

ACTIVIDAD AWS

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2ºDAW

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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.

9 updates can be applied immediately.
1 of these updates are standard security updates.
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

Last login: Fri Dec 13 09:59:11 2024 from 18.206.107.27
ubuntu@ip-172-31-19-251:~$ sudo apt update && 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://security.ubuntu.com/ubuntu noble-security 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:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [309 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
```

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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 && sudo apt upgrade -y
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
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Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
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Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [309 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted 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/main amd64 Components [208 B]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [11.7 kB]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]
Get:15 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [7168 B]
```

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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
```

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Crearemos una BD que gestionará los usuarios de apache:

```

... anyone can access. This is also intended only for testing,
and should be removed before moving into a production
environment.

Remove test database and access to it? (Press y|Y for Yes, any other key
... skipping.
Loading the privilege tables will ensure that all changes
made so far will take effect immediately.

Load privilege tables now? (Press y|Y for Yes, any other key for No) :
Access.

All done!
ubuntu@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)

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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:

```

mysql> -- Crear usuarios,
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 (42S01): 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>
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)

mysql>

```

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

```
asis.load          cache_disk.conf  file_cache.load    mime.load          proxy_html.load    socache_redis.l
auth_basic.load    cache_disk.load   filter.load        mime_magic.conf    proxy_http.load    socache_shmcb.l
auth_digest.load   cache_socache.load headers.load       mime_magic.load    proxy_http2.load   speling.load
auth_form.load     cern_meta.load   heartbeat.load     mpm_event.conf     proxy_scgi.load    ssl.conf
authn_anon.load    cgi.load         heartmonitor.load  mpm_event.load     proxy_uwsgi.load   ssl.load
authn_core.load    cgi.conf         http2.conf         mpm_prefork.conf   proxy_wstunnel.load status.conf
authn_dbd.load     cgid.load        http2.load         mpm_prefork.load   ratelimit.load    status.load
authn_dbm.load     charset_lite.load ident.load         mpm_worker.conf    reflector.load     substitute.load
authn_file.load    data.load        imagemap.load      mpm_worker.load    remoteip.load      suexec.load
authn_socache.load dav.load         include.load       negotiation.conf    reqtimeout.conf   unique_id.load
authnz_fcgi.load   dav_fs.conf      info.conf          negotiation.load    request.load       userdir.conf
authnz_ldap.load   dav_fs.load      info.load          proxy.conf          rewrite.load       usertrack.load
authnz_core.load   dav_lock.load    lbmethod_bybusyness.proxy.load        sed.load          vhost_alias.load
authnz_dbd.load    dbd.load         lbmethod_byrequests.proxy_balancer.conf session.load       xml2enc.load
authnz_core.load   deflate.conf     lbmethod_bytraffic.proxy_balancer.load session_cookie.load
authnz_groupfile.load dialup.load      lbmethod_heartbeat.proxy_connect.load session_crypto.load
authnz_host.load   ldap.conf        ldap.load          proxy_express.load  session_dbd.load
authnz_owner.load  dir.conf         ldap.load          proxy_express.load  session_dbd.load

ubuntu@ip-172-31-19-251:/etc/apache2/mods-available$ nano dbd.conf
ubuntu@ip-172-31-19-251:/etc/apache2/mods-available$
```

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[Obtén las últimas características y mejoras de](#)

```
GNU nano 7.2 dbd.conf *
DBDriver mysql
DBDParams "host=localhost dbname=authdb user=usuario1 password=contraseña1"
DBDMin 4
DBDKeep 8
DBDMax 20
DBDExptime 300

File Name to Write: dbd.conf
Help M-D DOS Format M-A Append
^C Cancel M-M Mac Format M-E Prepend
```

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


```
GNU nano 7.2 secure.conf *
<VirtualHost *:80>
  ServerName 54.83.110.57

  DocumentRoot /var/www/html

  <Directory /var/www/html>
    Options Indexes FollowSymLinks
    AllowOverride All
    Require all granted
  </Directory>

  <Location /secure>
    AuthType Basic
    AuthName "Contenido Restringido"

    AuthBasicProvider dbd
    AuthDBUserPWQuery "SELECT password FROM authdb.users WHERE username = %s"
  </Location>
</VirtualHost>

^G Help      ^O Write Out ^W Where Is  ^R Cut       ^J Execute   ^C Location  ^U Undo      ^A Set Mark
^M Exit      ^K Read File ^N Replace   ^P Paste     ^V Justify   ^_ Go To Line  ^B Redo      ^- Copy
```

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

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

```
authn_core.load      cgid.conf           http2.conf           mpm_prefork.conf
authn_dbd.load        cgid.load            http2.load            mpm_prefork.load
authn_dbm.load        charset_lite.load    ident.load            mpm_worker.conf
authn_file.load       data.load            imagemap.load         negotiation.conf
authn_socache.load    dav.load             include.load          negotiation.load
authnz_fcgi.load       dav_fs.conf          info.conf             proxy.conf
authnz_ldap.load       dav_fs.load          info.load             proxy.load
authz_core.load        dav_lock.load        lbmethod_bybusyness.load proxy_ajp.load
authz_dbd.load         dbd.load             lbmethod_byrequests.load proxy_balancer.conf
authz_dbm.load         deflate.conf         lbmethod_bytraffic.load proxy_balancer.load
authz_groupfile.load   deflate.load         lbmethod_heartbeat.load proxy_connect.load
authz_host.load        dialup.load          ldap.conf             proxy_express.load
authz_owner.load       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$
```

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

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



Browser address bar: 54.83.110.57/secure

Iniciar sesión

http://54.83.110.57
Tu conexión con este sitio web no es privada

Nombre de usuario

Contraseña

Iniciar sesión Cancelar

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 NotFound ya que, en nuestra configuración, no se ha establecido ninguna página para servir.

Para crear un certificado autofirmado y activar ssl:

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

[illegible]

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

```

Crearemos un virtualhost para https:

```
GNU nano 7.2 /etc/apache2/sites-available/secure-ssl.conf
<VirtualHost *:443>
  ServerName 54.83.110.57
  DocumentRoot /var/www/html

  SSLEngine on
  SSLCertificateFile /etc/apache2/ssl/apache-selfsigned.crt
  SSLCertificateKeyFile /etc/apache2/ssl/apache-selfsigned.key

  <Directory /var/www/html>
    Options Indexes FollowSymLinks
    AllowOverride All
    Require all granted
  </Directory>

  <Location /secure>
    AuthType Basic
    AuthName "Contenido Restringido"
```

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PublicIPs: 54.83.110.57 PrivateIPs: 172.31.19.251

Habilitamos el sitio y reiniciamos apache:

```
ubuntu@ip-172-31-19-251:/etc/apache2/mods-available$ sudo nano /etc/apache2/sites-available/
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$
```

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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.

