

# Windows 環境中建立 RMySQL 套件

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資訊管理系

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## step0. 前言

目前 CRAN 網站已不再提供 RMySQL 套件安裝檔之下載，因此必須由使用者自行編譯與建立，本例以 Windows XP 32 系統為主，詳細說明其建立程序。

### Downloads:

Package source: [RMySQL\\_0.9-3.tar.gz](#)  
MacOS X binary: [RMySQL\\_0.9-3.tgz](#)  
Windows binary: [not available](#), see [ReadMe](#).  
Reference manual: [RMySQL.pdf](#)  
News/ChangeLog: [NEWS](#)  
Old sources: [RMySQL archive](#)

參考網址: <http://cran.cs.pu.edu.tw/web/packages/RMySQL/index.html>

## step1. 安裝 MySQL

首先連結至 SourceForge 網站下載 MySQL 安裝檔案，網址如下：

<http://sourceforge.net/projects/mysql.mirror/files/MySQL%205.5.28/>

下載「mysql-5.5.28-win32.msi」檔案並參考附錄 A 安裝 MySQL，如果已經有安裝 MySQL，則直接閱讀 step2。

參考附錄 B 以建立 school 資料庫與 stdscore 資料表，如果已經有 MySQL 資料表，則直接閱讀 step2。

## step2. 安裝 Rtools

連結至合適的 R mirror 網站，例如: <http://cran.cs.pu.edu.tw/>，選取 [Download R for Windows]，選取 [Rtools]，下載並安裝「Rtools216.exe」，約 29.6MB。

The current version of this file is recorded here: [VERSION.txt](#).

Download	R compatibility	Frozen?
<a href="#">Rtools216.exe</a>	R >2.15.1 to R 2.16.x	No
<a href="#">Rtools215.exe</a>	R >2.14.1 to R 2.15.1	Yes
<a href="#">Rtools214.exe</a>	R 2.13.x or R 2.14.x	Yes

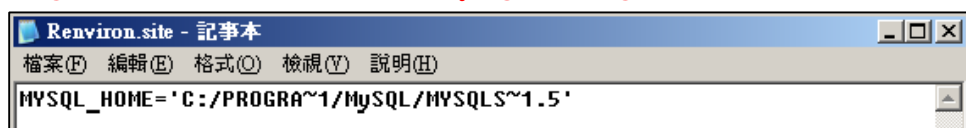
## step3. 建立 Renviron.site

在 R 的安裝目錄中，新增「Renviron.site」檔案，該檔案的完整路徑如下：

C:\Program Files\R\R-2.15.2\etc\ Renviron.site

使用記事本等軟體新增一行文字，以利 R 辨識 MySQL 的安裝目錄：

**MYSQL\_HOME='C:/PROGRA~1/MySQL/MYSQLS~1.5'**



啟動 R，輸入「**Sys.getenv('MYSQL\_HOME')**」指令，顯示以下結果表示設定環境變數設定正確。

```
> Sys.getenv('MYSQL_HOME')  
[1] "C:/PROGRA~1/MySQL/MYSQLS~1.5"  
>
```

#### step4. 複製「libmySQL.dll」與「libmySQL.lib」

將 C:\Program Files\MySQL\MySQL Server 5.5\lib 目錄中的 libmySQL.dll 複製到 C:\Program Files\MySQL\MySQL Server 5.5\bin 目錄之中，完整路徑如下：

**C:\Program Files\MySQL\MySQL Server 5.5\bin\libmySQL.dll**

將 C:\Program Files\MySQL\MySQL Server 5.5\lib 目錄中的 libmySQL.lib 複製到 C:\Program Files\MySQL\MySQL Server 5.5\lib\opt 目錄之中，完整路徑如下：

**C:\Program Files\MySQL\MySQL Server 5.5\lib\opt\libmySQL.lib**

#### step5. 建立 RMySQL 套件

開啟 R，執行以下程式碼，

**install.packages('RMySQL',type='source')**

完成後在會顯示 \* DONE，表示套件已建立完成。

```
MYSQL_HOME defined as C:/PROGRA~1/MySQL/MYSQLS~1.5  
* DONE (RMySQL)  
The downloaded source packages are in  
  'C:\Documents and Settings\Administrator\Local Settings\Temp\RtmpSWvi96\downloaded_packages'  
>
```

以下準備測試在 R 環境中利用 RMySQL 套件直接連結至 MySQL 資料庫並匯入至 R。

## Step6. R 連結至 RMySQL

參考以下 R 指令-輸入用

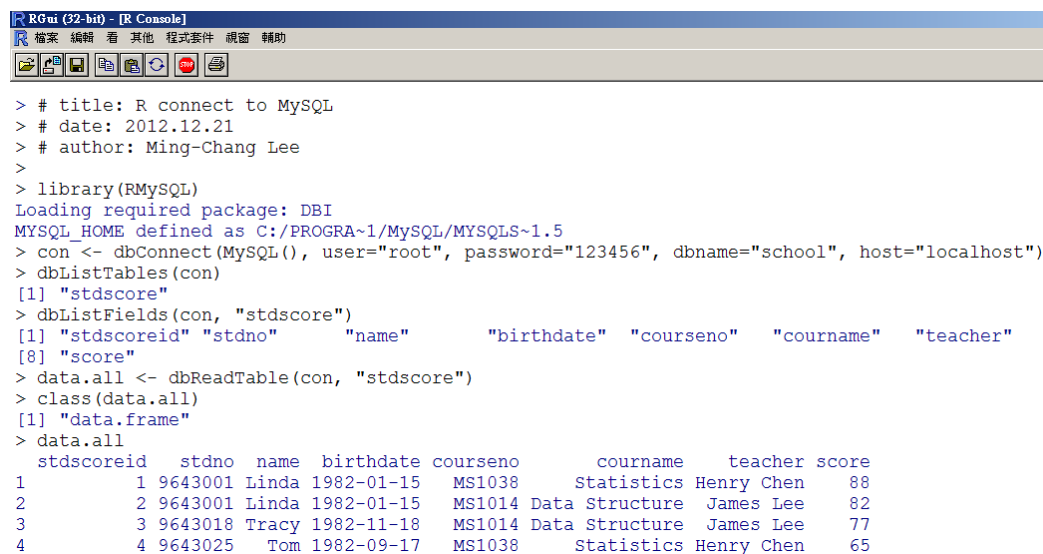
```
# title: R connect to MySQL
# date: 2012.12.21
# author: Ming-Chang Lee

library(RMySQL)
con <- dbConnect(MySQL(), user="root", password="123456", dbname="school", host="localhost")
dbListTables(con)
dbListFields(con, "stdscore")
data.all <- dbReadTable(con, "stdscore")
class(data.all)
data.all

data.select <- dbGetQuery(con, "select * from stdscore where courseno='MS1038'")
data.select

summary(MySQL(), verbose = TRUE)
summary(con, verbose = TRUE)
summary(data.all, verbose = TRUE)
dbListConnections(MySQL())
dbDisconnect(con)
# end
```

部份執行畫面



```
> # title: R connect to MySQL
> # date: 2012.12.21
> # author: Ming-Chang Lee
>
> library(RMySQL)
Loading required package: DBI
MYSQL_HOME defined as C:/PROGRA~1/MySQL/MYSQLS~1.5
> con <- dbConnect(MySQL(), user="root", password="123456", dbname="school", host="localhost")
> dbListTables(con)
[1] "stdscore"
> dbListFields(con, "stdscore")
[1] "stdscoreid" "stdno"      "name"       "birthdate"  "courseno"   "courname"   "teacher"
[8] "score"
> data.all <- dbReadTable(con, "stdscore")
> class(data.all)
[1] "data.frame"
> data.all
  stdscoreid  stdno  name  birthdate  courseno  courname  teacher  score
1          1  9643001 Linda 1982-01-15   MS1038   Statistics Henry Chen    88
2          2  9643001 Linda 1982-01-15   MS1014 Data Structure James Lee    82
3          3  9643018 Tracy 1982-11-18   MS1014 Data Structure James Lee    77
4          4  9643025 Tom  1982-09-17   MS1038   Statistics Henry Chen    65
```

## 完整執行內容-輸出結果

```
> # title: R connect to MySQL
> # date: 2012.12.21
> # author: Ming-Chang Lee
>
> library(RMySQL)
Loading required package: DBI
MYSQL_HOME defined as C:/PROGRA~1/MySQL/MYSQLS~1.5
> con <- dbConnect(MySQL(), user="root", password="123456", dbname="school",
host="localhost")
> dbListTables(con)
[1] "stdscore"
> dbListFields(con, "stdscore")
[1] "stdscoreid" "stdno"      "name"       "birthdate"  "courseno"   "courname"   "teacher"
[8] "score"
> data.all <- dbReadTable(con, "stdscore")
> class(data.all)
[1] "data.frame"
> data.all
  stdscoreid  stdno  name  birthdate  courseno  courname  teacher  score
1          1  9643001 Linda 1982-01-15   MS1038   Statistics Henry Chen    88
2          2  9643001 Linda 1982-01-15   MS1014 Data Structure James Lee    82
3          3  9643018 Tracy 1982-11-18   MS1014 Data Structure James Lee    77
4          4  9643025   Tom 1982-09-17   MS1038   Statistics Henry Chen    65
> data.select <- dbGetQuery(con, "select * from stdscore where courseno='MS1038'")
> data.select
  stdscoreid  stdno  name  birthdate  courseno  courname  teacher  score
1          1  9643001 Linda 1982-01-15   MS1038 Statistics Henry Chen    88
2          4  9643025   Tom 1982-09-17   MS1038 Statistics Henry Chen    65
> summary(MySQL(), verbose = TRUE)
<MySQLDriver:(3936)>
Driver name:  MySQL
Max  connections: 16
Conn. processed: 1
Default records per fetch: 500
DBI API version:  0.2-5
MySQL client version:  5.5.28
Open connections: 1
```

```

1 <MySQLConnection:(3936,0)>
> summary(con, verbose = TRUE)
<MySQLConnection:(3936,0)>
  User: root
  Host: localhost
  Dbname: school
  Connection type: localhost via TCP/IP
  MySQL server version: 5.5.28
  MySQL client version: 5.5.28
  MySQL protocol version: 10
  MySQL server thread id: 2
  No resultSet available
> summary(data.all, verbose = TRUE)
  stdscoreid      stdno          name          birthdate      courseno
Min.   :1.00   Length:4          Length:4          Length:4          Length:4
1st Qu.:1.75   Class :character   Class :character   Class :character   Class :character
Median :2.50   Mode  :character   Mode  :character   Mode  :character
Mode  :character
Mean    :2.50
3rd Qu.:3.25
Max.    :4.00
  courname      teacher      score
Length:4      Length:4      Min.   :65.0
Class :character   Class :character   1st Qu.:74.0
Mode  :character   Mode  :character   Median :79.5
                                   Mean    :78.0
                                   3rd Qu.:83.5
                                   Max.    :88.0
> dbListConnections(MySQL())
[[1]]
<MySQLConnection:(3936,0)>
> dbDisconnect(con)
[1] TRUE
> # end
>

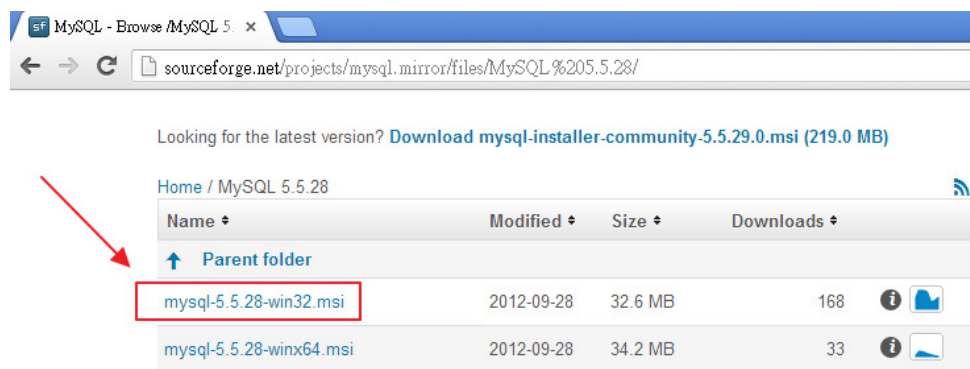
```

## 附錄 A 安裝 MySQL

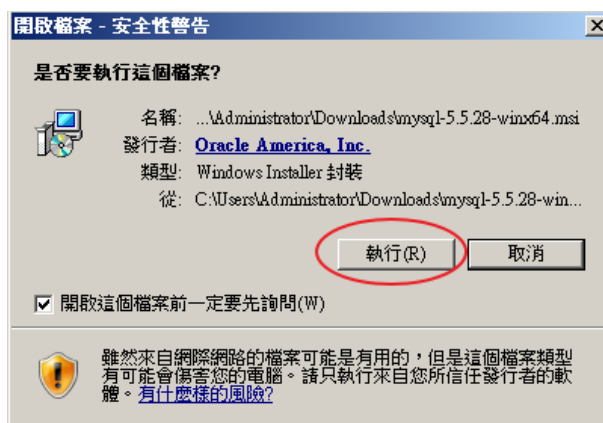
連結 SourceForge 網站下載 MySQL 安裝檔案，網址如下：

<http://sourceforge.net/projects/mysql.mirror/files/MySQL%205.5.28/>

下載「mysql-5.5.28-win32.msi」檔案。

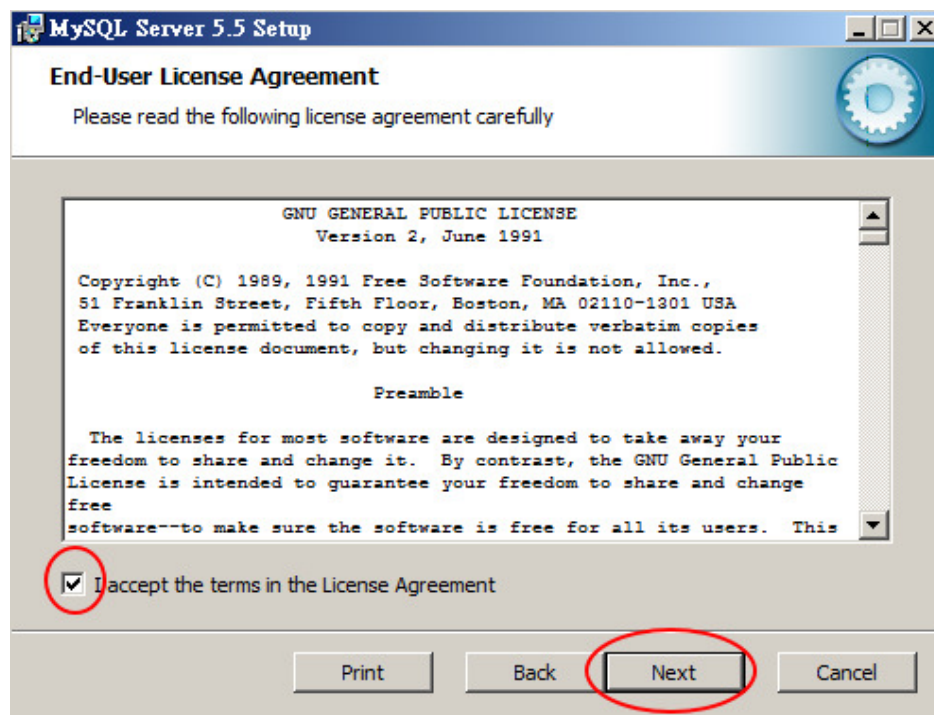
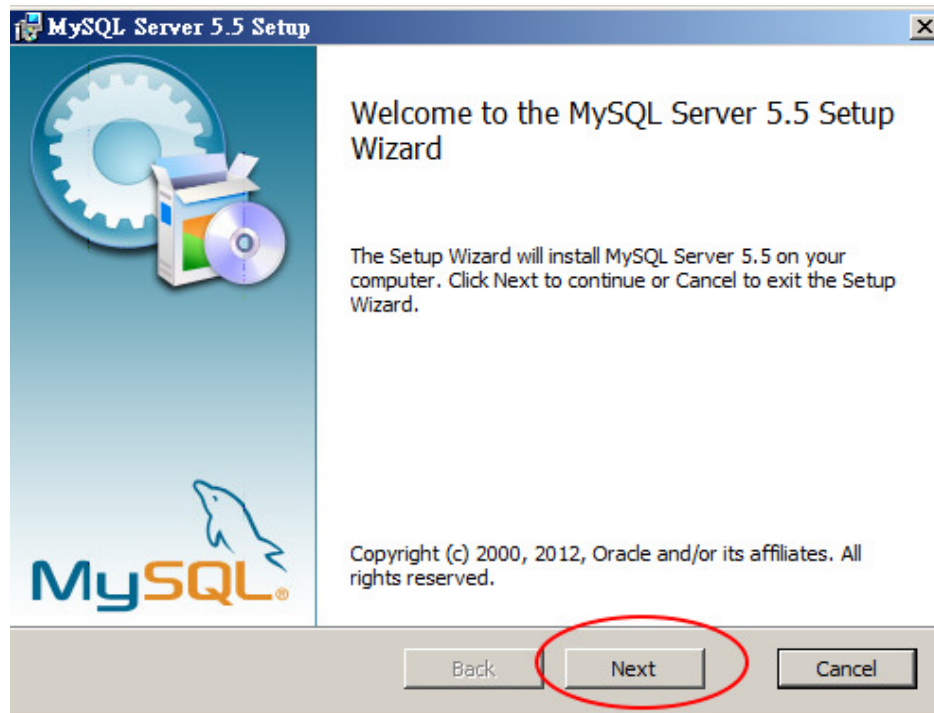


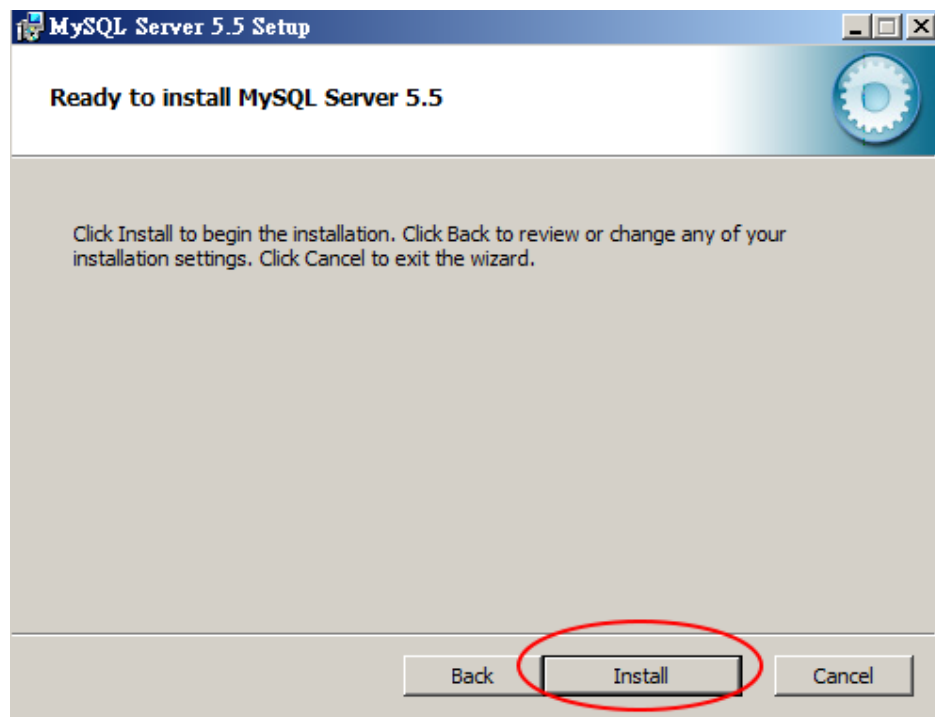
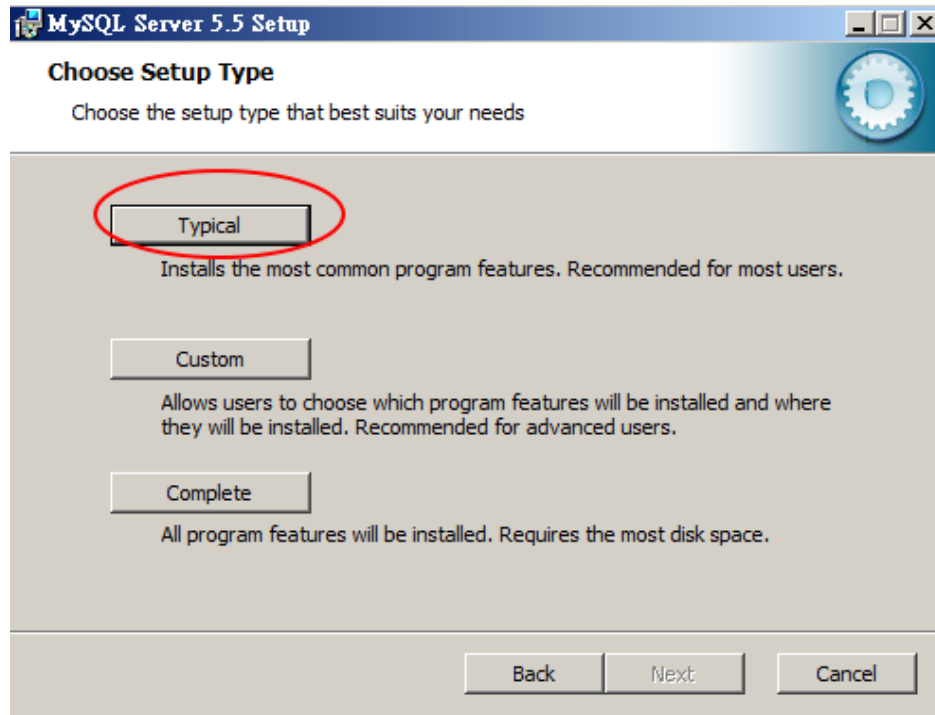
1. 選取已下載 mysql-5.5.28-win32.msi，按滑鼠左鍵二下執行安裝程序
2. 按 [執行]

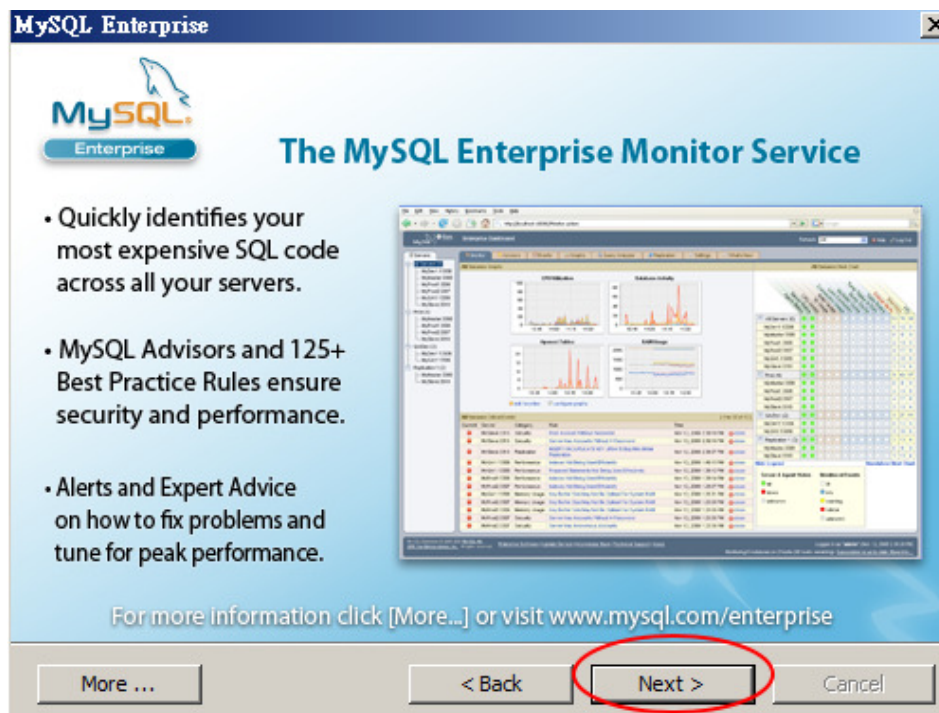


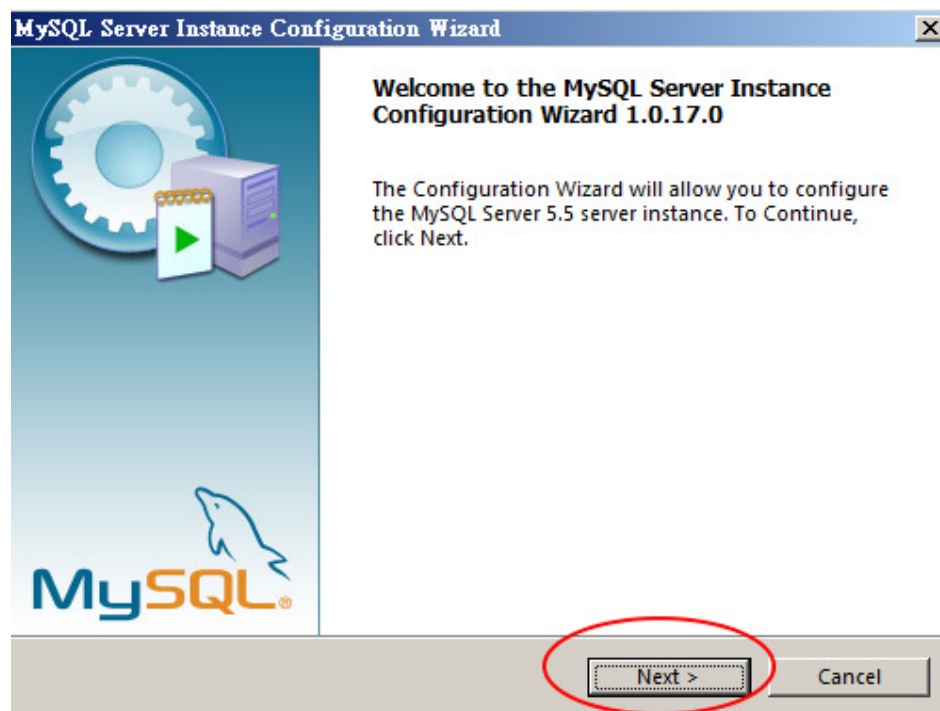
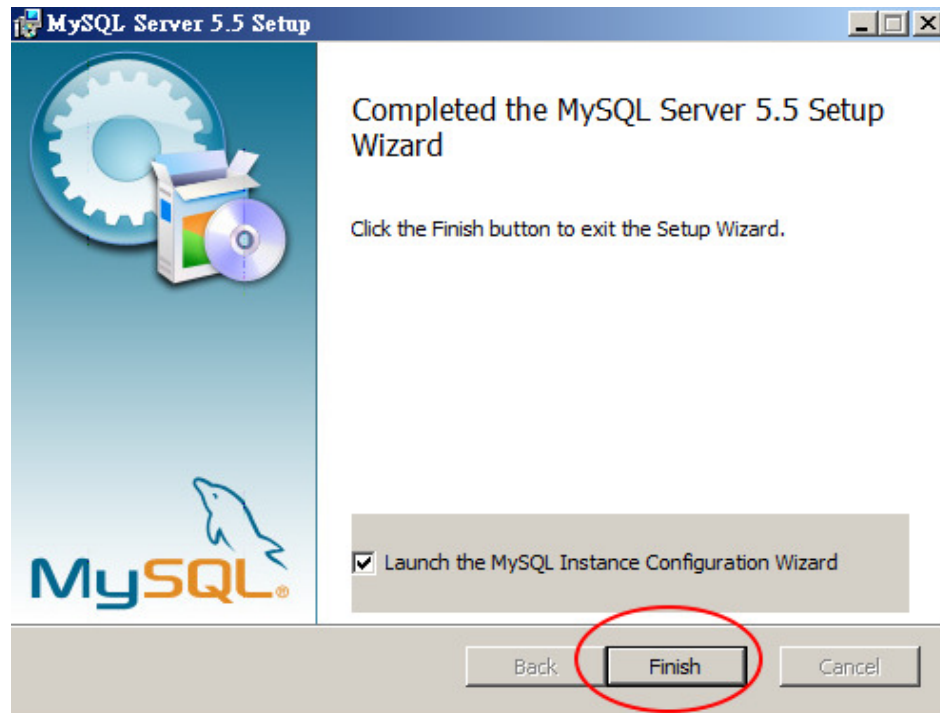
3. 按 [Next]，相關畫面如下。

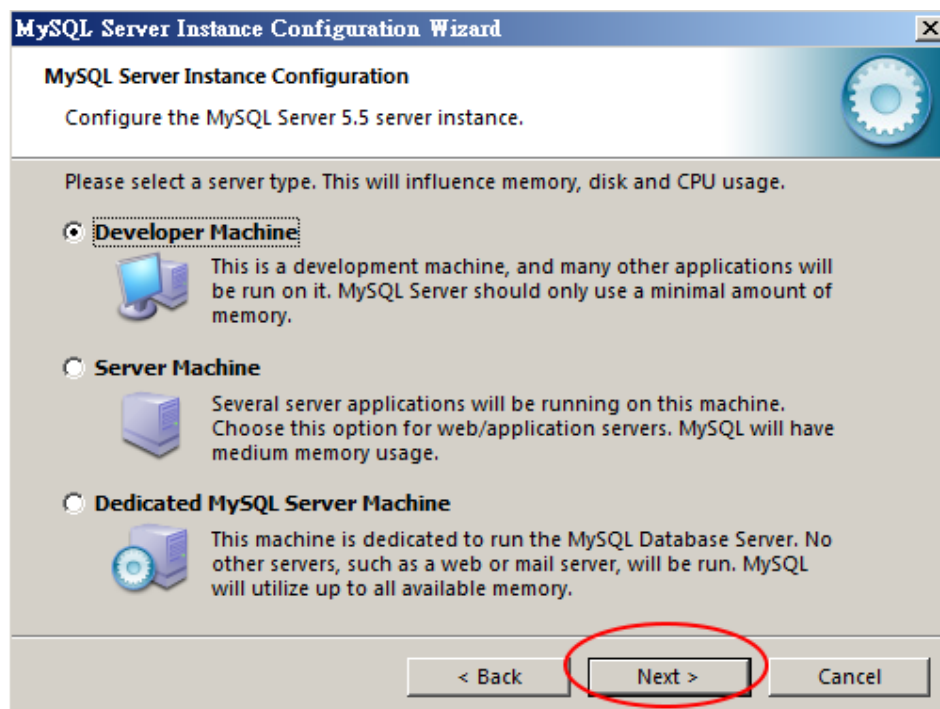
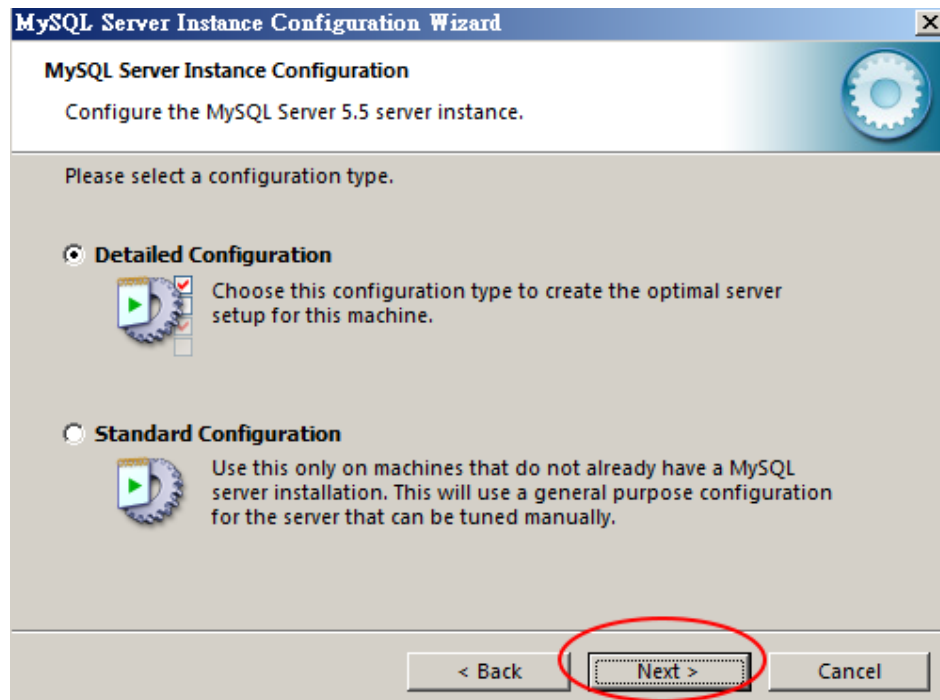


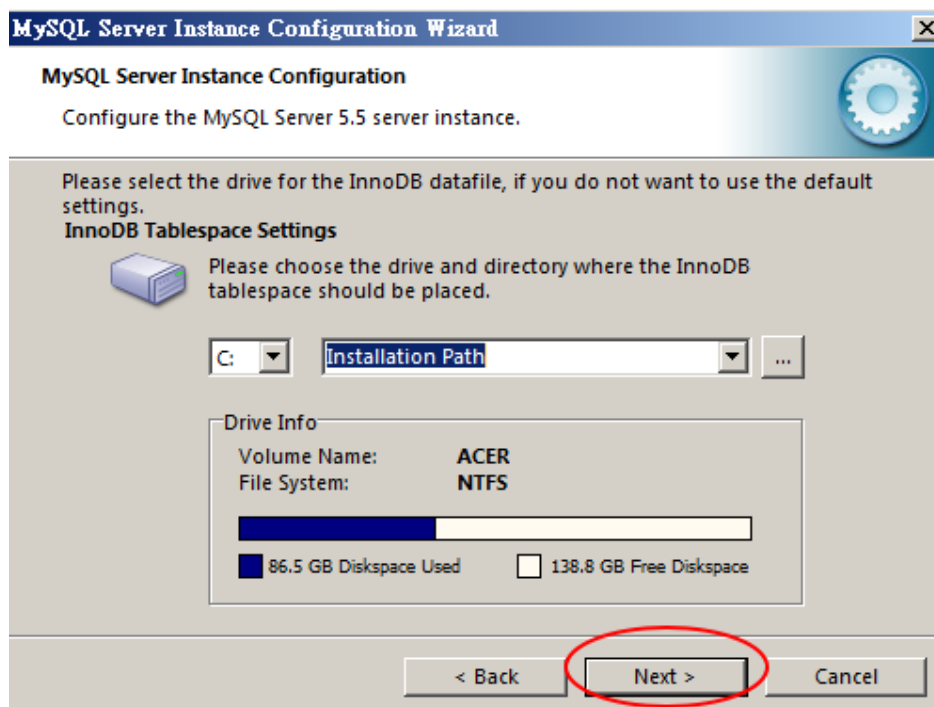
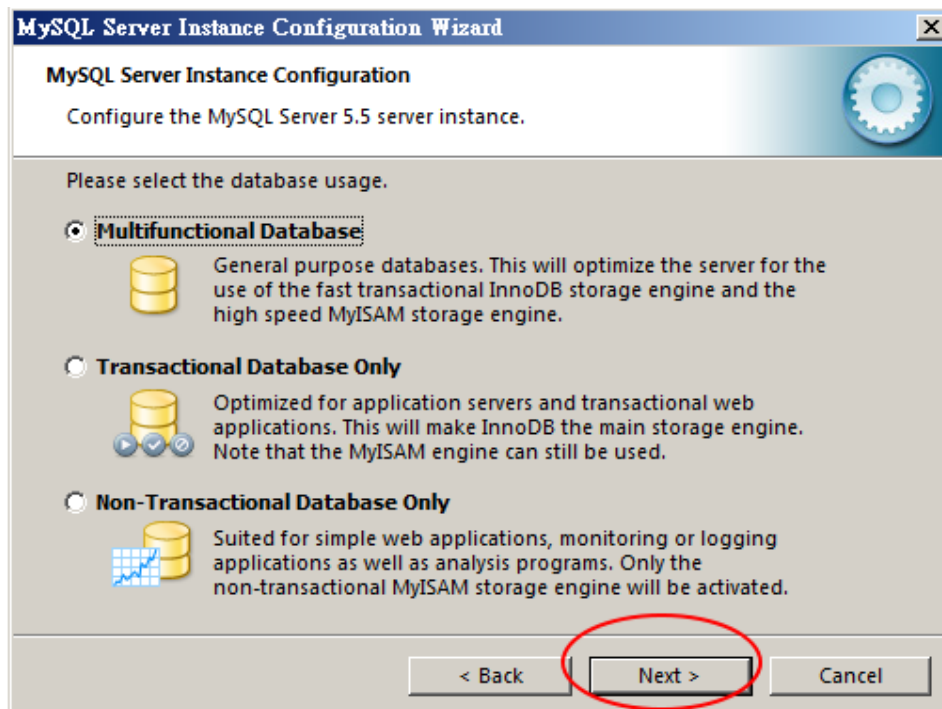




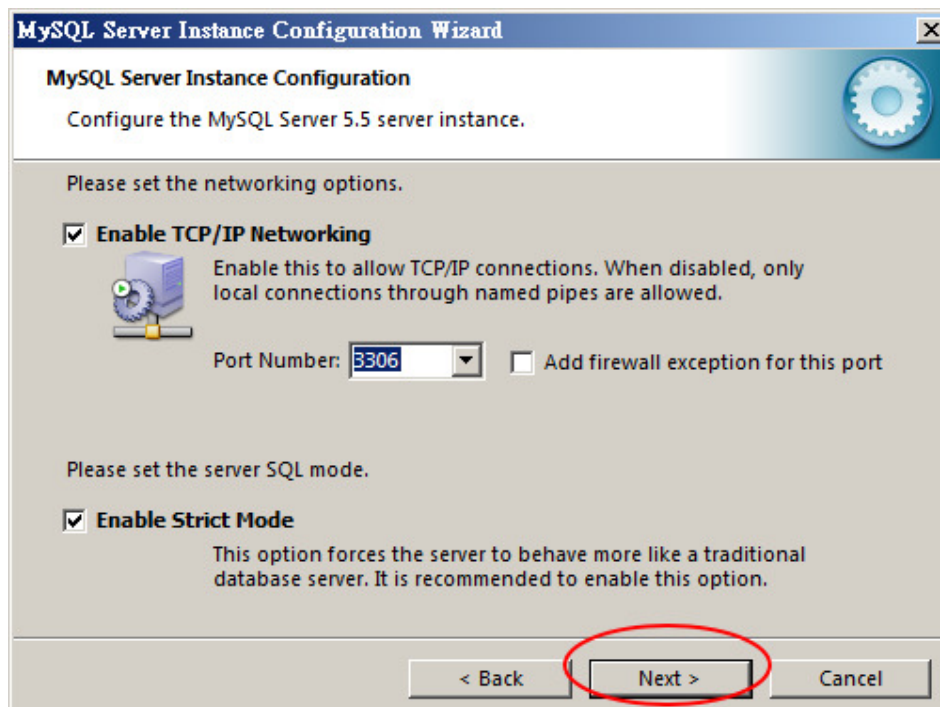
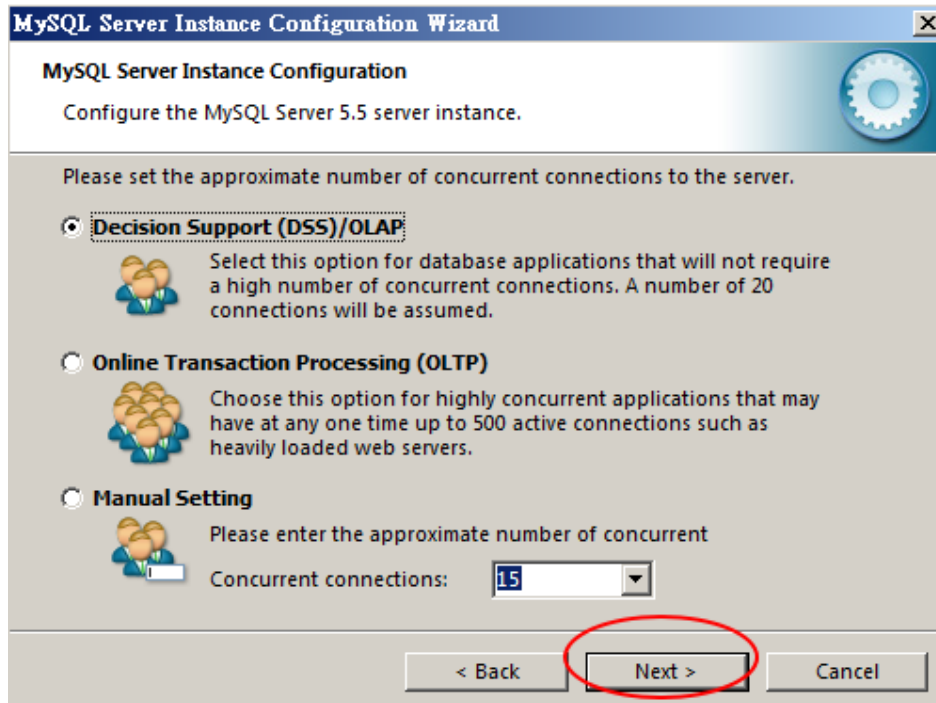


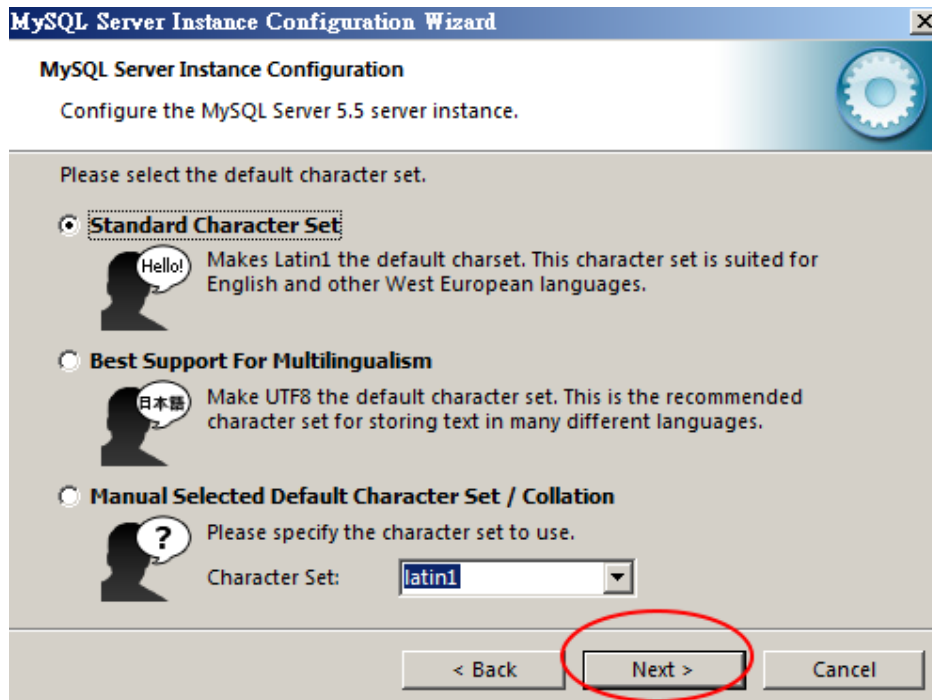
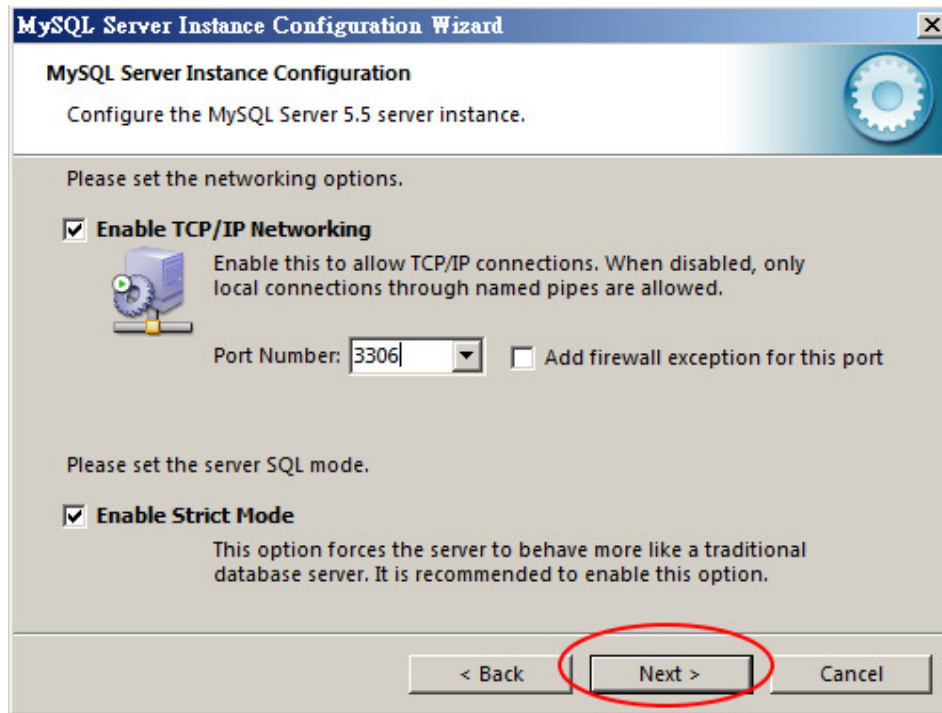




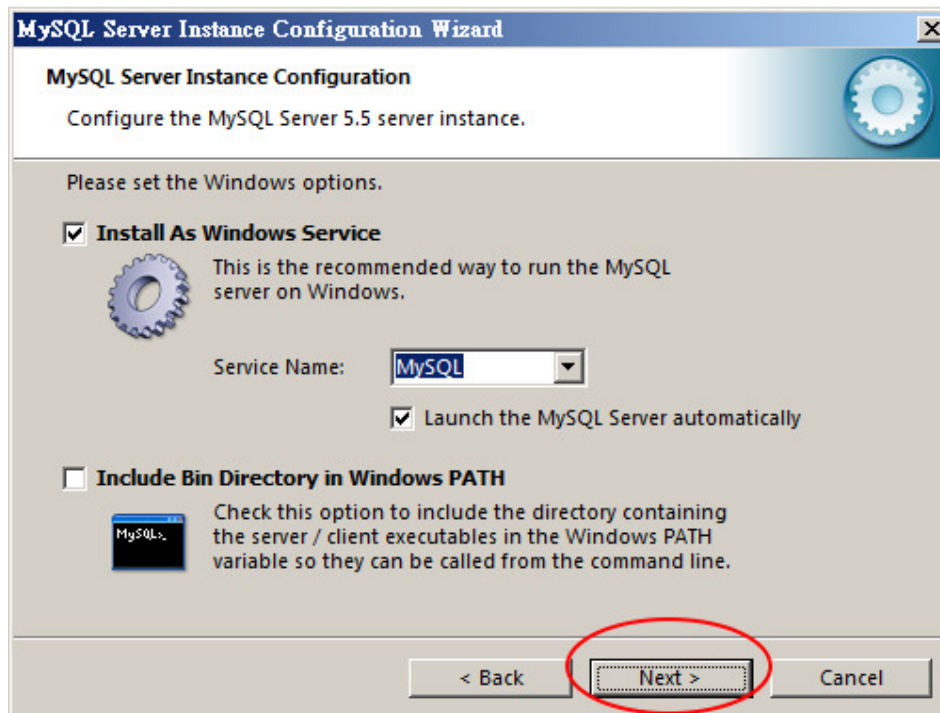




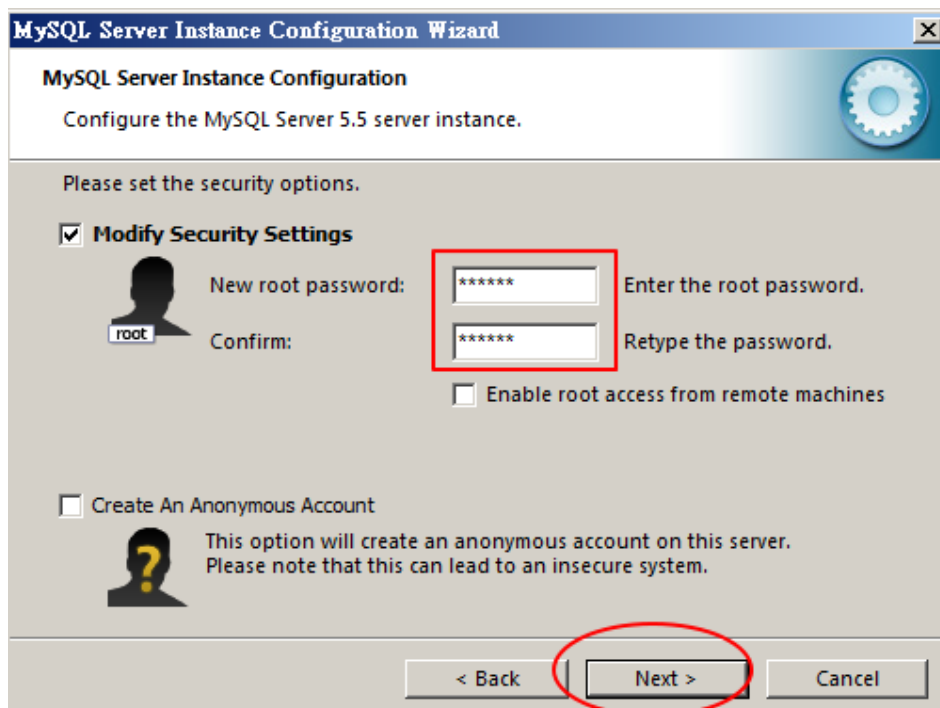


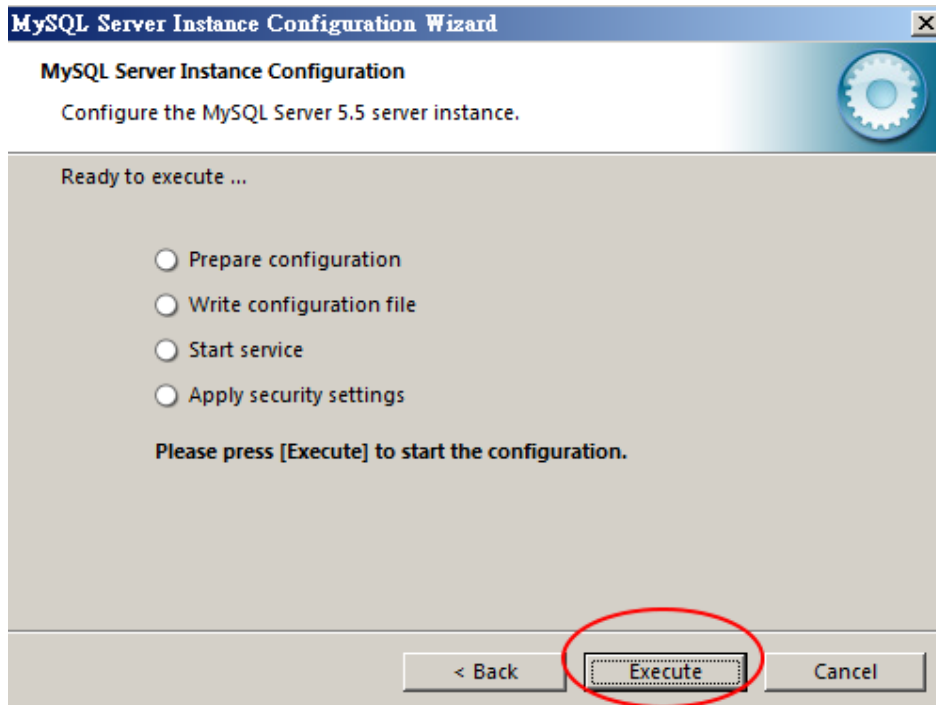




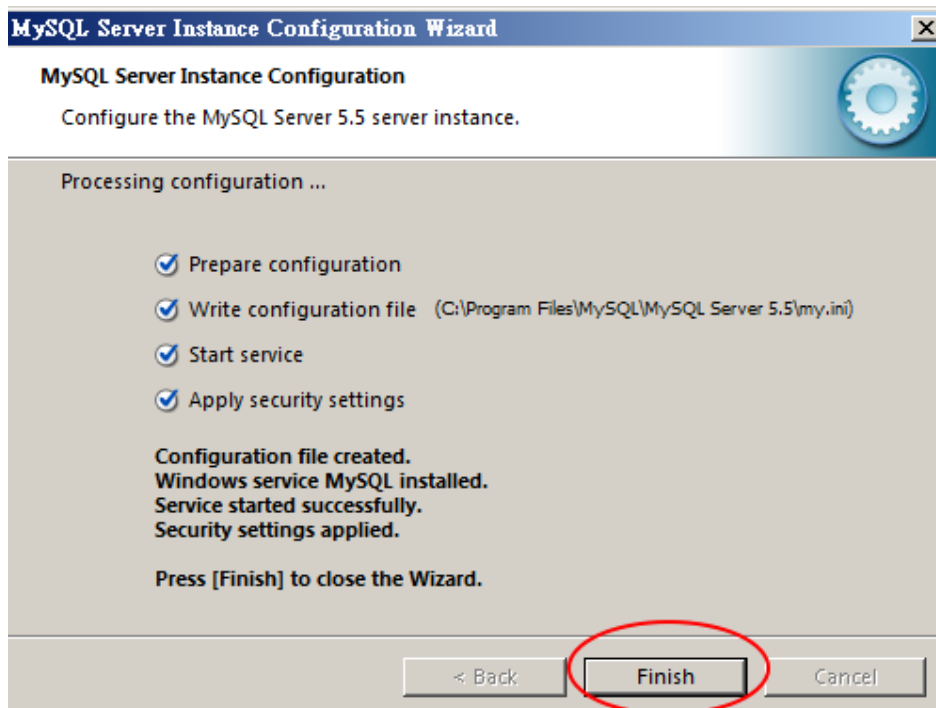


輸入密碼，本例以 123456 為範例輸入





按 [Finish] 完成 MySQL 安裝



## 附錄 B 建立 school 資料庫與 stdscore 資料表

在程式集中選取 MySQL 群組中「MySQL 5.5 Command Line Client」，輸入密碼 (123456)，利用以下指令建立 school 資料庫與 stdscore 資料表：

```
-- 步驟 1: 新增 school 資料庫
CREATE DATABASE school;

-- 步驟 2: 顯示所有資料庫
SHOW DATABASES;

-- 步驟 3: 使用資料庫 school
USE school;

-- 步驟 4: 新增 stdscore 資料表
CREATE TABLE stdscore
(stdscoreid int auto_increment primary key,
stdno      char(7),
name       char(50),
birthdate date,
courseno   char(6),
courname   char(50),
teacher    char(50),
score      int);

-- 步驟 5: 顯示所有資料表
SHOW TABLES;

-- 步驟 6: 新增 stdscore 資料表中的資料
INSERT INTO stdscore (stdno, name, birthdate, courseno, courname, teacher, score)
VALUES('9643001', 'Linda', '1982/1/15', 'MS1038', 'Statistics', 'Henry Chen', 88);

INSERT INTO stdscore (stdno, name, birthdate, courseno, courname, teacher, score)
VALUES('9643001', 'Linda', '1982/1/15', 'MS1014', 'Data Structure', 'James Lee',
82);

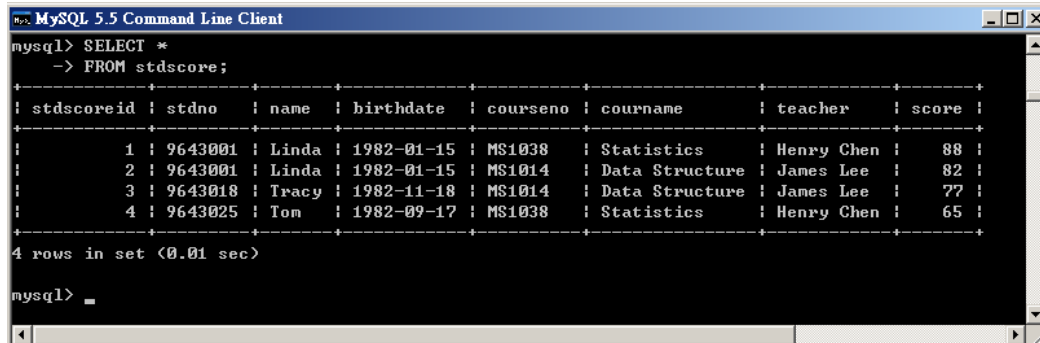
INSERT INTO stdscore (stdno, name, birthdate, courseno, courname, teacher, score)
VALUES('9643018', 'Tracy', '1982/11/18', 'MS1014', 'Data Structure', 'James Lee',
77);
```

```
INSERT INTO stdscore (stdno, name, birthdate, courseno, courname, teacher, score)
VALUES('9643025', 'Tom', '1982/9/17', 'MS1038', 'Statistics', 'Henry Chen', 65);
```

-- 步驟 7: 選取所有資料

```
SELECT *
FROM stdscore;
```

完成畫面, 顯示 stdscore 資料表已新增 4 筆記錄.



```
mysql> SELECT *
-> FROM stdscore;
```

stdscoreid	stdno	name	birthdate	courseno	courname	teacher	score
1	9643001	Linda	1982-01-15	MS1038	Statistics	Henry Chen	88
2	9643001	Linda	1982-01-15	MS1014	Data Structure	James Lee	82
3	9643018	Tracy	1982-11-18	MS1014	Data Structure	James Lee	77
4	9643025	Tom	1982-09-17	MS1038	Statistics	Henry Chen	65

```
4 rows in set (0.01 sec)

mysql>
```

## 附錄 C 建立 RMySQL 套件

R version 2.15.2 (2012-10-26) -- "Trick or Treat"

Copyright (C) 2012 The R Foundation for Statistical Computing

ISBN 3-900051-07-0

Platform: i386-w64-mingw32/i386 (32-bit)

R 是免費軟體，不提供任何擔保。

在某些條件下您可以將其自由散布。

用 'license()' 或 'licence()' 來獲得散布的詳細條件。

R 是個合作計劃，有許多人為之做出了貢獻。

用 'contributors()' 來看詳細的情況並且

用 'citation()' 會告訴您如何在出版品中正確地參照 R 或 R 套件。

用 'demo()' 來看一些示範程式，用 'help()' 來檢視線上輔助檔案，或

用 'help.start()' 透過 HTML 瀏覽器來看輔助檔案。

用 'q()' 離開 R。

```
> install.packages('RMySQL',type='source')
```

```
--- Please select a CRAN mirror for use in this session ---
```

```
嘗試 URL 'http://cran.cs.pu.edu.tw/src/contrib/RMySQL_0.9-3.tar.gz'
```

```
Content type 'application/x-gzip' length 165363 bytes (161 Kb)
```

```
開啟了 URL
```

```
downloaded 161 Kb
```

```
* installing *source* package 'RMySQL' ...
```

```
** package 'RMySQL' successfully unpacked and MD5 sums checked
```

```
checking for $MYSQL_HOME... C:/PROGRA~1/MySQL/MYSQLS~1.5
```

```
cygwin warning:
```

```
MS-DOS style path detected: C:/PROGRA~1/MySQL/MYSQLS~1.5
```

```
Preferred POSIX equivalent is: /cygdrive/c/PROGRA~1/MySQL/MYSQLS~1.5
```

```
CYGWIN environment variable option "nodosfilewarning" turns off this warning.
```

```
Consult the user's guide for more details about POSIX paths:
```

```
http://cygwin.com/cygwin-ug-net/using.html#using-pathnames
```

```
** libs
```

```
警告：this package has a non-empty 'configure.win' file,
```

```
so building only the main architecture
```

cygwin warning:

MS-DOS style path detected: C:/PROGRA~1/R/R-215~1.2/etc/i386/Makeconf

Preferred POSIX equivalent is:

/cygdrive/c/PROGRA~1/R/R-215~1.2/etc/i386/Makeconf

CYGWIN environment variable option "nodosfilewarning" turns off this warning.

Consult the user's guide for more details about POSIX paths:

<http://cygwin.com/cygwin-ug-net/using.html#using-pathnames>

```
gcc -I"C:/PROGRA~1/R/R-215~1.2/include" -DNDEBUG
```

```
-I"C:/PROGRA~1/MySQL/MYSQLS~1.5"/include -O3 -Wall
```

```
-std=gnu99 -mtune=core2 -c RS-DBI.c -o RS-DBI.o
```

RS-DBI.c: In function 'RS\_na\_set':

RS-DBI.c:1219:11: warning: variable 'c' set but not used

[-Wunused-but-set-variable]

```
gcc -I"C:/PROGRA~1/R/R-215~1.2/include" -DNDEBUG
```

```
-I"C:/PROGRA~1/MySQL/MYSQLS~1.5"/include -O3 -Wall
```

```
-std=gnu99 -mtune=core2 -c RS-MySQL.c -o RS-MySQL.o
```

RS-MySQL.c: In function 'RS\_MySQL\_fetch':

RS-MySQL.c:657:13: warning: variable 'fld\_nullOk' set but not used

[-Wunused-but-set-variable]

RS-MySQL.c: In function 'RS\_DBI\_invokeBeginGroup':

RS-MySQL.c:1137:30: warning: variable 'val' set but not used

[-Wunused-but-set-variable]

RS-MySQL.c: In function 'RS\_DBI\_invokeNewRecord':

RS-MySQL.c:1158:20: warning: variable 'val' set but not used

[-Wunused-but-set-variable]

RS-MySQL.c: In function 'RS\_MySQL\_dbApply':

RS-MySQL.c:1219:38: warning: variable 'fld\_nullOk' set but not used

[-Wunused-but-set-variable]

```
gcc -shared -s -static-libgcc -o RMySQL.dll tmp.def RS-DBI.o RS-MySQL.o
```

```
C:/PROGRA~1/MySQL/MYSQLS~1.5/lib/opt/libmysql.lib
```

```
-LC:/PROGRA~1/R/R-215~1.2/bin/i386 -lR
```

installing to C:/Program Files/R/R-2.15.2/library/RMySQL/libs/i386

\*\* R

\*\* inst

\*\* preparing package for lazy loading

Creating a generic function for 'format' from package 'base' in package 'RMySQL'

Creating a generic function for 'print' from package 'base' in package 'RMySQL'

```
** help
*** installing help indices
** building package indices
** installing vignettes
** testing if installed package can be loaded
MYSQL_HOME defined as C:/PROGRA~1/MySQL/MYSQLS~1.5

* DONE (RMySQL)

The downloaded source packages are in
      'C:\Documents and Settings\Administrator\Local
Settings\Temp\RtmpSWvi96\downloaded_packages'
>
```

# end #