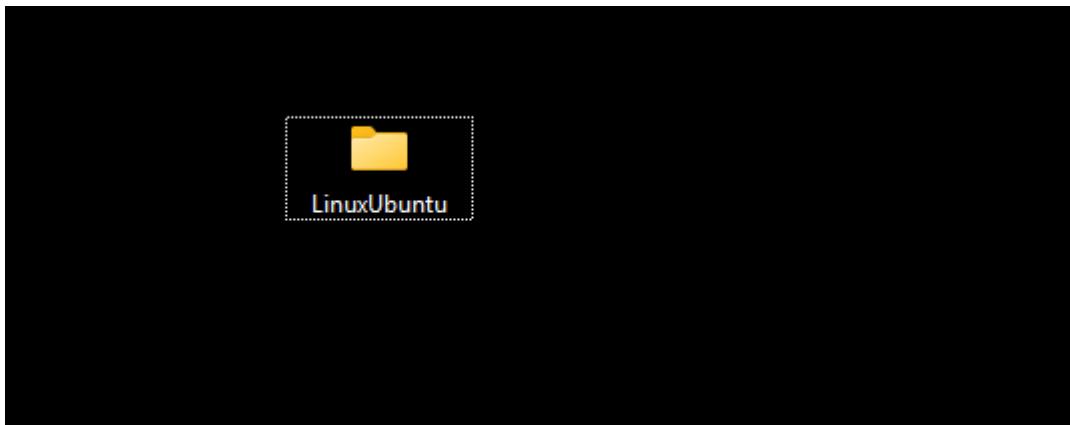
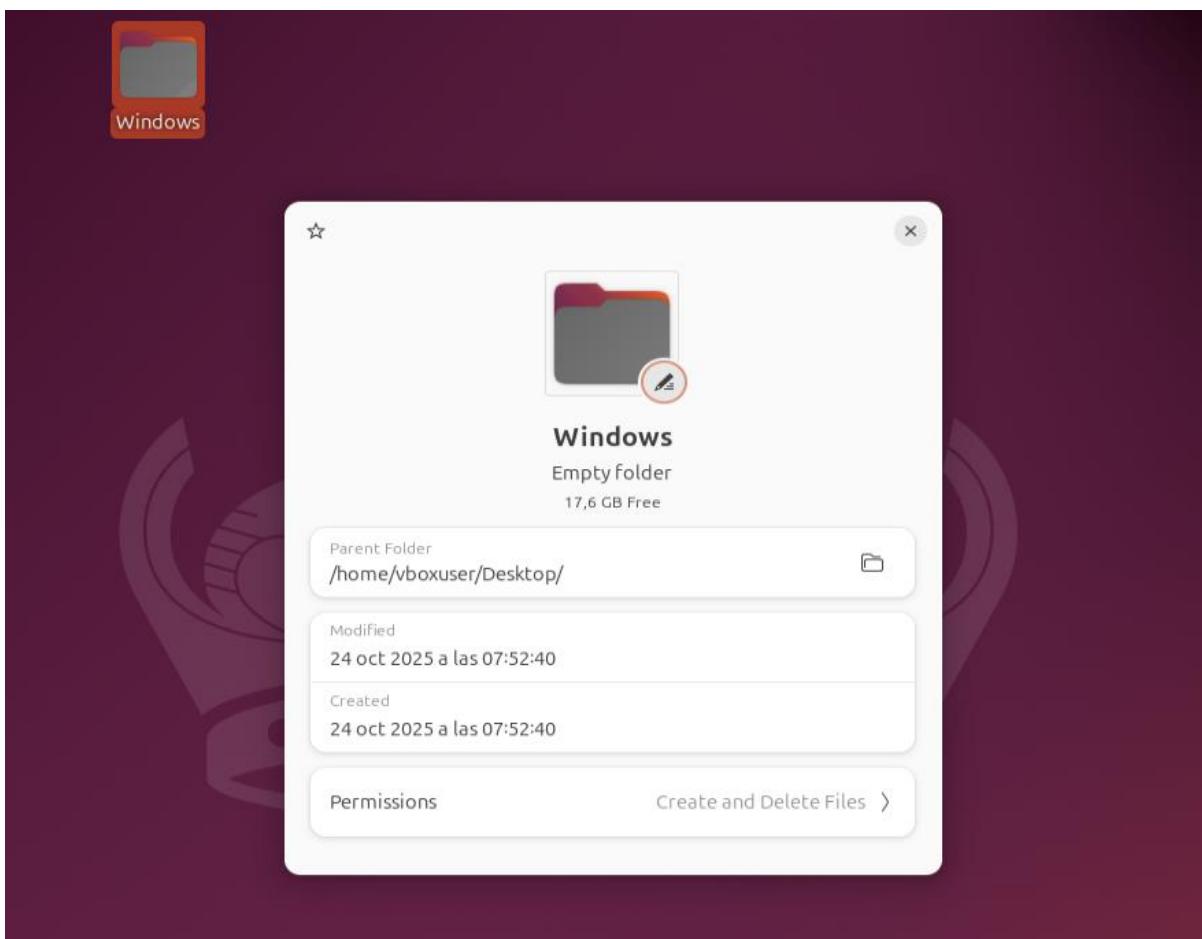


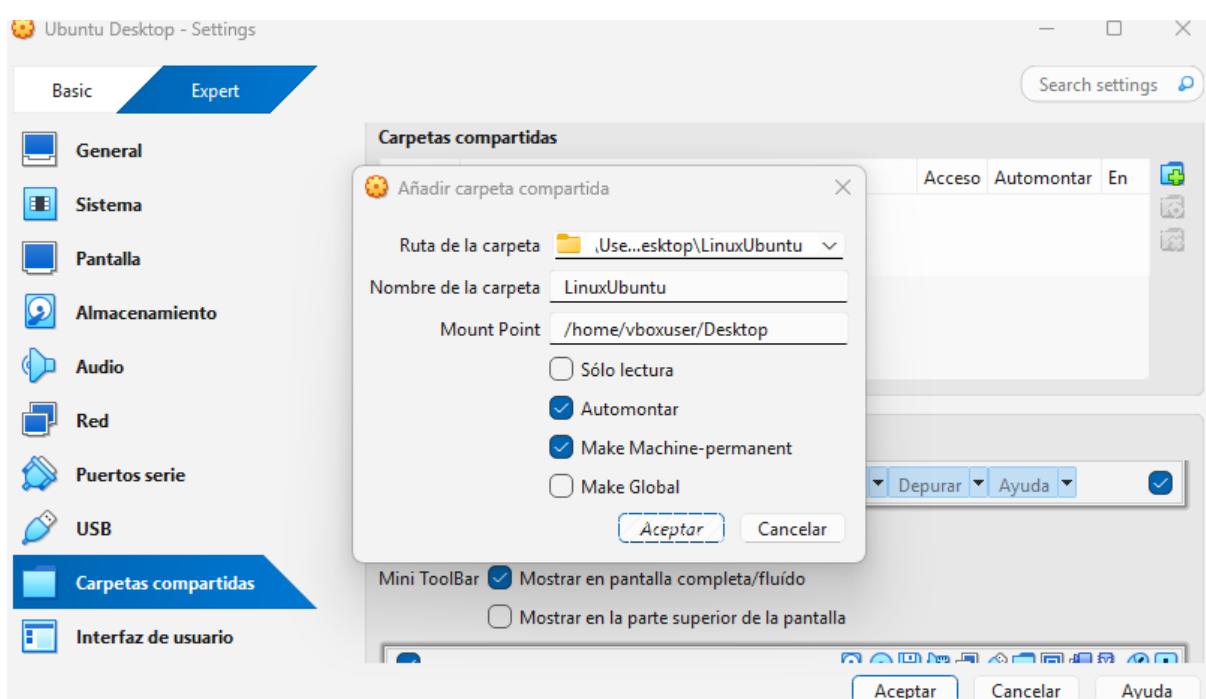
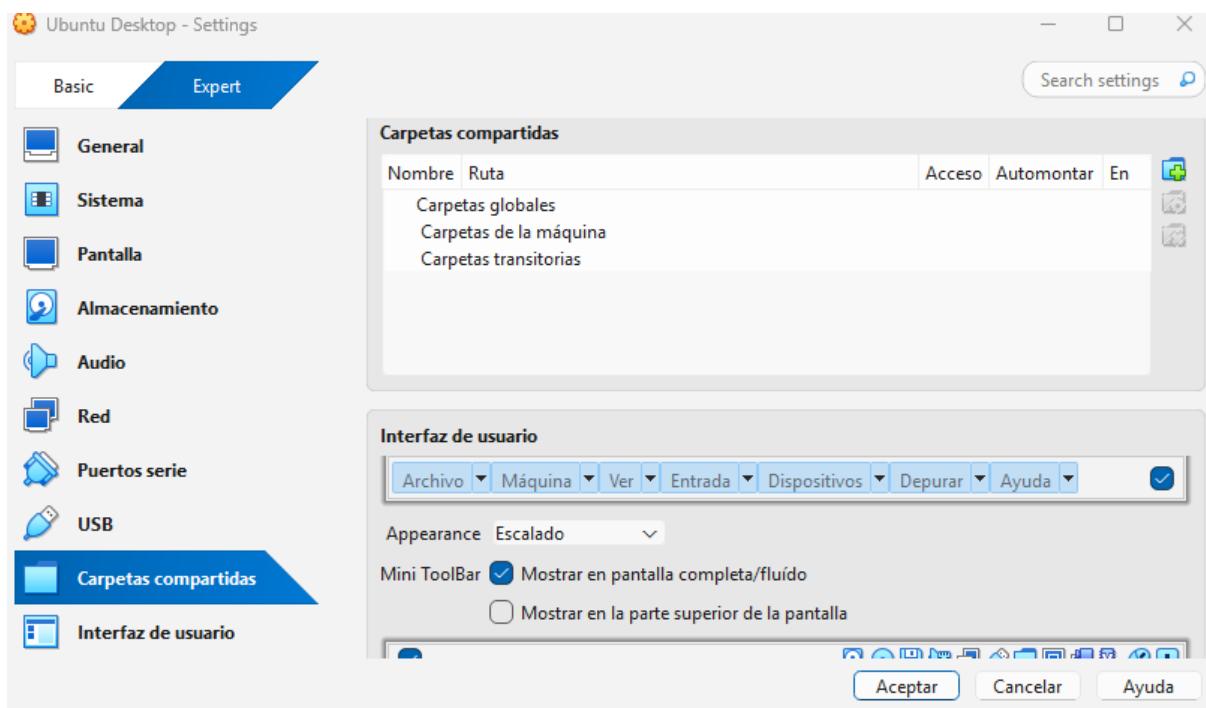
Primero de todo antes de nada tenemos que crear una carpeta compartida desde para poder conectar nuestro sistema Windows a Linux.



Creamos otro archivo al igual, pero en la MV y le ponemos Windows



Ahora crear una carpeta compartida



Añadimos el archivo de autorun.sh para que pueda ejecutarse en la terminal



autorun.sh

Y ahora con los comandos comprobamos, que, efectivamente están las dos carpetas compartidas y con el mismo archivo .pem dentro.

```
root@UbuntuDesktop:~$ sudo su  
sudo] password for vboxuser:  
root@UbuntuDesktop:/home/vboxuser# ls  
Desktop Documents Downloads Music Pictures Public snap Templates Videos  
root@UbuntuDesktop:/home/vboxuser# cd Desktop/  
root@UbuntuDesktop:/home/vboxuser/Desktop# ls  
LinuxUbuntu  
root@UbuntuDesktop:/home/vboxuser/Desktop# cd LinuxUbuntu/  
root@UbuntuDesktop:/home/vboxuser/Desktop/LinuxUbuntu# ls  
absuser.pem  
root@UbuntuDesktop:/home/vboxuser/Desktop/LinuxUbuntu# cp labsuser.pem /home/vbo  
user/Downloads/labsuser.pem  
root@UbuntuDesktop:/home/vboxuser/Desktop/LinuxUbuntu#
```



Después de crear la carpeta compartida vamos a empezar con la parte 1:

Pase el labsuser.pem a una carpeta a ssh para crear la conexion, dandole permisos de acceso a la carpeta como a la llave

```
root@UbuntuDesktop:/home/vboxuser/Downloads# cp labsuser.pem ~/.ssh/labsuser.pem
root@UbuntuDesktop:/home/vboxuser/Downloads# mkdir -p ~/.ssh
root@UbuntuDesktop:/home/vboxuser/Downloads# chmod 700 ~/.ssh
chmod: missing operand after '700~/.ssh'
Try 'chmod --help' for more information.
root@UbuntuDesktop:/home/vboxuser/Downloads# chmod 700 ~/.ssh
root@UbuntuDesktop:/home/vboxuser/Downloads# chmod 400 ~/.ssh/labsuser.pem
root@UbuntuDesktop:/home/vboxuser/Downloads# ls -la ~/.ssh/labsuser.pem
-r----- 1 root root 1678 Oct 31 08:58 /root/.ssh/labsuser.pem
root@UbuntuDesktop:/home/vboxuser/Downloads#
```

Aquí está la tabla con los puertos configurados de aws:

Name	Security group rule ID	Port range
-	sgr-04c28f47b472f7be1	8080
-	sgr-0f548f7a1d7271b2b	8443
-	sgr-0341d9bcabb154ccd	22
-	sgr-06bcf797a0df06d4c	8081
-	sgr-0883dee4fe322bd4e	8082

Ahora conecto a través de ssh hacia la mv aws

```
root@UbuntuDesktop:/home/vboxuser/Downloads# ssh -i ~/.ssh/labsuser.pem ubuntu@34.224.212.142
The authenticity of host '34.224.212.142 (34.224.212.142)' can't be established.
ED25519 key fingerprint is SHA256:10suYlBubegEGRa0vym4M6lIniUHB8fAG73d0a/CAHQ.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? ^[[A^[[A^[[yes
Warning: Permanently added '34.224.212.142' (ED25519) to the list of known hosts.
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.14.0-1011-aws x86_64)

* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/pro

System information as of Fri Oct 31 09:06:32 UTC 2025

System load: 0.49          Temperature:      -273.1 C
Usage of /:   33.0% of 6.71GB  Processes:        116
Memory usage: 28%           Users logged in:    0
Swap usage:   0%            IPv4 address for ens5: 172.31.29.63

Expanded Security Maintenance for Applications is not enabled.

23 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

*** System restart required ***
Last login: Fri Oct 24 07:06:11 2025 from 18.206.107.27
ubuntu@ip-172-31-29-63:~
```

Ahora simplemente hay que seguir la práctica 2 directamente en la instancia ec2 conectada por ssh;

## PARTE 1: INSTALACIÓN Y CONFIGURACIÓN DE APACHE

Actualizar el sistema

```
sudo apt update && sudo apt upgrade -y
```

```
root@UbuntuDesktop:/home/vboxuser# sudo apt update && sudo apt upgrade -y
Get:1 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Hit:2 http://es.archive.ubuntu.com/ubuntu noble InRelease
Get:3 http://es.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:4 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [1,270 kB]
Get:5 http://es.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:6 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1,573 kB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [21.5 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/main amd64 c-n-f Metadata [9,008 B]
Get:9 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:10 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [906 kB]
Get:11 http://es.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [297 kB]
Get:12 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52.3 kB]
Get:13 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [175 kB]
Get:14 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [19.4 kB]
Get:15 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1,573 kB]
Get:16 http://es.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [297 kB]
```

## Instalar Apache2

```
sudo apt install apache2 -y
```

```
root@UbuntuDesktop:/home/vboxuser# sudo apt install apache2 -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  liblvm19
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64
0 upgraded, 8 newly installed, 0 to remove and 0 not upgraded.
Need to get 1,902 kB of archives.
After this operation, 7,451 kB of additional disk space will be used.
Get:1 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 libapr1t64 amd64 1.7.2-3.1ubuntu0.1 [108 kB]
Get:2 http://es.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1t64 amd64 1.6.3-1.1ubuntu7 [91.9 kB]
Get:3 http://es.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-dbd-sqlite3 amd64 1.6.3-1.1ubuntu7 [11.2 kB]
Get:4 http://es.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-ldap amd64 1.6.3-1.1ubuntu7 [9,116 B]
Get:5 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-bin amd64 2.4.58-1ubuntu8.8 [1,331 kB]
Get:6 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-data all 2.4.58-1ubuntu8.8 [163 kB]
```

## Configurar Apache en puerto 8080

```
sudo nano /etc/apache2/ports.conf
```

```
root@UbuntuDesktop:/home/vboxuser# sudo nano /etc/apache2/ports.conf
```

```
GNU nano 7.2                                         /etc/apache2/sites-available/000-default.conf
# If you just change the port or add more ports here, you will likely also
# have to change the VirtualHost statement in
# /etc/apache2/sites-enabled/000-default.conf

Listen 8080

<IfModule ssl_module>
    Listen 443
</IfModule>

<IfModule mod_gnutls.c>
    Listen 443
</IfModule>
```

## Modificar el VirtualHost

```
sudo nano /etc/apache2/sites-available/000-default.conf
```

```
root@UbuntuDesktop:/home/vboxuser# sudo nano /etc/apache2/sites-available/000-default.conf
root@UbuntuDesktop:/home/vboxuser#
```

```
GNU nano 7.2                                         /etc/apache2/sites-available/000-default.conf
<VirtualHost *:8080>
    # The ServerName directive sets the request scheme, hostname and port that
    # the server uses to identify itself. This is used when creating
    # redirection URLs. In the context of virtual hosts, the ServerName
    # specifies what hostname must appear in the request's Host: header to
    # match this virtual host. For the default virtual host (this file) this
    # value is not decisive as it is used as a last resort host regardless.
    # However, you must set it for any further virtual host explicitly.
    #ServerName www.example.com

    ServerAdmin webmaster@localhost
    DocumentRoot /var/www/html

    # Available loglevels: trace8, ..., trace1, debug, info, notice, warn,
    # error, crit, alert, emerg.
    # It is also possible to configure the loglevel for particular
    # modules, e.g.
    #LogLevel info ssl:warn

    ErrorLog ${APACHE_LOG_DIR}/error.log
    CustomLog ${APACHE_LOG_DIR}/access.log combined

    # For most configuration files from conf-available/, which are
    # enabled or disabled at a global level, it is possible to
    # include a line for only one particular virtual host. For example the
    # following line enables the CGI configuration for this host only
    # after it has been globally disabled with "a2disconf".
    #Include conf-available/serve-cgi-bin.conf
</VirtualHost>
```

## Instalar PHP

```
sudo apt install php libapache2-mod-php -y
```

```
root@UbuntuDesktop:/home/vboxuser# sudo apt install php libapache2-mod-php -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  libl11vm19
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  libapache2-mod-php8.3 libsodium23 php-common php8.3 php8.3-cli php8.3-common php8.3-opcache php8.3-readline
Suggested packages:
  php-pear
The following NEW packages will be installed:
  libapache2-mod-php libapache2-mod-php8.3 libsodium23 php php-common php8.3 php8.3-cli php8.3-common php8.3-op
0 upgraded, 10 newly installed, 0 to remove and 0 not upgraded.
Need to get 5,084 kB of archives.
After this operation, 22.8 MB of additional disk space will be used.
Get:1 http://es.archive.ubuntu.com/ubuntu noble/main amd64 php-common all 2:93ubuntu2 [13.9 kB]
Get:2 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-common amd64 8.3.6-0ubuntu0.24.04.5
Get:3 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-opcache amd64 8.3.6-0ubuntu0.24.04.5
Get:4 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-readline amd64 8.3.6-0ubuntu0.24.04.5
Get:5 http://es.archive.ubuntu.com/ubuntu noble/main amd64 libsodium23 amd64 1.0.18-1build3 [161 kB]
Get:6 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-cli amd64 8.3.6-0ubuntu0.24.04.5 [1,9
Get:7 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 libapache2-mod-php8.3 amd64 8.3.6-0ubuntu0.24.04.5
Get:8 http://es.archive.ubuntu.com/ubuntu noble/main amd64 libapache2-mod-php all 2:8.3+93ubuntu2 [4,224 B]
Get:9 http://es.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3 all 8.3.6-0ubuntu0.24.04.5 [9,174 B]
Get:10 http://es.archive.ubuntu.com/ubuntu noble/main amd64 php all 2:8.3+93ubuntu2 [4,076 B]
```

## Reiniciar Apache

```
sudo systemctl restart apache2
```

```
sudo systemctl status apache2
```

```
root@UbuntuDesktop:/home/vboxuser# sudo systemctl restart apache2
root@UbuntuDesktop:/home/vboxuser# sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Fri 2025-10-31 09:35:55 UTC; 21s ago
     Docs: https://httpd.apache.org/docs/2.4/
 Process: 25502 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
 Main PID: 25505 (apache2)
    Tasks: 6 (limit: 4603)
   Memory: 10.7M (peak: 11.4M)
      CPU: 38ms
     CGroup: /system.slice/apache2.service
             ├─25505 /usr/sbin/apache2 -k start
             ├─25507 /usr/sbin/apache2 -k start
             ├─25508 /usr/sbin/apache2 -k start
             ├─25509 /usr/sbin/apache2 -k start
             ├─25510 /usr/sbin/apache2 -k start
             └─25511 /usr/sbin/apache2 -k start

Oct 31 09:35:54 UbuntuDesktop systemd[1]: Starting apache2.service - The Apache HTTP Server...
Oct 31 09:35:55 UbuntuDesktop apachectl[25504]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127.0.1.1 for Port 80
Oct 31 09:35:55 UbuntuDesktop systemd[1]: Started apache2.service - The Apache HTTP Server.
lines 1-20/20 (END)
```

## Instalamos el paquete de net-tools

```
root@UbuntuDesktop:/home/vboxuser# sudo apt install net-tools
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  liblvm19
Use 'sudo apt autoremove' to remove it.
The following NEW packages will be installed:
  net-tools
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded
```

Comando adicional para verificar puerto: sudo netstat -tulpn | grep apache2

Verifica en qué puerto está escuchando Apache (debe mostrar 8080).

```
ubuntu@ip-172-31-29-63:~$ sudo netstat -tulpn | grep 8080
tcp6      0      0 :::8080                           ::::*                  LISTEN      18631/apache2
ubuntu@ip-172-31-29-63:~$ █
```

```
echo "" | sudo tee /var/www/html/info.php
```

Crea un archivo que muestra información del PHP instalado.

```
root@UbuntuDesktop:/home/vboxuser# echo "<?php phpinfo(); ?>" | sudo tee /var/www/html/info.php
<?php phpinfo(); ?>
root@UbuntuDesktop:/home/vboxuser#
```

Probar Apache desde terminal

```
curl http://localhost:8080/info.php
```

Verifica que Apache sirve correctamente el contenido PHP

```
root@UbuntuDesktop:/home/vboxuser# curl http://localhost:8080/info.php
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml"><head>
<style type="text/css">
body {background-color: #fff; color: #222; font-family: sans-serif;}
pre {margin: 0; font-family: monospace;}
a:link {color: #009; text-decoration: none; background-color: #fff;}
a:hover {text-decoration: underline;}
table {border-collapse: collapse; border: 0; width: 934px; box-shadow: 1px 2px 3px rgba(0, 0, 0, 0.2);}
.center {text-align: center;}
.center table {margin: 1em auto; text-align: left;}
.center th {text-align: center !important;}
td, th {border: 1px solid #666; font-size: 75%; vertical-align: baseline; padding: 4px 5px;}
th {position: sticky; top: 0; background: inherit;}
h1 {font-size: 150%;}
h2 {font-size: 125%;}
h2 a:link, h2 a:visited{color: inherit; background: inherit;}
.p {text-align: left;}
.e {background-color: #ccf; width: 300px; font-weight: bold;}
.h {background-color: #99c; font-weight: bold;}
```

```
ubuntu@ip-172-31-29-63:~$ curl http://localhost:8080/info.php
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml"><head>
<style type="text/css">
body {background-color: #fff; color: #222; font-family: sans-serif;}
pre {margin: 0; font-family: monospace;}
a:link {color: #009; text-decoration: none; background-color: #fff;}
a:hover {text-decoration: underline;}
table {border-collapse: collapse; border: 0; width: 934px; box-shadow: 1px 2px 3px rgba(0, 0, 0, 0.2);}
.center {text-align: center;}
.center table {margin: 1em auto; text-align: left;}
.center th {text-align: center !important;}
td, th {border: 1px solid #666; font-size: 75%; vertical-align: baseline; padding: 4px 5px;}
th {position: sticky; top: 0; background: inherit;}
h1 {font-size: 150%;}
h2 {font-size: 125%;}
h2 a:link, h2 a:visited{color: inherit; background: inherit;}
.p {text-align: left;}
.e {background-color: #ccf; width: 300px; font-weight: bold;}
.h {background-color: #99c; font-weight: bold;}
.v {background-color: #ddd; max-width: 300px; overflow-x: auto; word-wrap: break-word;}
.v i {color: #999;}
```

PHP Version 8.3.6	
System	Linux ip-172-31-29-63 6.14.0-1015-aws #15~24.04.1-Ubuntu SMP Tue Sep 23 22:44:48 UTC 2025 x86_64
Build Date	Jul 14 2025 18:30:55
Build System	Linux
Server API	Apache 2.0 Handler
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/etc/php/8.3/apache2
Loaded Configuration File	/etc/php/8.3/apache2/php.ini
Scan this dir for additional .ini files	/etc/php/8.3/apache2/conf.d
Additional .ini files parsed	/etc/php/8.3/apache2/conf.d/10-opcache.ini, /etc/php/8.3/apache2/conf.d/10-pdo.ini, /etc/php/8.3/apache2/conf.d/20-curl.ini, /etc/php/8.3/apache2/conf.d/20-dom.ini, /etc/php/8.3/apache2/conf.d/20-exif.ini, /etc/php/8.3/apache2/conf.d/20-finfo.ini, /etc/php/8.3/apache2/conf.d/20-fileno.ini, /etc/php/8.3/apache2/conf.d/20-ftp.ini, /etc/php/8.3/apache2/conf.d/20-gettext.ini, /etc/php/8.3/apache2/conf.d/20-iconv.ini, /etc/php/8.3/apache2/conf.d/20-phar.ini, /etc/php/8.3/apache2/conf.d/20-posix.ini, /etc/php/8.3/apache2/conf.d/20-pspell.ini, /etc/php/8.3/apache2/conf.d/20-readline.ini, /etc/php/8.3/apache2/conf.d/20-session.ini, /etc/php/8.3/apache2/conf.d/20-sockets.ini, /etc/php/8.3/apache2/conf.d/20-sysmsg.ini, /etc/php/8.3/apache2/conf.d/20-sysvmsg.ini, /etc/php/8.3/apache2/conf.d/20-sysvshm.ini, /etc/php/8.3/apache2/conf.d/20-tokenizer.ini
PHP API	20230831
PHP Extension	20230831
Zend Extension	420230831
Zend Extension Build	API420230831.NTS
PHP Extension Build	API20230831.NTS
Debug Build	no
Thread Safety	disabled
Zend Signal Handling	enabled
Zend Memory Manager	enabled
Zend Multibyte Support	disabled
Zend Max Execution Timers	disabled
IPv6 Support	enabled
DTrace Support	disabled
Registered PHP Streams	https, ftps, compress.zlib, php, file, glob, data, http, ftp, phar
Registered Stream Socket Transports	tcp, udp, unix, udg, ssl, tls, tlsv1.0, tlsv1.1, tlsv1.2, tlsv1.3
Registered Stream Filters	zlib.*, string.rot13, string.toupper, string.tolower, convert.*, consumed, dechunk, convert.iconv.*
This program makes use of the Zend Scripting Language Engine: Zend Engine v4.3.6, Copyright (c) Zend Technologies with Zend OPcache v8.3.6, Copyright (c), by Zend Technologies	
	

## PARTE 2: INSTALACIÓN Y CONFIGURACIÓN DE NGINX

Instalar Nginx

```
sudo apt install nginx -y
```

Instala el servidor web Nginx en tu sistema.

```
</div></body></html>ubuntu@ip-172-31-29-63:~$ sudo apt install nginx -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  linux-aws-6.14-headers-6.14.0-1011 linux-aws-6.14-tools-6.14.0-1011 linux-headers-6.14.0-1011-aws lin
  linux-tools-6.14.0-1011-aws
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  nginx-common
Suggested packages:
  fcgiwrap nginx-doc
The following NEW packages will be installed:
  nginx nginx-common
0 upgraded, 2 newly installed, 0 to remove and 0 not upgraded.
Need to get 564 kB of archives.
After this operation, 1596 kB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx-common all 1.24.0-2
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx amd64 1.24.0-2ubunt
Fetched 564 kB in 0s (21.8 MB/s)
Preconfiguring packages ...
Selecting previously unselected package nginx-common.
(Reading database ... 135912 files and directories currently installed.)
Preparing to unpack .../nginx-common_1.24.0-2ubuntu7.5_all.deb ...
Unpacking nginx-common (1.24.0-2ubuntu7.5) ...
Selecting previously unselected package nginx.
Preparing to unpack .../nginx_1.24.0-2ubuntu7.5_amd64.deb ...
```

## Configurar Nginx en puerto 8081

sudo nano /etc/nginx/sites-available/default

Abre la configuración por defecto. Cambia listen 80 por listen 8081.

```

# You should look at the following URL's in order to grasp a solid understanding
# of Nginx configuration files in order to fully unleash the power of Nginx.
# https://www.nginx.com/resources/wiki/start/
# https://www.nginx.com/resources/wiki/start/topics/tutorials/config_pitfalls/
# https://wiki.debian.org/Nginx/DirectoryStructure

In most cases, administrators will remove this file from sites-enabled/ and
leave it as reference inside of sites-available where it will continue to be
updated by the nginx packaging team.

This file will automatically load configuration files provided by other
applications, such as Drupal or Wordpress. These applications will be made
available underneath a path with that package name, such as /drupal8.

Please see /usr/share/doc/nginx-doc/examples/ for more detailed examples.

Default server configuration

server {
    listen 8081 default_server;
    listen [::]:8081 default_server;

    # SSL configuration
    #
    # listen 443 ssl default_server;
    # listen [::]:443 ssl default_server;
    #
    # Note: You should disable gzip for SSL traffic.
    # See: https://bugs.debian.org/773332
    #
    # Read up on ssl_ciphers to ensure a secure configuration.
    # See: https://bugs.debian.org/765782

```

Crear página HTML personalizada

```

echo " Funcionando en puerto 8081"

" | sudo tee /usr/share/nginx/html/index.html Descripción: Crea una página HTML
identifiable para Nginx "

```

```

ubuntu@ip-172-31-29-63:~$ echo "<h1>Servidor Nginx</h1><p>Funcionando en puerto 8081</p>" | sudo tee
/usr/share/nginx/html/index.html
<h1>Servidor Nginx</h1><p>Funcionando en puerto 8081</p>
-bash: /usr/share/nginx/html/index.html: Permission denied
ubuntu@ip-172-31-29-63:~$ █

```

Reinic平 nginx y ver el estado y comprobar que esta funcionando correctamente

```
sudo systemctl restart nginx
```

```
ubuntu@ip-172-31-29-63:~$ sudo systemctl restart nginx
ubuntu@ip-172-31-29-63:~$ sudo systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; preset: enabled)
   Active: active (running) since Fri 2025-10-31 09:56:08 UTC; 19s ago
     Docs: man:nginx(8)
 Process: 19160 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Process: 19161 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Main PID: 19163 (nginx)
    Tasks: 3 (limit: 1017)
   Memory: 2.4M (peak: 2.6M)
      CPU: 18ms
      CGroup: /system.slice/nginx.service
              └─19163 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
                ├─19164 "nginx: worker process"
                ├─19165 "nginx: worker process"

Oct 31 09:56:08 ip-172-31-29-63 systemd[1]: Starting nginx.service - A high performance web server and a reverse proxy server...
Oct 31 09:56:08 ip-172-31-29-63 systemd[1]: Started nginx.service - A high performance web server and a reverse proxy server.
ubuntu@ip-172-31-29-63:~$
```

Comando adicional para verificar puerto:

```
sudo netstat -tulpn | grep nginx
```

Verifica en qué puerto está escuchando Nginx (debe mostrar 8081).

```
ubuntu@ip-172-31-29-63:~$ sudo netstat -tulpn | grep nginx
tcp        0      0 0.0.0.0:8081          0.0.0.0:*                  LISTEN      19163/nginx: master
tcp6       0      0 :::::8081           ::::*                  LISTEN      19163/nginx: master
ubuntu@ip-172-31-29-63:~$
```

Probar Nginx desde terminal

```
curl http://localhost:8081
```

echo Verifica que Nginx sirve correctamente el contenido HTML

```
root@UbuntuDesktop:/home/vboxuser# curl http://localhost:8081
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
  <!--
    Modified from the Debian original for Ubuntu
    Last updated: 2022-03-22
    See: https://launchpad.net/bugs/1966004
  -->
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
    <title>Apache2 Ubuntu Default Page: It works</title>
    <style type="text/css" media="screen">
      * {
        margin: 0px 0px 0px 0px;
        padding: 0px 0px 0px 0px;
      }

      body, html {
        padding: 3px 3px 3px 3px;
        background-color: #D8DBE2;

        font-family: Ubuntu, Verdana, sans-serif;
      }
    </style>
  </head>
  <body>
    <h1>It works</h1>
    <p>This is the default page for your web server.
       You can replace it with your own content.</p>
    <ul>
      <li>Index of /</li>
      <li>Information about /</li>
    </ul>
  </body>
</html>
```

## PARTE 3: INSTALACIÓN Y CONFIGURACIÓN DE CADDY

### 1. Instalar dependencias necesarias

```
sudo apt install -y debian-keyring debian-archive-keyring apt-transport-https curl  
Instala herramientas necesarias para añadir repositorios externos.
```

```
ubuntu@ip-172-31-29-63:~$ sudo apt install -y debian-keyring debian-archive-keyring apt-transport-https curl  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
curl is already the newest version (8.5.0-2ubuntu10.6).  
The following packages were automatically installed and are no longer required:  
  linux-aws-6.14-headers-6.14.0-1011 linux-aws-6.14-tools-6.14.0-1011 linux-headers-6.14.0-1011-aws linux-image-6.14.0-1011-aws linux-modules-6.14.0-1011-aws  
  linux-tools-6.14.0-1011-aws  
Use 'sudo apt autoremove' to remove them.  
The following NEW packages will be installed:  
  apt-transport-https debian-archive-keyring debian-keyring  
0 upgraded, 3 newly installed, 0 to remove and 0 not upgraded.  
Need to get 31.5 MB of archives.  
After this operation, 33.4 MB of additional disk space will be used.  
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 apt-transport-https all 2.8.3 [3970 B]  
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 debian-archive-keyring all 2023.4ubuntu1 [168 kB]  
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu/nobడe/universe amd64 debian-keyring all 2023.12.24 [31.3 MB]  
Fetched 31.5 MB in 0s (77.7 MB/s)  
Selecting previously unselected package apt-transport-https.  
(Reading database ... 135960 files and directories currently installed.)  
Preparing to unpack .../apt-transport-https_2.8.3_all.deb ...  
Unpacking apt-transport-https (2.8.3) ...  
Selecting previously unselected package debian-archive-keyring.  
Preparing to unpack .../debian-archive-keyring_2023.4ubuntu1_all.deb ...  
Unpacking debian-archive-keyring (2023.4ubuntu1) ...  
Selecting previously unselected package debian-keyring.  
Preparing to unpack .../debian-keyring_2023.12.24_all.deb ...  
Unpacking debian-keyring (2023.12.24) ...
```

### Agregar repositorio de Caddy curl -1sLf

```
'https://dl.cloudsmith.io/public/caddy/stable/gpg.key' | sudo gpg --dearmor -o  
/usr/share/keyrings/caddy-stable-archive-keyring.gpg curl -1sLf  
'https://dl.cloudsmith.io/public/caddy/stable/debian.deb.txt' | sudo tee  
/etc/apt/sources.list.d/caddy-stable.list
```

Añade el repositorio oficial de Caddy a tu sistema.

```
ubuntu@ip-172-31-29-63:~$ curl -1sLf 'https://dl.cloudsmith.io/public/caddy/stable/gpg.key' | sudo gpg --dearmor -o /usr/share/keyrings/caddy-stable-archive-keyring.gpg  
ubuntu@ip-172-31-29-63:~$ curl -1sLf 'https://dl.cloudsmith.io/public/caddy/stable/debian.deb.txt' | sudo tee /etc/apt/sources.list.d/caddy-stable.list  
  
# Source: Caddy  
# Site: https://github.com/caddyserver/caddy  
# Repository: Caddy / stable  
# Description: Fast, multi-platform web server with automatic HTTPS  
  
deb [signed-by=/usr/share/keyrings/caddy-stable-archive-keyring.gpg] https://dl.cloudsmith.io/public/caddy/stable/deb/debian any-version main  
deb-src [signed-by=/usr/share/keyrings/caddy-stable-archive-keyring.gpg] https://dl.cloudsmith.io/public/caddy/stable/deb/debian any-version main  
ubuntu@ip-172-31-29-63:~$
```

### Actualizar e instalar Caddy

```
sudo apt update && sudo apt install caddy -y
```

Actualiza la lista de paquetes e instala Caddy

```
ubuntu@ip-172-31-29-63:~$ sudo apt update && sudo apt install caddy -y
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease
Get:5 https://dl.cloudsmith.io/public/caddy/stable/deb/debian any-version InRelease [14.8 kB]
Get:6 https://dl.cloudsmith.io/public/caddy/stable/deb/debian any-version/main amd64 Packages [4329 B]
Fetched 19.1 kB in 1s (34.9 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

Crear directorio para Caddy

```
sudo mkdir -p /var/www/caddy
```

Crea un directorio específico para los archivos de Caddy.

```
ubuntu@ip-172-31-29-63:~$ sudo mkdir -p /var/www/caddy
ubuntu@ip-172-31-29-63:~$
```

Crear archivo Markdown de prueba

```
echo "# Bienvenido a Caddy" | sudo tee /var/www/caddy/README.md echo "" | sudo
tee -a /var/www/caddy/README.md
```

```
echo "Este servidor está funcionando correctamente." | sudo tee -a
/var/www/caddy/README.md echo "" | sudo tee -a /var/www/caddy/README.md echo
"## Características" | sudo tee -a /var/www/caddy/README.md echo "- Servidor
moderno" | sudo tee -a /var/www/caddy/README.md echo "- HTTPS automático" |
sudo tee -a /var/www/caddy/README.md echo "- Fácil configuración" | sudo tee -a
/var/www/caddy/README.md
```

Crea un archivo Markdown con contenido de ejemplo.

```
ubuntu@ip-172-31-29-63:~$ echo "# Bienvenido a Caddy" | sudo tee /var/www/caddy/README.md
echo "" | sudo tee -a /var/www/caddy/README.md
echo "Este servidor está funcionando correctamente." | sudo tee -a
/var/www/caddy/README.md
echo "" | sudo tee -a /var/www/caddy/README.md
# Bienvenido a Caddy
```

```
Este servidor está funcionando correctamente.
-bash: /var/www/caddy/README.md: Permission denied
```

```
ubuntu@ip-172-31-29-63:~$
```

```
ubuntu@ip-172-31-29-63:~$ echo "## Características" | sudo tee -a /var/www/caddy/README.md
echo "- Servidor moderno" | sudo tee -a /var/www/caddy/README.md
echo "- HTTPS automático" | sudo tee -a /var/www/caddy/README.md
echo "- Fácil configuración" | sudo tee -a /var/www/caddy/README.md
## Características
- Servidor moderno
- HTTPS automático
- Fácil configuración
ubuntu@ip-172-31-29-63:~$
```

Crear imagen de prueba (cuidado WSL hay que hacer ajustes)

```
curl -o /tmp/test-image.jpg "https://www.python.org/static/apple-touch-icon-144x144-precomposed.png" sudo mv /tmp/test-image.jpg /var/www/caddy/test.jpg
```

Descarga una imagen de prueba para verificar que Caddy sirve archivos estáticos.

```
ubuntu@ip-172-31-29-63:~$ curl -o /tmp/test-image.jpg "https://www.python.org/static/apple-touch-icon-144x144-precomposed.png"
% Total    % Received % Xferd  Average Speed   Time   Time     Current
          Dload  Upload   Total Spent  Left  Speed
100  7382  100  7382    0      0  175k      0 --:--:-- --:--:--:--:--:-- 180k
ubuntu@ip-172-31-29-63:~$
```

Crear Caddyfile personalizado

```
sudo nano /etc/caddy/Caddyfile
```

Abre el archivo de configuración de Caddy. Escribe el siguiente contenido:  
\*:8082 {  
 root \* /var/www/caddy  
 file\_server browse  
 @markdown path \*.md  
 header @markdown Content-Type text/plain  
}  
  
# Refer to the Caddy docs for more information:  
# https://caddyserver.com/docs/caddyfile

Reiniciar y ver el estado de cady

```
ubuntu@ip-172-31-29-63:~$ sudo nano /etc/caddy/Caddyfile
ubuntu@ip-172-31-29-63:~$ sudo systemctl restart caddy
ubuntu@ip-172-31-29-63:~$ sudo systemctl status caddy
● caddy.service - Caddy
   Loaded: loaded (/usr/lib/systemd/system/caddy.service; enabled; preset: enabled)
   Active: active (running) since Fri 2025-10-31 10:09:40 UTC; 11s ago
     Docs: https://caddyserver.com/docs/
     Main PID: 20115 (caddy)
        Tasks: 7 (limit: 1017)
       Memory: 11.3M (peak: 11.7M)
          CPU: 95ms
        CGroup: /system.slice/caddy.service
                  └─20115 /usr/bin/caddy run --environ --config /etc/caddy/Caddyfile
```

Comando adicional para verificar puerto

```
sudo netstat -tulpn | grep caddy
```

Verifica en qué puerto está escuchando Caddy (debe mostrar 8082)

```
ubuntu@ip-172-31-29-63:~$ sudo netstat -tulpn | grep caddy
tcp      0      0 127.0.0.1:2019          0.0.0.0:*
          LISTEN      20115/caddy
tcp6     0      0 :::8082                ::::*
          LISTEN      20115/caddy
ubuntu@ip-172-31-29-63:~$
```

Probar Caddy desde terminal

Lista los archivos disponibles en el servidor Caddy.

```
ubuntu@ip-172-31-29-63:~$ curl http://localhost:8082/
<!DOCTYPE html>
<html>
  <head>
    <title>/</title>
    <link rel="canonical" href="//" />
    <meta charset="utf-8">
    <meta name="color-scheme" content="light dark">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
<style nonce="71ac8d54-e9e9-4ff3-b5b8-cac3c1c56e6f">
* { padding: 0; margin: 0; box-sizing: border-box; }

body {
  font-family: Inter, system-ui, sans-serif;
  font-size: 16px;
  text-rendering: optimizespeed;
  background-color: #f3f6f7;
  min-height: 100vh;
}

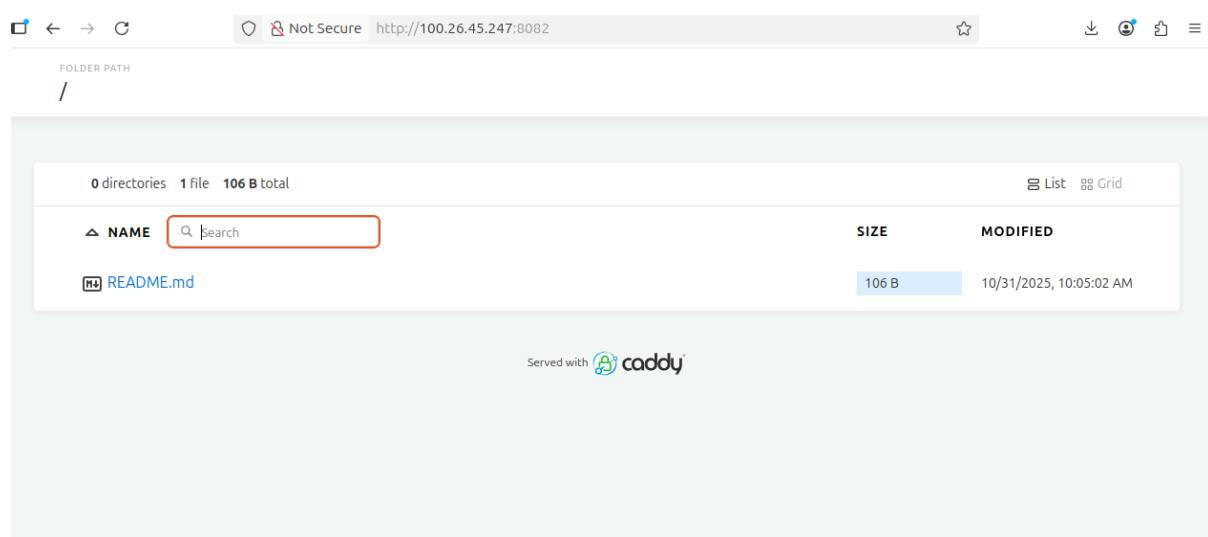
img,
```

## Probar archivo Markdown

Verifica que Caddy sirve correctamente archivos Markdown.

```
ubuntu@ip-172-31-29-63:~$ curl http://localhost:8082/README.md
# Bienvenido a Caddy

## Características
- Servidor moderno
- HTTPS automático
- Fácil configuración
ubuntu@ip-172-31-29-63:~$
```



The screenshot shows a web browser window with the following details:

- Address Bar:** Not Secure | http://100.26.45.247:8082
- FOLDER PATH:** /
- File List:**

NAME	SIZE	MODIFIED
README.md	106 B	10/31/2025, 10:05:02 AM
- Footer:** Served with  caddy

```
# Bienvenido a Caddy

## Características
- Servidor moderno
- HTTPS automático
- Fácil configuración
```

## PARTE 4: CONFIGURACIÓN DE HTTPS CON CERTBOT EN APACHE

Instalar Certbot y el plugin de Apache

Instala Certbot y su integración con Apache para gestionar certificados SSL.

```
ubuntu@ip-172-31-29-63:~$ sudo apt install certbot python3-certbot-apache -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
```

Crea un certificado autofirmado para practicar HTTPS localmente. Completa los campos solicitados (puedes usar valores por defecto o responder: ES, Madrid, Madrid, vacío, vacío, localhost y ejemplo@gmail.com).

```
ubuntu@ip-172-31-29-63:~$ sudo openssl req -x509 -nodes -days 365 -newkey rsa:2048 -keyout /etc/ssl/private/apache-selfsigned.key -out /etc/ssl/certs/apache-selfsigned.crt
...
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]:ES
Locality Name (eg, city) []:MADRID
Organization Name (eg, company) [Internet Widgits Pty Ltd]:
Organizational Unit Name (eg, section) []:
Common Name (e.g. server FQDN or YOUR name) []:
Email Address []:
-----BEGIN CERTIFICATE-----
MIIDFCCAm5gAwIBAgITTLiFl89Hp61raDqfI9jXIASITANBgkqhkg9w0BAQsF
ABR0Mo5cCOVW0OGEwDHEzELMAkCAUECAwCPIM5DzANBpNVA=MBK1BRE1JDEh
```

Activa el módulo SSL necesario para HTTPS en Apache.

```
ubuntu@ip-172-31-29-63:~$ sudo a2enmod ssl
Considering dependency mime for ssl:
Module mime already enabled
Considering dependency socache_shmcb for ssl:
Module socache_shmcb already enabled
Module ssl already enabled
ubuntu@ip-172-31-29-63:~$ █
```

Añade la línea Listen 8443 para que Apache escuche HTTPS en puerto 8443.

```
GNU nano 7.2                                         /etc/apache2/sites-enabled/000-default.conf
# If you just change the port or add more ports here, you will likely also
# have to change the VirtualHost statement in
# /etc/apache2/sites-enabled/000-default.conf

Listen 8080
Listen 8443
<IfModule ssl_module>
    Listen 443
</IfModule>

<IfModule mod_gnutls.c>
    Listen 443
</IfModule>
```

```
GNU nano 7.2                                         /etc/apache2/sites-available/default-ssl.conf *
<VirtualHost *:8443>
    ServerAdmin webmaster@localhost

    DocumentRoot /var/www/html

    # Available loglevels: trace8, ..., trace1, debug, info, notice, warn,
    # error, crit, alert, emerg.
    # It is also possible to configure the loglevel for particular
    # modules, e.g.
    #LogLevel info ssl:warn

    ErrorLog ${APACHE_LOG_DIR}/error.log
    CustomLog ${APACHE_LOG_DIR}/access.log combined

    # For most configuration files from conf-available/, which are
    # enabled or disabled at a global level, it is possible to
    # include a line for only one particular virtual host. For example the
    # following line enables the CGI configuration for this host only
    # after it has been globally disabled with "a2disconf".
    #Include conf-available/serve-cgi-bin.conf

    # SSL Engine Switch:
    #   Enable/Disable SSL for this virtual host.
    SSLEngine on

    # A self-signed (snakeoil) certificate can be created by installing
    # the ssl-cert package. See
    # /usr/share/doc/apache2/README.Debian.gz for more info.
    # If both key and certificate are stored in the same file, only the
    # SSLCertificateFile directive is needed.
    SSLCertificateFile      /etc/ssl/certs/ssl-cert-snakeoil.pem
    SSLCertificateKeyFile   /etc/ssl/private/ssl-cert-snakeoil.key

    # Server Certificate Chain:
```

Activa la configuración SSL en Apache.

```
ubuntu@ip-172-31-29-63:~$ sudo a2ensite default-ssl.conf
Site default-ssl already enabled
ubuntu@ip-172-31-29-63:~$
```

Prueba la conexión HTTPS (el flag -k ignora el aviso del certificado autofirmado).

```
ubuntu@ip-172-31-29-63:~$ curl -i -k https://localhost:8443
HTTP/1.1 200 OK
Date: Fri, 31 Oct 2025 10:23:21 GMT
Server: Apache/2.4.58 (Ubuntu)
Last-Modified: Fri, 31 Oct 2025 09:46:01 GMT
ETag: "29af-642713bbb654d"
Accept-Ranges: bytes
Content-Length: 10671
Vary: Accept-Encoding
Content-Type: text/html

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/1999/xhtml">
<!--
    Modified from the Debian original for Ubuntu
-->
```

## PARTE 5: VERIFICACIÓN FINAL DE LOS TRES SERVIDORES

sudo systemctl status apache2

```
ubuntu@ip-172-31-29-63:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
  Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
  Active: active (running) since Fri 2025-10-31 10:22:39 UTC; 1min 23s ago
    Docs: https://httpd.apache.org/docs/2.4/
 Process: 20611 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
 Main PID: 20615 (apache2)
   Tasks: 6 (limit: 1017)
  Memory: 11.8M (peak: 12.3M)
     CPU: 67ms
    CGroup: /system.slice/apache2.service
            ├─20615 /usr/sbin/apache2 -k start
            ├─20617 /usr/sbin/apache2 -k start
            ├─20618 /usr/sbin/apache2 -k start
            ├─20619 /usr/sbin/apache2 -k start
            ├─20620 /usr/sbin/apache2 -k start
            └─20621 /usr/sbin/apache2 -k start

Oct 31 10:22:39 ip-172-31-29-63 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Oct 31 10:22:39 ip-172-31-29-63 systemd[1]: Started apache2.service - The Apache HTTP Server.
ubuntu@ip-172-31-29-63:~$
```

sudo netstat -tulpn | grep apache2

```
ubuntu@ip-172-31-29-63:~$ sudo netstat -tulpn | grep apache2
tcp6      0      0 :::8443          :::*          LISTEN      20615/apache2
tcp6      0      0 :::443           :::*          LISTEN      20615/apache2
tcp6      0      0 :::8080          :::*          LISTEN      20615/apache2
ubuntu@ip-172-31-29-63:~$
```

```
sudo systemctl status nginx
```

```
ubuntu@ip-172-31-29-63:~$ sudo systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
  Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; preset: enabled)
  Active: active (running) since Fri 2025-10-31 09:56:08 UTC; 28min ago
    Docs: man:nginx(8)
 Main PID: 19163 (nginx)
   Tasks: 3 (limit: 1017)
  Memory: 2.4M (peak: 2.6M)
    CPU: 18ms
   CGroup: /system.slice/nginx.service
           └─19163 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
             ├─19164 "nginx: worker process"
             ├─19165 "nginx: worker process"

Oct 31 09:56:08 ip-172-31-29-63 systemd[1]: Starting nginx.service - A high performance web server and a reverse proxy server...
Oct 31 09:56:08 ip-172-31-29-63 systemd[1]: Started nginx.service - A high performance web server and a reverse proxy server.
ubuntu@ip-172-31-29-63:~$
```

```
sudo netstat -tulpn | grep nginx
```

```
ubuntu@ip-172-31-29-63:~$ sudo netstat -tulpn | grep nginx
tcp      0      0 0.0.0.0:8081          0.0.0.0:*          LISTEN      19163/nginx: master
tcp6     0      0 :::8081              ::::*          LISTEN      19163/nginx: master
ubuntu@ip-172-31-29-63:~$
```

```
sudo systemctl status caddy
```

```
ubuntu@ip-172-31-29-63:~$ sudo systemctl status caddy
● caddy.service - Caddy
  Loaded: loaded (/usr/lib/systemd/system/caddy.service; enabled; preset: enabled)
  Active: active (running) since Fri 2025-10-31 10:09:40 UTC; 16min ago
    Docs: https://caddyserver.com/docs/
 Main PID: 20115 (caddy)
   Tasks: 7 (limit: 1017)
  Memory: 10.0M (peak: 12.0M)
    CPU: 135ms
   CGroup: /system.slice/caddy.service
           └─20115 /usr/bin/caddy run --environ --config /etc/caddy/Caddyfile
```

```
sudo netstat -tulpn | grep caddy
```

```
ubuntu@ip-172-31-29-63:~$ sudo netstat -tulpn | grep caddy
tcp      0      0 127.0.0.1:2019          0.0.0.0:*          LISTEN      20115/caddy
tcp6     0      0 :::8082              ::::*          LISTEN      20115/caddy
ubuntu@ip-172-31-29-63:~$
```

```
sudo netstat -tulpn | grep -E '8080|8081|8082|8443'
```

```
ubuntu@ip-172-31-29-63:~$ sudo netstat -tulpn | grep -E '8080|8081|8082|8443'
tcp      0      0 0.0.0.0:8081          0.0.0.0:*          LISTEN      19163/nginx: master
tcp6     0      0 :::8443              ::::*          LISTEN      20615/apache2
tcp6     0      0 :::8080              ::::*          LISTEN      20615/apache2
tcp6     0      0 :::8081              ::::*          LISTEN      19163/nginx: master
tcp6     0      0 :::8082              ::::*          LISTEN      20115/caddy
ubuntu@ip-172-31-29-63:~$
```

Verifica que cada servidor responde correctamente en su puerto asignado

```
ubuntu@ip-172-31-29-63:~$ curl http://localhost:8080
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<!--
    Modified from the Debian original for Ubuntu
    Last updated: 2022-03-22
    See: https://launchpad.net/bugs/1966004
-->
<head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
    <title>Apache2 Ubuntu Default Page: It works</title>
    <style type="text/css" media="screen">
        * {
            margin: 0px 0px 0px 0px;
        }
    
```

```
ubuntu@ip-172-31-29-63:~$ curl http://localhost:8081
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<!--
    Modified from the Debian original for Ubuntu
    Last updated: 2022-03-22
    See: https://launchpad.net/bugs/1966004
-->
<head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
    <title>Apache2 Ubuntu Default Page: It works</title>
    <style type="text/css" media="screen">
        * {
            margin: 0px 0px 0px 0px;
            padding: 0px 0px 0px 0px;
        }
    
```

```
ubuntu@ip-172-31-29-63:~$ curl http://localhost:8082
<!DOCTYPE html>
<html>
    <head>
        <title>/</title>
        <link rel="canonical" href="//" />
        <meta charset="utf-8">
        <meta name="color-scheme" content="light dark">
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
        <style nonce="3ef1db7e-2171-4dce-b7e2-26833a2aa217">
            * { padding: 0; margin: 0; box-sizing: border-box; }

        body {
            font-family: Inter, system-ui, sans-serif;
            font-size: 16px;
            text-rendering: optimizespeed;
            background-color: #f3f6f7;
            min-height: 100vh;
        }
    
```

```
ubuntu@ip-172-31-29-63:~$ curl -i -k https://localhost:8443
HTTP/1.1 200 OK
Date: Fri, 31 Oct 2025 10:31:40 GMT
Server: Apache/2.4.58 (Ubuntu)
Last-Modified: Fri, 31 Oct 2025 09:46:01 GMT
ETag: "29af-642713bbb654d"
Accept-Ranges: bytes
Content-Length: 10671
Vary: Accept-Encoding
Content-Type: text/html

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-tr
<html xmlns="http://www.w3.org/1999/xhtml">
<!--
    Modified from the Debian original for Ubuntu
    Last updated: 2022-03-22
    See: https://launchpad.net/bugs/1966004
-->
```

