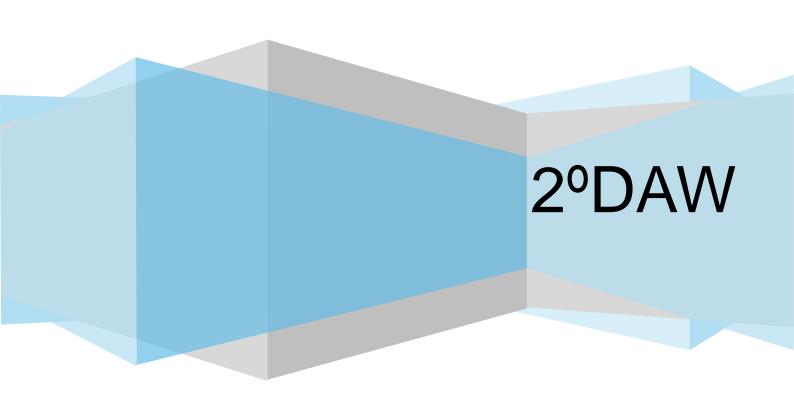
ACTIVIDAD AWS

HUGO MUÑIZ VÁZQUEZ



ÍNDICE

Instalamos el servidor web de Apache:	. 3
·	
Instalaremos el servidor mysql:	. 4
Para crear un certifica autofirmado y activar ssl:	٠,

En primer lugar, actualizaremos la lista de paquetes para asegurar que todo esté correctamente y al día:

```
Expanded Security Maintenance for Applications is not enabled.

19 updates can be applied immediately.
11 of these updates are standard security updates.
12 osee these additional updates run: apt list --upgradable
13 canable ESM Apps to receive additional future security updates.
14 canable ESM Apps to receive additional future security updates.
15 canable ESM Apps to receive additional future security updates.
16 canable ESM Apps to receive additional future security updates.
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18 canable ESM Apps to receive additional future security updates.
19 canable ESM Apps to receive additional future security updates.
10 canable ESM Apps to receive additional future security updates of "your additional future security in InRelease (126 kB)
19 cate: http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages (725 kB)
19 cate: http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages (126 kB)
19 cate: http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages (126 kB)
19 cate: http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages (126 kB)
19 cate: http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components (120 kB)
```

Instalamos el servidor web de Apache:

```
Last login: Fri Dec 13 09:59:11 2024 from 18.206.107.27

ubuntu@ip-172-31-19-251:-$ sudo apt update 66 sudo apt upgrade -y

Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease

Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]

Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]

Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports inRelease [126 kB]

Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [725 kB]

Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [151 kB]

Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [926 kB]

Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [212 B]

Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]

Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [208 B]

Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]

Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [216 B]

Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [216 B]

Get:15 http://security.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]

Get:15 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [7168 B]

i-0fbb2647adc835209 (UbuntuHugo)
```

Si accedo a la ip de mi instancia ec2 de aws, podemos comprobar como sale que apache se ha configurado correctamente.



Instalaremos el servidor mysql:

```
/etc/needrestart/restart.d/dbus.service
systemctl restart networkd-dispatcher.service
systemctl restart systemd-logind.service
systemctl restart unattended-upgrades.service

No containers need to be restarted.

User sessions running outdated binaries:
ubuntu @ session #3: sshd[1025]
ubuntu @ user manager service: systemd[1372]

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-19-251:~$ ^C
ubuntu@ip-172-31-19-251:~$ sudo apt install mysql-server -y

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```

Y aseguramos su instalación:

```
The currently running kernel version is not the expected kernel version 6.8.0-1020-
Restarting the system to load the new kernel will not be handled automatically, so yo
Restarting services...
Service restarts being deferred:
/etc/needrestart/restart.d/dbus.service
systemctl restart networkd-dispatcher.service
systemctl restart systemd-logind.service
systemctl restart unattended-upgrades.service
No containers need to be restarted.
User sessions running outdated binaries:
ubuntu @ session #3: sshd[1025]
ubuntu @ user manager service: systemd[1372]
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-19-251:~$ sudo mysql secure installation
  i-0fbb2647adc835209 (UbuntuHugo)
  D. LILLID - F4 07 110 F7 D.L. -1-ID- 170 71 10 0F1
```

Crearemos una BD que gestionará los usuarios de apache:

```
whose tall access. This is also intended only for testing, and should be removed before moving into a production vironment.

However test database and access to it? (Press y|Y for Yes, any other key skipping.

I loading the privilege tables will ensure that all changes and so far will take effect immediately.

I cload privilege tables now? (Press y|Y for Yes, any other key for No) : access.

I done!

Ountu@ip-172-31-19-251:~$ sudo mysql -u root -p
```

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```
Enter password:
Welcome to the MySQL monitor. Commands end with; or \g.
Your MySQL connection id is 11
Server version: 8.0.40-0ubuntu0.24.04.1 (Ubuntu)

Copyright (c) 2000, 2024, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql>
```

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Y añadimos usuarios a la base de datos que creamos:

```
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed

mysql> CREATE TABLE users (

-> id INT AUTO_INCREMENT PRIMARY KEY,

-> username VARCHAR(50) NOT NULL UNIQUE,

-> password VARCHAR(255) NOT NULL

->);

ERROR 1050 (42501): Table 'users' already exists

mysql> -- Insertar un usuario con contraseña hasheada

mysql> INSERT INTO users (username, password) VALUES ('usuario1', SHA2('contraseña1', 256));

Query OK, 1 row affected (0.01 sec)

mysql> -- Puedes añadir más usuarios de manera similar

mysql> INSERT INTO users (username, password) VALUES ('usuario2', SHA2('contraseña2', 256));

Query OK, 1 row affected (0.00 sec)
```

Instalaremos los módulos de autenticación:

```
mysql> INSERT INTO users (username, password) VALUES ('usuario1', S Query OK, 1 row affected (0.01 sec)

mysql>
mysql> — Puedes añadir más usuarios de manera similar
mysql> INSERT INTO users (username, password) VALUES ('usuario2', S Query OK, 1 row affected (0.00 sec)

mysql> exit
Bye
ubuntu@ip-172-31-19-251:~$ sudo a2enmod authn_dbd

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```

```
mysql> exit
Bye
ubuntu@ip-172-31-19-251:~$ sudo a2enmod authn_dbd
Considering dependency dbd for authn_dbd:
Enabling module dbd.
Enabling module authn_dbd.
To activate the new configuration, you need to run:
   systemctl restart apache2
ubuntu@ip-172-31-19-251:~$ sudo a2enmod dbd
Module dbd already enabled
ubuntu@ip-172-31-19-251:~$ sudo systemctl restart apache2
```

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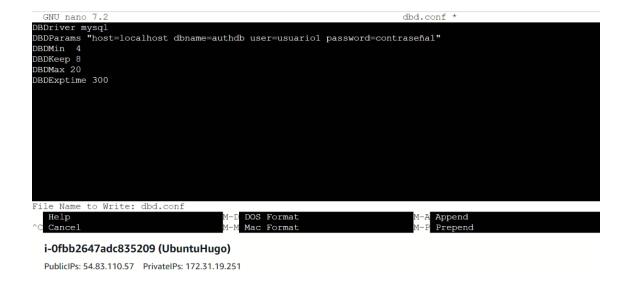
Y reiniciamos apache.

Ahora, configuraremos la conexión con la base de datos:

Para ello en la ruta /etc/apache2/mods-available/

Crearemos el archivo dbd.conf con la siguiente configuración

```
cache_disk.conf
cache_disk.load
cache_socache.load
cern_meta.load
cgi.load
cgid.conf
 uth_basic.load
uth_digest.load
                                                                                                      filter.load
headers.load
                                                                                                                                                                        mime_magic.conf
mime_magic.load
                                                                                                                                                                                                                             proxy_http.load
proxy_http2.load
                                                                                                                                                                                                                             proxy_stcpl.load
proxy_uwsgi.load
proxy_uwsgi.load
proxy wstunnel.load
ratelimit.load
reflector.load
remoteip.load
                                                                                                                                                                                                                                                                                 ssl.conf
ssl.load
status.conf
status.load
substitute.lo
suexec.load
                                                                                                                                                                        mpm_event.conf
mpm_event.load
mpm_prefork.conf
                                                                                                      heartbeat.load
                                                                                                      heartmonitor.load
http2.conf
uthn_dbd.load
uthn_dbm.load
uthn_file.load
                                                    cgid.load
charset_lite.load
data.load
                                                                                                                                                                        mpm_prefork.load
mpm_worker.conf
mpm_worker.load
                                                                                                      http2.load
                                                   dav.load
dav_fs.conf
dav_fs.load
dav_lock.load
dbd.load
deflate.conf
 uthn socache.load
                                                                                                       include.load
                                                                                                                                                                        negotiation.conf
                                                                                                                                                                                                                                                                                   unique id.load
uthn_socache.loa
uthnz_fcgi.load
uthnz_ldap.load
uthz_core.load
uthz_dbd.load
uthz_dbm.load
                                                                                                      info.conf
info.conf
info.load
lbmethod bybusyness.load
lbmethod byrequests.load
lbmethod bytraffic.load
lbmethod heartbeat.load
                                                                                                                                                                        negotiation.load
proxy.conf
                                                                                                                                                                       proxy.com
proxy.load
proxy_ajp.load
proxy_balancer.conf
proxy_balancer.load
proxy_connect.load
proxy_express.load
                                                                                                                                                                                                                              rewrite.load
                                                                                                                                                                                                                                                                                   usertrack.load
                                                                                                                                                                                                                                                                                  vhost_alias.1
xml2enc.load
uthz_groupfile.load deflate.load lbmethod_heartbeat.load
uthz_host.load dialup.load ldap.conf
uthz_omer.load dir.conf ldap.load
buntu@ip-172-31-19-251:/etc/apache2/mods-available$ nano dbd.conf
                                                                                                                                                                                                                             session_cookie.load
session_crypto.load
session_dbd.load
                                                                           wache2/mods-available$ sudo nano dbd.conf
  i-Ofbb2647adc835209 (UbuntuHugo)
  PublicIPs: 54.83.110.57 PrivateIPs: 172.31.19.251
```



Crearemos un archivo de configuración para nuestro sitio en la ruta /etc/apache2/sites-available/ llamado secure.conf con el siguiente contenido:

E instalaremos un driver necesario para que apache se comunique con mysql.

En servername pondremos la ip publica de nuestra máquina de aws.

```
authn_core.load
authn_dbd.load
                        cgid.conf
                                                                           mpm_prefork.conf
                                              http2.load
                                                                           mpm prefork.load
authn dbm.load
                        charset lite.load
                                              ident.load
                                                                          mpm worker.conf
authn_file.load
                       data.load
                                              imagemap.load
                                                                          mpm worker.load
authn socache.load
                       dav.load
                                              include.load
                                                                          negotiation.conf
authnz fcgi.load
                       dav fs.conf
                                              info.conf
                                                                          negotiation.load
authnz_ldap.load
authz_core.load
                       dav_fs.load
dav_lock.load
                                              info.load
                                                                          proxy.conf
                                              lbmethod_bybusyness.load proxy.load
authz_dbd.load
                                              lbmethod_byrequests.load proxy_ajp.load lbmethod_bytraffic.load proxy_balancer.con
                       dbd.load
authz dbm.load
                       deflate.conf
authz groupfile.load deflate.load
                                              lbmethod heartbeat.load
                                                                          proxy balancer.load
                                                                          proxy_connect.load
proxy_express.load
authz_host.load
authz_owner.load
                       dialup.load
                                              ldap.conf
                       dir.conf
                                              ldap.load
ubuntu@ip-172-31-19-251:/etc/apache2/mods-available$ nano dbd.conf
ubuntu@ip-172-31-19-251:/etc/apache2/mods-available$ sudo nano dbd.conf
ubuntu@ip-172-31-19-251:/etc/apache2/mods-available$ cd /etc/apache2/sites-available/
ubuntu@ip-172-31-19-251:/etc/apache2/sites-available$ ls
000-default.conf default-ssl.conf
ubuntu@ip-172-31-19-251:/etc/apache2/sites-available$ sudo nano secure.conf
ubuntu@ip-172-31-19-251:/etc/apache2/sites-available$
  i-Ofbb2647adc835209 (UbuntuHugo)
  PublicIPs: 54.83.110.57 PrivateIPs: 172.31.19.251
```

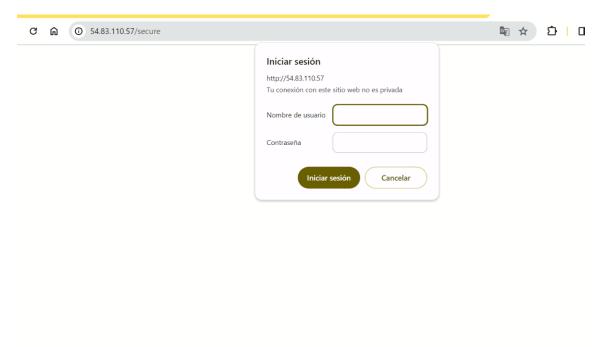
Una vez guardado nuestro archivo, habilitaremos el sitio, reiniciaremos apache y comprobaremos.

```
buntu@ip-172-31-19-251:/etc/apache2/sites-available$ sudo nano /etc/apache2/sites-
buntu@ip-172-31-19-251:/etc/apache2/sites-available$ sudo a2ensite secure.conf
nabling site secure.
o activate the new configuration, you need to run:
   systemctl reload apache2
buntu@ip-172-31-19-251:/etc/apache2/sites-asudo a2ens^C
buntu@ip-172-31-19-251:/etc/apache2/sites-available$ sudo systemctl reload apache2
buntu@ip-172-31-19-251:/etc/apache2/sites-available$
```

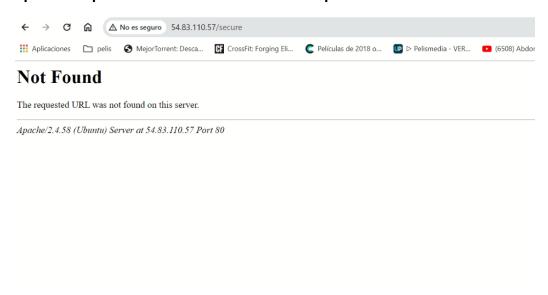
i-Ofbb2647adc835209 (UbuntuHugo)

PublicIPs: 54.83.110.57 PrivateIPs: 172.31.19.251

Si intentamos acceder a la dirección ip de nuestra máquina /secure, nos solicita unas credenciales de acceso:



NOTA: Se tuvo que almacenar la contraseña mediante un hash, en la BD ya que apache no permite la autenticación de texto plano de contraseñas.



Una vez superada la autenticación se nos muestra un NotFoundya que, en nuestra configuración, no se ha establecido ninguna página para servir.

Para crear un certifica autofirmado y activar ssl:

Crearemos un directorio dentro de apache en el que generaremos nuestro certificado:

```
Drganization Name (eg, company) [internet wingits bry ita]:unw
Drganizational Unit Name (e.g. server FQDN or YOUR name) [i:HUgo
Damail Address [i:hugo-cretiganal los@mail.com
Error making certificate request
A0378012F3/950000:error:10680070:san1 encoding routines:ASN1 mbstring_ncopy:illegal characters:../crypto/asn1/a_mbstr.c:113:
Ubuntulejp-172-31-19-251/etc/apache/Smod-available@sudo opensal req -x509 -nodes -days 365 -newkey ras:2048 -keyout /etc/apache/Ss1/spache selfsigned.eyr
-out /etc/apache/Ss1/spache/selfsigned.eyr
-out /etc/apache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/spache/ss1/s
```

Habilitaremos ssl:

Email Address []:

```
ubuntu@ip-172-31-19-251:/etc/apache2/mods-available$ sudo a2enmod ssl
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 create self-sign activate the new configuration, you need to run:
    systemctl restart apache2
ubuntu@ip-172-31-19-251:/etc/apache2/mods-available$
```

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Country Name (2 letter code) [AU]: State or Province Name (full name) [Some-State]:

Locality Name (eg, city) []:
Organization Name (eg, company) [Internet Widgits Pty Ltd]:
Organizational Unit Name (eg, section) []:
Common Name (e.g. server FQDN or YOUR name) []:

Crearemos un virtualhost para https:

Habilitamos el sitio y reiniciamos apache:

```
ubuntu@ip-172-31-19-251:/etc/apache2/mods-available$ sudo a2ensite secure-ssl.conf
Enabling site secure-ssl.

To activate the new configuration, you need to run:
   systemctl reload apache2
   ubuntu@ip-172-31-19-251:/etc/apache2/mods-available$ sudo systemctl restart apache2
   ubuntu@ip-172-31-19-251:/etc/apache2/mods-available$

i-Ofbb2647adc835209 (UbuntuHugo)
```

Al acceder nos pide de nuevo las credenciales, pero ahora se emplea el protocolo HTTPS sobre el puerto 443. Si pulsamos en los detalles del certificado, vemos como la fecha de emisión corresponde al día en el que se ha realizado la actividad práctica. Los navegadores modernos, lo catalogan como no seguro ya que al ser un certificado autofirmado, es decir, no firmado por una autoridad certificadora reconocida, lo catalogan como ilegítimo.

