

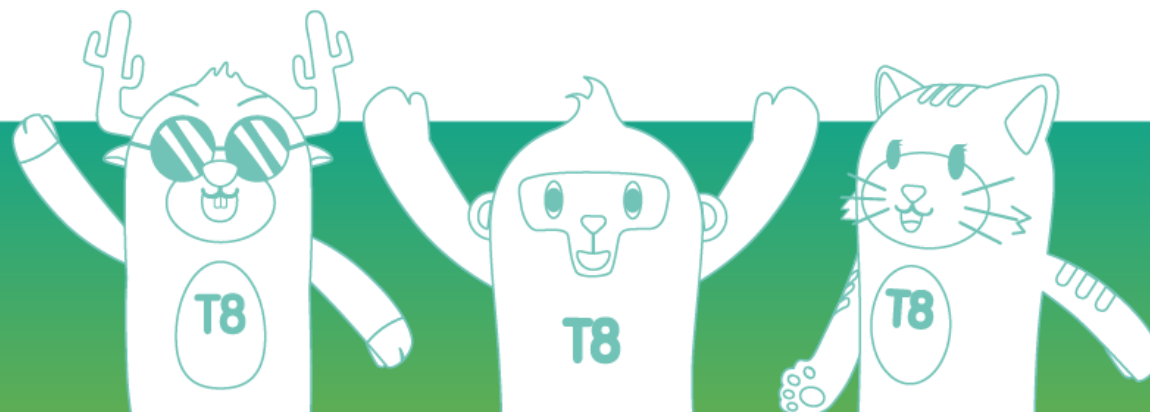
MySQL-環境準備

■ 授課講師	李偉銘
■ 教材編寫	李偉銘

緯育 *TibaMe*

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授課講師介紹



李偉銘
William

專長

Java程式設計、Java Web、Java主流框架
MySQL、Oracle、JavaScript、Angular

簡歷

TibaMe-講師
台北科技大學-Java&Android養成班-專題老師
聖森雲端科技股份有限-技術副理
碩利資訊-軟體工程師
國立虎尾科技大學-資訊工程系

老師的話

每天都要比前一天進步一點

聯絡方式

ithan0117@gmail.com

學習本課程須知

先備知識

無

學習目標

- A. 了解資料庫相關基本知識
- B. 熟悉MySQL環境及常用工具
- C. 熟悉DQL語法
- D. 熟悉DML語法
- E. 熟悉TCL語法
- F. 熟悉DDL語法
- G. 熟悉DCL語法

學習方式

- 現場講解
- 課堂實作

須完成 哪些作業 或考試

無



模組 2.MySQL環境準備

2-1: MySQL簡介

2-2: MySQL下載與安裝

2-3: 資料庫GUI工具

- 簡述
 - 是一種RDBMS(關聯式資料庫管理系統)
 - 由於效能高、成本低、可靠性好，已經成為最流行的開源資料庫之一
 - 全球市佔率排名第2 (2020/08/21)
- 公司
 - (1995) MySQL AB → (2008) Sun Microsystems → (2009) Oracle Corporation

- 版本(Edition)
 - 社群版(Community Edition)
 - 企業版(Enterprise Edition)
- 版本號(Version)
 - 5.7
 - 8.0

- 說明

- MySQL社群版，又分成安裝器版(installer.msi)跟壓縮版(Archive .zip)
- 課程使用壓縮版

- 下載網址

- <https://dev.mysql.com/downloads/mysql/>

2-2: 下載MySQL (2/2)



• Windows

General Availability (GA) Releases Archives

MySQL Community Server 8.0.19

Select Operating System: **Microsoft Windows** Looking for previous GA versions?

Recommended Download:

All MySQL Products. For All Windows Platforms. In One Package.

Starting with MySQL 5.6 the MySQL Installer package replaces the standalone MSI packages.

Windows (x86, 32 & 64-bit), MySQL Installer MSI [Go to Download Page >](#)

Other Downloads:

Windows (x86, 64-bit), ZIP Archive (mysql-8.0.19-winx64.zip)	8.0.19	187.8M	Download
MD5: f52c52e7b499958acc5f88ce0a869cab Signature			
Windows (x86, 64-bit), ZIP Archive Debug Binaries & Test Suite (mysql-8.0.19-winx64-debug-test.zip)	8.0.19	406.7M	Download
MD5: 9b885558e74cc4629af77cbe75d11631 Signature			

• MacOS

General Availability (GA) Releases Archives

MySQL Community Server 8.0.20

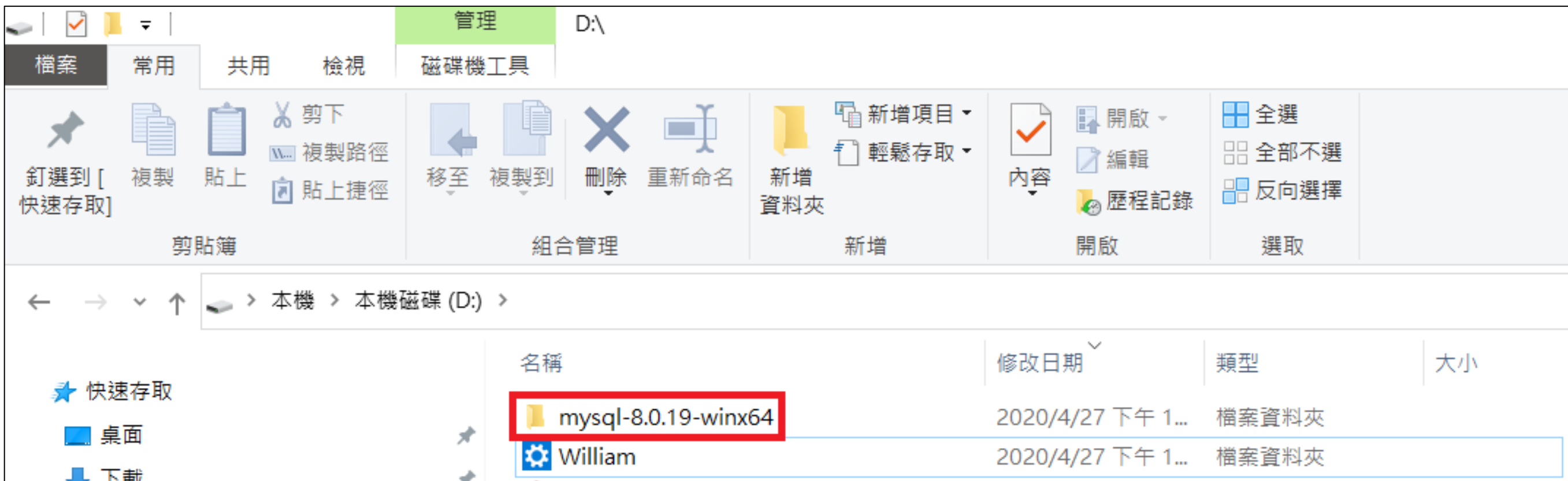
Select Operating System: **macOS** Looking for previous GA versions?

! Packages for Catalina (10.15) are compatible with Mojave (10.14)

macOS 10.15 (x86, 64-bit), DMG Archive (mysql-8.0.20-macos10.15-x86_64.dmg)	8.0.20	379.5M	Download
MD5: 17bd4d83ab5c927eab78bdf33c9417a Signature			
macOS 10.15 (x86, 64-bit), Compressed TAR Archive (mysql-8.0.20-macos10.15-x86_64.tar.gz)	8.0.20	158.4M	Download
MD5: 0022c230f32fc1d3dd2de989c07d1766 Signature			
macOS 10.15 (x86, 64-bit), Compressed TAR Archive Test Suite (mysql-test-8.0.20-macos10.15-x86_64.tar.gz)	8.0.20	224.5M	Download
MD5: c7bda503766058ed740c5480933c5a09 Signature			
macOS 10.15 (x86, 64-bit), TAR (mysql-8.0.20-macos10.15-x86_64.tar)	8.0.20	398.3M	Download
MD5: e561557233f8047a49bb98ee61c65d53 Signature			

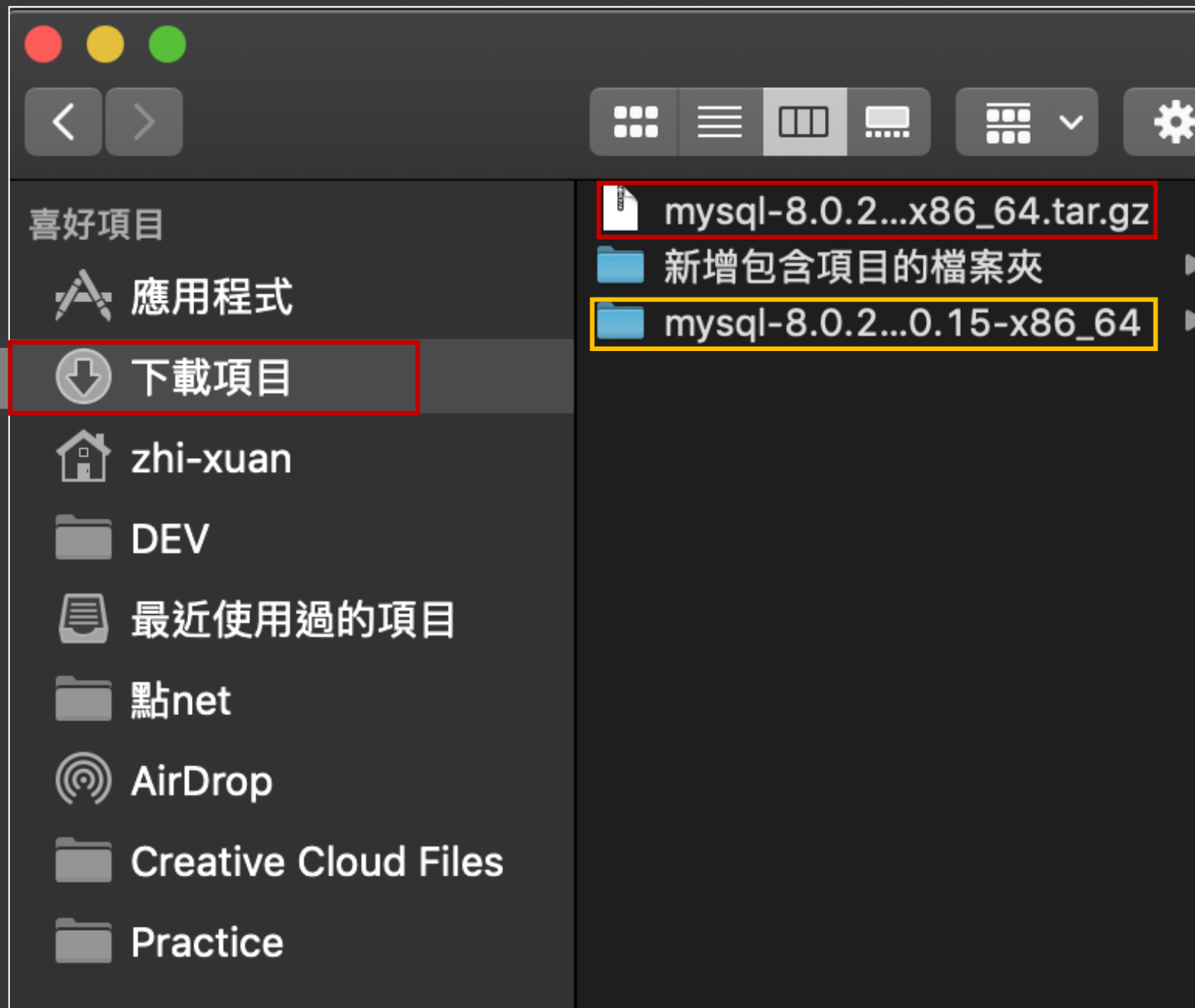
! We suggest that you use the [MD5 checksums](#) and [GnuPG signatures](#) to verify the integrity of the packages you download.

- Windows
 - 解壓縮



- MacOS
 - 解壓縮

1: 來到下載項目→



←2: 找到剛才下載的壓縮檔
點兩下即可解壓縮

←3: (解壓縮後的資料夾)

- MacOS

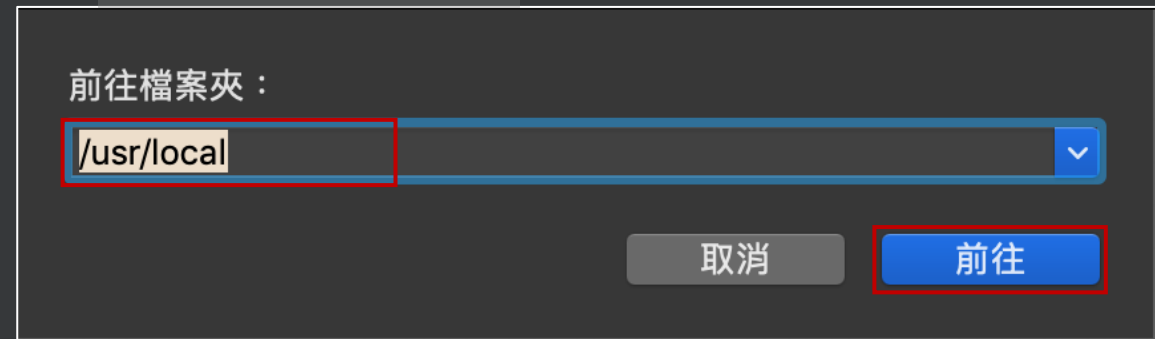
- 搬移至 /usr/local/

1: 對Finder右鍵
→

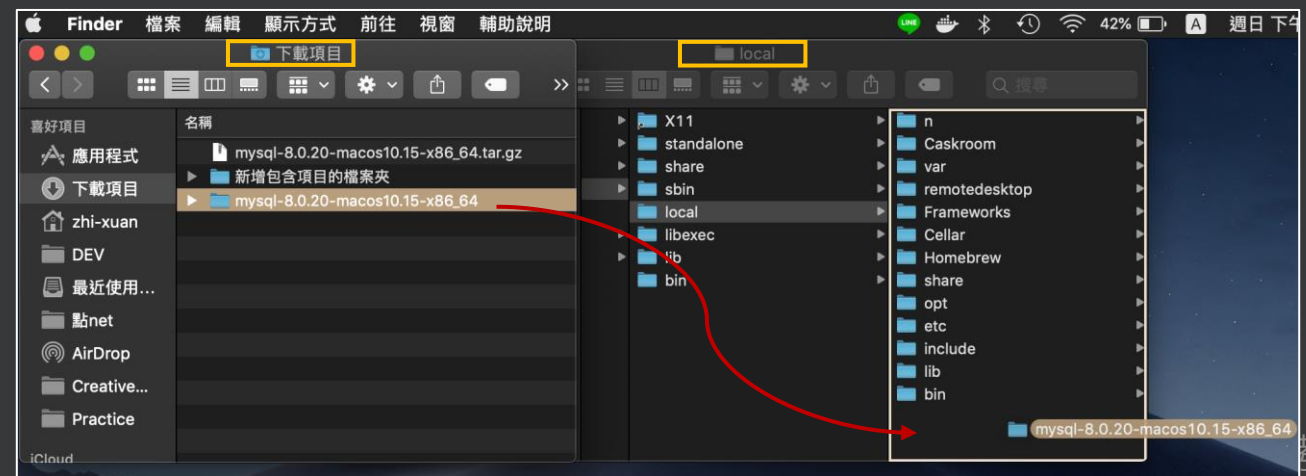


←2

3: 輸入 /usr/local



4: 將資料夾 從下載項目 拖曳至 /usr/local/



2-2: 安裝MySQL (4/14)

- 建立MySQL初始化設定檔: 在 MySQL根目錄內 建立 my.ini , 內容如下..

```
[mysqld]
# 預設port為3306
port=3306
# mysql的安裝根目錄
basedir=MySQL根目錄
# mysql的資料根目錄
datadir=MySQL根目錄/data
# 預設時區
default-time-zone='+8:00'
# 連接數上限
max_connections=200
# 允許連接失敗的次數上限. 以防止資料庫被攻擊
max_connect_errors=10
# Server端預設字元編碼
character-set-server=utf8mb4
# (接續右側區塊)
```

```
# (續)
# 預設儲存引擎
default-storage-engine=INNODB
# 預設認證套件
default_authentication_plugin=mysql_native_password
# 接受大寫命名
lower_case_table_names=2
# 封包大小上限
max_allowed_packet=10M
[mysql]
# Client端預設字元編碼
default-character-set=utf8
[client]
# Client端連接Server端時, 預設使用的port
port=3306
default-character-set=utf8
```

*註: 2種OS內容一樣,
只差在路徑!

- Windows

- basedir=D:\mysql-8.0.25-winx64
- datadir=D:\mysql-8.0.25-winx64\data

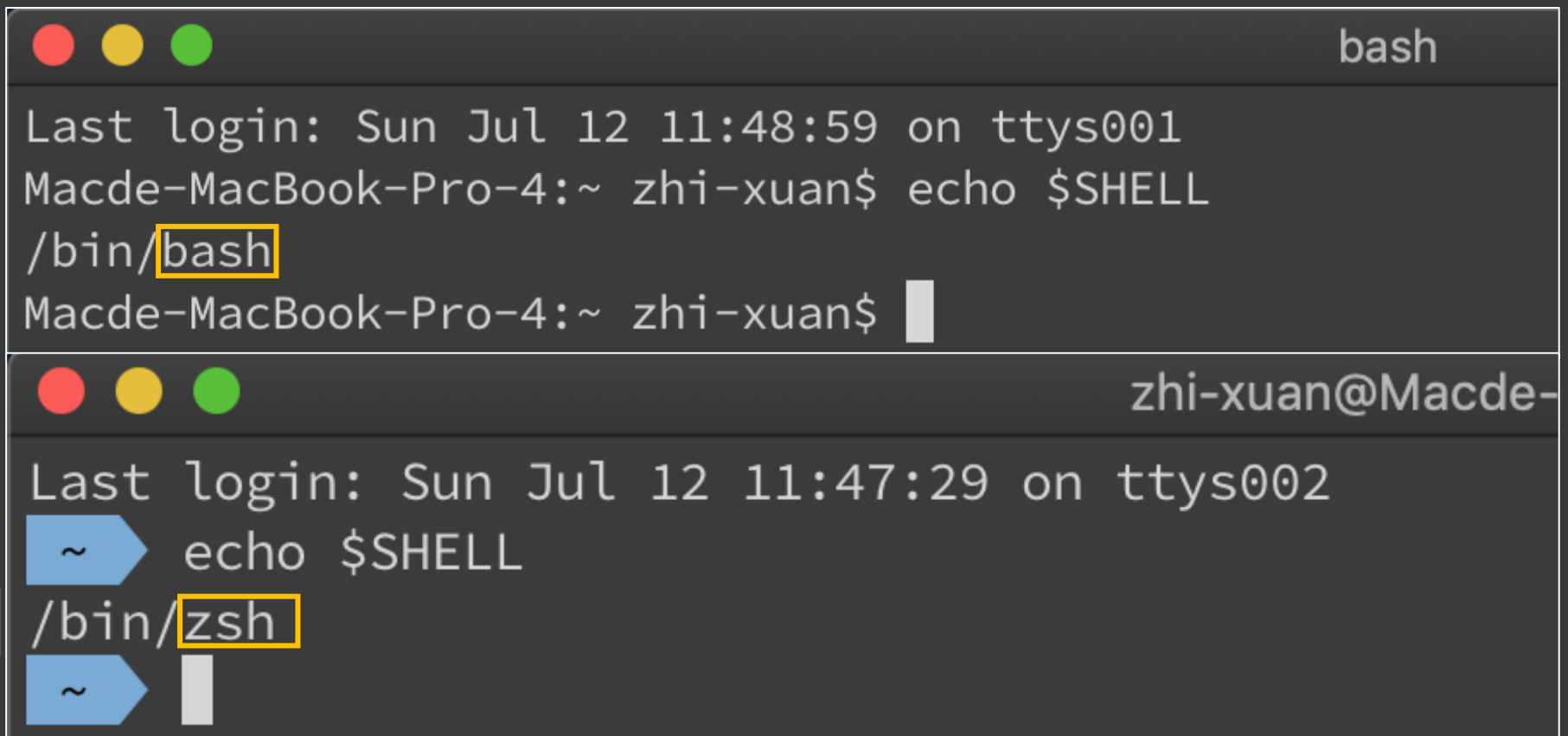
- MacOS

- basedir=/usr/local/mysql-8.0.25-macos11-x86_64/
- datadir=/usr/local/mysql-8.0.25-macos11-x86_64/data

- MacOS

- 設定環境變數 (1/2) - 確認當前使用Shell種類
 - 打開Terminal(終端機)，輸入以下指令
 - `echo $SHELL`

bash→



```
bash
Last login: Sun Jul 12 11:48:59 on ttys001
Macde-MacBook-Pro-4:~ zhi-xuan$ echo $SHELL
/bin/bash
Macde-MacBook-Pro-4:~ zhi-xuan$

zhi-xuan@Macde-
Last login: Sun Jul 12 11:47:29 on ttys002
~ echo $SHELL
/bin/zsh
~
```

zsh→

2-2: 安裝MySQL (6/14)

• MacOS

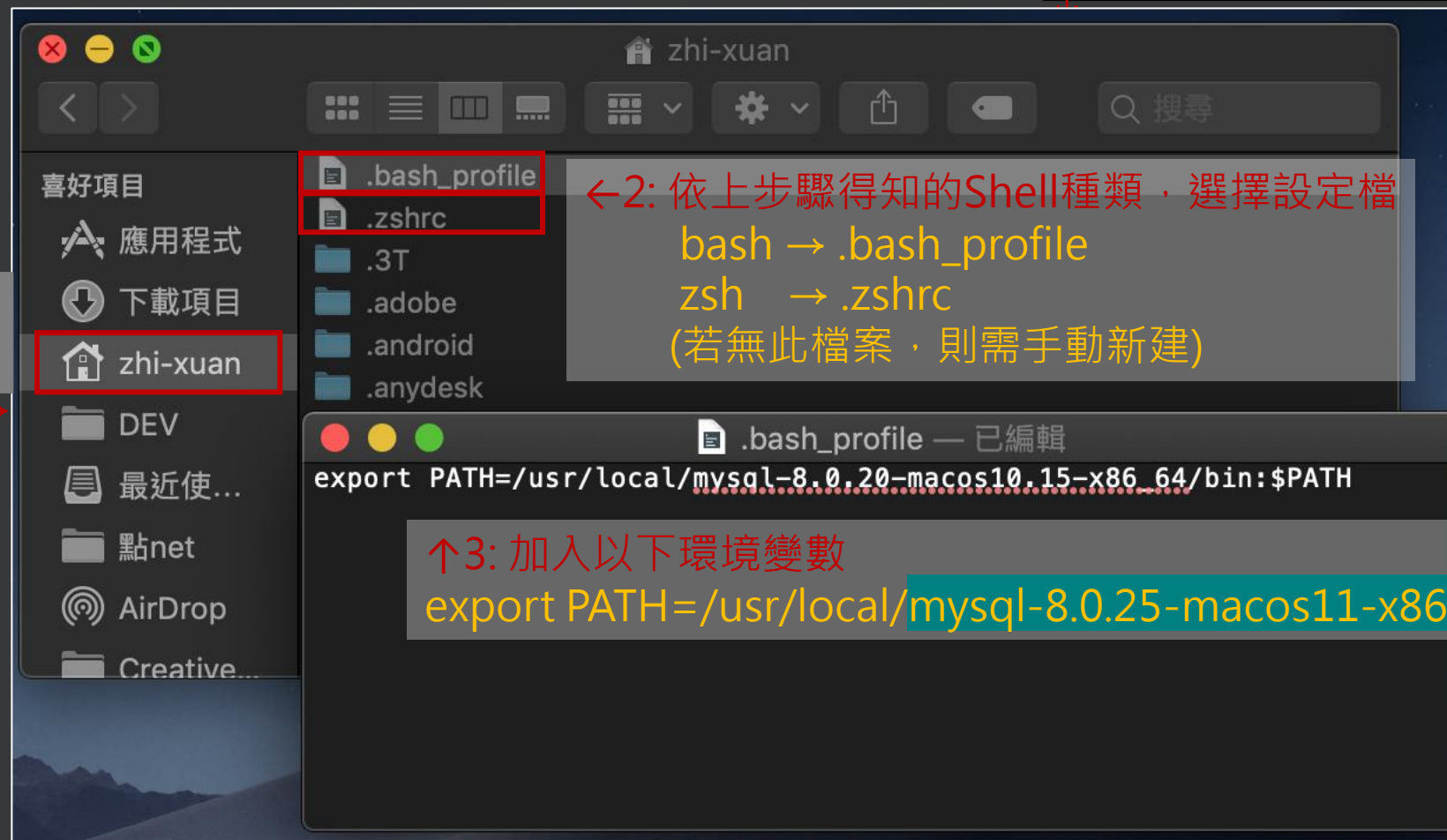
• 設定環境變數 (2/2) - 加入設定

*註: 顯示隱藏檔

在MacOS中預設不會顯示隱藏檔，
可用快捷鍵 shift + command + . 來顯

1: 來到你的使用者

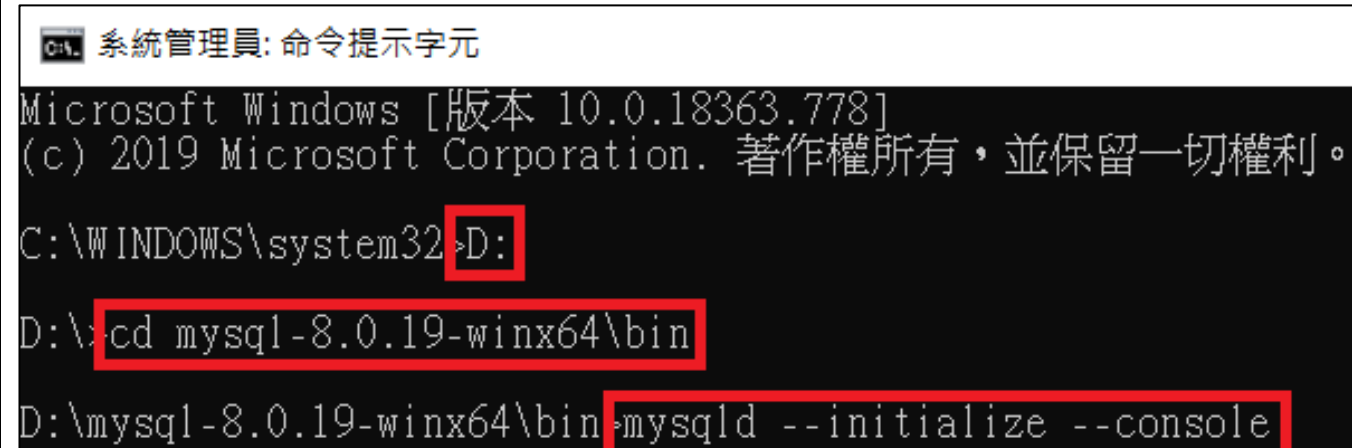
名稱的資料夾→



- 初始化MySQL

- Windows

- 開啟cmd(系統管理員身分)，輸入以下指令
- D:
- `cd mysql-8.0.23-winx64\bin`
- `mysqld --initialize --console`



系統管理員: 命令提示字元

Microsoft Windows [版本 10.0.18363.778]
(c) 2019 Microsoft Corporation. 著作權所有，並保留一切權利。

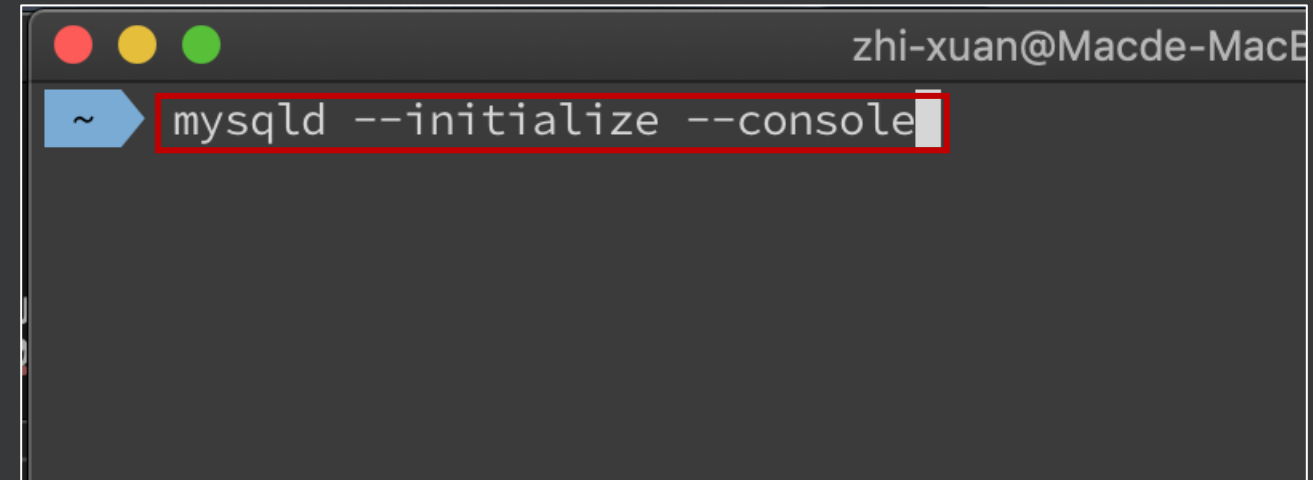
C:\WINDOWS\system32>D:

D:\>cd mysql-8.0.19-winx64\bin

D:\mysql-8.0.19-winx64\bin>mysqld --initialize --console

- MacOS

- 開啟Terminal(終端機)，輸入以下指令
- `mysqld --initialize --console`



zhi-xuan@Macde-MacE

~> `mysqld --initialize --console`

2-2: 安裝MySQL (8/14)

- 複製root的預設密碼

*註: 之後步驟需用此密碼，先複製至別處備存!

- Windows

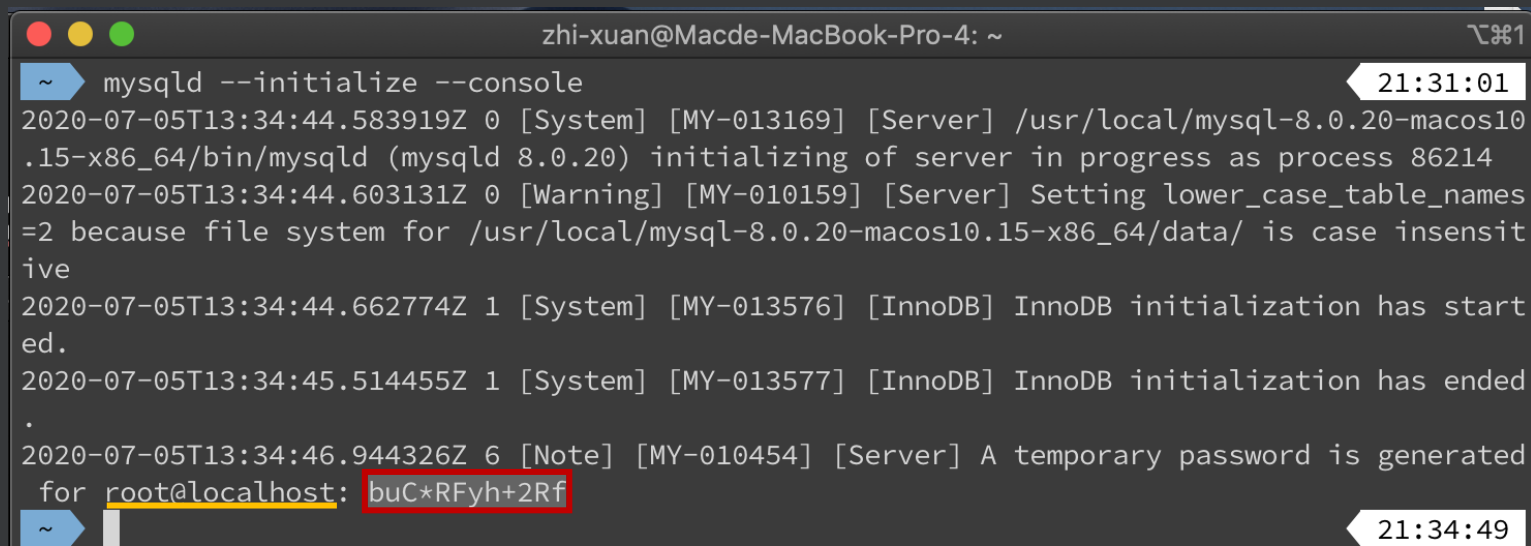


系統管理員: 命令提示字元

Microsoft Windows [版本 10.0.18363.778]
(c) 2019 Microsoft Corporation. 著作權所有，並保留一切權利。

C:\WINDOWS\system32>D:
D:\>cd mysql-8.0.19-winx64\bin
D:\mysql-8.0.19-winx64\bin>mysqld --initialize --console
2020-04-27T16:12:42.042722Z 0 [System] [MY-013169] [Server] D:\mysql-8.0.19-winx64\bin\mysqld.exe (mysqld 8.0.19) initializing of server in progress as process 8136
2020-04-27T16:13:01.630710Z 5 [Note] [MY-010454] [Server] A temporary password is generated for root@localhost: #hyTt9rHLb;b

- MacOS



zhi-xuan@Macde-MacBook-Pro-4: ~

mysql --initialize --console 21:31:01

2020-07-05T13:34:44.583919Z 0 [System] [MY-013169] [Server] /usr/local/mysql-8.0.20-macos10.15-x86_64/bin/mysqld (mysqld 8.0.20) initializing of server in progress as process 86214
2020-07-05T13:34:44.603131Z 0 [Warning] [MY-010159] [Server] Setting lower_case_table_names=2 because file system for /usr/local/mysql-8.0.20-macos10.15-x86_64/data/ is case insensitive
2020-07-05T13:34:44.662774Z 1 [System] [MY-013576] [InnoDB] InnoDB initialization has started.
2020-07-05T13:34:45.514455Z 1 [System] [MY-013577] [InnoDB] InnoDB initialization has ended.
2020-07-05T13:34:46.944326Z 6 [Note] [MY-010454] [Server] A temporary password is generated for root@localhost: buC*RFyh+2Rf

- Windows
 - 將MySQL設為服務
 - `mysqld --install`

 系統管理員: 命令提示字元

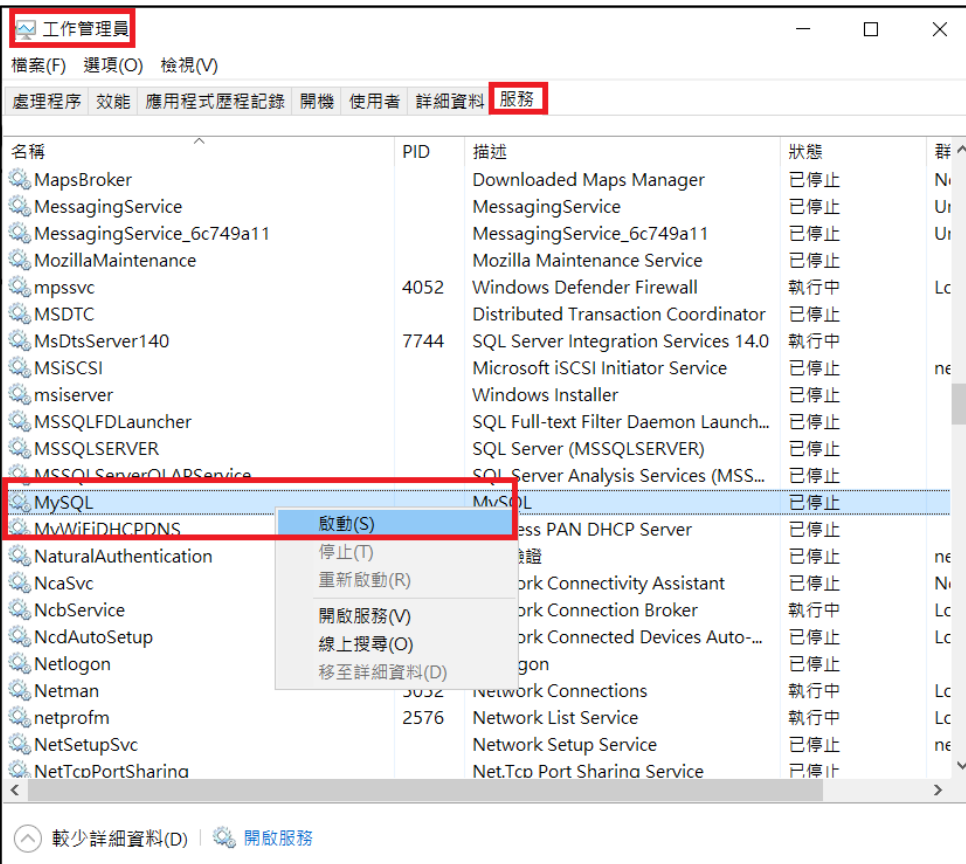
```
D:\mysql-8.0.19-winx64\bin>mysqld --install
Service successfully installed.

D:\mysql-8.0.19-winx64\bin>
```

- 啟動MySQL

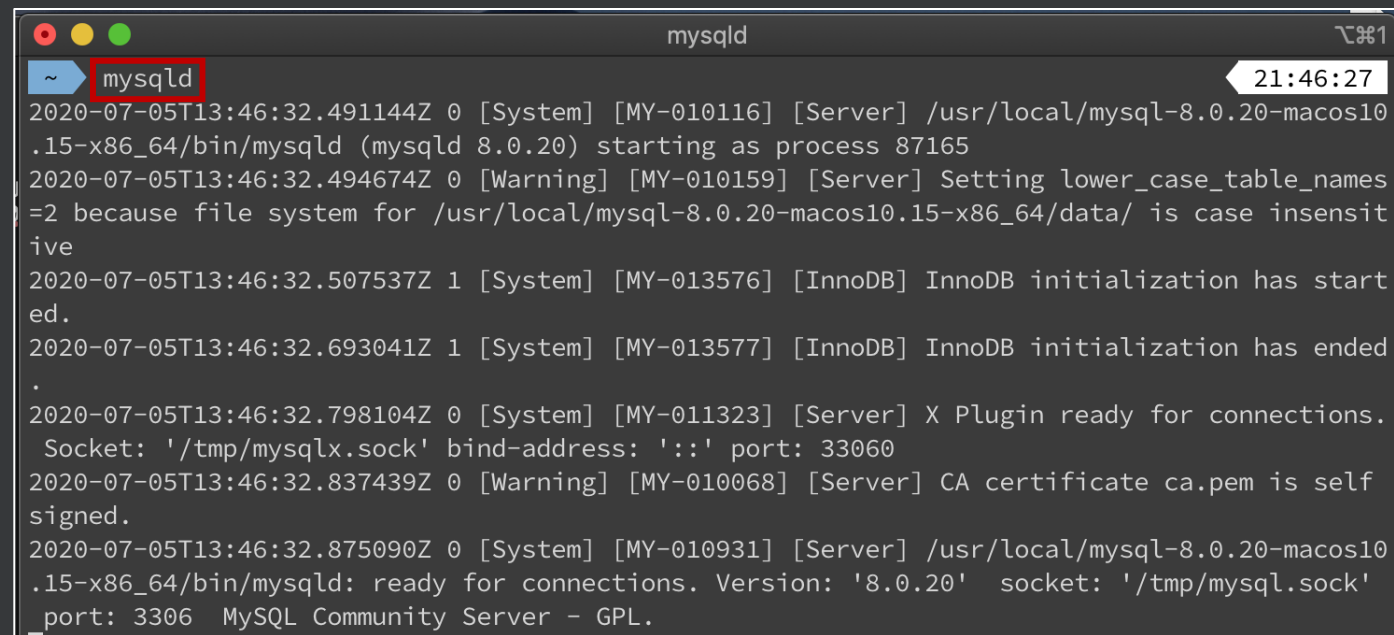
- Windows

- 工作管理員 → 服務 → MySQL → 右鍵 → 啟動(S)



- MacOS

- 輸入 **mysqld**



- 更改密碼
 1. `mysqladmin -u root -p password`
 2. 輸入 先前步驟產生的"預設密碼"
 3. 輸入 自訂的新密碼 2次

- Windows

2 ↘ D:\mysql-8.0.19-winx64\bin>mysqladmin -u root -p password ←1
Enter password: *****
3 → New password: *****
3 → Confirm new password: *****
Warning: Since password will be sent to server in plain text, use ssl connection to ensure password safety.
D:\mysql-8.0.19-winx64\bin>

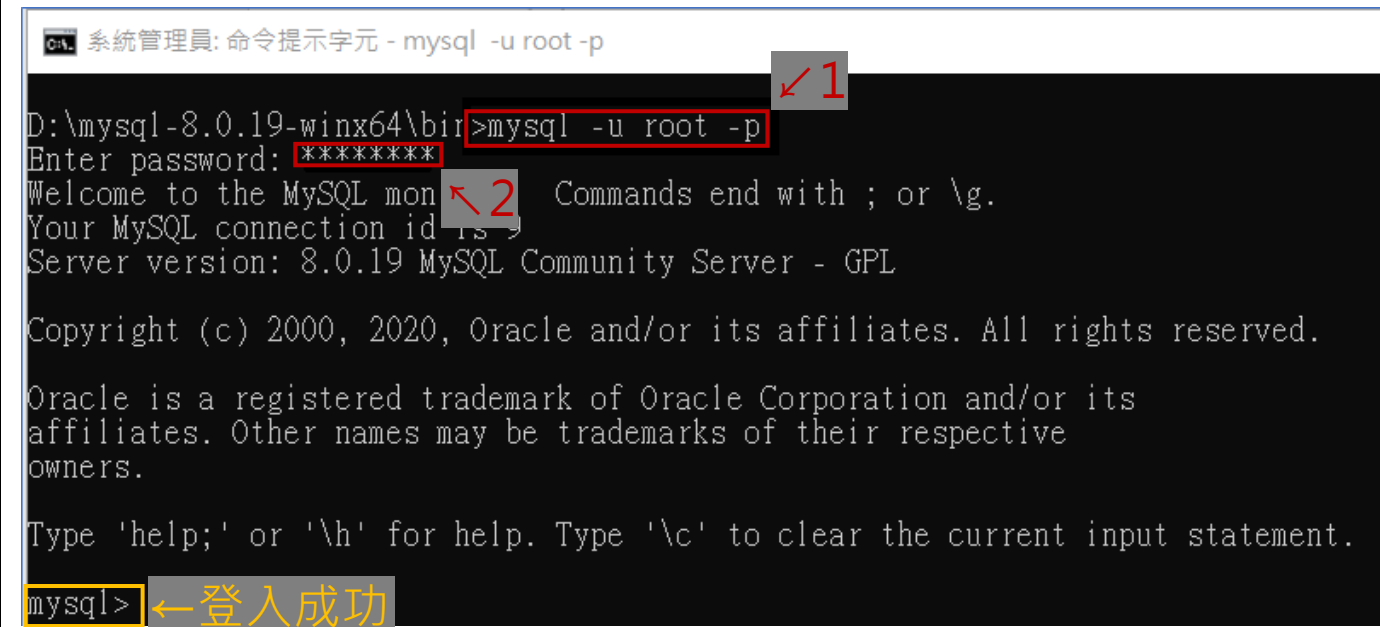
- MacOS

1 → ~ mysqladmin -u root -p password
2 → Enter password:
3 → New password:
3 → Confirm new password:
Warning: Since password will be sent to server in plain text, use ssl connection to ensure password safety.

*註: 須另外再開啟一個Terminal(終端機)

- 登入MySQL
 1. `mysql -u root -p`
 2. 輸入 剛剛設定的新密碼

Windows



系統管理員: 命令提示字元 - mysql -u root -p

```
D:\mysql-8.0.19-winx64\bin>mysql -u root -p
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 8.0.19 MySQL Community Server - GPL

Copyright (c) 2000, 2020, Oracle and/or its affiliates. All rights reserved.

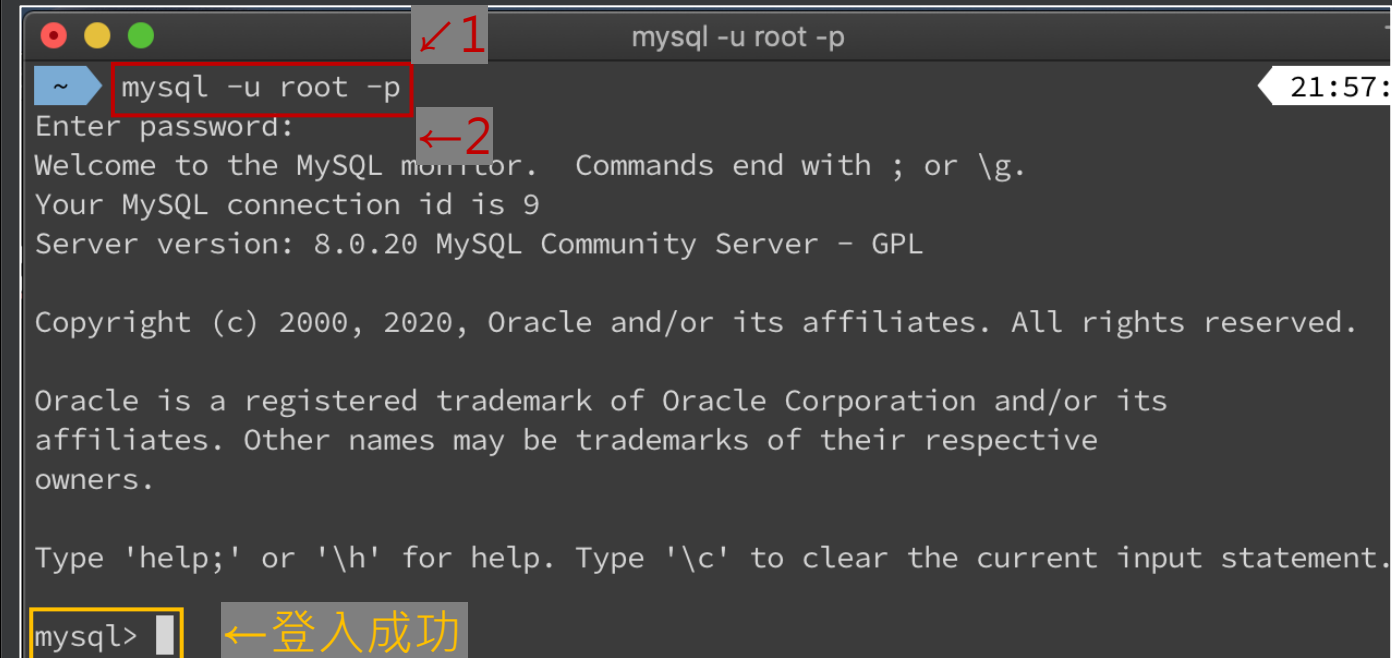
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

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

mysql>
```

← 登入成功

MacOS



```
mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 8.0.20 MySQL Community Server - GPL

Copyright (c) 2000, 2020, Oracle and/or its affiliates. All rights reserved.

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>
```

← 登入成功

2-2: 安裝MySQL (13/14)

- 匯入範例資料庫
 - source 路徑/MySQL_EXAMPLE.sql
 - *註: 路徑不能有中文

- Windows

```
系統管理員: 命令提示字元 - mysql -u root -p
D:\mysql-8.0.19-winx64\bin>mysql -u root -p
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 8.0.19 MySQL Community Server - GPL

Copyright (c) 2000, 2020, Oracle and/or its affiliates. All rights reserved.

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> source D:\Users\William\Desktop\MySQL_EXAMPLE.sql
Query OK, 1 row affected (0.41 sec)

Database changed
Query OK, 0 rows affected (0.48 sec)

Query OK, 1 row affected (0.08 sec)

Query OK, 1 row affected (0.07 sec)

Query OK, 1 row affected (0.38 sec)
```

MySQL-範例資料庫設計

- MacOS

```
mysql -u root -p
mysql> source /Users/zhi-xuan/Desktop/MySQL_EXAMPLE.sql
Query OK, 0 rows affected, 1 warning (0.00 sec)

Query OK, 0 rows affected (0.00 sec)

Query OK, 0 rows affected (0.00 sec)

Query OK, 0 rows affected (0.00 sec)

Query OK, 0 rows affected (0.00 sec)

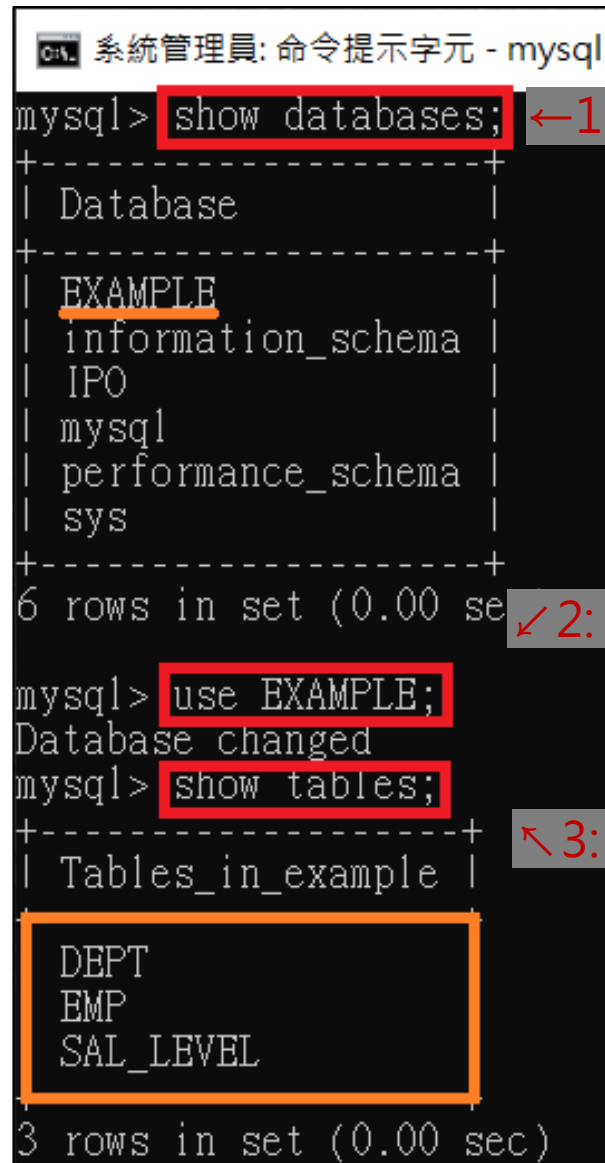
Query OK, 0 rows affected (0.00 sec)

Query OK, 1 row affected (0.01 sec)
```

2-2: 安裝MySQL (14/14)

- 確認匯入成功
 1. show databases;
 2. use EXAMPLE;
 3. show tables;

• Windows



系統管理員: 命令提示字元 - mysql

```
mysql> show databases;
```

← 1: 顯示所有資料庫 →

Database
EXAMPLE
information_schema
IPO
mysql
performance_schema
sys

6 rows in set (0.00 sec)

```
mysql> use EXAMPLE;
```

Database changed

```
mysql> show tables;
```

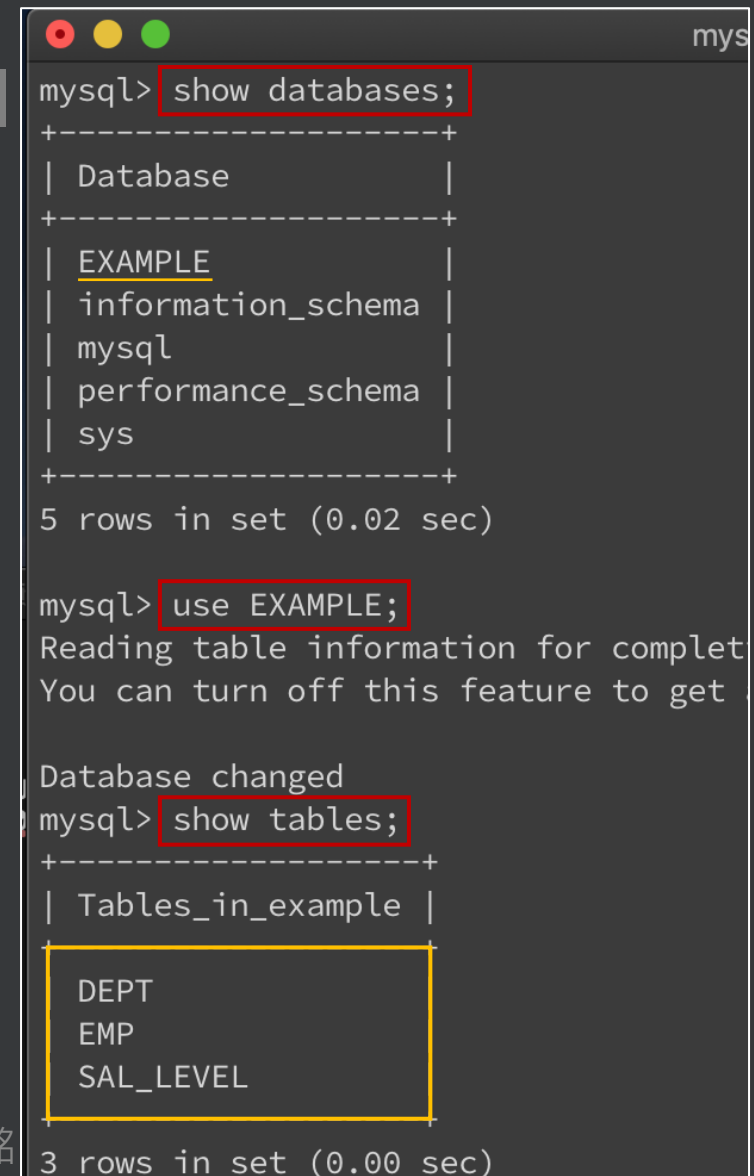
↖ 2: 進入範例資料庫 →

Tables_in_example
DEPT
EMP
SAL_LEVEL

↖ 3: 顯示所有資料表 →

3 rows in set (0.00 sec)

• MacOS



```
mysql> show databases;
```

Database
EXAMPLE
information_schema
mysql
performance_schema
sys

5 rows in set (0.02 sec)

```
mysql> use EXAMPLE;
```

Reading table information for complet
You can turn off this feature to get

Database changed

```
mysql> show tables;
```

Tables_in_example
DEPT
EMP
SAL_LEVEL

3 rows in set (0.00 sec)

- 說明

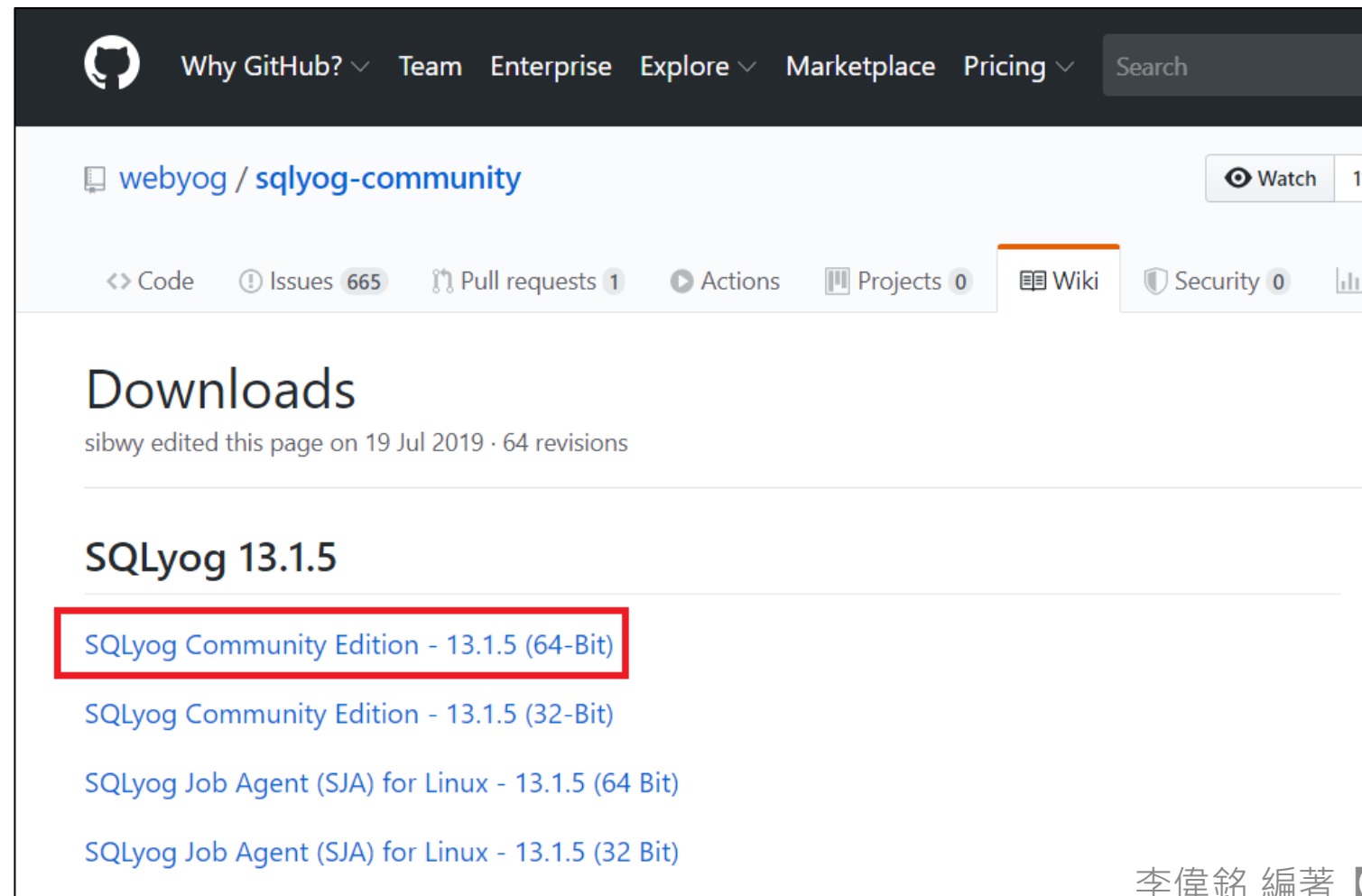
- 網路上有許多圖形化工具可使用，有些來自官方，有些來自第三方
- 官方提供的工具只能用於該家廠牌的資料庫
- 第三方提供的工具，通常是通用的，常見的DBMS皆能使用

- 常見的資料庫GUI Tool

- 官方
 - Oracle: Oracle SQL Developer
 - MySQL: **MySQL Workbench**
 - MS. SQL Server: Microsoft SQL Server Management Studio
- 第三方
 - DBeaver
 - DbVisualizer
 - **SQLyog** (MySQL only)

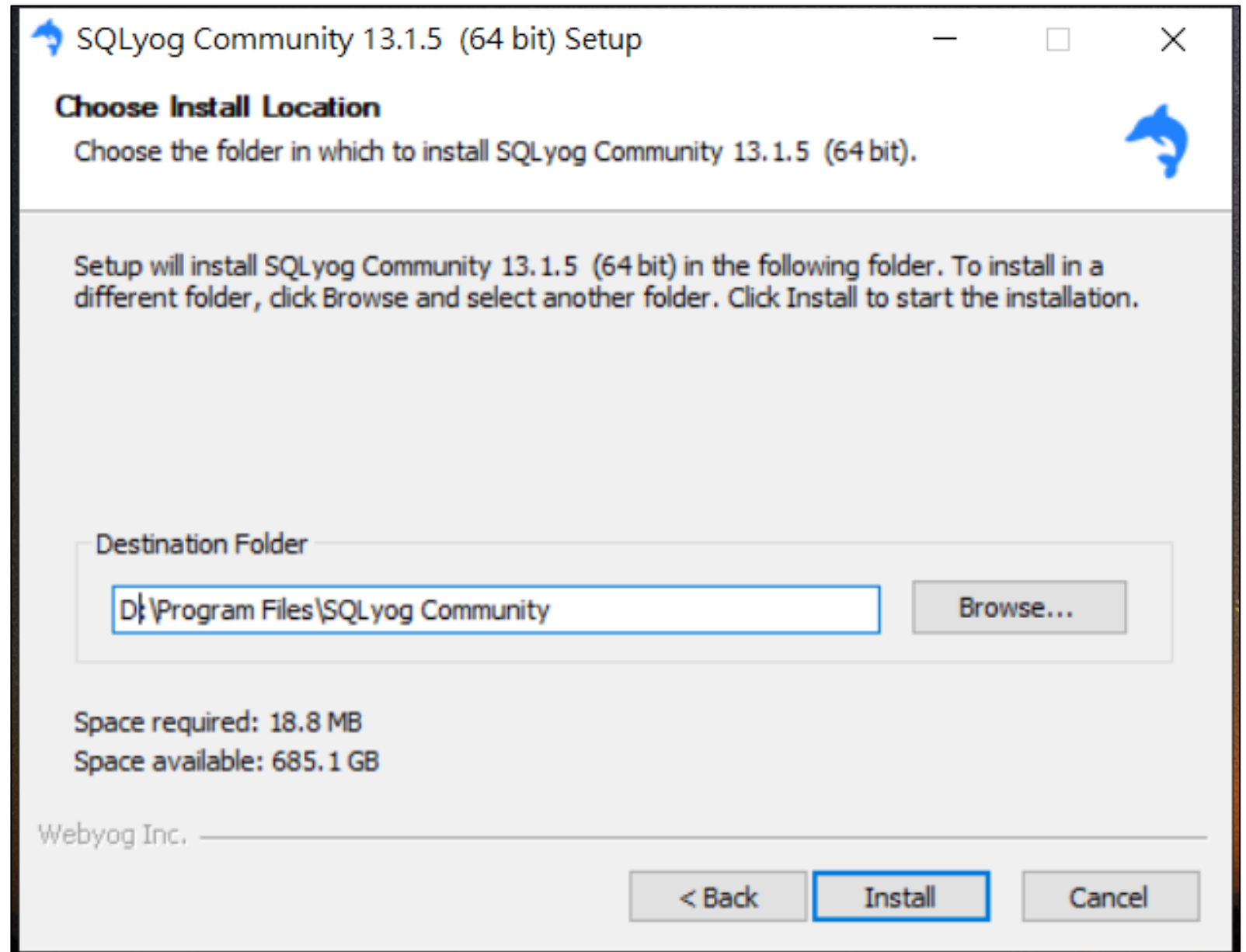
*註: 課程使用MySQL Workbench和SQLyog，
但SQLyog無MacOS版本，所以..
Windows → 2種都裝
MacOS → 只裝MySQL Workbench

- Windows
 - 下載SQLyog Community Edition
 - <https://github.com/webyog/sqlyog-community/wiki/Downloads>



2-3: 資料庫GUI工具 (3/10)

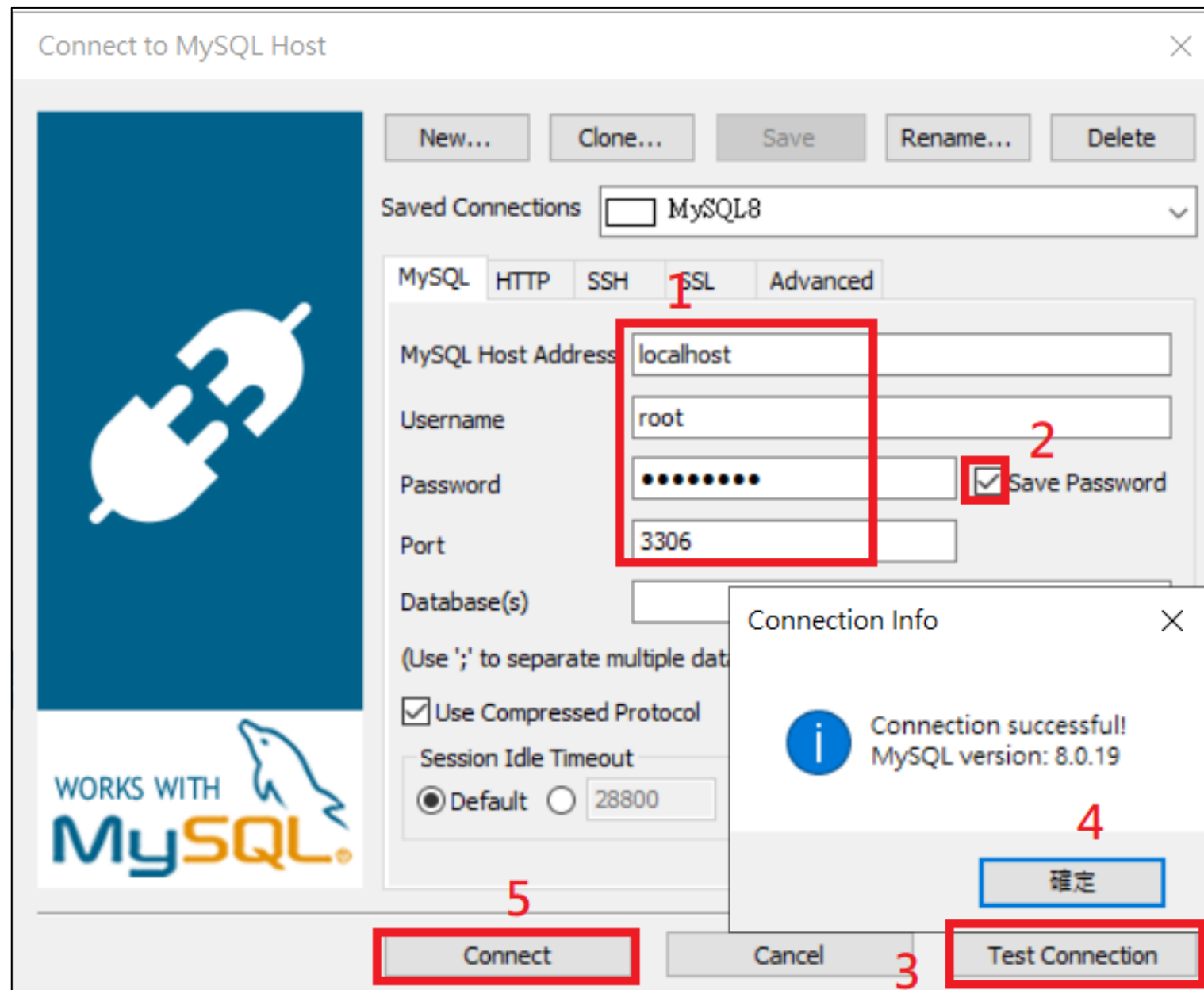
- Windows
 - 安裝SQLyog
 - 一直下一步即可安裝



2-3: 資料庫GUI工具 (4/10)

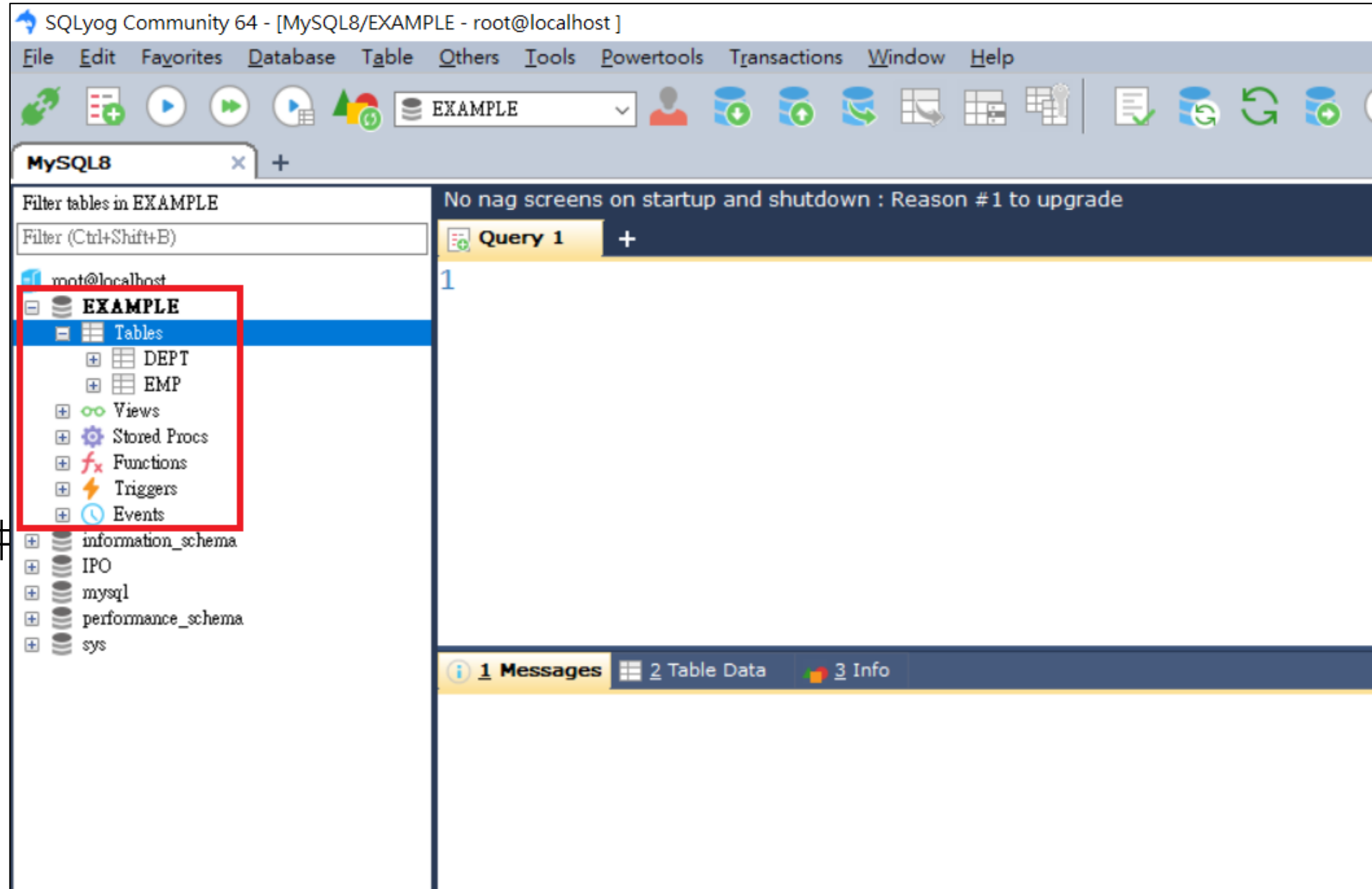
- Windows
 - 設定連線

*註: 需先確認MySQL Server已啟動



- Windows

- 確認成功連上MySQL
- 常用快捷鍵
 - F5:重新整理
 - F6:修改Table結構
 - F9:執行SQL敘述
 - Delete:刪除資料庫物件



- MacOS
 - 下載MySQL Workbench
 - <https://dev.mysql.com/downloads/workbench/>

MySQL Community Downloads

MySQL Workbench

General Availability (GA) Releases Archives

MySQL Workbench 8.0.20

Select Operating System:

macOS

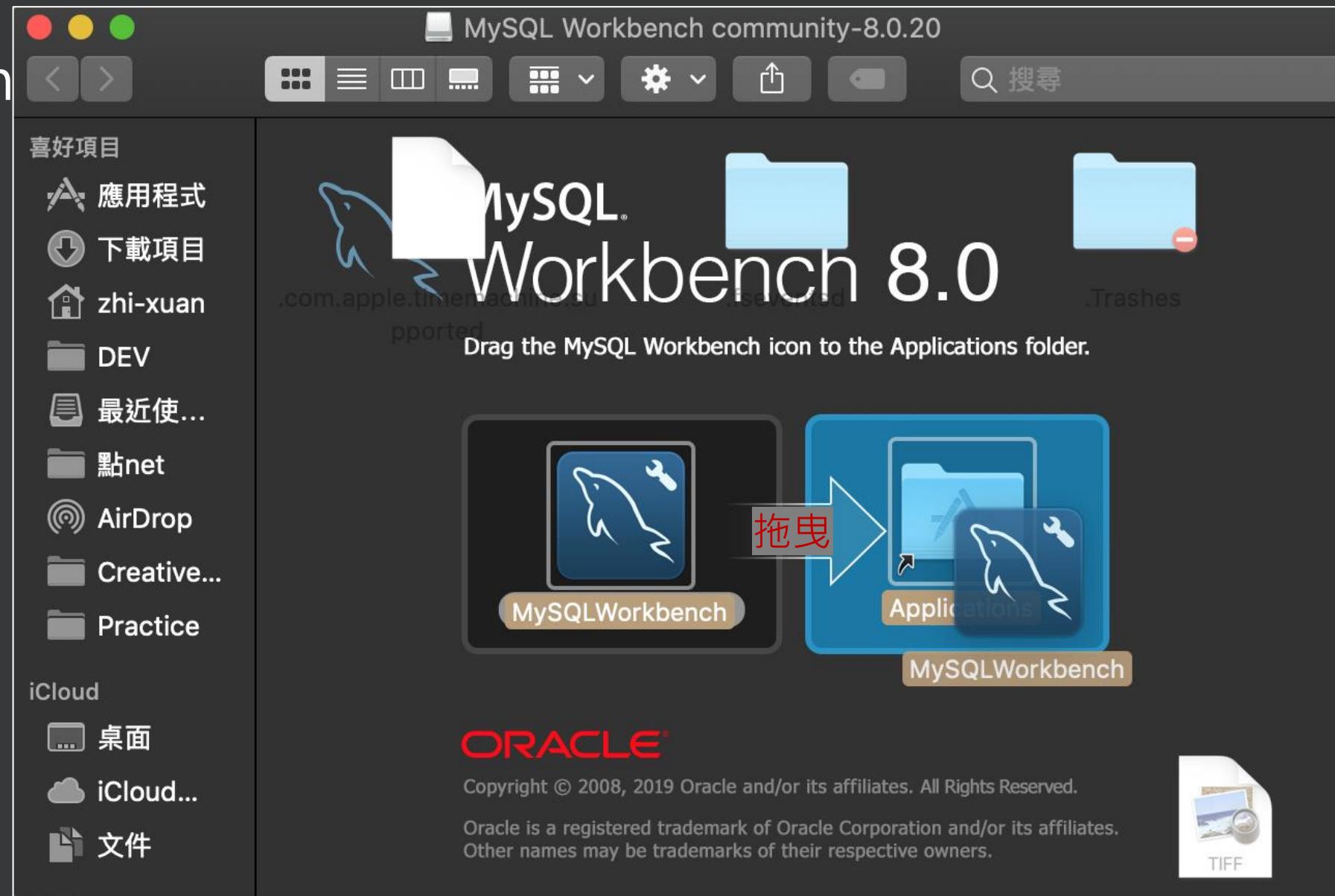
! Packages for Catalina (10.15) are compatible with Mojave (10.14)

macOS (x86, 64-bit), DMG Archive	8.0.20	106.2M	Download
(mysql-workbench-community-8.0.20-macos-x86_64.dmg)		MD5: 66708e8150a7221941bf3b107fc218e3 Signature	

! We suggest that you use the MD5 checksums and GnuPG signatures to verify the integrity of the packages you download.

2-3: 資料庫GUI工具 (7/10)

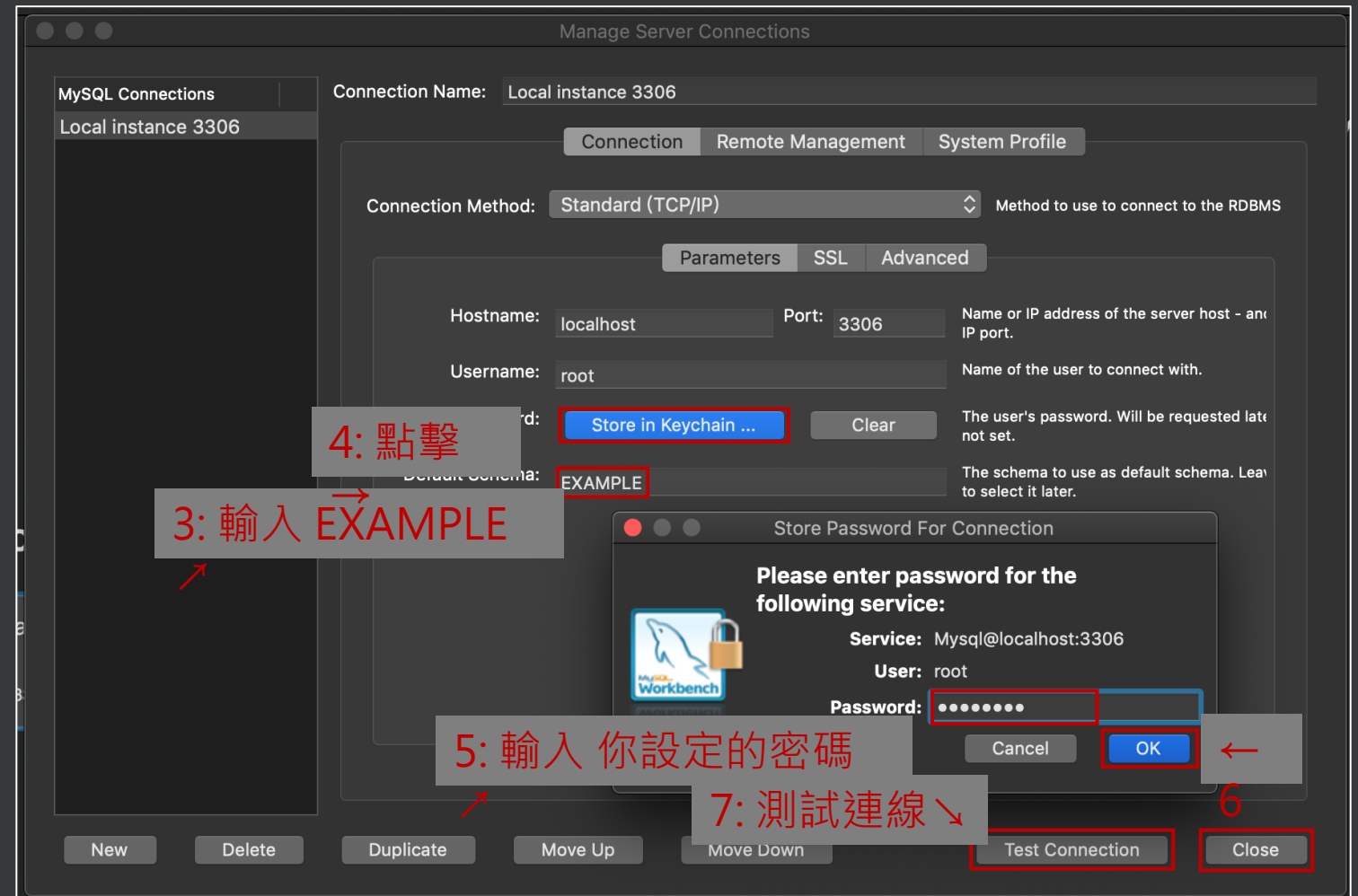
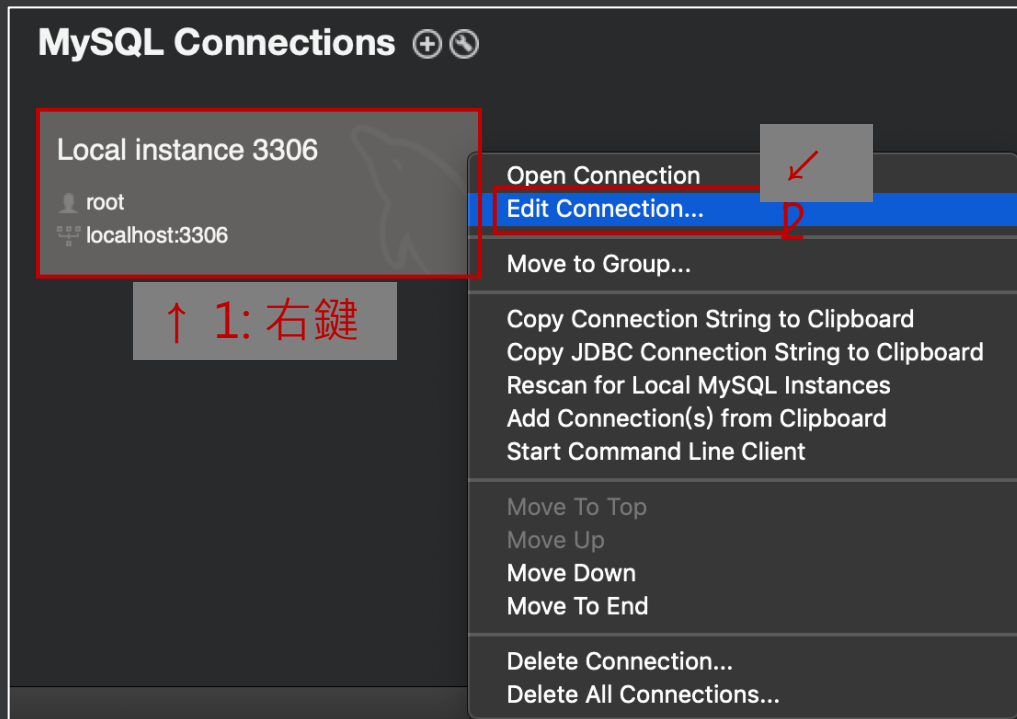
- MacOS
 - 安裝MySQL Workbench



2-3: 資料庫GUI工具 (8/10)

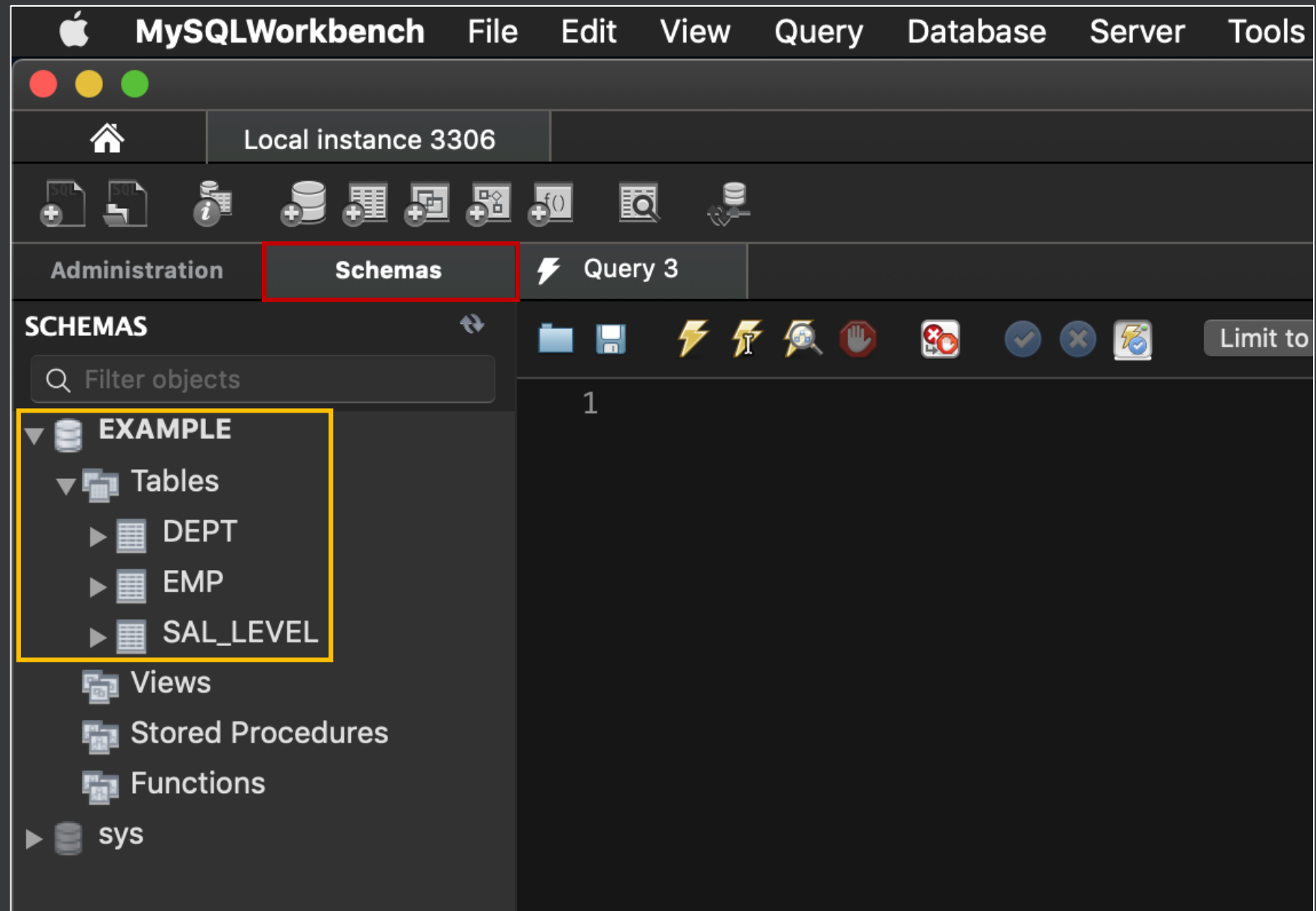
- MacOS
 - 設定連線

*註: 需先確認MySQL Server已啟動



2-3: 資料庫GUI工具 (9/10)

- MacOS
 - 確認成功連上範例資料庫



- MacOS
 - 設定MySQL Workbench
 - 進入設定畫面: MySQLWorkbench → Preferences
 - 文字字體/大小: Fonts & Colors
 - SQL編輯器: SQL Editor
 - 查詢結果: ResultSet Grid
 - 修改/刪除資料保護: SQL Editor → (最下面) Other → 勾選 Safe Updates



模組 附錄

附錄-1: App無法打開，因為Apple..

附錄-2: Terminal指令

附錄-3: root忘記密碼解決方式 (MacOS)

附錄-4: root忘記密碼解決方式 (Windows)

附錄-5: 防火牆新增輸入規則 (Windows)

附錄-1: App無法打開，因為Apple..

- 錯誤訊息
 - App無法打開，因為Apple無法檢查它是否為惡意軟件
- 解決方式
 1. 開啟終端機(Terminal) → `sudo spctl --master-disable`
→ 輸入MacOS密碼
 2. (左上角) 蘋果圖示 → 系統偏好設定 → 安全性與隱私權
→ (下區塊) 允許從以下來源下載的App
→ 確認選 "任何來源"
- 參考
 - <https://zh-tw.ihowto.tips/osx-apps-download-tutorials-tips-hacks-news/solve-app-cant-be-opened-because-apple-cannot-check-it-for-malicious-software.html>

- 新建.bash_profile檔
`touch ~/.bash_profile`
- 載入.bash_profile
`source ~/.bash_profile`
- 將MacOS預設的shell改為bash
`chsh -s /bin/bash`
- 查當前使用的Shell種類
`echo $SHELL`
- 新建.zshrc
`touch ~/.zshrc`

*註: MacOS Catalina(15)後 預設使用zsh Shell ,
所以設環境變數需用此檔

- 若忘記root的密碼，可依以下步驟重設密碼
- 以下動作皆在終端機(Terminal)中操作

1.停止MySQL

```
lsof -i:3306
```

```
kill -9 MySQL的PID
```

2.用安全模式 且 跳過驗證方式 啟動MySQL

```
mysqld_safe --skip-grant-tables
```

3.匿名登入MySQL

```
mysql
```

4.清除密碼

```
update mysql.user set  
authentication_string = null where user =  
'root';
```

MySQL 資料庫設計
flush privileges;

5.重設密碼

```
alter user 'root'@'localhost' identified with  
caching_sha2_password by '新密碼';
```

6.離開MySQL

```
exit
```

7.停止MySQL(安全模式)

```
ps -ef | grep mysql  
kill -9 MySQL的PID
```

*註: 有2個Process需要殺

8.啟動MySQL

```
mysqld
```

9.登入

```
mysql -u root -p
```

新密碼

- 若忘記root的密碼，可依以下步驟重設密碼

1. 停止MySQL

工作管理員 → 服務 → MySQL → 右鍵 → 停止

2. 新建更改密碼敘述檔

檔案總管 → C槽 → 右鍵 → 新增 → 文字文件

→ 檔名 mysql-init.txt

→ 內容 `alter user 'root'@'localhost' identified by '新密碼';`

3. 啟動MySQL，同時執行步驟2建立的更改密碼敘述檔

cmd(系統管理員) → `mysqld --init-file=C:\u005Cmysql-init.txt --console`

4. 停止MySQL

關閉步驟3開啟的cmd

5. 啟動MySQL

工作管理員 → 服務 → MySQL 右鍵 → 啟動

- 若MySQL無法被非本機的電腦連線，通常是被防火牆阻擋
- 請依以下步驟解決

設定 → 更新與安全性 → (左側) Windows安全性 → 防火牆與網路防護 → (中下) 進階設定
→ (左側) 輸入規則 右鍵 → 新增規則 → (中間) 連接埠 → 下一步
→ 特定本機連接埠 輸入 port號 → 下一步
→ 允許連線 → 下一步 → 下一步 → 輸入 自訂的名稱 → 完成