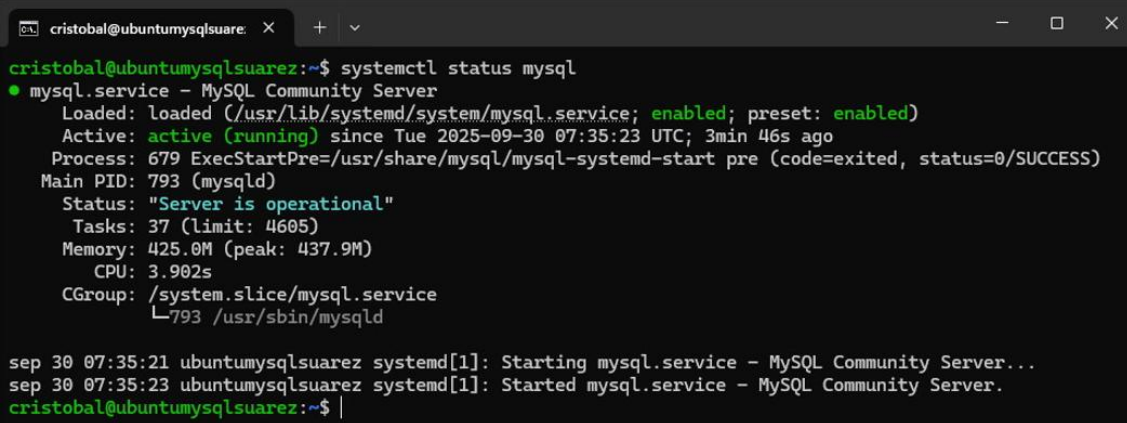# ACTIVIDAD 3 – LOGS SGBD

Cristóbal Suárez Abad

ADMINISTRACIÓN DE SISTEMAS GESTORES DE BASES DE DATOS. 2º ASIR

1.   Verificar que MySQL está funcionando correctamente.

Mediante comandos en el servidor, comprueba que el servicio de MySQL está activo.

Usamos: **systemctl status mysql**

2. Consultar el fichero de logs de errores

Busca y abre el archivo de error log de MySQL.

Revisa los logs recientes y analiza que ocurre en esos logs: errores de arranque, problemas de conexión, intentos fallidos, etc.

El "log" se encuentra en **/var/log/mysql/error.log**

Usamos cat para ver el contenido.

```
cristobal@ubuntumysqlsuarez:~$ cat /var/log/mysql/error.log
2025-09-30T07:35:22.363199Z 0 [System] [MY-010116] [Server] /usr/sbin/mysqld (mysqld 8.0.43-0ubuntu0.24.04.2) starting as process 793
2025-09-30T07:35:22.384521Z 1 [System] [MY-013576] [InnoDB] InnoDB initialization has started.
2025-09-30T07:35:22.823910Z 1 [System] [MY-013577] [InnoDB] InnoDB initialization has ended.
2025-09-30T07:35:23.325885Z 0 [Warning] [MY-010068] [Server] CA certificate ca.pem is self signed.
2025-09-30T07:35:23.325988Z 0 [System] [MY-013602] [Server] Channel mysql_main configured to support TLS. Encrypted connections are now supported for this channel.
2025-09-30T07:35:23.388360Z 0 [System] [MY-011323] [Server] X Plugin ready for connections. Bind-address: '127.0.0.1' port: 33060, socket: /var/run/mysqld/mysqlx.sock
2025-09-30T07:35:23.388580Z 0 [System] [MY-010931] [Server] /usr/sbin/mysqld: ready for connections. Version: '8.0.43-0ubuntu0.24.04.2'  socket: '/var/run/mysqld/mysqld.sock'  port: 3306  (Ubuntu).
```

a) Se indica que MySQL está arrancando, indicando su versión y el número de proceso que usa.
b) Inicialización de InnoDB, el motor de almacenamiento de MySQL.
c) Habla sobre "ca.pem", un certificado de comunicaciones. Se indica que está firmado autofirmado.
d) Se ha configurado el canal de MySQL para conexiones seguras, dando soporte para conexiones encriptadas.
e) Se indica que el X plugin está listo para conexiones. Se indica IP de conexión, puerto , etc.
f) Se indica que MySQL está listo para conectarse.

3. Cambiar la configuración para registrar más información

Edita el archivo de configuración de Mysql para asegurarte de que el log de errores, el general log y el slow query log están activos.

¿Para qué sirve cada uno de estos logs?

Ver cómo MySQL registra información útil para diagnosticar problemas.

El archivo es **mysqld.cnf** y está en la ruta: **/etc/mysql/mysql.conf.d/**

Lo abrimos con **nano /etc/mysql/mysql.conf.d/mysqld.cnf**

Debemos "descomentar" las siguientes líneas.

Para que se guarden los cambios hay que hacer:

systemctl restart mysql

systemctl status mysql

"**error.log**" contiene el registro de los procesos de inicio y apagado de MySQL, además de mensajes de diagnóstico, advertencias y anotaciones que se producen durante el proceso de arranque y cierre del servidor; y mientras se ejecuta[1].

"**query.log**" es un registro general de lo que hace MySQL: conexión de clientes, creación de tablas, modificaciones, etc[2].

"**mysql-slow.log**" es un registro especial donde el servidor anota todas las consultas que tardan más de un cierto tiempo (establecido en la variable "long_query_time"[3]) en ejecutarse[4].

[1] https://dev.mysql.com/doc/refman/8.4/en/error-log.html
[2] https://dev.mysql.com/doc/refman/8.4/en/query-log.html
[3] https://dev.mysql.com/doc/refman/8.4/en/server-system-variables.html#sysvar_long_query_time
[4] https://dev.mysql.com/doc/refman/8.4/en/slow-query-log.html

4. Forzar errores y analizar mensajes

Haz consultas erróneas a propósito para ver cómo MySQL responde.

Anotar los mensajes de error y explicar qué significan.

SQL:

USE basedatos_que_no_existe;

*SELECT * FROM tabla_que_no_existe;*

INSERT INTO tabla_valida (columna_inexistente) VALUES ('prueba');

¿Aparecen estos errores en los logs? ¿En cuál de ellos?

Realizamos algunas consultas erróneas:

```
mysql> USE peña;
ERROR 1049 (42000): Unknown database 'peña'
mysql> USE 2ASIR;
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 tabla_de_ibericos;
ERROR 1146 (42S02): Table '2ASIR.tabla_de_ibericos' doesn't exist
mysql>
```

En "**query.log**" no se registra el error en sí, simplemente se indica que se ha hecho una consulta. El amarillo indica la consulta "fallida" y la segunda es la buena. Podemos ver como la última consulta no arroja nada, porque también es "fallida".

```
/usr/sbin/mysqld, Version: 8.0.43-0ubuntu0.24.04.2 ((Ubuntu)). started with:
Tcp port: 3306  Unix socket: /var/run/mysqld/mysqld.sock
Time                     Id Command     Argument
2025-09-30T07:55:56.598088Z           0 Execute    CREATE TABLE performance_schema.innodb_redo_log_files(
`FILE_ID` BIGINT NOT NULL COMMENT 'Id of the file.',
`FILE_NAME` VARCHAR(2000) NOT NULL COMMENT 'Path to the file.',
`START_LSN` BIGINT NOT NULL COMMENT 'LSN of the first block in the file.',
`END_LSN` BIGINT NOT NULL COMMENT 'LSN after the last block in the file.',
`SIZE_IN_BYTES` BIGINT NOT NULL COMMENT 'Size of the file (in bytes).',
`IS_FULL` TINYINT NOT NULL COMMENT '1 iff file has no free space inside.',
`CONSUMER_LEVEL` INT NOT NULL COMMENT 'All redo log consumers registered on smaller levels than this value, have already consumed this file.'
)engine = 'performance_schema'
2025-09-30T07:58:58.630228Z           8 Connect    root@localhost on  using Socket
2025-09-30T07:58:58.631151Z           8 Query      select @@version_comment limit 1
2025-09-30T07:59:10.045578Z           8 Query      SELECT DATABASE()
2025-09-30T08:04:00.479633Z           8 Quit
2025-09-30T08:06:32.053015Z           9 Connect    root@localhost on  using Socket
2025-09-30T08:06:32.056604Z           9 Query      select @@version_comment limit 1
2025-09-30T08:06:54.561663Z           9 Query      SELECT DATABASE()   ⟵
2025-09-30T08:07:08.570265Z           9 Query      SELECT DATABASE()
2025-09-30T08:07:08.571358Z           9 Init DB    2ASIR
2025-09-30T08:07:08.574449Z           9 Query      show databases
2025-09-30T08:07:08.591973Z           9 Query      show tables
2025-09-30T08:07:08.597966Z           9 Field List         Kart_O_Paintball
2025-09-30T08:07:08.620360Z           9 Field List         MegaLOL
2025-09-30T08:07:08.622364Z           9 Field List         Wolololo
2025-09-30T08:07:55.102985Z           9 Query      SELECT * FROM tabla_de_ibericos   ⟵
root@ubuntumysqlsuarez:/var/log/mysql#
```

De igual manera, con el siguiente comando fallido, no ocurre nada.

```
mysql> INSERT INTO estomago (caña) VALUES ('6');
ERROR 1146 (42S02): Table '2ASIR.estomago' doesn't exist
mysql>
```

```
root@ubuntumysqlsuarez:/var/log/mysql# cat query.log
/usr/sbin/mysqld, Version: 8.0.43-0ubuntu0.24.04.2 ((Ubuntu)). started with:
Tcp port: 3306  Unix socket: /var/run/mysqld/mysqld.sock
Time                Id Command     Argument
2025-09-30T07:55:56.598088Z          0 Execute   CREATE TABLE performance_schema.innodb_redo
'FILE_ID' BIGINT NOT NULL COMMENT 'Id of the file.',
'FILE_NAME' VARCHAR(2000) NOT NULL COMMENT 'Path to the file.',
'START_LSN' BIGINT NOT NULL COMMENT 'LSN of the first block in the file.',
'END_LSN' BIGINT NOT NULL COMMENT 'LSN after the last block in the file.',
'SIZE_IN_BYTES' BIGINT NOT NULL COMMENT 'Size of the file (in bytes).',
'IS_FULL' TINYINT NOT NULL COMMENT '1 iff file has no free space inside.',
'CONSUMER_LEVEL' INT NOT NULL COMMENT 'All redo log consumers registered on smaller levels
)engine = 'performance_schema'
2025-09-30T07:58:58.630228Z          8 Connect   root@localhost on  using Socket
2025-09-30T07:58:58.631151Z          8 Query     select @@version_comment limit 1
2025-09-30T07:59:10.045578Z          8 Query     SELECT DATABASE()
2025-09-30T08:04:00.479633Z          8 Quit
2025-09-30T08:06:32.053015Z          9 Connect   root@localhost on  using Socket
2025-09-30T08:06:32.056604Z          9 Query     select @@version_comment limit 1
2025-09-30T08:06:54.561663Z          9 Query     SELECT DATABASE()
2025-09-30T08:07:08.570265Z          9 Query     SELECT DATABASE()
2025-09-30T08:07:08.571358Z          9 Init DB    2ASIR
2025-09-30T08:07:08.574449Z          9 Query     show databases
2025-09-30T08:07:08.591973Z          9 Query     show tables
2025-09-30T08:07:08.597966Z          9 Field List         Kart_O_Paintball
2025-09-30T08:07:08.620360Z          9 Field List         MegaLOL
2025-09-30T08:07:08.622364Z          9 Field List         Wolololo
2025-09-30T08:07:55.102985Z          9 Query     SELECT * FROM tabla_de_ibericos
2025-09-30T08:11:52.519302Z          9 Query     INSERT INTO estomago (caña) VALUES ('6')
root@ubuntumysqlsuarez:/var/log/mysql#
```

En "**error.log**" no aparece este error. Y en "mysql-slow.log" tampoco.

```
cristobal@ubuntumysqlsuarez:/var/log/mysql$ cat error.log
2025-09-30T07:35:22.363199Z 0 [System] [MY-010116] [Server] /usr/sbin/mysqld (mysqld 8.0.43-0ubuntu0.24.04.2) starting as process 793
2025-09-30T07:35:22.384521Z 1 [System] [MY-013576] [InnoDB] InnoDB initialization has started.
2025-09-30T07:35:22.823910Z 1 [System] [MY-013577] [InnoDB] InnoDB initialization has ended.
2025-09-30T07:35:23.325885Z 0 [Warning] [MY-010068] [Server] CA certificate ca.pem is self signed.
2025-09-30T07:35:23.325988Z 0 [System] [MY-013602] [Server] Channel mysql_main configured to support TLS. Encrypted connections are now supported for this channel.
2025-09-30T07:35:23.388360Z 0 [System] [MY-011323] [Server] X Plugin ready for connections. Bind-address: '127.0.0.1' port: 33060, socket: /var/run/mysqld/mysqlx.sock
2025-09-30T07:35:23.388580Z 0 [System] [MY-010931] [Server] /usr/sbin/mysqld: ready for connections. Version: '8.0.43-0ubuntu0.24.04.2'  socket: '/var/run/mysqld/mysqld.sock'  port: 3306  (Ubuntu).
2025-09-30T07:55:53.846077Z 0 [System] [MY-013172] [Server] Received SHUTDOWN from user <via user signal>. Shutting down mysqld (Version: 8.0.43-0ubuntu0.24.04.2).
2025-09-30T07:55:55.021236Z 0 [System] [MY-010910] [Server] /usr/sbin/mysqld: Shutdown complete (mysqld 8.0.43-0ubuntu0.24.04.2)  (Ubuntu).
2025-09-30T07:55:55.814516Z 0 [System] [MY-010116] [Server] /usr/sbin/mysqld (mysqld 8.0.43-0ubuntu0.24.04.2) starting as process 1283
2025-09-30T07:55:55.828917Z 1 [System] [MY-013576] [InnoDB] InnoDB initialization has started.
2025-09-30T07:55:56.197215Z 1 [System] [MY-013577] [InnoDB] InnoDB initialization has ended.
2025-09-30T07:55:56.623180Z 0 [Warning] [MY-010068] [Server] CA certificate ca.pem is self signed.
2025-09-30T07:55:56.623265Z 0 [System] [MY-013602] [Server] Channel mysql_main configured to support TLS. Encrypted connections are now supported for this channel.
2025-09-30T07:55:56.690170Z 0 [System] [MY-011323] [Server] X Plugin ready for connections. Bind-address: '127.0.0.1' port: 33060, socket: /var/run/mysqld/mysqlx.sock
2025-09-30T07:55:56.690476Z 0 [System] [MY-010931] [Server] /usr/sbin/mysqld: ready for connections. Version: '8.0.43-0ubuntu0.24.04.2'  socket: '/var/run/mysqld/mysqld.sock'  port: 3306  (Ubuntu).
2025-09-30T07:58:58.629844Z 8 [Warning] [MY-013360] [Server] Plugin mysql_native_password reported: ''mysql_native_password' is deprecated and will be removed in a future release. Please use caching_sha2_password instead'
```

5. Verificación de logs tras errores simulados

Intenta conectarte con contraseña errónea a la base de datos y revisa los logs.

¿Qué ves?

En "**query.log**" aparece un mensaje de error.

En "**mysql-slow.log**" no aparece nada:

Y en "**error.log**" tampoco:

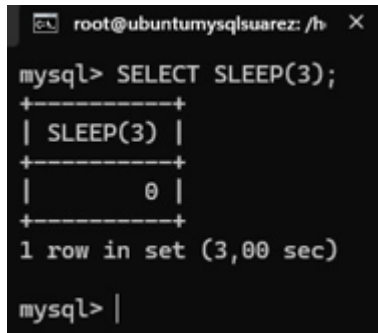## 6. Generar una consulta lenta para probar el slow log

Fuerza una consulta que tarde más de 2 segundos para ver si se guarda los logs.

¿En qué log se guarda? ¿Cómo se refleja?
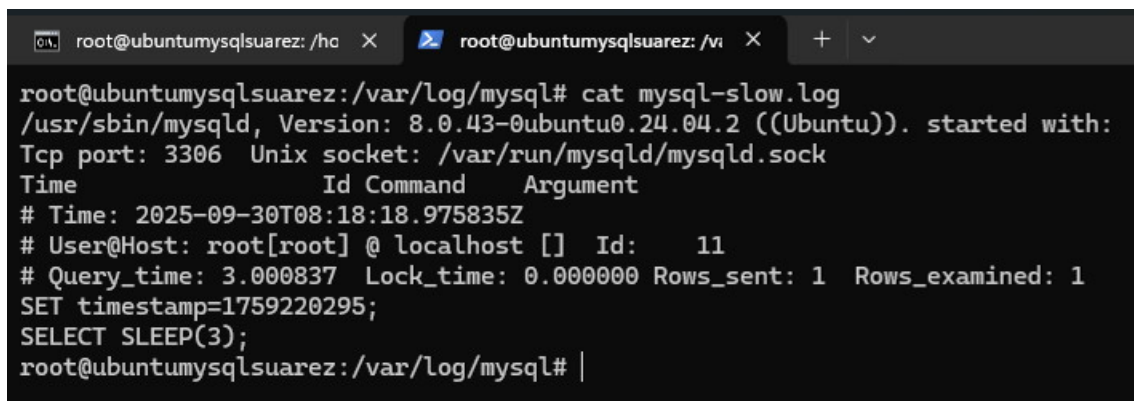
Consulta lenta

SELECT SLEEP(3);

Se guarda en "**mysql-slow.log**".

Fecha y hora. Usuario que lo lleva a cabo y cuál es el comando.

En "**error.log**" no se guarda nada. Y en "**query.log**" se guarda que se ha hecho la consulta.

7. Probar el arranque y parada del servidor

Detén y vuelve a iniciar el servicio para ver cómo se registran los eventos en los logs.

¿En qué logs y que información muestra sobre el arranque y parada del servidor?
Explica lo que ves.

```
root@ubuntumysqlsuarez:/home/cristobal# systemctl stop mysql
root@ubuntumysqlsuarez:/home/cristobal# systemctl status mysql
○ mysql.service - MySQL Community Server
     Loaded: loaded (/usr/lib/systemd/system/mysql.service; enabled; preset: enabled)
     Active: inactive (dead) since Tue 2025-09-30 08:21:19 UTC; 7s ago
   Duration: 25min 21.981s
    Process: 1275 ExecStartPre=/usr/share/mysql/mysql-systemd-start pre (code=exited, status=0/SUCCESS)
    Process: 1283 ExecStart=/usr/sbin/mysqld (code=exited, status=0/SUCCESS)
   Main PID: 1283 (code=exited, status=0/SUCCESS)
     Status: "Server shutdown complete"
        CPU: 16.759s

sep 30 07:55:55 ubuntumysqlsuarez systemd[1]: Starting mysql.service - MySQL Community Server...
sep 30 07:55:56 ubuntumysqlsuarez systemd[1]: Started mysql.service - MySQL Community Server.
sep 30 08:21:18 ubuntumysqlsuarez systemd[1]: Stopping mysql.service - MySQL Community Server...
sep 30 08:21:19 ubuntumysqlsuarez systemd[1]: mysql.service: Deactivated successfully.
sep 30 08:21:19 ubuntumysqlsuarez systemd[1]: Stopped mysql.service - MySQL Community Server.
sep 30 08:21:19 ubuntumysqlsuarez systemd[1]: mysql.service: Consumed 16.759s CPU time, 378.5M memory peak, 0B memory swap peak.
root@ubuntumysqlsuarez:/home/cristobal# 
```

En "**error.log**": Se registra una orden de apagado (SHUTDOWN) por parte del usuario. Y luego se registran las ordenes de puesta en marcha una vez que se da la orden de encendido.

```
root@ubuntumysqlsuarez:/var/log/mysql# cat error.log
2025-10-01T11:42:59.309138Z 0 [System] [MY-010116] [Server] /usr/sbin/mysqld (mysqld 8.0.43-0ubuntu0.24.04.2) starting as process 809
2025-10-01T11:42:59.329779Z 1 [System] [MY-013576] [InnoDB] InnoDB initialization has started.
2025-10-01T11:42:59.983482Z 1 [System] [MY-013577] [InnoDB] InnoDB initialization has ended.
2025-10-01T11:43:00.393478Z 0 [Warning] [MY-010068] [Server] CA certificate ca.pem is self signed.
2025-10-01T11:43:00.393542Z 0 [System] [MY-013602] [Server] Channel mysql_main configured to support TLS. Encrypted connections are now supported for this channel.
2025-10-01T11:43:00.443626Z 0 [System] [MY-011323] [Server] X Plugin ready for connections. Bind-address: '127.0.0.1' port: 33060, socket: /var/run/mysqld/mysqlx.sock
2025-10-01T11:43:00.443722Z 0 [System] [MY-010931] [Server] /usr/sbin/mysqld: ready for connections. Version: '8.0.43-0ubuntu0.24.04.2'  socket: '/var/run/mysqld/mysqld.sock'  port: 3306  (Ubuntu).
2025-10-01T11:43:32.320279Z 0 [System] [MY-013172] [Server] Received SHUTDOWN from user <via user signal>. Shutting down mysqld (Version: 8.0.43-0ubuntu0.24.04.2).
2025-10-01T11:43:33.647860Z 0 [System] [MY-010910] [Server] /usr/sbin/mysqld: Shutdown complete (mysqld 8.0.43-0ubuntu0.24.04.2)  (Ubuntu).
2025-10-01T15:49:00.156670Z 0 [System] [MY-010116] [Server] /usr/sbin/mysqld (mysqld 8.0.43-0ubuntu0.24.04.2) starting as process 788
2025-10-01T15:49:00.178625Z 1 [System] [MY-013576] [InnoDB] InnoDB initialization has started.
2025-10-01T15:49:00.558054Z 1 [System] [MY-013577] [InnoDB] InnoDB initialization has ended.
2025-10-01T15:49:00.999948Z 0 [Warning] [MY-010068] [Server] CA certificate ca.pem is self signed.
2025-10-01T15:49:01.000050Z 0 [System] [MY-013602] [Server] Channel mysql_main configured to support TLS. Encrypted connections are now supported for this channel.
2025-10-01T15:49:01.079178Z 0 [System] [MY-011323] [Server] X Plugin ready for connections. Bind-address: '127.0.0.1' port: 33060, socket: /var/run/mysqld/mysqlx.sock
2025-10-01T15:49:01.079356Z 0 [System] [MY-010931] [Server] /usr/sbin/mysqld: ready for connections. Version: '8.0.43-0ubuntu0.24.04.2'  socket: '/var/run/mysqld/mysqld.sock'  port: 3306  (Ubuntu).
```

En "**query.log**" se registra un "QUIT".

```
2025-09-30T08:18:15.975329Z        11 Query    SELECT SLEEP(3)
2025-09-30T08:21:06.305382Z        11 Quit
root@ubuntumysqlsuarez:/var/log/mysql#
```

Y en "**mysql-slow.log**" no se registra nada.

```
root@ubuntumysqlsuarez:/var/log/mysql# cat mysql-slow.log
/usr/sbin/mysqld, Version: 8.0.43-0ubuntu0.24.04.2 ((Ubuntu)). started with:
Tcp port: 3306  Unix socket: /var/run/mysqld/mysqld.sock
Time                 Id Command    Argument
# Time: 2025-09-30T08:18:18.975835Z
# User@Host: root[root] @ localhost []  Id:     11
# Query_time: 3.000837  Lock_time: 0.000000 Rows_sent: 1  Rows_examined: 1
SET timestamp=1759220295;
SELECT SLEEP(3);
root@ubuntumysqlsuarez:/var/log/mysql#
```