

PRÁCTICA 1. Instalación de servicios Apache, PHP y NGINX



APACHE



NGINX



Instalación de Subsistema de Linux para Windows (WSL)

```
PS C:\WINDOWS\system32> WSL --install
Descargando: Ubuntu
Instalando: Ubuntu
Distribución instalada correctamente. Se puede iniciar a través de "wsl.exe -d Ubuntu"
Iniciando Ubuntu...
Provisioning the new WSL instance Ubuntu
This might take a while...
Create a default Unix user account: alumno04
New password:
Retype new password:
Sorry, passwords do not match.
passwd: Authentication token manipulation error
passwd: password unchanged
Try again? [y/N] y
New password:
Retype new password:
passwd: password updated successfully
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

alumno04@A6Alumno04: /mnt/c/WINDOWS/system32$ |
```

Parte 1 - Servidor apache con PHP.

Como primer paso una vez ya instalado WSL, se actualiza el sistema mediante el segundo comando mostrado en la imagen. Este paso es importante para contar con las versiones más recientes de los paquetes disponibles en la distribución.

```
Windows PowerShell
Copyright (C) Microsoft Corporation. Todos los derechos reservados.

Instale la versión más reciente de PowerShell para obtener nuevas características y mejoras. https://aka.ms/PSWindows

PS C:\WINDOWS\system32> wsl.exe -d Ubuntu
alumno04@A6Alumno04: /mnt/c/WINDOWS/system32$ sudo apt update && sudo apt upgrade -y
[sudo] password for alumno04:
Get:1 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Hit:2 http://archive.ubuntu.com/ubuntu noble InRelease
Get:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:4 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [1171 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:6 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [198 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [21.6 kB]
Get:9 http://security.ubuntu.com/ubuntu noble-security/main amd64 c-n-f Metadata [8744 B]
Get:10 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [880 kB]
Get:11 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [195 kB]
Get:12 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52.3 kB]
Get:13 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [18.0 kB]
Get:14 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [1872 kB]
Get:15 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [423 kB]
Get:16 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:17 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 c-n-f Metadata [520 B]
Get:18 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [28.0 kB]
Get:19 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-en [5228 B]
Get:20 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]
Get:21 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f Metadata [384 B]
Get:22 http://archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:23 http://archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
Get:24 http://archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
Get:25 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
Get:26 http://archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
Get:27 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:28 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8328 B]
Get:29 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1443 kB]
Get:30 http://archive.ubuntu.com/ubuntu noble-updates/main Translation-en [282 kB]
```

Una vez actualizado el sistema, se instaló el servidor Apache, ejecutando el comando mostrado en primera línea en la imagen, permitiendo convertir el equipo en un servidor web.

```
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ 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:
  libllvm19
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
  liblua5.4-0 ssl-cert
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom www-browser ufw
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64
  liblua5.4-0 ssl-cert
0 upgraded, 10 newly installed, 0 to remove and 0 not upgraded.
Need to get 2086 kB of archives.
After this operation, 8090 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libapr1t64 amd64 1.7.2-3.1ubuntu0.1 [108 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1t64 amd64 1.6.3-1.1ubuntu7 [91.9 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-dbd-sqlite3 amd64 1.6.3-1.1ubuntu7 [11.2 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-ldap amd64 1.6.3-1.1ubuntu7 [9116 B]
Get:5 http://archive.ubuntu.com/ubuntu noble/main amd64 liblua5.4-0 amd64 5.4.6-3build2 [166 kB]
Get:6 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-bin amd64 2.4.58-1ubuntu8.8 [1331 kB]
Get:7 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-data all 2.4.58-1ubuntu8.8 [163 kB]
Get:8 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-utils amd64 2.4.58-1ubuntu8.8 [97.7 kB]
Get:9 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2 amd64 2.4.58-1ubuntu8.8 [90.2 kB]
Get:10 http://archive.ubuntu.com/ubuntu noble/main amd64 ssl-cert all 1.1.2ubuntu1 [17.8 kB]
Fetched 2086 kB in 0s (7418 kB/s)
Preconfiguring packages ...
Selecting previously unselected package libapr1t64:amd64.
(Reading database ... 40761 files and directories currently installed.)
Preparing to unpack .../0-libapr1t64_1.7.2-3.1ubuntu0.1_amd64.deb ...
Unpacking libapr1t64:amd64 (1.7.2-3.1ubuntu0.1) ...
Selecting previously unselected package libaprutil1t64:amd64.
Preparing to unpack .../1-libaprutil1t64_1.6.3-1.1ubuntu7_amd64.deb ...
Unpacking libaprutil1t64:amd64 (1.6.3-1.1ubuntu7) ...
Selecting previously unselected package libaprutil1-dbd-sqlite3:amd64.
Preparing to unpack .../2-libaprutil1-dbd-sqlite3_1.6.3-1.1ubuntu7_amd64.deb ...
Unpacking libaprutil1-dbd-sqlite3:amd64 (1.6.3-1.1ubuntu7) ...
Selecting previously unselected package libaprutil1-ldap:amd64.
Preparing to unpack .../3-libaprutil1-ldap_1.6.3-1.1ubuntu7_amd64.deb ...
Unpacking libaprutil1-ldap:amd64 (1.6.3-1.1ubuntu7) ...
Selecting previously unselected package liblua5.4-0:amd64.
Preparing to unpack .../4-liblua5.4-0_5.4.6-3build2_amd64.deb ...
Unpacking liblua5.4-0:amd64 (5.4.6-3build2) ...
Selecting previously unselected package apache2-bin.
Preparing to unpack .../5-apache2-bin_2.4.58-1ubuntu8.8_amd64.deb ...
Unpacking apache2-bin (2.4.58-1ubuntu8.8) ...
Selecting previously unselected package apache2-data.
Preparing to unpack .../6-apache2-data_2.4.58-1ubuntu8.8_all.deb ...
Unpacking apache2-data (2.4.58-1ubuntu8.8) ...
Selecting previously unselected package apache2-utils.
Preparing to unpack .../7-apache2-utils_2.4.58-1ubuntu8.8_amd64.deb ...
Unpacking apache2-utils (2.4.58-1ubuntu8.8) ...
Selecting previously unselected package apache2.
Preparing to unpack .../8-apache2_2.4.58-1ubuntu8.8_amd64.deb ...
Unpacking apache2 (2.4.58-1ubuntu8.8) ...
Selecting previously unselected package ssl-cert.
Preparing to unpack .../9-ssl-cert_1.1.2ubuntu1_all.deb ...
Unpacking ssl-cert (1.1.2ubuntu1) ...
Setting up ssl-cert (1.1.2ubuntu1) ...
```

A continuación, se instala PHP y su módulo correspondiente para Apache.

```
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ 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:
  libllvm19
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  libapache2-mod-php8.3 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 php php-common php8.3 php8.3-cli php8.3-common php8.3-opcache
  php8.3-readline
0 upgraded, 9 newly installed, 0 to remove and 0 not upgraded.
Need to get 4922 kB of archives.
After this operation, 22.4 MB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble/main amd64 php-common all 2:93ubuntu2 [13.9 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-common amd64 8.3.6-0ubuntu0.24.04.5 [740 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-opcache amd64 8.3.6-0ubuntu0.24.04.5 [371 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-readline amd64 8.3.6-0ubuntu0.24.04.5 [13.5 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-cli amd64 8.3.6-0ubuntu0.24.04.5 [1915 kB]
Get:6 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libapache2-mod-php8.3 amd64 8.3.6-0ubuntu0.24.04.5 [1851 kB]
Get:7 http://archive.ubuntu.com/ubuntu noble/main amd64 libapache2-mod-php all 2:8.3+93ubuntu2 [4224 B]
Get:8 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3 all 8.3.6-0ubuntu0.24.04.5 [9174 B]
Get:9 http://archive.ubuntu.com/ubuntu noble/main amd64 php all 2:8.3+93ubuntu2 [4076 B]
Fetched 4922 kB in 1s (6915 kB/s)
Selecting previously unselected package php-common.
(Reading database ... 41486 files and directories currently installed.)
Preparing to unpack .../0-php-common_2%3a93ubuntu2_all.deb ...
Unpacking php-common (2:93ubuntu2) ...
Selecting previously unselected package php8.3-common.
Preparing to unpack .../1-php8.3-common_8.3.6-0ubuntu0.24.04.5_amd64.deb ...
Unpacking php8.3-common (8.3.6-0ubuntu0.24.04.5) ...
Selecting previously unselected package php8.3-opcache.
Preparing to unpack .../2-php8.3-opcache_8.3.6-0ubuntu0.24.04.5_amd64.deb ...
Unpacking php8.3-opcache (8.3.6-0ubuntu0.24.04.5) ...
Selecting previously unselected package php8.3-readline.
Preparing to unpack .../3-php8.3-readline_8.3.6-0ubuntu0.24.04.5_amd64.deb ...
Unpacking php8.3-readline (8.3.6-0ubuntu0.24.04.5) ...
Selecting previously unselected package php8.3-cli.
Preparing to unpack .../4-php8.3-cli_8.3.6-0ubuntu0.24.04.5_amd64.deb ...
Unpacking php8.3-cli (8.3.6-0ubuntu0.24.04.5) ...
Selecting previously unselected package libapache2-mod-php8.3.
Preparing to unpack .../5-libapache2-mod-php8.3_8.3.6-0ubuntu0.24.04.5_amd64.deb ...
Unpacking libapache2-mod-php8.3 (8.3.6-0ubuntu0.24.04.5) ...
Selecting previously unselected package libapache2-mod-php.
Preparing to unpack .../6-libapache2-mod-php_2%3a8.3+93ubuntu2_all.deb ...
Unpacking libapache2-mod-php (2:8.3+93ubuntu2) ...
Selecting previously unselected package php8.3.
Preparing to unpack .../7-php8.3_8.3.6-0ubuntu0.24.04.5_all.deb ...
Unpacking php8.3 (8.3.6-0ubuntu0.24.04.5) ...
Selecting previously unselected package php.
Preparing to unpack .../8-php_2%3a8.3+93ubuntu2_all.deb ...
Unpacking php (2:8.3+93ubuntu2) ...
Setting up php-common (2:93ubuntu2) ...
Created symlink /etc/systemd/system/timers.target.wants/phpsessionclean.timer → /usr/lib/systemd/system/phpsessionclean.timer.
Setting up php8.3-common (8.3.6-0ubuntu0.24.04.5) ...
```

Después, se comprueba su estado mediante **sudo systemctl status apache2**.

```
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ sudo service apache2 start
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ 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 Tue 2025-09-30 09:46:05 CEST; 49s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 9646 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
  Main PID: 9649 (apache2)
    Tasks: 6 (limit: 9350)
   Memory: 10.5M (peak: 12.0M)
      CPU: 31ms
   CGroup: /system.slice/apache2.service
           └─9649 /usr/sbin/apache2 -k start
             └─9652 /usr/sbin/apache2 -k start
               └─9653 /usr/sbin/apache2 -k start
                 └─9654 /usr/sbin/apache2 -k start
                   └─9655 /usr/sbin/apache2 -k start
                     └─9656 /usr/sbin/apache2 -k start

Sep 30 09:46:05 A6Alumno04 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Sep 30 09:46:05 A6Alumno04 systemd[1]: Started apache2.service - The Apache HTTP Server.
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ echo "<?php phpinfo(); ?>" | sudo tee /var/www/html/info.php
<?php phpinfo(); ?>
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ curl http://localhost/info.php
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "DTD/xhtml11-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;}
img {float: right; border: 0;}
hr {width: 934px; background-color: #ccc; border: 0; height: 1px;}
:root {--php-dark-grey: #333; --php-dark-blue: #4F5B93; --php-medium-blue: #8892BF; --php-light-blue: #E2E4EF; --php-
accent-purple: #793862}@media (prefers-color-scheme: dark) {
```

En las imágenes mostradas, tanto arriba como abajo, se comprueba mediante el comando **curl** <http://localhost/info.php> y buscando en el navegador <http://localhost/info.php> que el funcionamiento es correcto.

System	Linux A6Alumno04 6.6.87.2-microsoft-standard-WSL2 #1 SMP PREEMPT_DYNAMIC Thu Jun 5 18:30:46 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-calendar.ini, /etc/php/8.3/apache2/conf.d/20-ctype.ini, /etc/php/8.3/apache2/conf.d/20-exif.ini, /etc/php/8.3/apache2/conf.d/20-ffi.ini, /etc/php/8.3/apache2/conf.d/20-fileinfo.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-readline.ini, /etc/php/8.3/apache2/conf.d/20-shmop.ini, /etc/php/8.3/apache2/conf.d/20-sockets.ini, /etc/php/8.3/apache2/conf.d/20-sysvmsg.ini, /etc/php/8.3/apache2/conf.d/20-sysvsem.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 - Servidor NGINX con HTML.

Una vez terminada la instalación de Apache y PHP, se procede a la instalación de NGINX, mediante el comando mostrado a continuación y, asimismo, a la comprobación de su funcionamiento.

```
alumno04@A6Alumno04:~$ sudo apt install nginx -y
[sudo] password for alumno04:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  libllvm19
Use 'sudo apt autoremove' to remove it.
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://archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx-common all 1.24.0-2ubuntu7.5 [43
.4 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx amd64 1.24.0-2ubuntu7.5 [520 kB]
Fetched 564 kB in 0s (2250 kB/s)
Preconfiguring packages ...
Selecting previously unselected package nginx-common.
(Reading database ... 41618 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 ...
Unpacking nginx (1.24.0-2ubuntu7.5) ...
Setting up nginx-common (1.24.0-2ubuntu7.5) ...
Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service → /usr/lib/systemd/system/ng
inx.service.
Could not execute systemctl: at /usr/bin/deb-systemd-invoke line 148.
Setting up nginx (1.24.0-2ubuntu7.5) ...
Not attempting to start NGINX, port 80 is already in use.
Processing triggers for man-db (2.12.0-4build2) ...
alumno04@A6Alumno04:~$
```

```
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ sudo service nginx start
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ 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 Tue 2025-09-30 10:07:29 CEST; 40s ago
     Docs: man:nginx(8)
  Process: 167 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
  Process: 191 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Main PID: 198 (nginx)
    Tasks: 17 (limit: 9350)
  Memory: 13.0M (peak: 14.3M)
     CPU: 37ms
  CGroup: /system.slice/nginx.service
          └─198 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
            └─199 "nginx: worker process"
              └─201 "nginx: worker process"
                └─202 "nginx: worker process"
                  └─203 "nginx: worker process"
                    └─204 "nginx: worker process"
                      └─205 "nginx: worker process"
                        └─206 "nginx: worker process"
                          └─207 "nginx: worker process"
                            └─208 "nginx: worker process"
                              └─209 "nginx: worker process"
                                └─210 "nginx: worker process"
                                  └─211 "nginx: worker process"
                                    └─213 "nginx: worker process"
                                      └─214 "nginx: worker process"
                                        └─215 "nginx: worker process"
                                          └─216 "nginx: worker process"
```

lines 1-29...skipping...

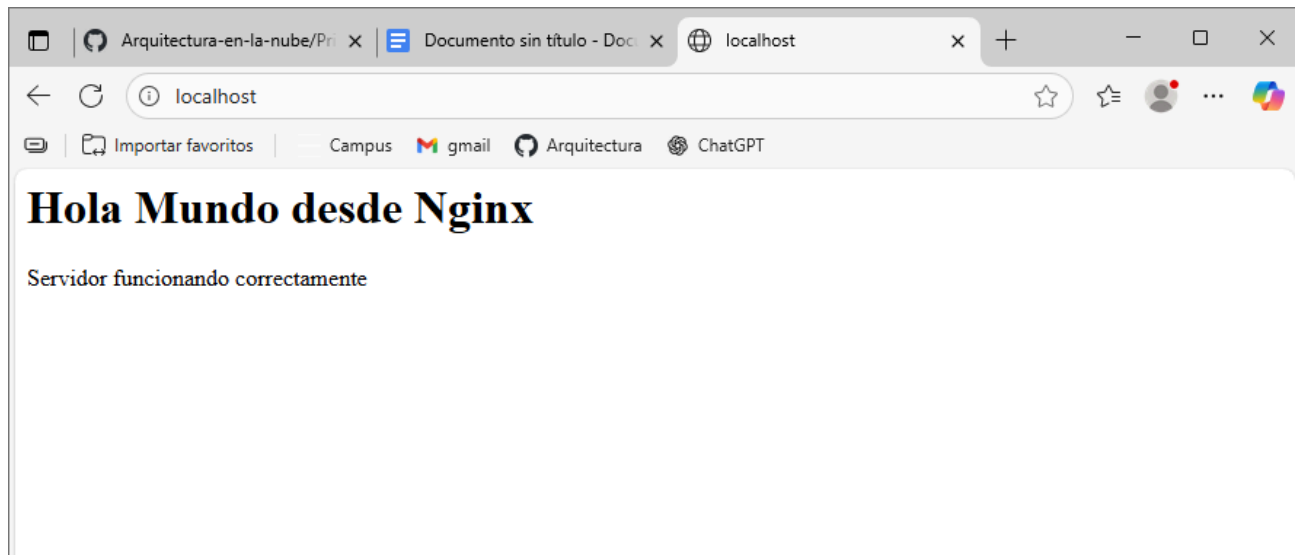
```
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; preset: enabled)
   Active: active (running) since Tue 2025-09-30 10:07:29 CEST; 40s ago
     Docs: man:nginx(8)
  Process: 167 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
  Process: 191 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Main PID: 198 (nginx)
    Tasks: 17 (limit: 9350)
  Memory: 13.0M (peak: 14.3M)
     CPU: 37ms
  CGroup: /system.slice/nginx.service
          └─198 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
            └─199 "nginx: worker process"
              └─201 "nginx: worker process"
                └─202 "nginx: worker process"
                  └─203 "nginx: worker process"
                    └─204 "nginx: worker process"
                      └─205 "nginx: worker process"
                        └─206 "nginx: worker process"
                          └─207 "nginx: worker process"
                            └─208 "nginx: worker process"
                              └─209 "nginx: worker process"
                                └─210 "nginx: worker process"
                                  └─211 "nginx: worker process"
                                    └─213 "nginx: worker process"
                                      └─214 "nginx: worker process"
                                        └─215 "nginx: worker process"
                                          └─216 "nginx: worker process"
```

```
Sep 30 10:07:29 A6Alumno04 systemd[1]: Starting nginx.service - A high performance web server and a reverse proxy server...
Sep 30 10:07:29 A6Alumno04 systemd[1]: Started nginx.service - A high performance web server and a reverse proxy server.
```


Con NGINX ejecutado, se crea una página HTML simple dentro del servidor utilizando el largo comando mostrado en la siguiente imagen:

```
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ echo "<h1> Hola Mundo desde Nginx </h1><p>Servidor funcionando correctamente</p>"  
| sudo tee /var/www/html/index.html  
<h1> Hola Mundo desde Nginx </h1><p>Servidor funcionando correctamente</p>  
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$
```

Finalmente, se accede a la dirección <http://localhost>, comprobando que la página se mostraba en el navegador con el mensaje configurado.



Por último, se muestra la IP de WSL.

```
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ ip addr show eth0 | grep inet  
    inet 172.22.125.80/20 brd 172.22.127.255 scope global eth0  
    inet6 fe80::215:5dff:fe2f:a537/64 scope link  
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$
```

Parte 3. Verificación y comparación.

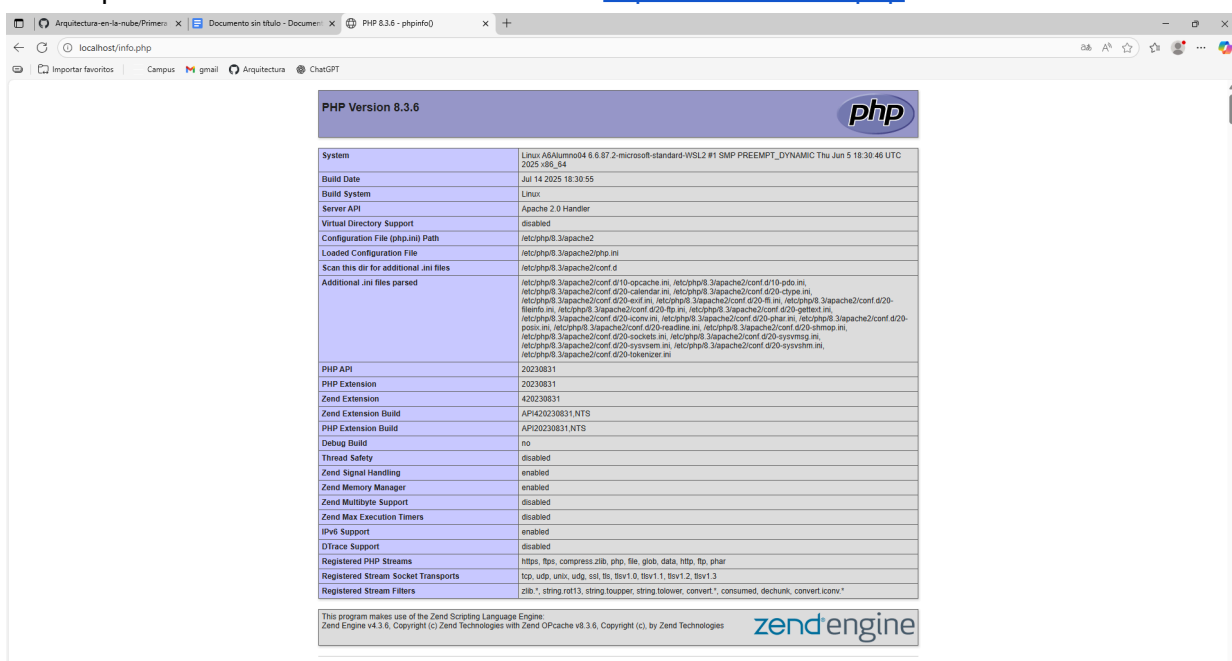
Primero se activa el servicio Apache, seguido de su comprobación de estado y finalizando con su detención para poder levantar el servicio NGINX.

```
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ sudo service apache2 start
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ 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 Tue 2025-09-30 10:56:10 CEST; 9s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 552 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
 Main PID: 555 (apache2)
    Tasks: 6 (limit: 9350)
  Memory: 10.7M (peak: 12.1M)
     CPU: 30ms
   CGroup: /system.slice/apache2.service
           └─555 /usr/sbin/apache2 -k start
             └─557 /usr/sbin/apache2 -k start
               └─558 /usr/sbin/apache2 -k start
                 └─559 /usr/sbin/apache2 -k start
                   └─560 /usr/sbin/apache2 -k start
                     └─561 /usr/sbin/apache2 -k start

Sep 30 10:56:10 A6Alumno04 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Sep 30 10:56:10 A6Alumno04 systemd[1]: Started apache2.service - The Apache HTTP Server.
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ sudo service apache2 stop
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: inactive (dead) since Tue 2025-09-30 10:56:25 CEST; 1s ago
 Duration: 15.402s
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 552 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
   Process: 575 ExecStop=/usr/sbin/apachectl graceful-stop (code=exited, status=0/SUCCESS)
 Main PID: 555 (code=exited, status=0/SUCCESS)
     CPU: 62ms

Sep 30 10:56:10 A6Alumno04 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Sep 30 10:56:10 A6Alumno04 systemd[1]: Started apache2.service - The Apache HTTP Server.
Sep 30 10:56:25 A6Alumno04 systemd[1]: Stopping apache2.service - The Apache HTTP Server...
Sep 30 10:56:25 A6Alumno04 systemd[1]: apache2.service: Deactivated successfully.
Sep 30 10:56:25 A6Alumno04 systemd[1]: Stopped apache2.service - The Apache HTTP Server.
```


Se comprueba su conexión entrando en la url <http://localhost/info.php>.



The screenshot shows a web browser window with the address bar set to `localhost/info.php`. The page content is the PHP information page for version 8.3.6. It includes a table with system and configuration details, and a footer with the Zend Engine logo.

PHP Version 8.3.6	
System	Linux A6Alumno04 6.6.87.2-microsoft-standard-WSL2 #1 SMP PREEMPT_DYNAMIC Thu Jun 5 18:30:46 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-calendar.ini, /etc/php/8.3/apache2/conf.d/20-ctype.ini, /etc/php/8.3/apache2/conf.d/20-enchant.ini, /etc/php/8.3/apache2/conf.d/20-fileinfo.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-ldap.ini, /etc/php/8.3/apache2/conf.d/20-ldap2.ini, /etc/php/8.3/apache2/conf.d/20-mbstring.ini, /etc/php/8.3/apache2/conf.d/20-mcrypt.ini, /etc/php/8.3/apache2/conf.d/20-mysqlnd.ini, /etc/php/8.3/apache2/conf.d/20-openssl.ini, /etc/php/8.3/apache2/conf.d/20-pdo_mysql.ini, /etc/php/8.3/apache2/conf.d/20-pdo_pgsql.ini, /etc/php/8.3/apache2/conf.d/20-pdo_sqlite.ini, /etc/php/8.3/apache2/conf.d/20-sockets.ini, /etc/php/8.3/apache2/conf.d/20-sysvmsg.ini, /etc/php/8.3/apache2/conf.d/20-sysvsem.ini, /etc/php/8.3/apache2/conf.d/20-tokenizer.ini
PHP API	20230831
PHP Extension	20230831
Zend Extension	420230831
Zend Extension Build	APACHE20230831 NTS
PHP Extension Build	APACHE20230831 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, IPv6, IPv4, IPv1, IPv2, IPv3
Registered Stream Filters	zlib.*, string.rot13, string.toupper, string.tolower, convert.*, consumed, dechunk, convert.iconv.*

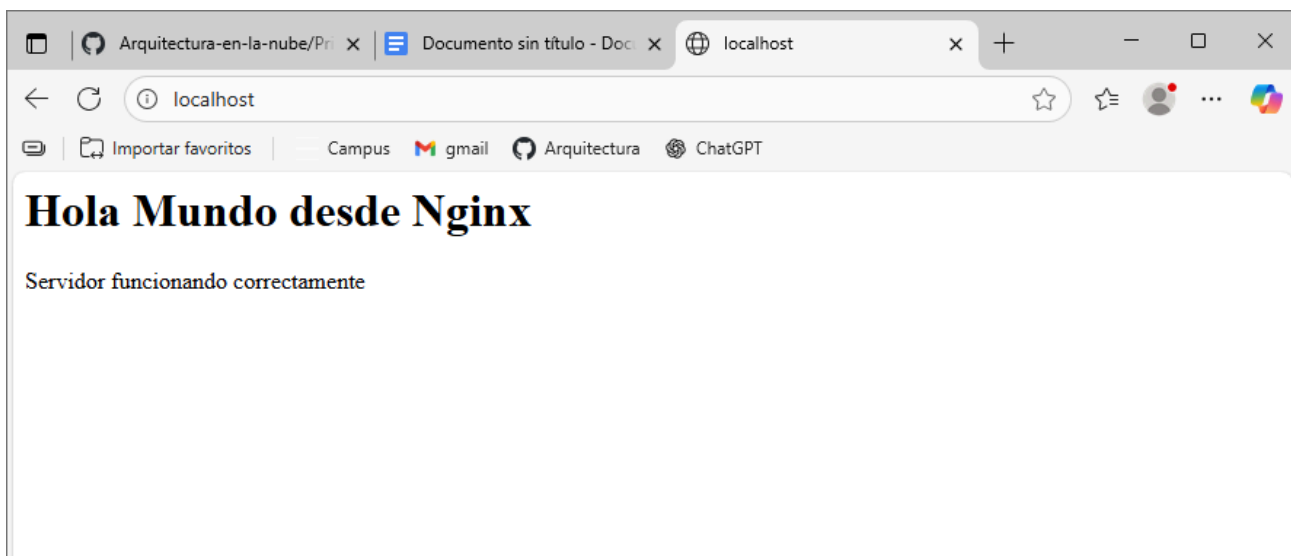
This program makes use of the Zend Scripting Language Engine:
Zend Engine v4.3.6, Copyright (c) Zend Technologies with Zend OPcache v8.3.6, Copyright (c), by Zend Technologies



Una vez detenido el servicio de Apache, se activa NGINX y se comprueba su estado.

```
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ sudo service nginx start
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ sudo systemctl nginx status
Unknown command verb 'nginx', did you mean 'link'?
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ sudo service nginx status
• 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 Tue 2025-09-30 11:06:10 CEST; 16s ago
    Docs: man:nginx(8)
  Process: 638 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0)
  Process: 639 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Main PID: 641 (nginx)
   Tasks: 17 (limit: 9350)
  Memory: 12.5M (peak: 14.6M)
    CPU: 23ms
  CGroup: /system.slice/nginx.service
          └─641 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
            └─642 "nginx: worker process"
              └─643 "nginx: worker process"
                └─644 "nginx: worker process"
                  └─645 "nginx: worker process"
                    └─646 "nginx: worker process"
                      └─647 "nginx: worker process"
                        └─648 "nginx: worker process"
                          └─649 "nginx: worker process"
                            └─651 "nginx: worker process"
                              └─652 "nginx: worker process"
                                └─653 "nginx: worker process"
                                  └─654 "nginx: worker process"
                                    └─655 "nginx: worker process"
                                      └─656 "nginx: worker process"
                                        └─657 "nginx: worker process"
                                          └─658 "nginx: worker process"

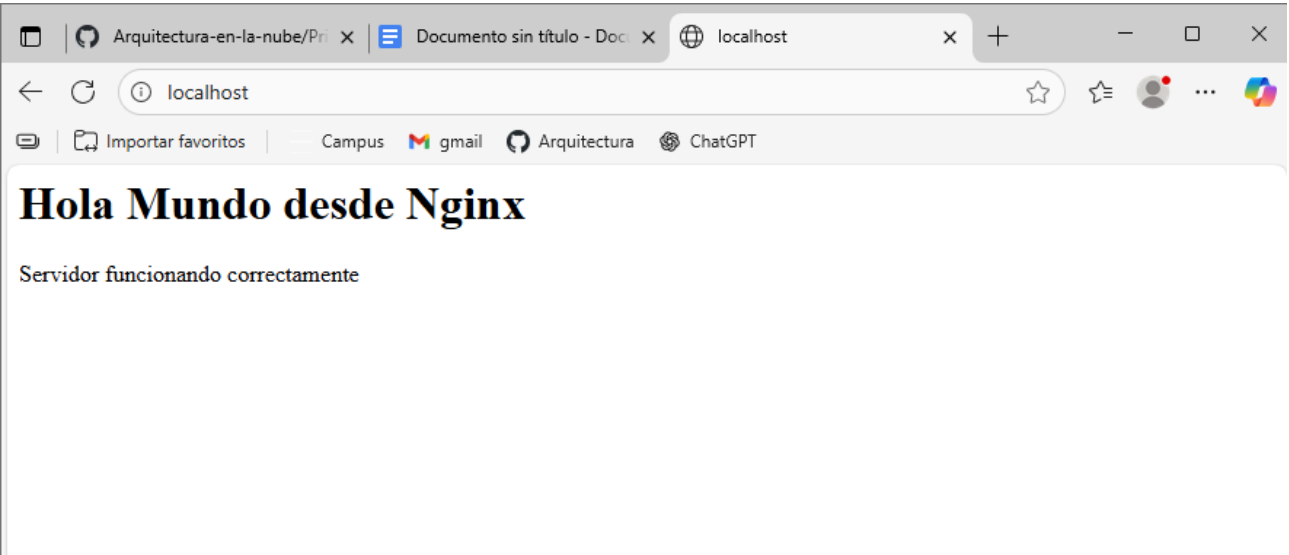
Sep 30 11:06:10 A6Alumno04 systemd[1]: Starting nginx.service - A high performance web server and a reverse
Sep 30 11:06:10 A6Alumno04 systemd[1]: Started nginx.service - A high performance web server and a reverse
lines 1-31/31 (END)
```



COMPROBACIÓN CURL

```
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ curl http://localhost
<h1> Hola Mundo desde Nginx </h1><p>Servidor funcionando correctamente</p>
```

```
alumno04@A6Alumno04:/mnt/c/WINDOWS/system32$ curl http://localhost/info.php
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "DTD/xhtml11-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;}
img {float: right; border: 0;}
hr {width: 934px; background-color: #ccc; border: 0; height: 1px;}
:root {--php-dark-grey: #333; --php-dark-blue: #4F5B93; --php-medium-blue: #8892BF; --php-light-blue: #E2E4E
F; --php-accent-purple: #793862}@media (prefers-color-scheme: dark) {
  body {background: var(--php-dark-grey); color: var(--php-light-blue)}
  .h td, td.e, th {border-color: #606A90}
  td {border-color: #505153}
  .e {background-color: #404A77}
  .h {background-color: var(--php-dark-blue)}
  .v {background-color: var(--php-dark-grey)}
  hr {background-color: #505153}
}
</style>
<title>PHP 8.3.6 - phpinfo()</title><meta name="ROBOTS" content="NOINDEX,NOFOLLOW,NOARCHIVE" /></head>
<body><div class="center">
<table>
<tr class="h"><td>
<a href="http://www.php.net/"><img border="0" src="data:image/png;base64,iVBORw0KGGoAAAANSUHEUgAAAHKAAABACAY
AAAA+j9gsAAAAGXRFWHRTb2Z0dDZyQZB8ZG9iZSBjbWFnZVZlYWR5ccllPAAAD4BJREFUeNrsNxtwXFUdx8/dBGihmE21QCqQDY6oZzykon/
gY5qizjgM2KQMfzFA0io0A5KEh+j4R9oZH7zT6MAMKrNphZFSQreKHRgZmsplHSCJ2Co6tBtJk7Zps7tJs5t95F5/33PvWU4293F29ybd1Pz
aM3df2XPv+Zzf4/zOuWc1tkjl+T0HQ3SQC6SBS1D6WKN4rusGm9F1ps/o5mPriOf8dd0YoNfi0nt4ntB1PT4zYwzQkf3kR9/sw4xtpS0CmE0
SyPUFUJXFMIXZcM0jAZ4xrKMudQT7963HBF0n6EaUjkP0vI9K90EHwqJLkNW1s8mC2WgVTwGAQWtafJzTWTKZmQuZ/k1MpAi2+eys6mplwfVa
APzcILu8EVKCoCAaYftPxrAXo8qyNwzZc7gSgzgN9Hx0Ecn3j8xr4lyH0hNrlpaJIgptM5DjCdZrJ0Jmce6bWfK0pqs0MErAA4gXIBuAmY53gF
mOPCcdaTxCbq+n16PPLXjewMfGcgEttECeouTpK5MplhyKsPBTiXNYyULtwIW7Cx1v1wuJyDLR9L0mQiVPb27fhA54yBbGttMpc10WwF1cmK
aH2FSF7vAJGezOZJZ9j0dIZlMhnuRiToM00c+N4X7oksasgEt9XS2KZCHzoem2Ixq5zpAuDTqTR14FmslZyepEi40gj26n0vLj33uiigEx
gMWRpt+CGCsEePZqoePM738BPTaJzT7CpU0nu1yXpAXCC3VerKcW4bfJYFZo6dmJyQTw2tvZc1nb719iyZwc5fmZ60su6H3uVzit52oBnM1l
2YizGxk8muFZLASHb/YKtzQdca03Y2CQ7eiy+YNGvLN+4+nJtm3bXhKJxJz316xZw1pbW9kLew+w1944XBEaPj6eYCe0x1gqNe07bK1MwID
bKcOF0R49GuePT5fcfOMX2drPXcQ0zf7y2tvbWvdXF/v1k2+yQ4dVPvQ5P0Um/NjoCX6UBMFZR6k+u7qMYVBVDIEqBW7eXAfPZX19zp2/oaG
BHysNMGTFinPZik9fWggbI5Omb13zUDeB3lLsdwaK/YPeYAFU0i8Aw9/2Dwyx4SPjFQEYU1f3MTYw4Jx7CIVCbHR0oqIDNMD+FMG+ZE0dO/t
sH1vAWnYS6H4qjFMC+Z1d/wg92/tuv2WeeYT87j+H2aFDxysGLuSy+o/z49DQk0Nmpqa2MjRyoYsZ0XKGnb5Z+vZq1UrxUsAvi9At/oK+e1
nBpoNw+Dai9TekSMxDrgSh0KrSYshTprc2NhoRf1JtlikqirAV198AddSavDBDrsC+QdT7/TSoB344tzOZ39+70RbporVerqasyw1MEnC8i
```



PHP Version 8.3.6

System	Linux A6Aluno04 6.6.87.2-microsoft-standard-WSL2 #1 SMP PREEMPT_DYNAMIC Thu Jun 5 18:30:46 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-calendar.ini, /etc/php/8.3/apache2/conf.d/20-ctype.ini, /etc/php/8.3/apache2/conf.d/20-exif.ini, /etc/php/8.3/apache2/conf.d/20-ffi.ini, /etc/php/8.3/apache2/conf.d/20-fileinfo.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-imagick.ini, /etc/php/8.3/apache2/conf.d/20-ldap.ini, /etc/php/8.3/apache2/conf.d/20-mbstring.ini, /etc/php/8.3/apache2/conf.d/20-mcrypt.ini, /etc/php/8.3/apache2/conf.d/20-mysqlnd.ini, /etc/php/8.3/apache2/conf.d/20-openssl.ini, /etc/php/8.3/apache2/conf.d/20-pdo_mysql.ini, /etc/php/8.3/apache2/conf.d/20-sockets.ini, /etc/php/8.3/apache2/conf.d/20-sysvmsg.ini, /etc/php/8.3/apache2/conf.d/20-sysvsem.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, nntp, ftp, phar
Registered Stream Socket Transports	tcp, udp, unix, udg, ssl, tls, tlsv1, 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