APACHE PRACTICE

IVÁN BÁSCONES CUBILLO

Index

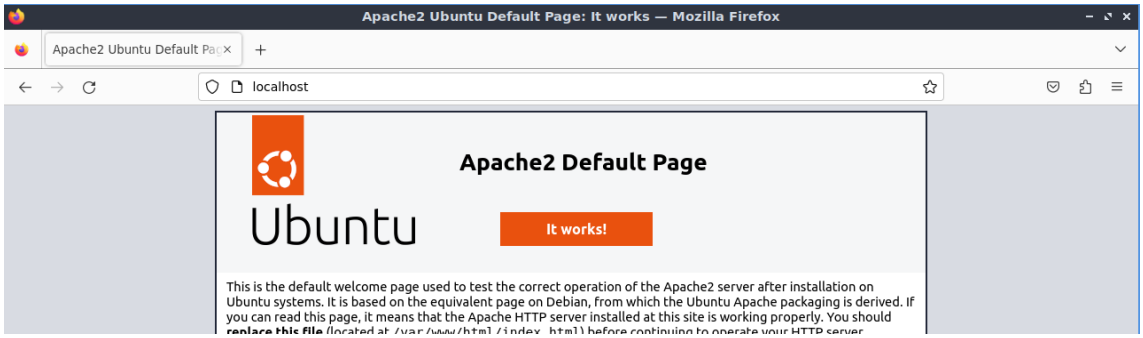
Practice

Apache's Installation

To install Apache on ubuntu we just need to run the following command in the terminal:

```
usuario@tfg-virtualbox:~$ sudo apt intall apache2 -y
```

Check if the server Apache install correctly:



Config files

All the Apache config files are inside the carpet /etc/apache2/

```
usuario@tfg-virtualbox:~$ ls -l /etc/apache2/
total 80
-rw-r--r-- 1 root root  7224 jul 17 20:57 apache2.conf
drwxr-xr-x 2 root root  4096 nov  4 17:22 conf-available
drwxr-xr-x 2 root root  4096 nov  4 17:22 conf-enabled
-rw-r--r-- 1 root root  1782 dic  4  2023 envvars
-rw-r--r-- 1 root root 31063 dic  4  2023 magic
drwxr-xr-x 2 root root 12288 nov  4 17:22 mods-available
drwxr-xr-x 2 root root  4096 nov  4 17:22 mods-enabled
-rw-r--r-- 1 root root   320 dic  4  2023 ports.conf
drwxr-xr-x 2 root root  4096 nov  4 17:22 sites-available
drwxr-xr-x 2 root root  4096 nov  4 17:22 sites-enabled
```

The main config file is apache2.conf inside you can config the permission of the directory you host the website

```
<Directory />
        Options FollowSymLinks
        AllowOverride None
        Require all denied
</Directory>

<Directory /usr/share>
        AllowOverride None
        Require all granted
</Directory>

<Directory /var/www/>
        Options Indexes FollowSymLinks
        AllowOverride None
        Require all granted
</Directory>
```

Other important config files you need to know if you want to configurate apache server are:

- ports.conf: to configurate the ports apache need to listen.
- Mods-enabled/dir.conf: to configurate the names of the directory index name
- sites-available: inside this carpet you can config one or more virtualhost in the same server but not enabled
- sites-enabled: inside this carpet all the files are create throw a command line and enabled all the virtualhost there are inside this carpet.

Directives Modifying

To modify the directory directives, you need to go to the apache2.conf file inside there is the next content:

```
<Directory />
        Options FollowSymLinks
        AllowOverride None
        Require all denied
</Directory>

<Directory /usr/share>
        AllowOverride None
        Require all granted
</Directory>

<Directory /var/www/>
        Options Indexes FollowSymLinks
        AllowOverride None
        Require all granted
</Directory>
```

Or you can going to the sites-available/xxx.conf file to modify the directory directives there

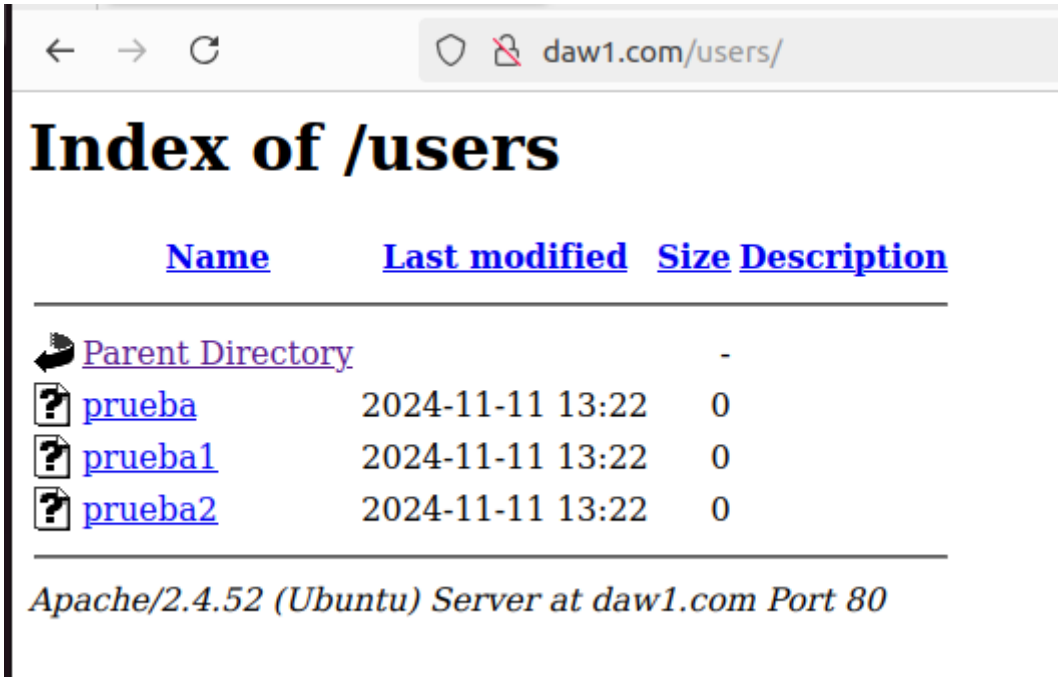
```
<VirtualHost *:80>

        ServerAdmin webmaster@localhost
        ServerName daw1.com
        DocumentRoot /webpages/daw1/

        <Directory /webpages/daw1/>
                Options FollowSymLinks
                AllowOverride all
                Require all granted
        </Directory>
```

Document Root

To find the document root of your website there is inside the next config file /etc/apache2/sites-available/website_name.conf

Options Index

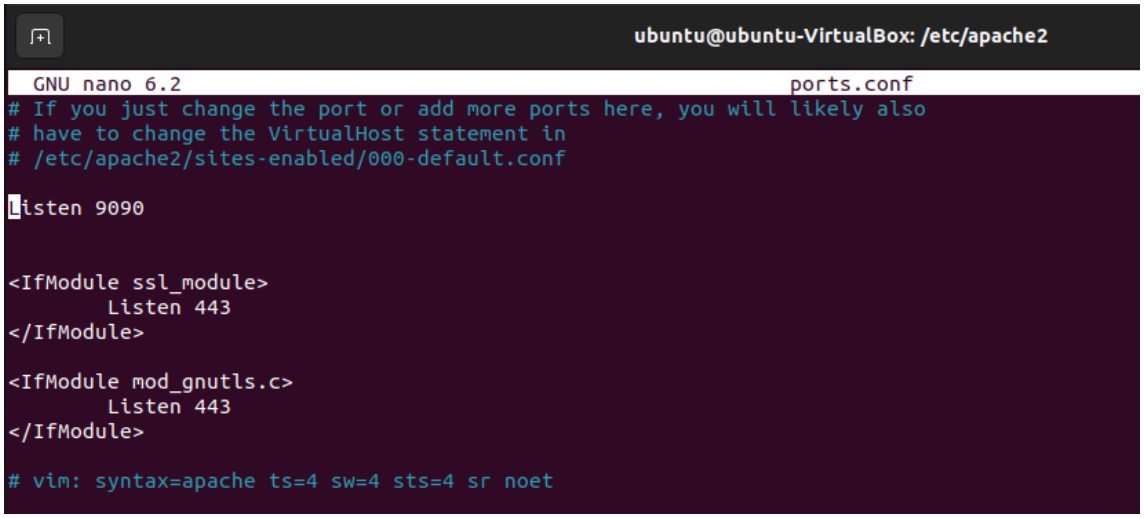
Is a directory directive what enabled a little menu where you can see all the files inside this directory if in this directory don't have a archive with the name storage in the file /etc/apache2/mods-enabled/dir.conf



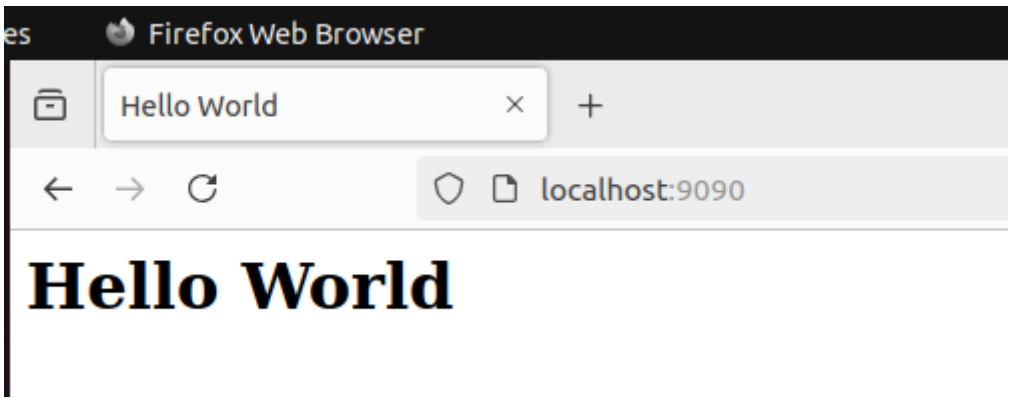
Port changing

To change the port of a website first of all you need to go to the website file inside /etc/apache2/sites-available/name_file.conf and change the port to 9090:

Next step go to the file ports.conf and add the new port or change the port modifying the listen command for the port do you want to use.



Reset the server apache and check if the server is working



Virtual Host

Site available vs site enabled

Site available directory is stored all the file config of the virtual hosting inside your Apache server, but all the Virtual Hosts aren't enabled and the users can't access to the Virtual Host.

Sites enabled directory is stored all the references of the Virtual Hosts config files. All the config file inside this folder indicate the virtual host site is enabled.

Creating site configuration file

To create the site configuration file, we use the command cp to copy the file 000-default.conf

```
ubuntu@ubuntu-VirtualBox:~$ sudo cp /etc/apache2/sites-available/000-default.conf /etc/apache2/sites-available/daw1.conf
```

Next step enters to the new file and apply the new configuration:

```
<VirtualHost *:80>

        ServerAdmin webmaster@localhost
        ServerName daw1.com
        DocumentRoot /webpages/daw1/

        <Directory /webpages/daw1/>
                Options FollowSymLinks
                AllowOverride all
                Require all granted
        </Directory>
```

ç

The next step is enabled the new virtual host

Enabled the site

To enabled the new site we need to use the next command:

```
ubuntu@ubuntu-VirtualBox:/etc/apache2/sites-available$ a2ensite daw1.conf
Site daw1 already enabled
```

We go to check if the site is enabled. We go to visit the carpet site-enabled:

```
ubuntu@ubuntu-VirtualBox:/etc/apache2/sites-available$ ls -l ../sites-enabled/
total 0
lrwxrwxrwx 1 root root 35 oct 18 10:16 000-default.conf -> ../sites-available/000-default.conf
lrwxrwxrwx 1 root root 28 nov  8 11:00 daw1.conf -> ../sites-available/daw1.conf
lrwxrwxrwx 1 root root 28 nov  8 11:00 daw2.conf -> ../sites-available/daw2.conf
```

Hosts file

The file to configurate the hosts in ubuntu is /etc/hosts

```
  GNU nano 6.2                                                  /etc/hosts
127.0.0.1       localhost
127.0.1.1       ubuntu-VirtualBox
127.0.0.1       daw1.com
127.0.0.1       daw2.com

# 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
```

To configurate the new hosts you write the first the ip and second the name you want to use.

HTTP Access

First of all you need to install the apache2-utils to use this function

```
ubuntu@ubuntu-VirtualBox:~$ sudo apt install apache2-utils -y
```

User creation .httppasswd

To create user and storage inside the file .htpasswd use the next command:

```
root@ubuntu-VirtualBox:/etc/apache2# htpasswd -c .htpasswd dawUser1
New password:
Re-type new password:
Adding password for user dawUser1
```

The final step we give permission to the apache2 user:

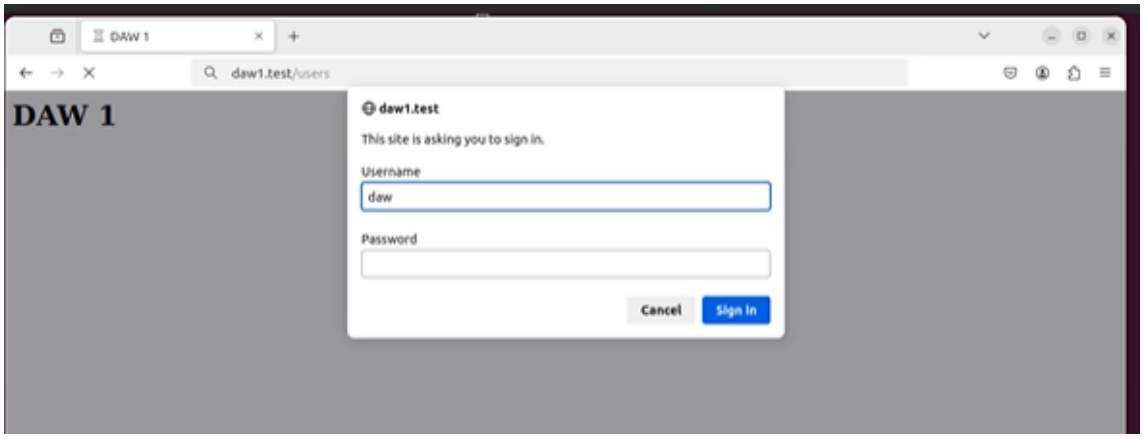
```
root@ubuntu-VirtualBox:/etc/apache2# chown www-data:www-data .htpasswd
```

Directives inside the virtual host file

The directive we use to applicate the HTTP access inside the archive /etc/apache2/sites-available/daw1.conf are the next

```
<Directory /webpages/daw1/users>
        Options Indexes
        AuthType Basic
        AuthName "Acceso Restringido a Usuarios"
        AuthUserFile /etc/apache2/.htpasswd
        Require valid-user
</Directory>
```

Restart the service and check it is working

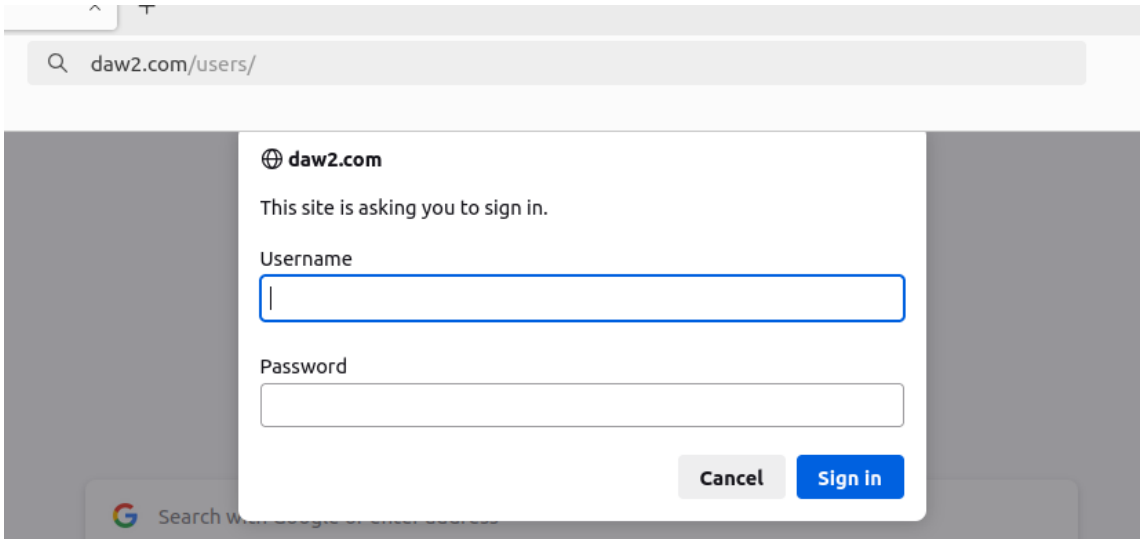


Use of .htaccess

If you want to use .htaccess only new to crate inside the folder do you want to protect the file .htaccess and write the next commands inside

```
 GNU nano 6.2                                  /webpages/daw2/users/.htaccess *
AuthType Basic
AuthName "Restricted Access for Users"
AuthUserFile /etc/apache2/.htpasswd
Require valid-user
```

Restart the service and check if working the HTTP access



SLL

Create an SSL Certificate

First of all need to create a folder inside the folder /etc

```
ubuntu@ubuntu-VirtualBox:~$ sudo mkdir /etc/certs
```

And install the openSSL:

```
ubuntu@ubuntu-VirtualBox:~$ sudo apt install openssl -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
openssl is already the newest version (3.0.2-0ubuntu1.18).
openssl set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 23 not upgraded.
```

To create a new SSL certificate and fill in all the data

```
ubuntu@ubuntu-VirtualBox:~$ sudo openssl req -x509 -nodes -days 365 -newkey rsa:2048  -keyout /etc/certs/apache2.key
-out /etc/certs/apache2.crt
```

Check if the SSL certificate is created

```
ubuntu@ubuntu-VirtualBox:~$ tree /etc/certs/
/etc/certs/
├── apache2.crt
├── apache2.key
└── privkey.pem
```

Configurate Apache to Use SSL

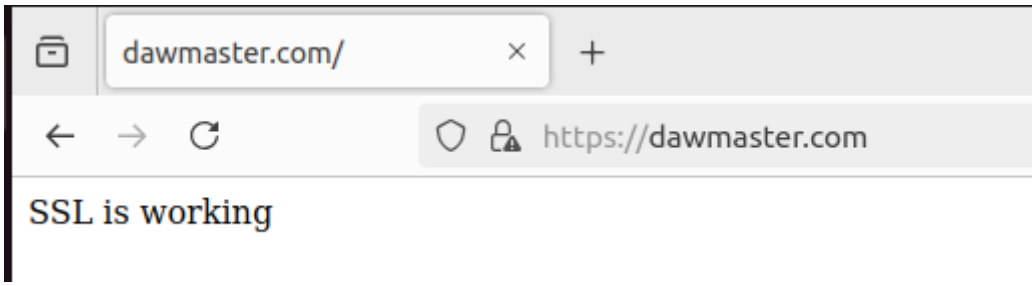
First active the module SSL in apache2 with the next command

```
root@ubuntu-VirtualBox:/etc/apache2/sites-available# a2enmod ssl
Considering dependency setenvif for ssl:
Module setenvif already enabled
Considering dependency mime for ssl:
Module mime already enabled
Considering dependency socache_shmcb for ssl:
Enabling module socache_shmcb.
Enabling module ssl.
See /usr/share/doc/apache2/README.Debian.gz on how to configure SSL and crea
te self-signed certificates.
To activate the new configuration, you need to run:
  systemctl restart apache2
```

To configure the SSL certificate create in sites-available a new conf archive with the website and add the next important part indicate with a red mark

```
<VirtualHost *:443>
        ServerAdmin webmaster@dawmaster
        DocumentRoot /webpages/mysite
        ServerName dawmaster.com
        ServerAlias www.dawmaster.com

        <Directory /webpages/mysite>
                Options FollowSymLinks
                AllowOverride all
                Require all granted
        </Directory>

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

        SSLEngine On
        SSLCertificateFile /etc/certs/apache2.crt
        SSLCertificateKeyFile /etc/certs/apache2.key
        SSLProtocol All -SSLv3

</VirtualHost>
```

Enable the site with the command indicate enable site part a2ensite command and restart and check if it working the website



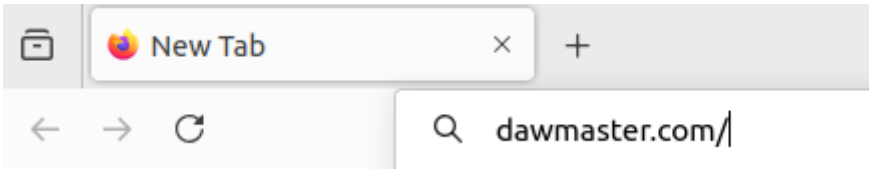
Force HTTPS

To force https you need to modifice the conf file with the code is mark in a red box

```
  GNU nano 6.2                          my-site.conf
<VirtualHost *:80>
        ServerName dawmaster.com
        Redirect / https://www.dawmaster.com
</VirtualHost>

<VirtualHost *:443>
        ServerAdmin webmaster@dawmaster
        DocumentRoot /webpages/mysite
        ServerName dawmaster.com
        ServerAlias www.dawmaster.com

        <Directory /webpages/mysite>
                Options FollowSymLinks
                AllowOverride all
                Require all granted
        </Directory>

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

        SSLEngine On
        SSLCertificateFile /etc/certs/apache2.crt
        SSLCertificateKeyFile /etc/certs/apache2.key
        SSLProtocol All -SSLv3

</VirtualHost>

# vim: syntax=apache ts=4 sw=4 sts=4 sr noet
```

Restart the server and check if it working the redirect

Before



After


Warning: Potential Securi
Not Secure
https://www.dawmaster.com