

# TALLERES UD3

## 1.LEMP

### Instalamos NGINX

```
joaquin@IAW-UB:~$ sudo apt-get install nginx
[sudo] password for joaquin:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
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 212 not upgraded.
Need to get 564 kB of archives.
After this operation, 1,596 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
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 1s (936 kB/s)
Preconfiguring packages ...
Selecting previously unselected package nginx-common.
(Reading database ... 200883 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) ...
```

Uno de los errores principales que me aparece a la hora de instalar el NGINX, es el uso del puerto 80 ya que este esta siendo usado por apache2

```
joaquin@IAW-UB:~$ 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: failed (Result: exit-code) since Fri 2025-10-31 10:24:10 UTC; 11s ago
    Docs: man:nginx(8)
 Process: 5646 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Process: 5647 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=1/FAILURE)
   CPU: 16ms

Oct 31 10:24:08 IAW-UB nginx[5647]: nginx: [emerg] bind() to 0.0.0.0:80 failed (98: Address already in use)
Oct 31 10:24:08 IAW-UB nginx[5647]: nginx: [emerg] bind() to [::]:80 failed (98: Address already in use)
Oct 31 10:24:09 IAW-UB nginx[5647]: nginx: [emerg] bind() to 0.0.0.0:80 failed (98: Address already in use)
Oct 31 10:24:09 IAW-UB nginx[5647]: nginx: [emerg] bind() to [::]:80 failed (98: Address already in use)
Oct 31 10:24:09 IAW-UB nginx[5647]: nginx: [emerg] bind() to 0.0.0.0:80 failed (98: Address already in use)
Oct 31 10:24:09 IAW-UB nginx[5647]: nginx: [emerg] bind() to [::]:80 failed (98: Address already in use)
Oct 31 10:24:10 IAW-UB nginx[5647]: nginx: [emerg] still could not bind()
Oct 31 10:24:10 IAW-UB systemd[1]: nginx.service: Control process exited, code=exited, status=1/FAILURE
Oct 31 10:24:10 IAW-UB systemd[1]: nginx.service: Failed with result 'exit-code'.
Oct 31 10:24:10 IAW-UB systemd[1]: Failed to start nginx.service - A high performance web server and a reverse proxy se...
```

Acá podemos ver, que apache2 esta utilizando el puerto

```
joaquin@IAW-UB:~$ sudo lsof -i :80
COMMAND  PID  USER   FD   TYPE DEVICE SIZE/OFF NODE NAME
apache2 1336  root    4u  IPv6  14155      0t0  TCP *:http (LISTEN)
apache2 1338 www-data  4u  IPv6  14155      0t0  TCP *:http (LISTEN)
apache2 1339 www-data  4u  IPv6  14155      0t0  TCP *:http (LISTEN)
apache2 1340 www-data  4u  IPv6  14155      0t0  TCP *:http (LISTEN)
apache2 1341 www-data  4u  IPv6  14155      0t0  TCP *:http (LISTEN)
apache2 1342 www-data  4u  IPv6  14155      0t0  TCP *:http (LISTEN)
```

Entonces, cambiamos el puerto 80 al 8080 en la configuración de apache2

```
joaquin@IAW-UB: ~
GNU nano 7.2
# If you just change the port
# have to change the Virtual
# /etc/apache2/sites-enabled

Listen 8080
Listen 8081
Listen 8082
```

Hecho eso, nos permitirá ejecutar perfectamente NGNIX

```
joaquin@IAW-UB:~$ 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 10:38:06 UTC; 4s ago
    Docs: man:nginx(8)
 Process: 5788 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Process: 5790 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Main PID: 5791 (nginx)
   Tasks: 5 (limit: 4603)
  Memory: 3.7M (peak: 4.0M)
     CPU: 21ms
    CGroup: /system.slice/nginx.service
            └─5791 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"

Oct 31 10:38:06 IAW-UB systemd[1]: Starting nginx.service - A high performance web server and a reverse proxy server...
Oct 31 10:38:06 IAW-UB systemd[1]: Started nginx.service - A high performance web server and a reverse proxy server.
joaquin@IAW-UB:~$
```

## INSTALAR MYSQL

Anteriormente instalamos mysql en este servidor, para la biblioteca php, por lo que la utilizaremos.

### INSTALAR PHP

Lo mismo pasa con php, por lo que solo instalaremos los modulos necesarias

### PROBAR PHP

A continuación creamos el archivo (info.php) donde nos muestra la siguiente información.

PHP Version 8.3.6	
System	Linux IAW-UB 6.14 0-33-generic #33-24 04.1-Ubuntu SMP PREEMPT_DYNAMIC Fri Sep 19 17:02:30 UTC 2014 x86_64
Build Date	Jul 14 2025 18:30:55
Build System	Linux
Server API	FPM/FastCGI
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/etc/php/8.3/fpm
Loaded Configuration File	/etc/php/8.3/fpm/php.ini
Scan this dir for additional .ini files	/etc/php/8.3/fpm/conf.d
Additional .ini files parsed	/etc/php/8.3/fpm/conf.d/10-mysqlind.ini, /etc/php/8.3/fpm/conf.d/10-opcache.ini, /etc/php/8.3/fpm/conf.d/10-pdo.ini, /etc/php/8.3/fpm/conf.d/15-xml.ini, /etc/php/8.3/fpm/conf.d/20-bz2.ini, /etc/php/8.3/fpm/conf.d/20-calendar.ini, /etc/php/8.3/fpm/conf.d/20-ctype.ini, /etc/php/8.3/fpm/conf.d/20-curl.ini, /etc/php/8.3/fpm/conf.d/20-dom.ini, /etc/php/8.3/fpm/conf.d/20-exif.ini, /etc/php/8.3/fpm/conf.d/20-fi.ini, /etc/php/8.3/fpm/conf.d/20-fileinfo.ini, /etc/php/8.3/fpm/conf.d/20-ftp.ini, /etc/php/8.3/fpm/conf.d/20-gd.ini, /etc/php/8.3/fpm/conf.d/20-gettext.ini, /etc/php/8.3/fpm/conf.d/20-iconv.ini, /etc/php/8.3/fpm/conf.d/20-mbstring.ini, /etc/php/8.3/fpm/conf.d/20-mcrypt.ini, /etc/php/8.3/fpm/conf.d/20-mysqli.ini, /etc/php/8.3/fpm/conf.d/20-pdo_mysql.ini, /etc/php/8.3/fpm/conf.d/20-phar.ini, /etc/php/8.3/fpm/conf.d/20-posix.ini, /etc/php/8.3/fpm/conf.d/20-readline.ini, /etc/php/8.3/fpm/conf.d/20-shmop.ini, /etc/php/8.3/fpm/conf.d/20-simplexml.ini, /etc/php/8.3/fpm/conf.d/20-sockets.ini, /etc/php/8.3/fpm/conf.d/20-sysmsg.ini, /etc/php/8.3/fpm/conf.d/20-sysvsem.ini, /etc/php/8.3/fpm/conf.d/20-sysvshm.ini, /etc/php/8.3/fpm/conf.d/20-tokenizer.ini, /etc/php/8.3/fpm/conf.d/20-xmleader.ini, /etc/php/8.3/fpm/conf.d/20-xmlwriter.ini, /etc/php/8.3/fpm/conf.d/20-xsl.ini, /etc/php/8.3/fpm/conf.d/20-zip.ini

## PROBAR CONEXIÓN CON MYSQL

Creamos un fichero en /var/www/html, llamado testdb.php

Donde introducimos el contenido brindado.(En mi caso tuve que modificar el usuario en mysql para poder conectarme )

Conexión correcta a MySQL!

Finalmente borraremos los archivos, tal cual nos indica el enunciado.

```
joaquin@IAW-UB:~$ sudo rm /var/www/html/info.php
joaquin@IAW-UB:~$ sudo rm /var/www/html/testdb.php
joaquin@IAW-UB:~$
```

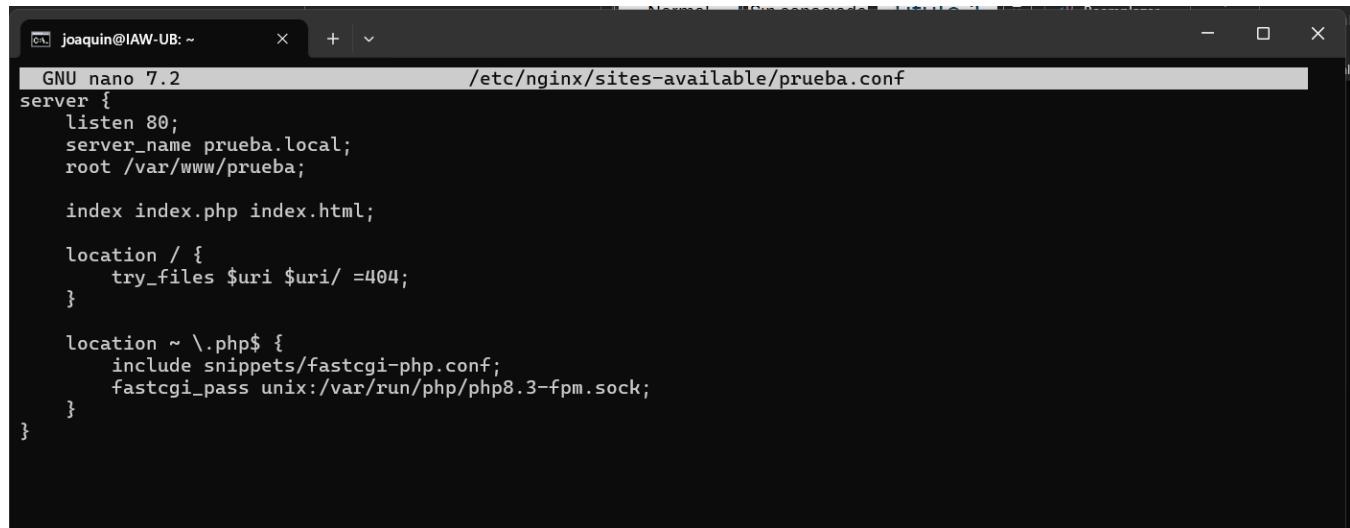
## 2. Preparar el LEMP para una aplicación PHP

Comprobamos que todo va bien

```
joaquin@IAW-UB:~$ sudo systemctl status php8.3-fpm.service
[sudo] password for joaquin:
● php8.3-fpm.service - The PHP 8.3 FastCGI Process Manager
    Loaded: loaded (/usr/lib/systemd/system/php8.3-fpm.service; enabled; preset: enabled)
    Active: active (running) since Mon 2025-11-03 19:12:19 UTC; 3min 34s ago
      Docs: man:php-fpm8.3(8)
   Process: 1250 ExecStartPost=/usr/lib/php/php-fpm-socket-helper install /run/php/php-fpm.sock /etc/php/8.3/fpm/www.conf
     Main PID: 1181 (php-fpm8.3)
        Tasks: 3 (limit: 4601)
       Memory: 26.4M (peak: 27.1M)
          CPU: 227ms
        CGroup: /system.slice/php8.3-fpm.service
                  ├─1181 "php-fpm: master process (/etc/php/8.3/fpm/php-fpm.conf)"
                  ├─1248 "php-fpm: pool www"
                  └─1249 "php-fpm: pool www"

Nov 03 19:12:10 IAW-UB systemd[1]: Starting php8.3-fpm.service - The PHP 8.3 FastCGI Process Manager...
Nov 03 19:12:19 IAW-UB systemd[1]: Started php8.3-fpm.service - The PHP 8.3 FastCGI Process Manager.
Lines 1-17/17 (END)
```

Vamos a crear un sitio de prueba, donde colocamos el siguiente texto



The screenshot shows a terminal window titled 'j�nano 7.2' with the command '/etc/nginx/sites-available/prueba.conf'. The content of the file is:

```
server {
    listen 80;
    server_name prueba.local;
    root /var/www/prueba;

    index index.php index.html;

    location / {
        try_files $uri $uri/ =404;
    }

    location ~ \.php$ {
        include snippets/fastcgi-php.conf;
        fastcgi_pass unix:/var/run/php/php8.3-fpm.sock;
    }
}
```

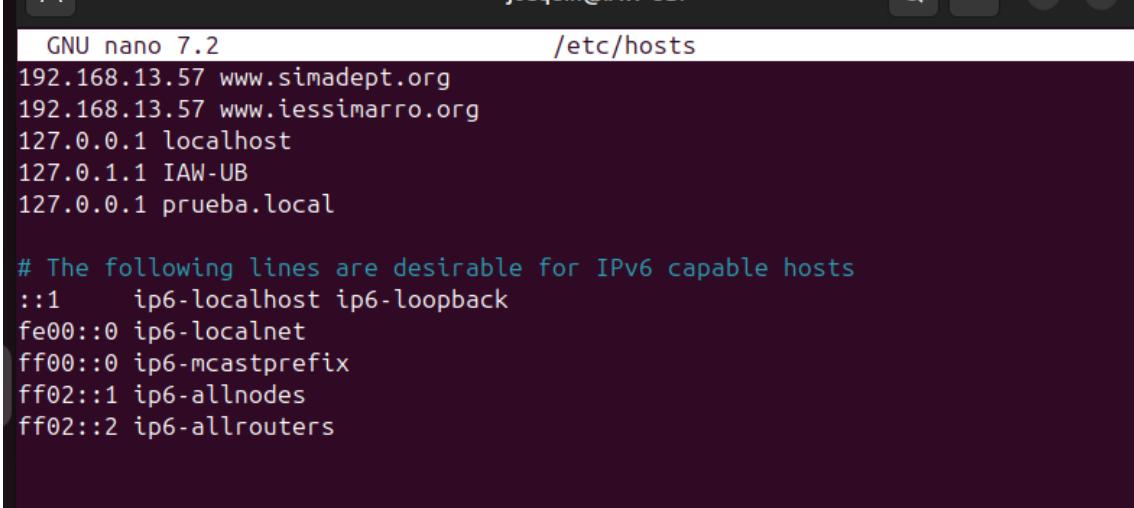
Creamos las carpetas del sitio creado anteriormente, y le damos los permisos necesarios al usuario para poder escribir en ella

```
joaquin@IAW-UB:~$ sudo mkdir -p /var/www/prueba
joaquin@IAW-UB:~$ sudo chown -R $USER:$USER /var/www/prueba
```

Ahora activaremos el sitio, creando un enlace simbólico

```
joaquin@IAW-UB:~$ sudo ln -s /etc/nginx/sites-available/prueba.conf /etc/nginx/sites-enabled/
```

Una vez activado, modificaremos el fichero /etc/hosts para poder conectarnos por el navegador



```
GNU nano 7.2          /etc/hosts
192.168.13.57 www.simadept.org
192.168.13.57 www.iesimarro.org
127.0.0.1 localhost
127.0.1.1 IAW-UB
127.0.0.1 prueba.local

# The following lines are desirable for IPv6 capable hosts
::1      ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

Creamos el fichero de prueba index.php dentro de /var/www/prueba



```
GNU nano 7.2          /var/www/prueba/index.php *
<?php
echo "<h1>Servidor PHP funcionando correctamente</h1>";
echo "<p>Bloque de servidor: " . $_SERVER['SERVER_NAME'] . "</p>";
echo "<p>Archivo ejecutado: " . $_SERVER['SCRIPT_FILENAME'] . "</p>";
echo "<hr>";
echo "<p>Fecha y hora del servidor: " . date('Y-m-d H:i:s') . "</p>";
?>
```

Finalmente, podemos ver que todo funciona de manera correcta



### 3.Crear un segundo bloque de servicio ( VirtualHost en Nginx )

Lo primero que hacemos es crear la carpeta del nuevo sitio web, y le daremos permisos también.

```
joaquin@IAW-UB:~$ sudo mkdir -p /var/www/prueba2
joaquin@IAW-UB:~$ sudo chown -R $USER:$USER /var/www/prueba2
joaquin@IAW-UB:~$ sudo chmod -R 755 /var/www/prueba2
joaquin@IAW-UB:~$
```

A continuación, crearemos el archivo de prueba donde colocaremos el contenido mostrado.

```
GNU nano 7.2                               /var/www/prueba2/test.php
<?php
echo "<h2>Prueba avanzada de ejecución PHP-FPM</h2>";
$php_version = phpversion();
echo "<p>Versión de PHP: <strong>$php_version</strong></p>";

if (function_exists('mysqli_connect')) {
    echo "<p>Extensión MySQLi: disponible ✓</p>";
} else {
    echo "<p>Extensión MySQLi: no disponible ✗</p>";
}

echo "<p>Usuario actual del proceso PHP: <strong>" . get_current_user() . "</strong></p>";

echo "<hr><h3>Variables del entorno:</h3>";
foreach ($_SERVER as $key => $value) {
    echo "<strong>$key</strong>: $value<br>";
}
?>
```

Ahora crearemos el bloque de servidor para prueba2.local

```
GNU nano 7.2                               /etc/nginx/sites-available/prueba2.conf
server {
    listen 80;
    server_name prueba2.local;
    root /var/www/prueba2;

    index index.php index.html;

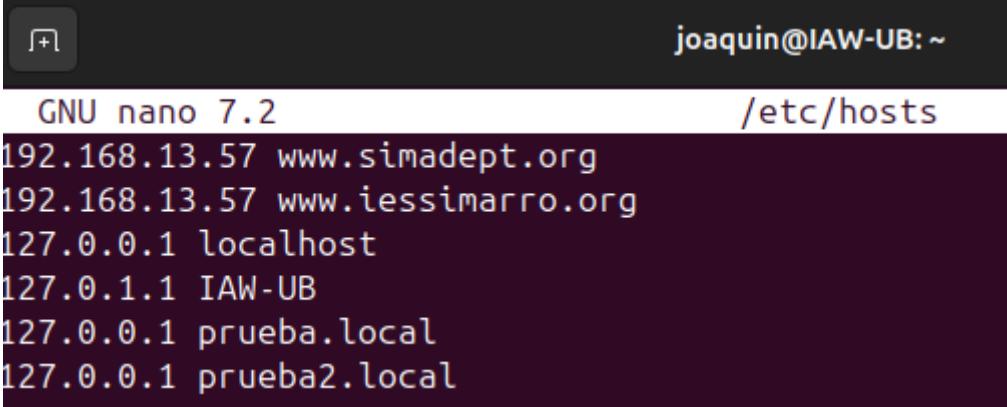
    location / {
        try_files $uri $uri/ =404;
    }

    location ~ \.php$ {
        include snippets/fastcgi-php.conf;
        fastcgi_pass unix:/var/run/php/php8.3-fpm.sock;
    }
}
```

Crearemos un enlace simbólico para activar el sitio

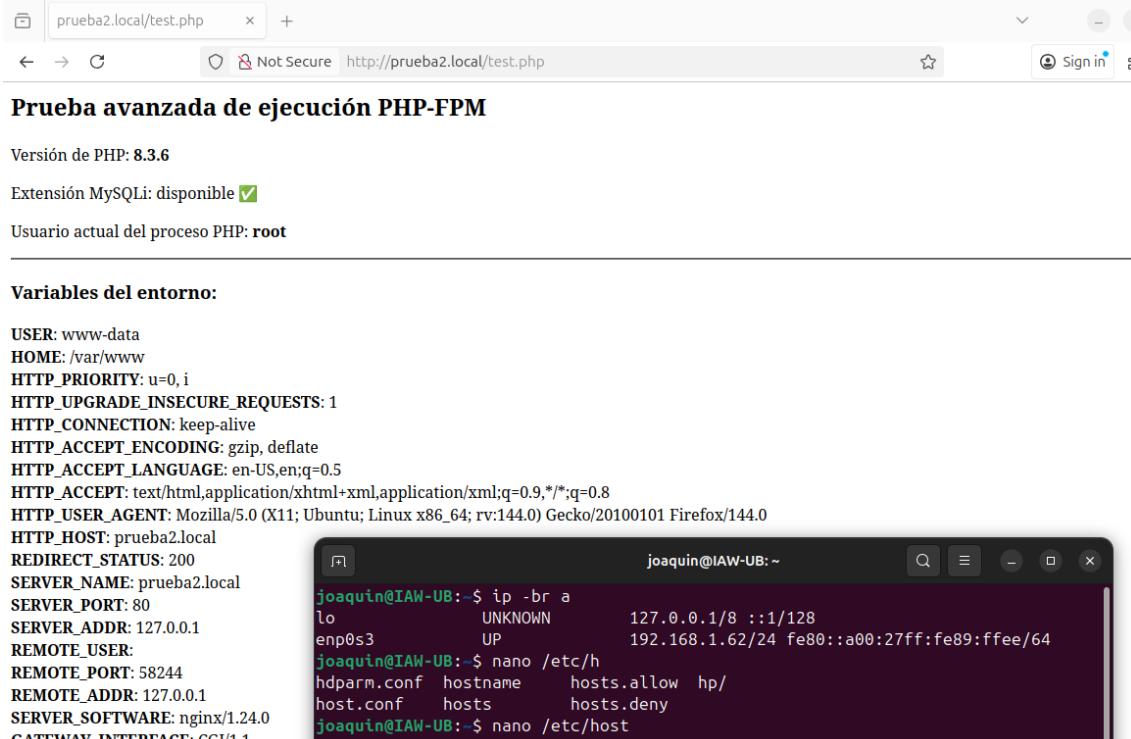
```
joaquin@IAW-UB:~$ sudo ln -s /etc/nginx/sites-available/prueba2.conf /etc/nginx/sites-enabled/
joaquin@IAW-UB:~$
```

Agregaremos el sitio al archivo /etc/hosts



```
GNU nano 7.2          joaquin@IAW-UB: ~
/etc/hosts
192.168.13.57 www.simadept.org
192.168.13.57 www.iessimarro.org
127.0.0.1 localhost
127.0.1.1 IAW-UB
127.0.0.1 prueba.local
127.0.0.1 prueba2.local
```

Finalmente, podemos verificar que todo se creo con éxito



prueba2.local/test.php

Not Secure http://prueba2.local/test.php

Prueba avanzada de ejecución PHP-FPM

Versión de PHP: 8.3.6

Extensión MySQLi: disponible

Usuario actual del proceso PHP: root

---

**Variables del entorno:**

```
USER: www-data
HOME: /var/www
HTTP_PRIORITY: u=0,i
HTTP_UPGRADE_INSECURE_REQUESTS: 1
HTTP_CONNECTION: keep-alive
HTTP_ACCEPT_ENCODING: gzip, deflate
HTTP_ACCEPT_LANGUAGE: en-US,en;q=0.5
HTTP_ACCEPT: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
HTTP_USER_AGENT: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:144.0) Gecko/20100101 Firefox/144.0
HTTP_HOST: prueba2.local
REDIRECT_STATUS: 200
SERVER_NAME: prueba2.local
SERVER_PORT: 80
SERVER_ADDR: 127.0.0.1
REMOTE_USER:
REMOTE_PORT: 58244
REMOTE_ADDR: 127.0.0.1
SERVER_SOFTWARE: nginx/1.24.0
GATEWAY_INTERFACE: CGI/1.1
```

```
joaquin@IAW-UB:~$ ip -br a
lo          UNKNOWN      127.0.0.1/8  ::1/128
enp0s3      UP          192.168.1.62/24 fe80::a00:27ff:fe89:ffee/64
joaquin@IAW-UB:~$ nano /etc/h
hdparm.conf  hostname    hosts.allow  hp/
host.conf   hosts       hosts.deny
joaquin@IAW-UB:~$ nano /etc/host
joaquin@IAW-UB:~$ nano /etc/hosts
```