

進階資料庫實務

Class 1 – 資料庫安裝架設

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MySQL

MySQL 是目前主流的關聯式資料庫 (RDBMS) 其中之一，2010 年被甲骨文 (Oracle) 收購成為旗下產品，一直以來它以開放、低成本而著名 (個人使用免費)，非常多的個人專案、公司都會選擇用 MySQL 當作資料庫。

由於被甲骨文收購後，大幅調漲了 MySQL 商業版的售價，因此原創以 MySQL 為基礎另行開發一套資料庫，並取自原創小女兒之名，稱為 MariaDB，當年 MySQL 的命名則是由他大女兒名字簡寫 My 而來，目前市場上仍以 MySQL 較為廣泛使用，因此本課程以 MySQL 作為學習 SQL 語言的敲門磚。





安裝 MySQL

```
:/# apt update && apt install mysql-server
Hit:1 http://archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:4 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [910 kB]
Get:5 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [107 kB]
Get:6 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1245 kB]
Get:7 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1148 kB]
Get:8 http://archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [956 kB]
Get:9 http://archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [23.3 kB]
Fetched 4619 kB in 4s (1273 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
10 packages can be upgraded. Run 'apt list --upgradable' to see them.
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
```

apt update && apt install mysql-server

運用 apt 安裝 mysql server
即從線上下載最新版本進行安裝

啟動 MySQL



```
:/# service mysql start  
* Starting MySQL database server mysqld  
su: warning: cannot change directory to /nonexistent: No such file or directory
```

[OK]

service mysql start

(本課程環境以 Ubuntu 22.04 為示範，其他環境可能略有不同)



進入 MySQL

```
:/# mysql
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 10
Server version: 8.0.32-0ubuntu0.22.04.2 (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> █
```

輸入 **mysql** 即可進入資料庫的
操作環境

設定 MySQL



```
mysql> ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password BY 'ji394mysql';  
Query OK, 0 rows affected (0.01 sec)
```

為了安全起見，請先在資料庫操作環境下更改最高權限 **root** 密碼

ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password BY 'ji394mysql';

密碼



建立 MySQL 遠端連線使用者

```
mysql> CREATE USER 'remote_user'@'%' IDENTIFIED WITH mysql_native_password BY 'ji394123';  
Query OK, 0 rows affected (0.03 sec)
```

CREATE USER 'remote_user'@'%' IDENTIFIED WITH mysql_native_password BY 'ji394123';

使用者名稱 密碼

由於後續我們希望在外部透過資料庫工具操作資料庫，因此需要額外建立一個遠端連線的使用者



MySQL 給予使用者權限

```
mysql> GRANT ALL PRIVILEGES ON *.* TO 'remote_user'@'%';  
Query OK, 0 rows affected (0.01 sec)
```

給予建立的使用者權限

GRANT ALL PRIVILEGES ON *.* TO 'remote_user'@'%';

使用者名稱



編輯 MySQL 設定檔

```
:/# vi /etc/mysql/mysql.conf.d/mysql.cnf
```

```
# If MySQL is running as a replication slave, this should be
# changed. Ref https://dev.mysql.com/doc/refman/8.0/en/server-system-variables.html#sysvar_tmpdir
# tmpdir                = /tmp
#
# Instead of skip-networking the default is now to listen only on
# localhost which is more compatible and is not less secure.
bind-address            = 0.0.0.0
```

使用 vi 編輯設定檔
修改 bind-address

~~127.0.0.1~~
0.0.0.0

重啟 MySQL



```
:/# service mysql restart
* Stopping MySQL database server mysqld          [ OK ]
* Starting MySQL database server mysqld
su: warning: cannot change directory to /nonexistent: No such file or directory
[ OK ]
```

service mysql restart



下載 MySQL Workbench

MySQL Product Archives

MySQL Workbench (Archived Versions)

Please note that these are old versions. New releases will have recent bug fixes and features!
To download the latest release of MySQL Workbench, please visit [MySQL Downloads](#).

Product Version:

Operating System:

ⓘ Packages require Big Sur (11.1 or newer)

macOS (x86, 64-bit), DMG Archive	Sep 3, 2022	113.0M	Download
<small>(mysql-workbench-community-8.0.31-macos-x86_64.dmg)</small>		<small>MD5: 57927c4341d3ae5adbd1ad82ac9647e3 Signature</small>	

ⓘ We suggest that you use the [MD5 checksums](#) and [GnuPG signatures](#) to verify the integrity of the packages you download.

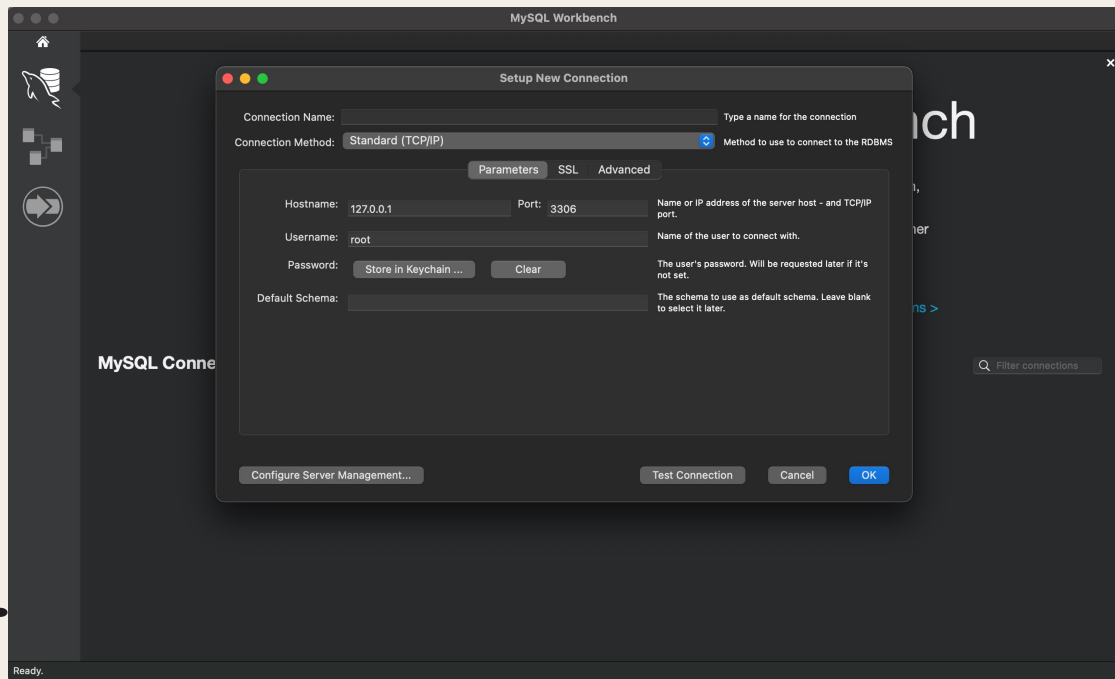
MySQL open source software is provided under the [GPL License](#).

為了方便後續操作，我們將使用 **MySQL** 操作工具進行資料庫操作，透過官網選擇對應版本與作業系統進行下載

<https://downloads.mysql.com/archives/workbench/>



使用 MySQL Workbench 遠端連線



Hostname: 127.0.0.1

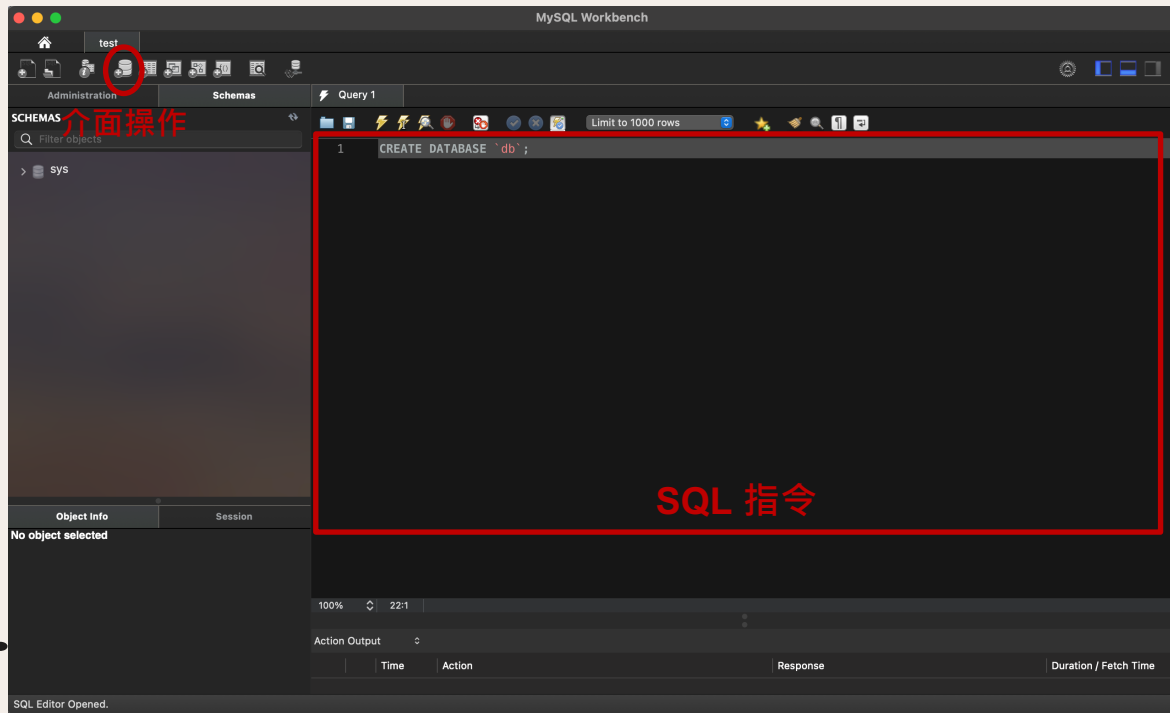
Port: 3306

Username: remote_user

Password: ji394123



建立 Database



介面操作

SQL 指令

可以使用指令或介面操作
建立資料庫

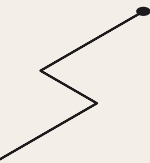
CREATE DATABASE `db`;

資料庫名稱

010101010101

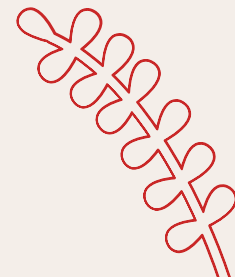
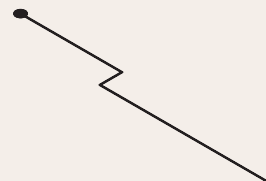
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Summary

- 簡介 MySQL
- 安裝與設定 MySQL
- 透過 MySQL Workbench 遠端連線
- 建立資料庫
- 初探 資料庫、資料表、欄位 架構概念



Thanks!

