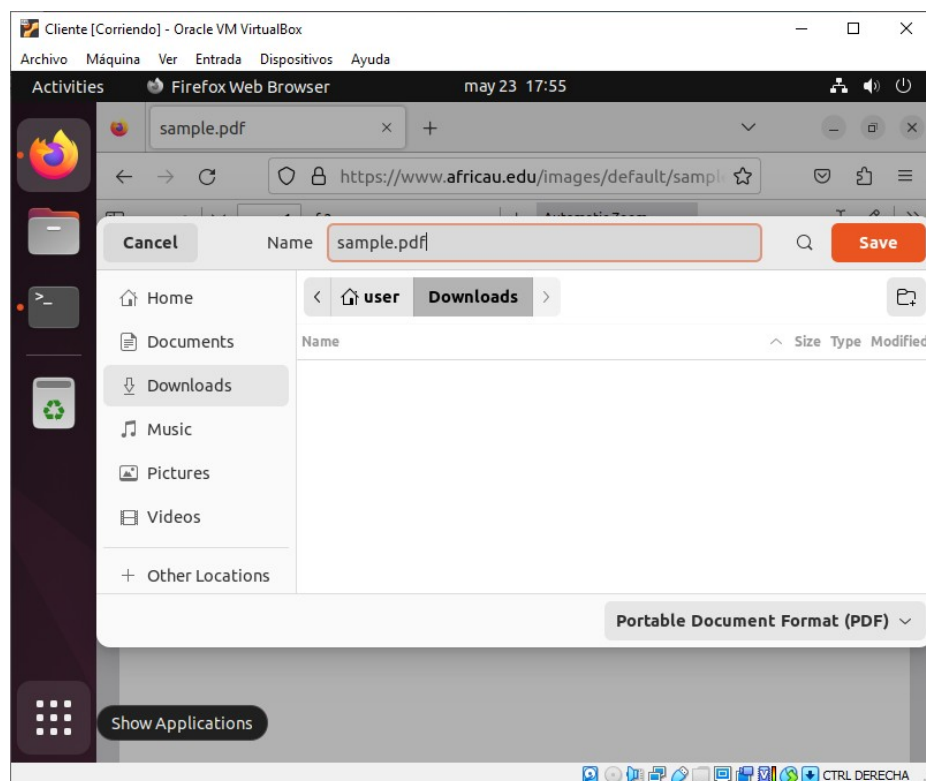
g) Mostra a ajuda dos comandos do servidor vsftpd.



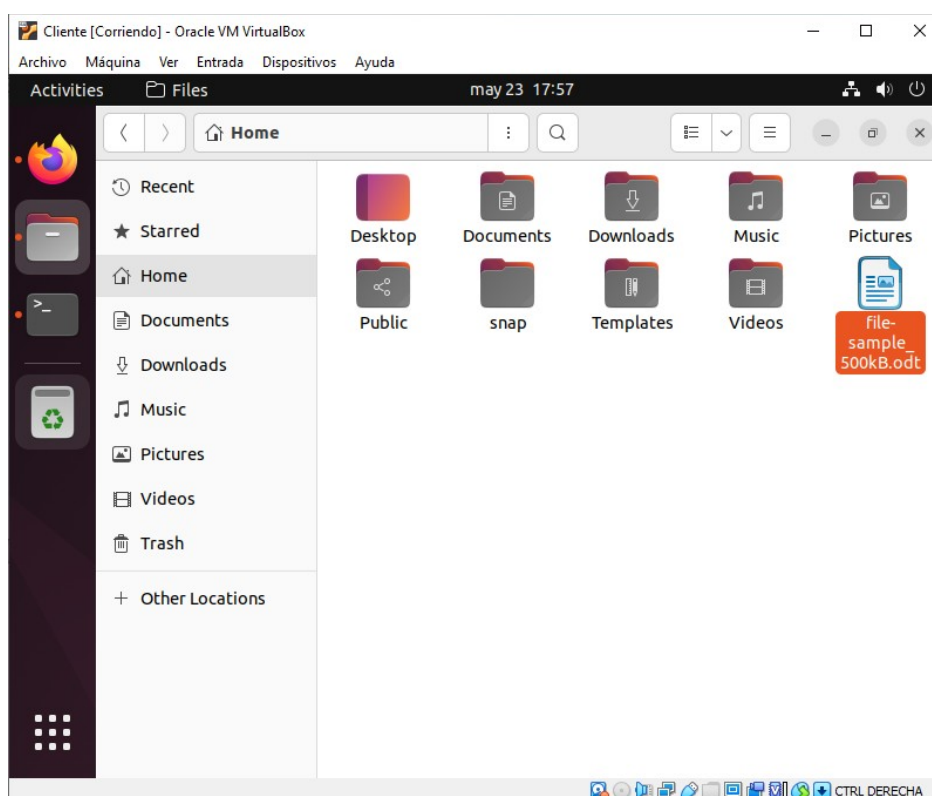
The screenshot shows a terminal window titled "Cliente [Corriendo] - Oracle VM VirtualBox". The terminal output displays the help text for the vsftpd server, listing various commands that can be abbreviated. The commands are listed in four columns:

Column 1	Column 2	Column 3	Column 4
!	ftp	msend	restart
\$	gate	newer	rhel
account	get	nlist	rmdir
append	glob	nmap	rstatus
ascii	hash	ntrans	runique
bell	help	open	send
binary	idle	page	sendport
bye	image	passive	set
case	lcd	pdir	site
cd	less	pls	size
cdup	lpage	pmlsd	sndbuf
chmod	lpwd	preserve	status
close	ls	progress	struct
cr	macdef	prompt	sunique
debug	mdelete	proxy	system
delete	mdir	put	tenex
dir	mget	pwd	throttle
disconnect	mkdir	quit	trace
edit	mls	quote	type
epsv	mlsd	rate	umask
epsv4	mlst	rcvbuf	unset
epsv6	mode	recv	usage
exit	modtime	reget	user
features	more	remopts	verbose
fget	mput	rename	xferbuf
form	mreget	reset	?

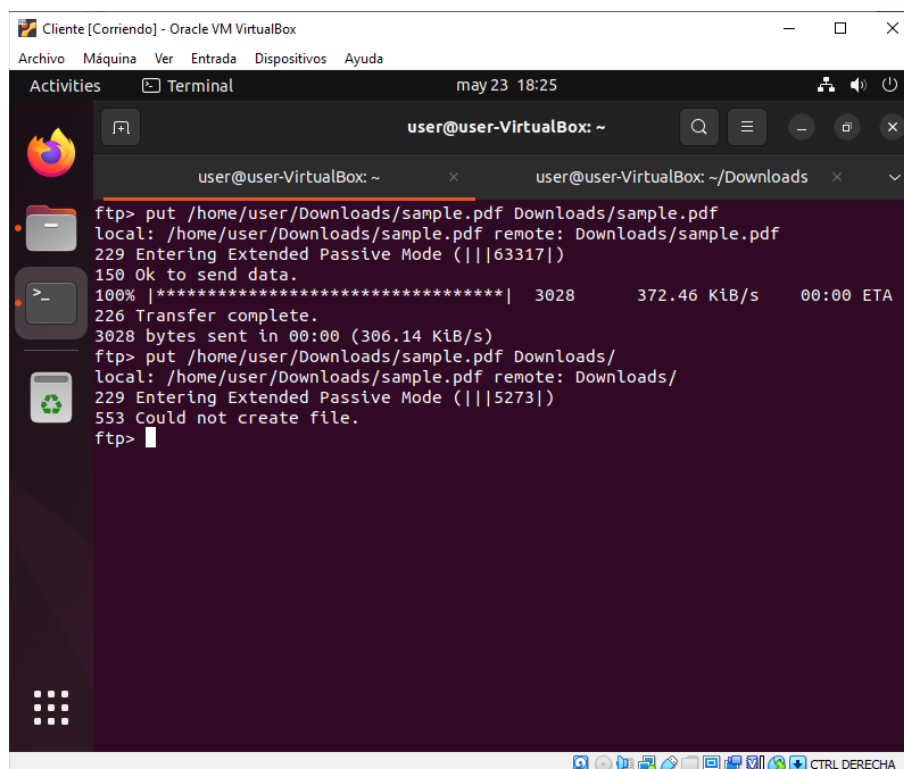
h) Descarga desde Internet un archivo pdf de exemplo na máquina cliente, no cartafol de descargas.



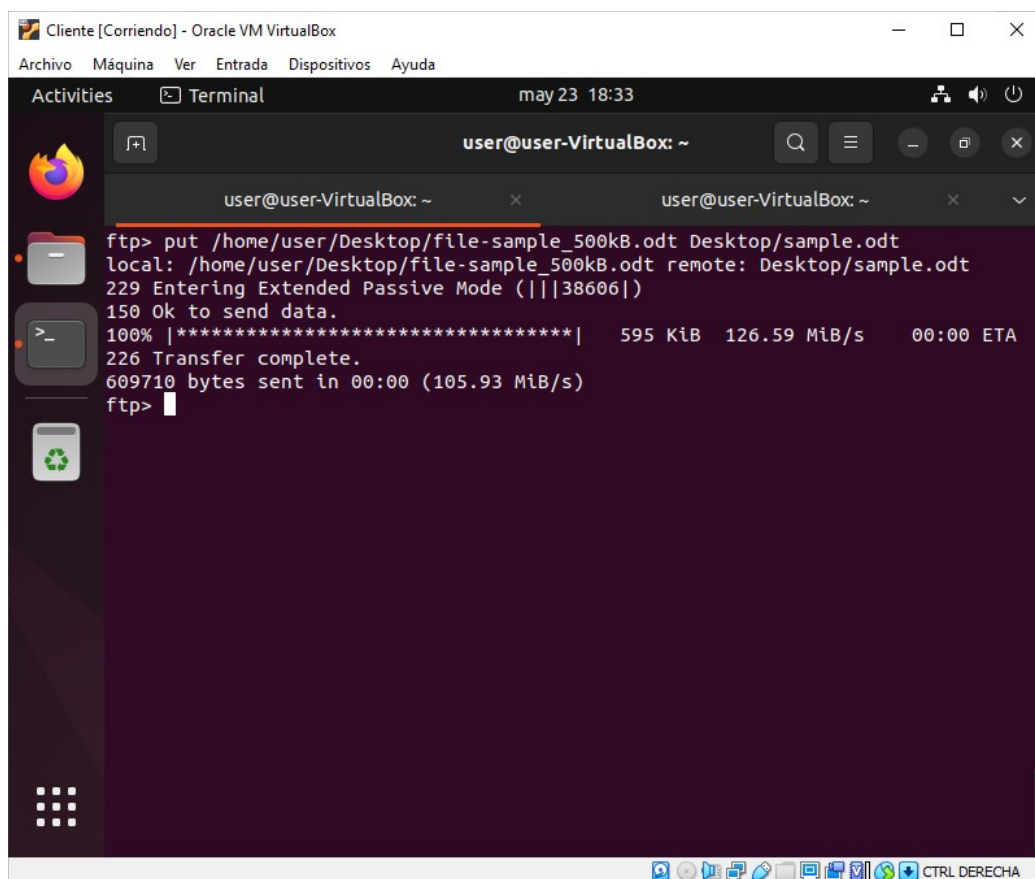
i) Descarga dende Internet un arquivo odt de exemplo na máquina cliente, no cartafol do escritorio.



j) Sube, dende a máquina cliente, ao servidor ftp o arquivo pdf ao cartafol Downloads do servidor ftp.



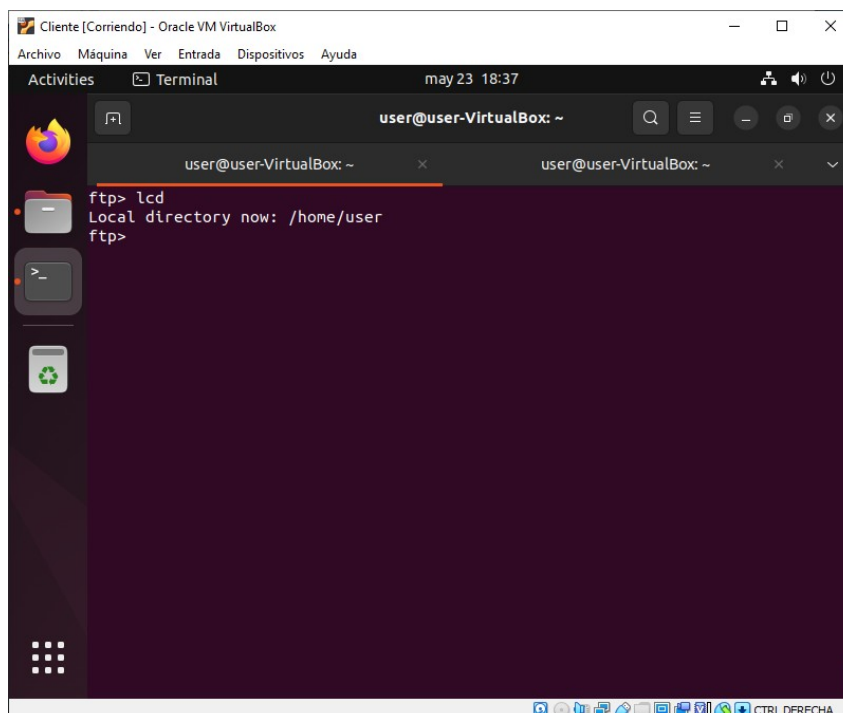
k) Sube, dende a máquina cliente, ao servidor ftp o arquivo odt ao cartafol Desktop do servidor ftp.



The screenshot shows a terminal window titled "Cliente [Corriendo] - Oracle VM VirtualBox". The terminal prompt is "user@user-VirtualBox: ~". The user has entered the command "ftp> put /home/user/Desktop/file-sample_500kB.odt Desktop/sample.odt". The output shows the file being uploaded to the remote directory "Desktop/sample.odt". The transfer progress is displayed as "100% |*****| 595 KiB 126.59 MiB/s 00:00 ETA". The transfer is complete, showing "226 Transfer complete." and "609710 bytes sent in 00:00 (105.93 MiB/s)". The prompt returns to "ftp>".

```
user@user-VirtualBox: ~  
ftp> put /home/user/Desktop/file-sample_500kB.odt Desktop/sample.odt  
local: /home/user/Desktop/file-sample_500kB.odt remote: Desktop/sample.odt  
229 Entering Extended Passive Mode (|||38606|)  
150 Ok to send data.  
100% |*****| 595 KiB 126.59 MiB/s 00:00 ETA  
226 Transfer complete.  
609710 bytes sent in 00:00 (105.93 MiB/s)  
ftp>
```

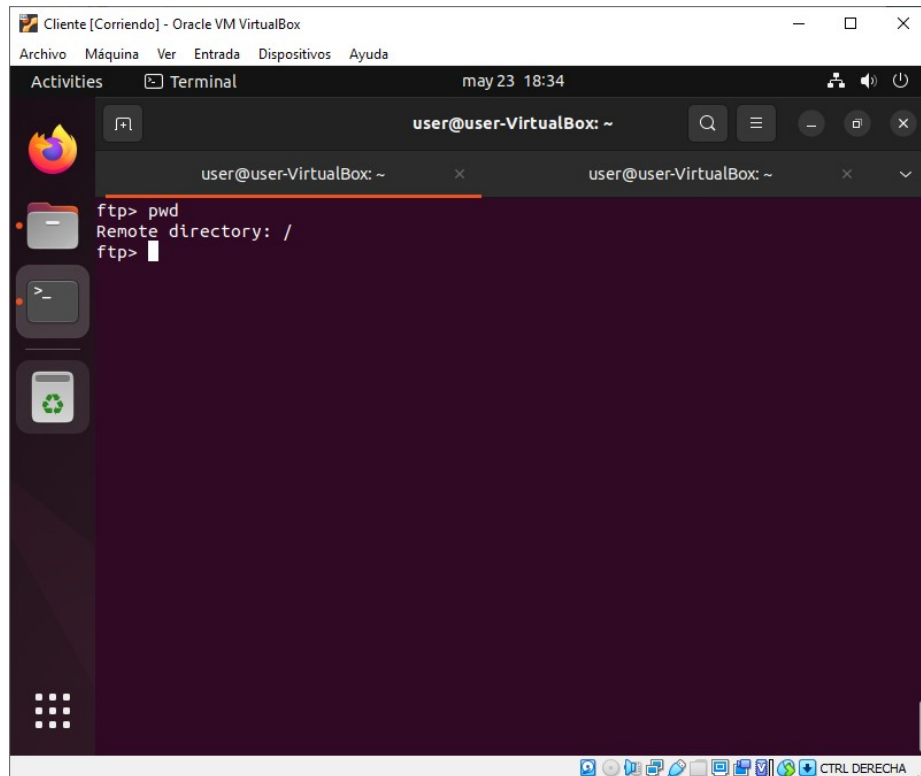
l) Empregando o cliente ftp mostra o directorio local da máquina cliente.



The screenshot shows a terminal window titled "Cliente [Corriendo] - Oracle VM VirtualBox". The terminal prompt is "user@user-VirtualBox: ~". The user has entered the command "ftp> lcd". The output shows the local directory path: "Local directory now: /home/user". The prompt returns to "ftp>".

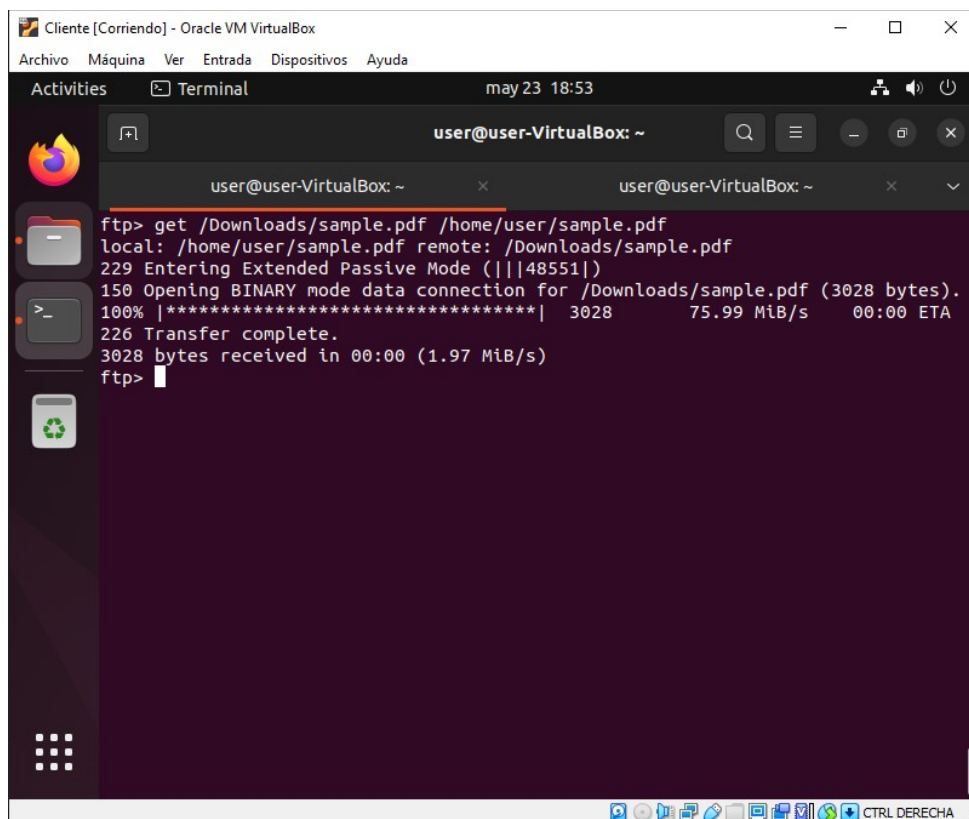
```
user@user-VirtualBox: ~  
ftp> lcd  
Local directory now: /home/user  
ftp>
```


m) Empregando o cliente ftp mostra o directorio remoto da máquina ftpServer.



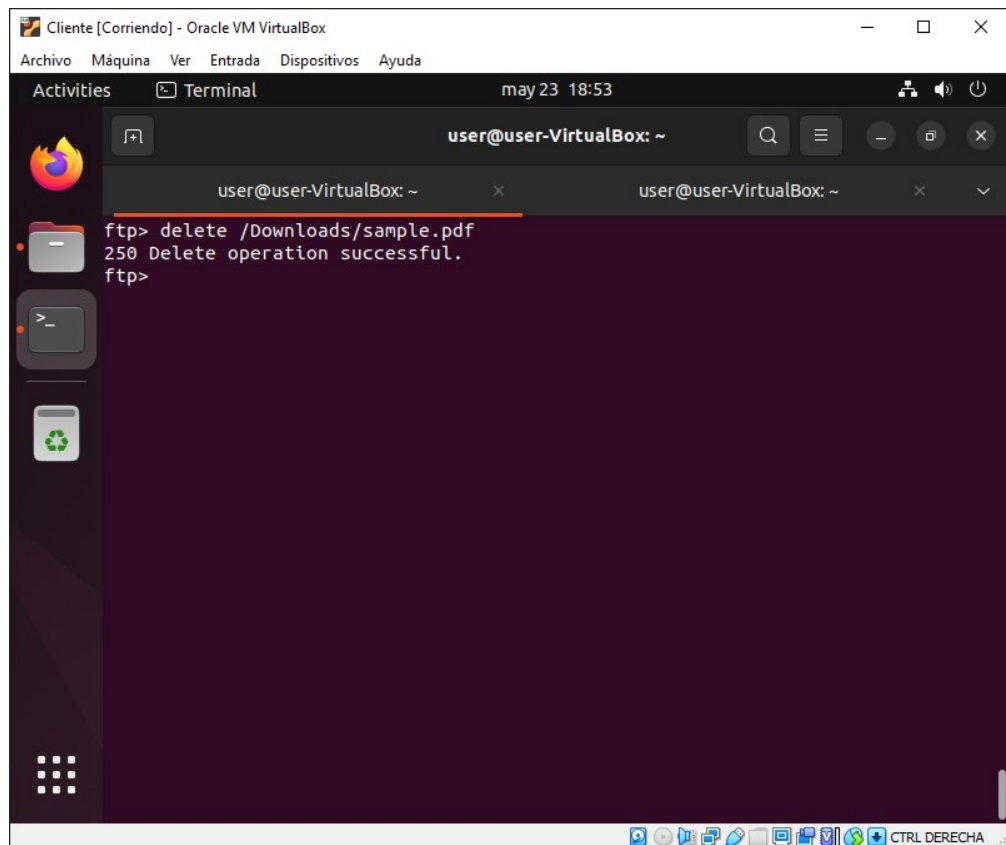
```
Cliente [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
Activities Terminal may 23 18:34
user@user-VirtualBox: ~
ftp> pwd
Remote directory: /
ftp>
```

n) Empregando o cliente ftp descarga o arquivo pdf do servidor ftp no directorio home do usuario local da máquina cliente.

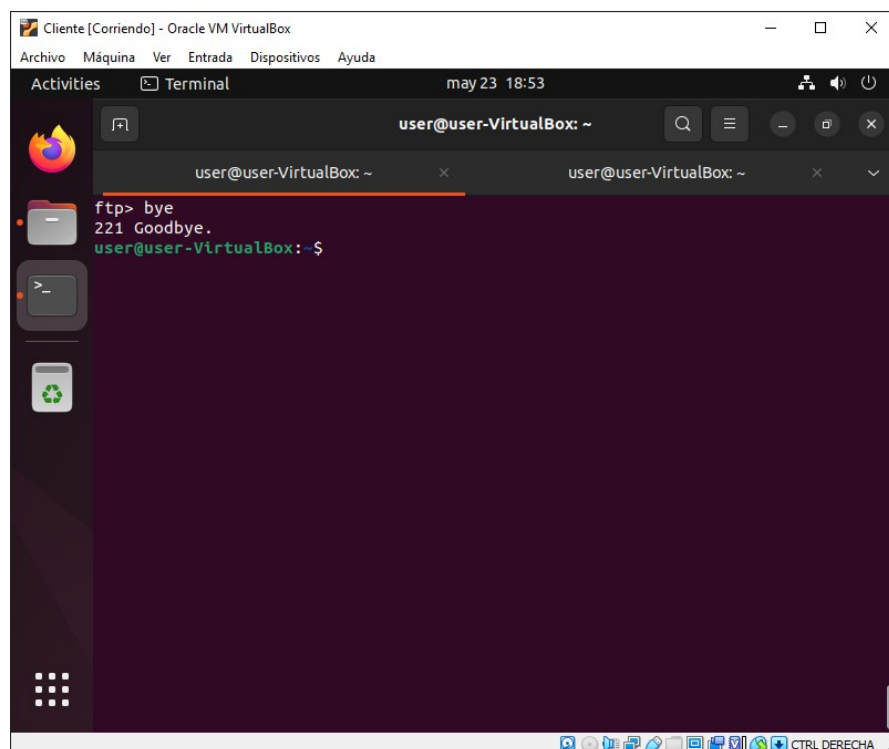


```
Cliente [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
Activities Terminal may 23 18:53
user@user-VirtualBox: ~
ftp> get /Downloads/sample.pdf /home/user/sample.pdf
local: /home/user/sample.pdf remote: /Downloads/sample.pdf
229 Entering Extended Passive Mode (|||48551|)
150 Opening BINARY mode data connection for /Downloads/sample.pdf (3028 bytes).
100% |*****| 3028 75.99 MiB/s 00:00 ETA
226 Transfer complete.
3028 bytes received in 00:00 (1.97 MiB/s)
ftp>
```

ñ) Empleando o cliente ftp elimina o arquivo pdf do servidor ftp.



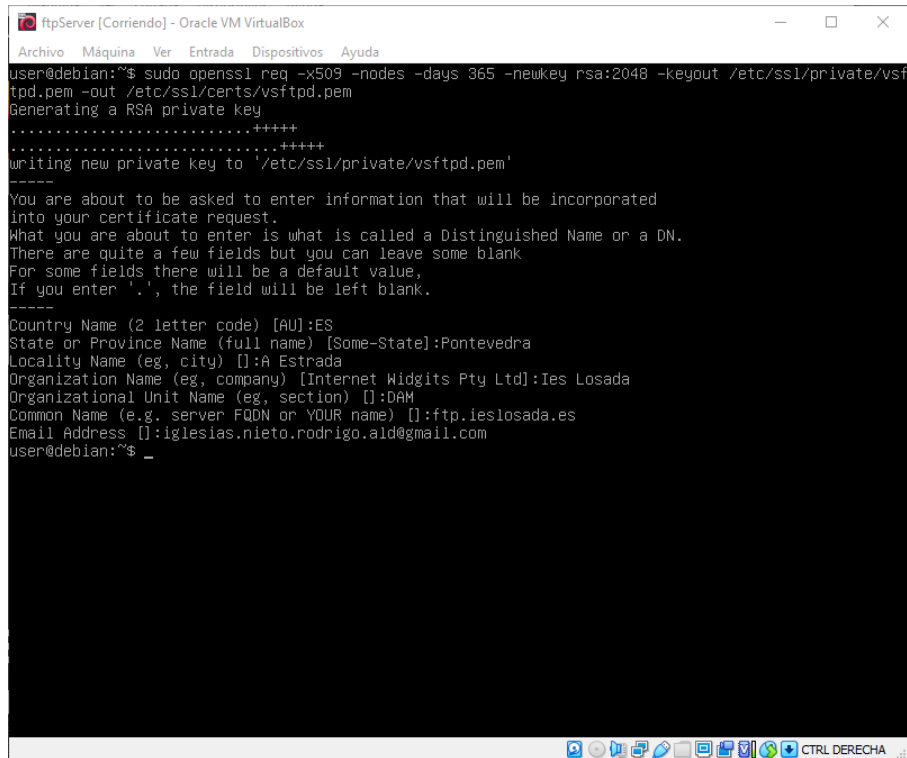
o) Desconecta o cliente ftp do servidor ftp.



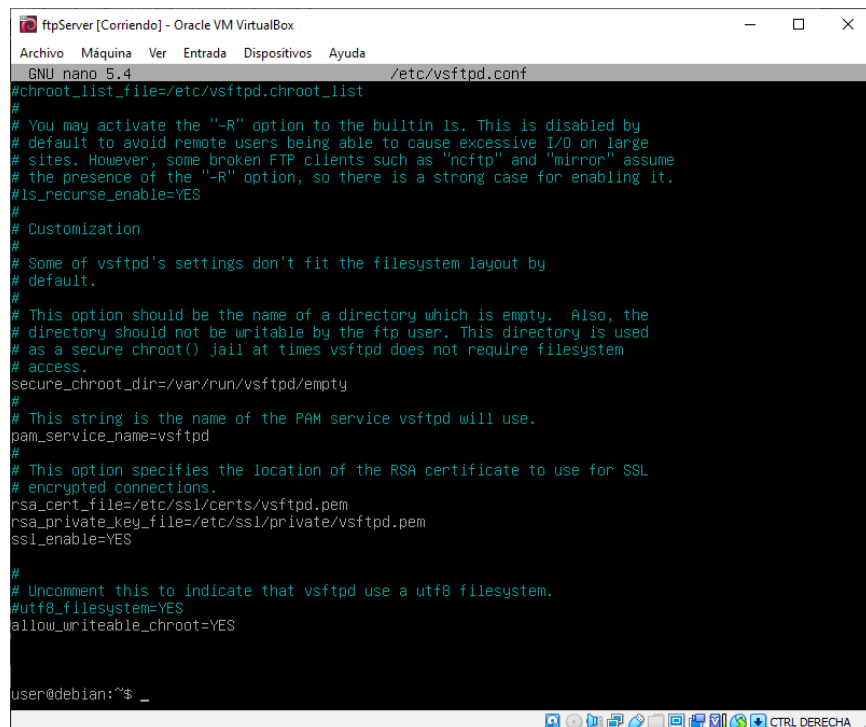
p) Indica se é seguro empregar o servidor ftp tal como está configurado. Xustifica a resposta.

El servidor ahora mismo no es seguro porque no está utilizando SSL.

q) Configura o servidor ftp para que o seu uso sexa seguro.

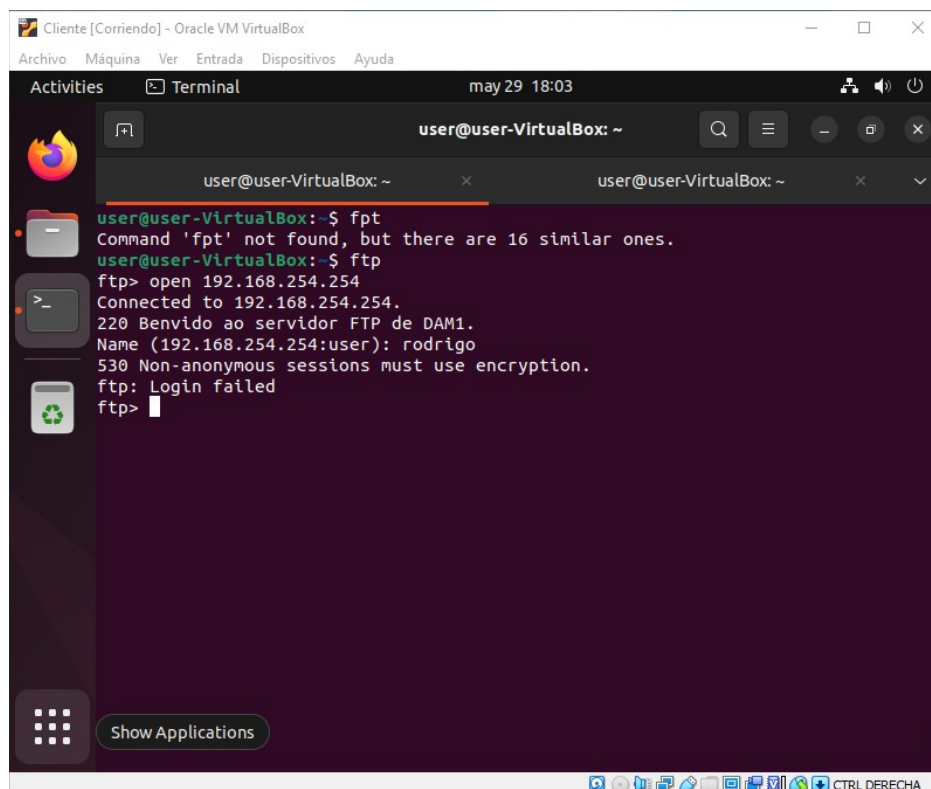


```
ftpServer [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
user@debian:~$ sudo openssl req -x509 -nodes -days 365 -newkey rsa:2048 -keyout /etc/ssl/private/vsftpd.pem -out /etc/ssl/certs/vsftpd.pem
Generating a RSA private key
.....+++++
.....+++++
writing new private key to '/etc/ssl/private/vsftpd.pem'
-----
You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name (2 letter code) [AU]:ES
State or Province Name (full name) [Some-State]:Pontevedra
Locality Name (eg, city) []:A Estrada
Organization Name (eg, company) [Internet Widgits Pty Ltd]:Ies Losada
Organizational Unit Name (eg, section) []:DAM
Common Name (e.g. server FQDN or YOUR name) []:ftp.ieslosada.es
Email Address []:iglesias.nieto.rodriigo.ald@gmail.com
user@debian:~$ _
```



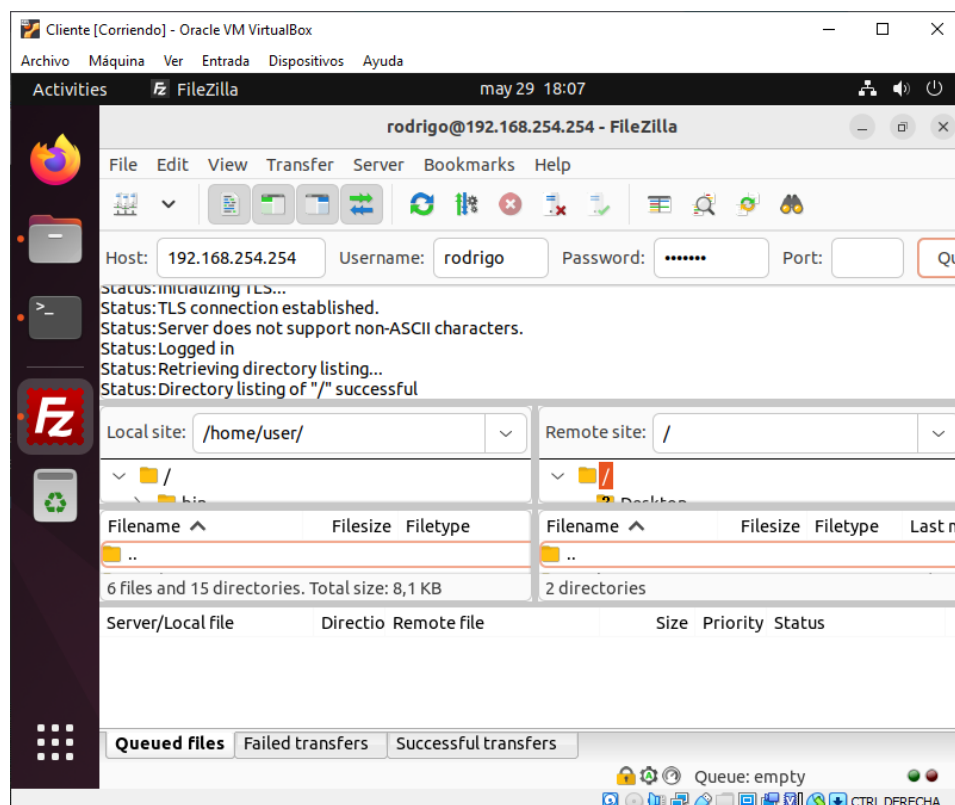
```
ftpServer [Corriendo] - Oracle VM VirtualBox
Archivo Máquina Ver Entrada Dispositivos Ayuda
GNU nano 5.4 /etc/vsftpd.conf
#chroot_list_file=/etc/vsftpd.chroot_list
#
# You may activate the "-R" option to the builtin ls. This is disabled by
# default to avoid remote users being able to cause excessive I/O on large
# sites. However, some broken FTP clients such as "ncftp" and "mirror" assume
# 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
#
# This string is the name of the PAM service vsftpd will use.
pam_service_name=vsftpd
#
# This option specifies the location of the RSA certificate to use for SSL
# encrypted connections.
rsa_cert_file=/etc/ssl/certs/vsftpd.pem
rsa_private_key_file=/etc/ssl/private/vsftpd.pem
ssl_enable=YES
#
# Uncomment this to indicate that vsftpd use a utf8 filesystem.
#utf8_filesystem=YES
allow_writeable_chroot=YES
user@debian:~$ _
```

r) Dende o cliente ftp conéctate ao servidor seguro.



```
user@user-VirtualBox:~$ ftp
Command 'ftp' not found, but there are 16 similar ones.
user@user-VirtualBox:~$ ftp
ftp> open 192.168.254.254
Connected to 192.168.254.254.
220 Benvindo ao servidor FTP de DAM1.
Name (192.168.254.254:user): rodrigo
530 Non-anonymous sessions must use encryption.
ftp: Login failed
ftp>
```

s) Accede ao servidor ftp en modo seguro empregando FileZilla.



Resposta

CA7.6 Utilizáronse métodos de procura de documentación técnica mediante o uso de servizos de internet (10%)



2. Indica as referencias aos recursos que empregaches para a resolución da tarefa 1, incluíndo unha pequena descrición.

Resposta

Información sobre chroot:

- » <https://wiki.gentoo.org/wiki/Chroot/es>
- » <https://www.seguinet.es/creando-una-jaula-en-linux-con-chroot/>

Archivo PDF descargado para la práctica:

- » <https://www.africau.edu/images/default/sample.pdf>

Archivo ODT descargado para la práctica:

- » <https://file-examples.com/index.php/sample-documents-download/sample-odt-download/>

Manual archivo de configuración *vsftpd.conf*:

- » <https://man.linuxreviews.org/man5/vsftpd.conf.5.html>

CA7.3 Realizáronse tarefas de documentación utilizando ferramentas ofimáticas (30%)



3. Realiza unha presentación en formato pdf (UD8_ftp_Apelido1_Apelido2_Nome.pdf) na que recollas a seguinte información:

- Procedemento de instalación do servidor vsftpd
- Procedemento de configuración básica do servidor FTP:
 - Configuración de mensaxe de benvida
 - Configuración de gaiola chroot
- Procedemento de xestión de arquivos mediante ftp:
 - Acceso ao servidor ftp
 - Comandos de axuda
 - Xestión de directorios locais da máquina cliente (desprazamento por diferentes directorios)
 - Xestión de directorios remotos so servidor ftp (desprazamento por

diferentes directorios do servidor)

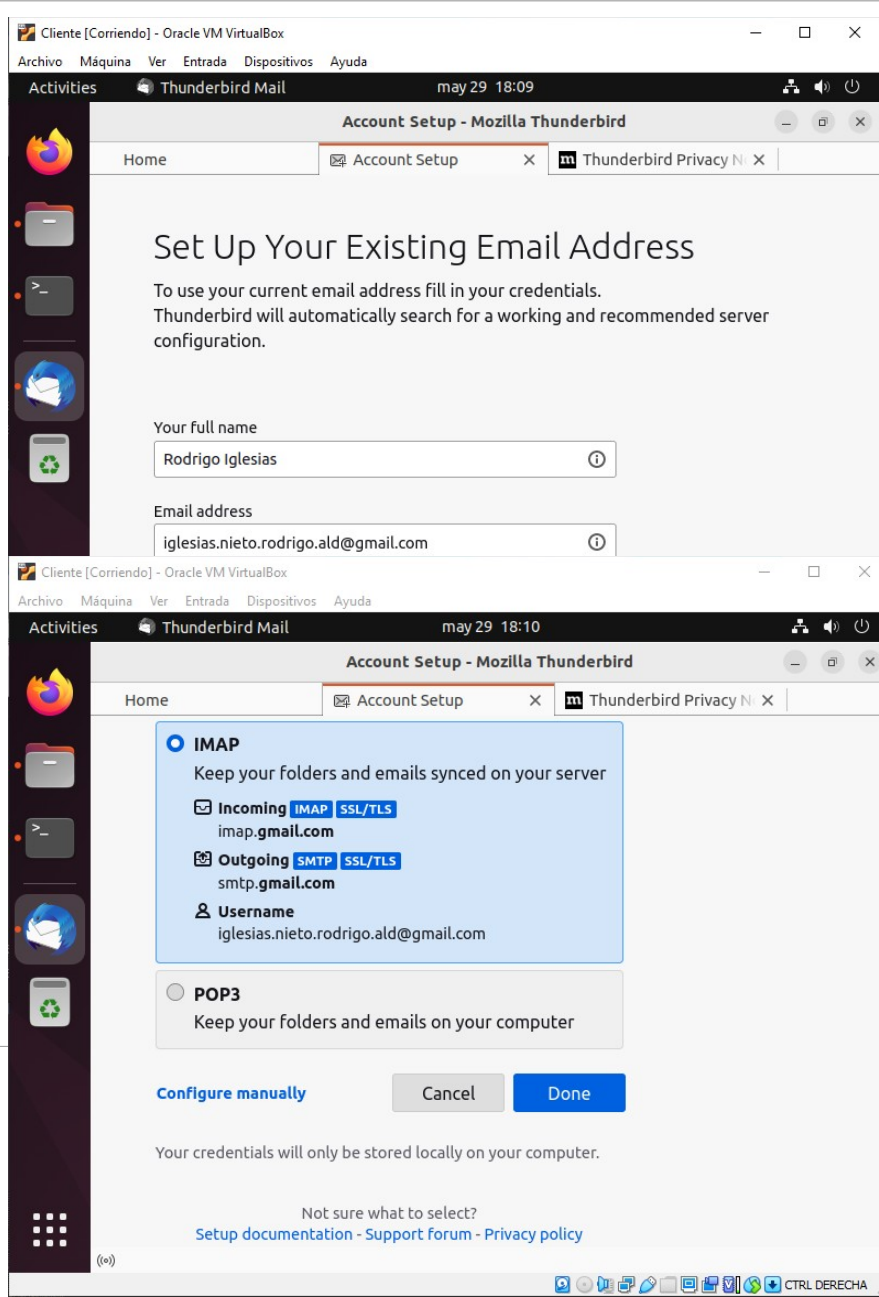
- Carga de arquivos no servidor
- Descarga de arquivos do servidor
- Peché de sesión no servidor ftp

CA7.4 Utilizáronse sistemas de correo e mensaxaría electrónica. (20%)



4. Configura o cliente de correo electrónico Thunderbird Mail para acceder por protocolo IMAP á túa conta de correo de ald. Indica os pasos necesarios para facer a configuración e indica a diferencia entre os protocolos IMAP e POP3.

Resposta



La diferencia entre el almacenamiento IMAP y POP3 es que en el IMAP están almacenados en los servidores de correo permanentemente, y en el caso de POP3 se almacenan temporalmente hasta que son descargados por el usuario y pasan a estar en su equipo local.