

# MySQL

<https://www.digitalocean.com/community/tutorials/how-to-install-mysql-on-ubuntu-20-04-es>

## ¿Qué es el MySQL?

MySQL es un sistema de gestión de bases de datos relacional de código abierto que utiliza el lenguaje SQL para almacenar, administrar y acceder a datos.

El comando `sudo mysql_secure_installation` lanza un asistente para configurar de forma segura MySQL, permitiendo establecer una contraseña para el usuario root, eliminar usuarios anónimos, deshabilitar accesos remotos del root y borrar bases de datos de prueba. Esto refuerza la seguridad del servidor MySQL recién instalado.

```
hugo@hugo:~$ sudo apt install mysql-server
[sudo] password for hugo:
Leyendo lista de paquetes... Hecho
Creando árbol de dependencias... Hecho
Leyendo la información de estado... Hecho
Los paquetes indicados a continuación se instalaron de forma automática y ya no son necesarios.
  linux-headers-5.15.0-122 linux-headers-5.15.0-122-generic linux-image-5.15.0-122-generic
  linux-modules-5.15.0-122-generic linux-modules-extra-5.15.0-122-generic
Utilice «sudo apt autoremove» para eliminarlos.
Se instalarán los siguientes paquetes adicionales:
  libcgi-fast-perl libcgi-pm-perl libclone-perl libencode-locale-perl libevent-pthreads-2.1-7
  libfcgi-bin libfcgi-perl libfcgi0ldbl libhtml-parser-perl libhtml-tagset-perl
  libhtml-template-perl libhttp-date-perl libhttp-message-perl libio-html-perl
  liblwp-mediatypes-perl libmecab2 libprotobuf-lite23 libtimedate-perl liburi-perl
  mecab-ipadic mecab-ipadic-utf8 mecab-utils mysql-client-8.0 mysql-client-core-8.0
  mysql-common mysql-server-8.0 mysql-server-core-8.0
Paquetes sugeridos:
  libdata-dump-perl libipc-sharedcache-perl libbusiness-isbn-perl libwww-perl mailx tinycal
Se instalarán los siguientes paquetes NUEVOS:
  libcgi-fast-perl libcgi-pm-perl libclone-perl libencode-locale-perl libevent-pthreads-2.1-7
  libfcgi-bin libfcgi-perl libfcgi0ldbl libhtml-parser-perl libhtml-tagset-perl
```

Al ejecutar **sudo mysql\_secure\_installation**, se inicia un asistente interactivo para mejorar la seguridad del servidor MySQL mediante los siguientes pasos:

1. **Configurar contraseña de root:** Puedes establecer o actualizar la contraseña para el usuario root de MySQL.
2. **Eliminar usuarios anónimos:** Elimina cuentas predeterminadas sin nombre.
3. **Deshabilitar el acceso remoto del root:** Aumenta la seguridad limitando el acceso del root solo al servidor local.
4. **Borrar bases de datos de prueba:** Elimina la base de datos test, que es accesible a cualquier usuario por defecto.
5. **Recargar tablas de privilegios:** Aplica inmediatamente los cambios realizados.

Esto asegura que el servidor esté protegido contra configuraciones inseguras predeterminadas.

```
kirby@ns1:~$ sudo mysql_secure_installation

Securing the MySQL server deployment.

Connecting to MySQL using a blank password.

VALIDATE PASSWORD COMPONENT can be used to test passwords
and improve security. It checks the strength of password
and allows the users to set only those passwords which are
secure enough. Would you like to setup VALIDATE PASSWORD component?

Press y|Y for Yes, any other key for No: |
```

Le tienes que poner todo y (sí / yes).

```
hugo@hugo:~$ sudo mysql_secure_installation

Securing the MySQL server deployment.

Connecting to MySQL using a blank password.

VALIDATE PASSWORD COMPONENT can be used to test passwords
and improve security. It checks the strength of password
and allows the users to set only those passwords which are
secure enough. Would you like to setup VALIDATE PASSWORD component?

Press y|Y for Yes, any other key for No: y

There are three levels of password validation policy:

LOW      Length >= 8
MEDIUM  Length >= 8, numeric, mixed case, and special characters
STRONG Length >= 8, numeric, mixed case, special characters and dictionary      file

Please enter 0 = LOW, 1 = MEDIUM and 2 = STRONG: 1

Skipping password set for root as authentication with auth_socket is used by default.
If you would like to use password authentication instead, this can be done with the "ALTER_USER" command.
See https://dev.mysql.com/doc/refman/8.0/en/alter-user.html#alter-user-password-management for more information.

By default, a MySQL installation has an anonymous user,
allowing anyone to log into MySQL without having to have
a user account created for them. This is intended only for
testing, and to make the installation go a bit smoother.
You should remove them before moving into a production
environment.

Remove anonymous users? (Press y|Y for Yes, any other key for No) : y
Success.

Normally, root should only be allowed to connect from
'localhost'. This ensures that someone cannot guess at
the root password from the network.

Disallow root login remotely? (Press y|Y for Yes, any other key for No) : y
Success.

By default, MySQL comes with a database named 'test' that
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 for No) : y
- Dropping test database...
```

```
Please enter 0 = LOW, 1 = MEDIUM and 2 = STRONG: 1

Skipping password set for root as authentication with auth_socket is used by default.
If you would like to use password authentication instead, this can be done with the "ALTER_USER" command.
See https://dev.mysql.com/doc/refman/8.0/en/alter-user.html#alter-user-password-management for more details.

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a user account created for them. This is intended only for
testing, and to make the installation go a bit smoother.
You should remove them before moving into a production
environment.

Remove anonymous users? (Press y|Y for Yes, any other key for No) : y
Success.

Normally, root should only be allowed to connect from
'localhost'. This ensures that someone cannot guess at
the root password from the network.

Disallow root login remotely? (Press y|Y for Yes, any other key for No) : y
Success.

By default, MySQL comes with a database named 'test' that
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 for No) : y
- Dropping test database...
Success.

- Removing privileges on test database...
Success.

Reloading the privilege tables will ensure that all changes
made so far will take effect immediately.

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

All done!
hugo@hugo:~$
```

El comando **sudo mysql** se utiliza para acceder a la consola interactiva de MySQL como el usuario root del sistema.

```
kirby@ns1:~$ sudo mysql
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 10
Server version: 8.0.39-0ubuntu0.22.04.1 (Ubuntu)

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owners.

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

mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
4 rows in set (0,00 sec)

mysql> |
```

El comando **SHOW DATABASES;** lista todas las bases de datos disponibles en el servidor MySQL.

```
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
4 rows in set (0,01 sec)

mysql> alter user 'root'@'localhost' identified with mysql_native_password by 'K1rby@2024';
Query OK, 0 rows affected (0,01 sec)

mysql>
```

El comando cambia el método de autenticación del usuario `root` en `localhost` a `mysql_native_password` y establece la contraseña como `Kirby @2024`.

**alter user 'root'@'localhost' identified with mysql\_native\_password by 'Kirby @2024';**

```
mysql> alter user 'root'@'localhost' identified with mysql_native_password by 'K1rby@2024';
Query OK, 0 rows affected (0,00 sec)

mysql> flush privileges;
Query OK, 0 rows affected (0,01 sec)

mysql> exit
Bye
kirby@ns1:~$ mysql -u root -p
Enter password: |
```

El comando **mysql -u root -p** abre la consola de MySQL con el usuario root, solicitando una contraseña para autenticarse antes de acceder.

```
kirby@ns1:~$ mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 13
Server version: 8.0.39-0ubuntu0.22.04.1 (Ubuntu)

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owners.

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

mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
4 rows in set (0,00 sec)

mysql> select user, authentication_string, plugin, host from mysql.user;
ERROR 1054 (42S22): Unknown column 'authentication_string' in 'field list'
mysql> select user, authentication_string, plugin, host from mysql.user;
```

El comando **SELECT user, authentication\_string, plugin, host FROM mysql.user;** muestra una lista de usuarios de MySQL junto con su método de autenticación, el plugin utilizado y el host desde el cual pueden conectarse.

**select user, authentication\_string, plugin, host from mysql.user;**

```
mysql> select user, authentication_string, plugin, host from mysql.user;
+-----+-----+-----+-----+
| user | plugin | authentication_string | host |
+-----+-----+-----+-----+
| debian-sys-maint | caching_sha2_password | $A$005$3w}~DN0%t9A _jRKmuoUmg5FGyE1woJ02RafYbf.G6PF2uwItTmPr01VPyM0 | localhost |
| mysql.infoschema | caching_sha2_password | $A$005$THISISACOMBINATIONOFINVALIDSALTANDPASSWORDTHATMUSTNEVERBRBEUSED | localhost |
| mysql.session | caching_sha2_password | $A$005$THISISACOMBINATIONOFINVALIDSALTANDPASSWORDTHATMUSTNEVERBRBEUSED | localhost |
| mysql.sys | caching_sha2_password | $A$005$THISISACOMBINATIONOFINVALIDSALTANDPASSWORDTHATMUSTNEVERBRBEUSED | localhost |
| root | mysql_native_password | *CB003432906D42F1075EDDC8AB98E1E219E0530B | localhost |
+-----+-----+-----+-----+
5 rows in set (0,00 sec)

mysql>
```



El comando **CREATE USER 'hugo'@'localhost' IDENTIFIED BY 'Kirby@2024';** crea un nuevo usuario llamado hugo en MySQL, con la contraseña Kirby@2024 y limitando el acceso solo desde el host localhost.

```
mysql> create user 'hugo'@'localhost' identified by 'Kirby@2024';
Query OK, 0 rows affected (0,01 sec)

mysql>
```

```
mysql> create user 'kirby'@'localhost' identified by 'Kirby@2024';
Query OK, 0 rows affected (0,02 sec)

mysql> gran all privileges ON *.* to 'kirby'@'localhost' with grant option;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'gran all privileges ON *.* to 'kirby'@'localhost' with grant option' at line 1
mysql> |
```

El comando **GRANT ALL PRIVILEGES ON \*.\* TO 'hugo'@'localhost' WITH GRANT OPTION;** otorga todos los privilegios sobre todas las bases de datos (\*.\*) al usuario hugo en localhost, y le permite también otorgar estos privilegios a otros usuarios (WITH GRANT OPTION).

```
mysql> grant all privileges ON *.* to 'hugo'@'localhost' with grant option;
Query OK, 0 rows affected (0,02 sec)

mysql>
```

El comando **sudo systemctl status mysql.service** muestra el estado actual del servicio MySQL en el sistema, indicando si está activo (en ejecución), inactivo o fallido, junto con información adicional sobre su estado y registros.

```
kirby@ns1:~$ sudo systemctl status mysql.service
● mysql.service - MySQL Community Server
   Loaded: loaded (/lib/systemd/system/mysql.service; enabled; vendor preset: enabled)
   Active: active (running) since Fri 2024-11-08 14:52:06 UTC; 13min ago
     Process: 41703 ExecStartPre=/usr/share/mysql/mysql-systemd-start pre (code=exited, status=0/SUCCESS)
    Main PID: 41711 (mysqld)
      Status: "Server is operational"
     Tasks: 38 (limit: 4564)
    Memory: 368.8M
       CPU: 7.985s
    CGroup: /system.slice/mysql.service
            └─41711 /usr/sbin/mysqld

nov 08 14:52:05 ns1 systemd[1]: Starting MySQL Community Server...
nov 08 14:52:06 ns1 systemd[1]: Started MySQL Community Server.
lines 1-14/14 (END)
```

Ahora podemos ver el usuario que le hemos implementado.

```
hugo@hugo:~$ mysql -u hugo -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 15
Server version: 8.0.39-0ubuntu0.22.04.1 (Ubuntu)

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

mysql>
```

El comando **CREATE DATABASE users;** crea una nueva base de datos llamada **users** en MySQL.

```
mysql> create database users;
Query OK, 1 row affected (0,00 sec)

mysql> |
```

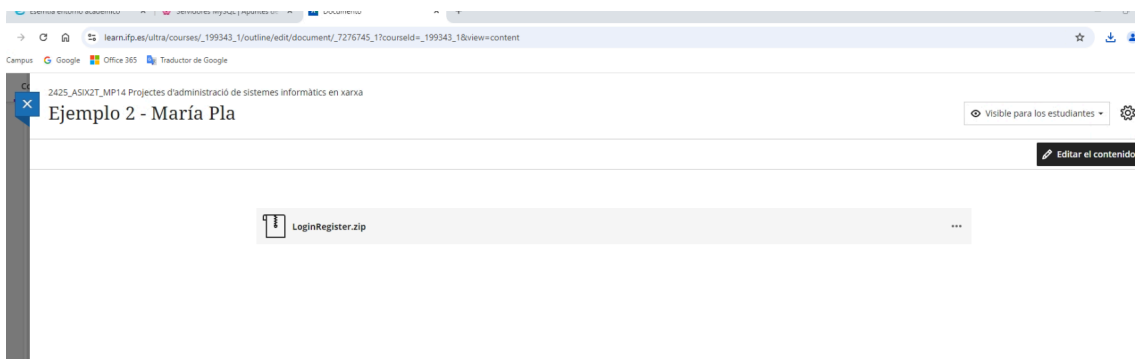
Si le ponemos el comando **show database;** podemos ver que se ha creado el **users**.

```
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
| users |
+-----+
5 rows in set (0,00 sec)

mysql> |
```



Cogemos una carpeta **.zip** que esta en el campus del iFP.



Vamos al CMD del Windows e ir a la dirección de la carpeta que muestro en la imagen con **cd**.

```
Directorio de C:\Users\Alumno\Downloads>LoginRegister>LoginRegister\mysql
08/11/2024 16:12 <DIR> .
08/11/2024 16:12 <DIR> ..
08/11/2024 16:12          1.648 users.sql
                1 archivos          1.648 bytes
                2 dirs 165.194.534.912 bytes libres

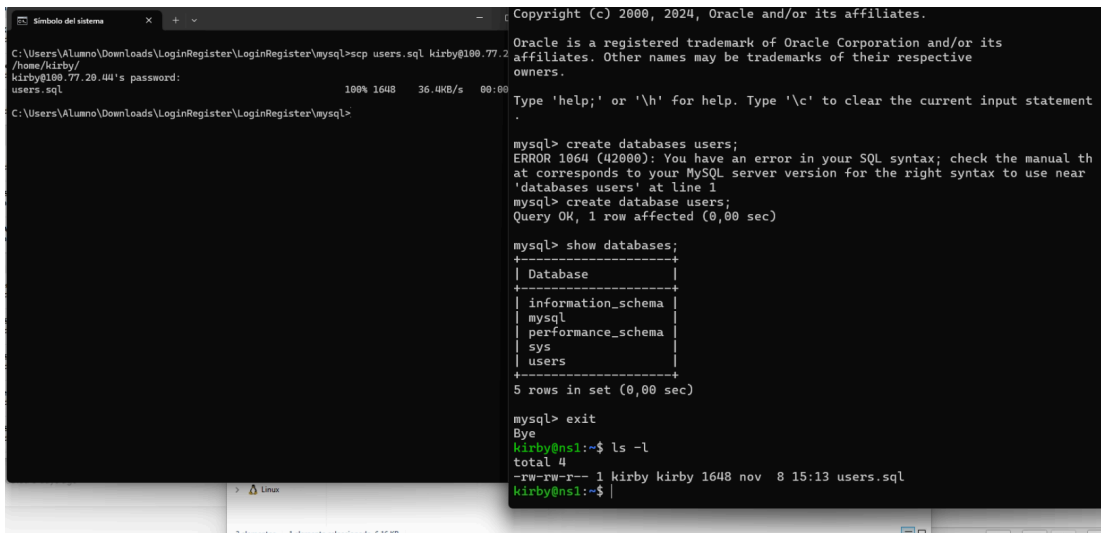
C:\Users\Alumno\Downloads>LoginRegister>LoginRegister\mysql>
```

El comando **scp users.sql hugo@100.77.20.22:/home/hugo/** transfiere el archivo **users.sql** desde tu máquina local al directorio **/home/hugo/** en el servidor remoto con la dirección IP **100.77.20.22**, autenticándose con el usuario **hugo** en el servidor.

Tienes que poner la contraseña del Ubuntu.

```
PS C:\Users\Alumno\Downloads>LoginRegister\mysql> scp users.sql hugo@100.77.20.22:/home/hugo/
hugo@100.77.20.22's password:
Permission denied, please try again.
hugo@100.77.20.22's password:
Permission denied, please try again.
hugo@100.77.20.22's password:
users.sql                                100% 1648    35.8KB/s   00:00
PS C:\Users\Alumno\Downloads>LoginRegister\mysql>
```

Se puede observar que la exportación a funcionado a la perfección si le ponemos un **ls -l**.



```
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owners.

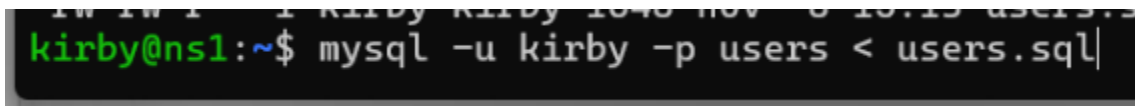
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement
.

mysql> create databases users;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that
corresponds to your MySQL server version for the right syntax to use near
'databases users' at line 1
mysql> create database users;
Query OK, 1 row affected (0.00 sec)

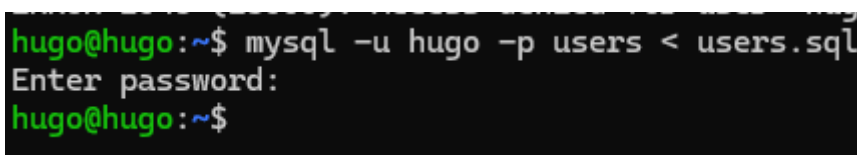
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
| users |
+-----+
5 rows in set (0.00 sec)

mysql> exit
Bye
kirby@ns1:~$ ls -l
total 4
-rw-rw-r-- 1 kirby kirby 1648 nov  8 15:13 users.sql
kirby@ns1:~$
```

El comando **mysql -u kirby -p users < users.sql** importa el archivo users.sql a la base de datos users en MySQL, autenticándose con el usuario kirby y solicitando la contraseña.

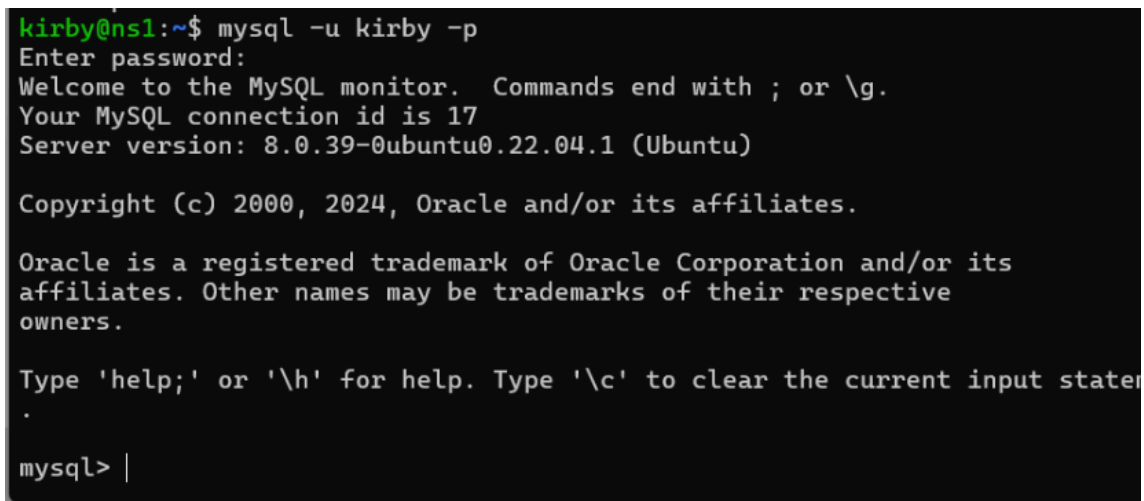


```
kirby@ns1:~$ mysql -u kirby -p users < users.sql
```



```
hugo@hugo:~$ mysql -u hugo -p users < users.sql
Enter password:
hugo@hugo:~$
```

Entramos a nuestro usuario de MySQL.



```
kirby@ns1:~$ mysql -u kirby -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 17
Server version: 8.0.39-0ubuntu0.22.04.1 (Ubuntu)

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owners.

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

mysql> |
```

El comando **USE users;** selecciona la base de datos users para que todas las consultas posteriores se ejecuten en esa base de datos en MySQL.

```
mysql> use users;  
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> select * from users;
```

id	username	email	password
5	admin	admin@gmail.com	admin
7	alumno	alumno@gmail.com	alumno

2 rows in set (0,00 sec)

```
mysql> |
```