

MySQL

Lesson 1

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What is a Database

- A database is a structured collection of records or data.
- A collection of organized information
- A computer database relies upon software to organize the storage of data.
- Database management systems (DBMS) are the software used to organize and maintain the database.
- SQL is the language that access the database.

Why we need a Database

- We need to share **LARGE AMOUNT OF DATA** between users, between tools working on them, and usually between different computers.
- Several users and/or several tools must be able to **SAFELY ACCESS** the same data **CONCURRENTLY**.
- We need persistent storage will last for a long period. This storage must also be **RELIABLE**.
- We need to access to large amounts of data **QUICKLY**, through indexing and other optimizations.
- A DBMS and its data model provides an abstraction; we do not need to care about the physical storage format.

How to connect to a Database

- PHP has a connector to all different databases. All you need is to call a function to connect to the database
- In Dreamweaver, you can use the UI instead of typing.

Compare Databases

- Microsoft SQL Server
- Microsoft SQL Server Express 2008 R2 – 10G, free, good performance, but no UI
- Microsoft Office Access – 2G, with easy to use UI and templates
- Sun Micro MySQL – 4T, free to use, cannot bundle with products
- Postgre – free, absolutely free
- DB2 – 4G – 9.7
- Oracle – 11g R2
- EnterpriseDB

Database requirements

- Data is the most important thing.
- Performance, concurrency, integrity, size limit and recovery from hardware failures are need to considered.
- Scale Up - upgrade hardware (RAM, HD) or Scale Out (buy extra server as a grid)?

Data and information

- Data is useless
- Information is useful
- 33, 28, 31, 25 is Data
- 33`C, 28`C, 31`C, 25`C is Information
- Database only store Data
- We, programmer, use PHP to display data to become the information

Who uses MySQL

- Gov't: NASA, United States Census Bureau,
- Web: Yahoo!, flickr, Google, YouTube, facebook, Wikipedia, FOTOLOG, SKYROCK, Craigslist, Digg, Sourceforge, CitySearch,
- Travel: SabreHoldings, active hotels, pivex, travelocity, Lufthansa, Continental Airlines, Priceline.com, booking.com
- Retail: neckermann.de, GAP, B&Q, axfood, SUZUKI, macy's, spirit group, DaimlerChrysler, caterpillar, texas instruments
- Telco: 8x8,Inc., vodafone, Systems, NOKIA, FIVE9, COX communications, Nevis Network, ALCATEL, STANDARD NETWORKS, Earthlink, Ericsson
- OEM/ISV: enterasys, JASPERSOFT, QUEST SOFTWARE, symantec, netiQ, CISCO SYSTEMS, sas, Proofpoint
- Others: UPS, The associated Press, Hoover's Online, omaha steaks, HypoVereinsbank

MySQL Price

- Oracle now charges \$2,000 per server for MySQL Standard Edition support, which doubles to \$4,000 for servers with five or more sockets; and \$5,000 per server for Enterprise Edition, which also doubles to \$10,000 for five-plus sockets.
- Oracle has also introduced a Cluster Carrier Grade edition that is priced at \$10,000 per server for one- to four-socket servers and \$20,000 per server for those with five or more.

MySQL File Size

Operating System	File-size Limit
Win32 w/ FAT/FAT32	2GB/4GB
Win32 w/ NTFS	2TB (possibly larger)
Linux 2.2-Intel 32-bit	2GB (LFS: 4GB)
Linux 2.4+	(using ext3 file system) 4TB
Solaris 9/10	16TB
MacOS X w/ HFS+	2TB
NetWare w/NSS file system	8TB

<http://dev.mysql.com/doc/refman/4.1/en/full-table.html>

Pos of using MySQL

- Open source - free to use
- Comes with Linux – up to 4G database
- Implementation costs only 10-20% of the price of commercial databases (Oracle, IBM, MS)
- Capable of handling routine and even critical computing tasks, easy to manage
- Usually used for new, custom-built apps
- More third-party products now support the open-source database

Cons of using MySQL

- Companies have invested in apps that run on commercial databases
- MySQL is not highly scalable and lacks triggers, views and stored procedures
- Few packaged apps run on MySQL
- Big-name software vendors such as peoplesoft, SAP, and Siebel Systems do not support it

Performance

- MySQL Database 5.5 delivers enterprise features, including:
- **Improved! Up to 1500% faster** performance on Windows
- **Improved! Up to 370% faster** performance on Linux
- **Improved! Better scalability** on modern, multi-core, multi-CPU hardware
- **New! Performance Schema** for monitoring MySQL server run-time performance
- **New! Semi-synchronous** replication to ensure data consistency and redundancy
- **New! Replication Heartbeat** to immediately uncover replication interruptions
- **New! Partitioning options** for faster lookups
- **New! Easier development and debugging** of stored procedures, functions, and triggers

Performance

- **Reliability** requiring little or no intervention to achieve continuous uptime
- **Ease of use** with "15 minutes to success" installation and configuration
- **Low administration** with very little database maintenance required
- **Replication** providing flexible topologies for scale-out and high availability
- **Partitioning** to improve performance and management of very large database environments
- **ACID Transactions** to build reliable and secure business critical applications
- **Stored Procedures** to improve developer productivity
- **Triggers** to enforce complex business rules at the database level
- **Views** to ensure sensitive information is not compromised
- **Information Schema** to provide easy access to metadata
- **Pluggable Storage Engine Architecture** for maximum flexibility

Site

- <http://www.mysql.com> (Eng)
- <http://dev.mysql.com/doc/> (Manual)

How large can MySQL handle

- 60000 tables
- 5 billion rows
- 8 million terabytes in some system

Top Reasons to Use MySQL

- **1. Scalability and Flexibility**
- The MySQL database server provides the ultimate in scalability, sporting the capacity to handle deeply embedded applications with a footprint of only 1MB to running massive data warehouses holding terabytes of information. Platform flexibility is a stalwart feature of MySQL with all flavors of Linux, UNIX, and Windows being supported. And, of course, the open source nature of MySQL allows complete customization for those wanting to add unique requirements to the database server.
- **2. High Performance**
- A unique storage-engine architecture allows database professionals to configure the MySQL database server specifically for particular applications, with the end result being amazing performance results. Whether the intended application is a high-speed transactional processing system or a high-volume web site that services a billion queries a day, MySQL can meet the most demanding performance expectations of any system. With high-speed load utilities, distinctive memory caches, full text indexes, and other performance-enhancing mechanisms, MySQL offers all the right ammunition for today's critical business systems.

Top Reasons to Use MySQL

- **3. High Availability**
- Rock-solid reliability and constant availability are hallmarks of MySQL, with customers relying on MySQL to guarantee around-the-clock uptime. MySQL offers a variety of high-availability options from high-speed master/slave replication configurations, to specialized Cluster servers offering instant failover, to third party vendors offering unique high-availability solutions for the MySQL database server.
- **4. Robust Transactional Support**
- MySQL offers one of the most powerful transactional database engines on the market. Features include complete ACID (atomic, consistent, isolated, durable) transaction support, unlimited row-level locking, distributed transaction capability, and multi-version transaction support where readers never block writers and vice-versa. Full data integrity is also assured through server-enforced referential integrity, specialized transaction isolation levels, and instant deadlock detection.

Top Reasons to Use MySQL

- **5. Web and Data Warehouse Strengths**
- MySQL is the de-facto standard for high-traffic web sites because of its high-performance query engine, tremendously fast data insert capability, and strong support for specialized web functions like fast full text searches. These same strengths also apply to data warehousing environments where MySQL scales up into the terabyte range for either single servers or scale-out architectures. Other features like main memory tables, B-tree and hash indexes, and compressed archive tables that reduce storage requirements by up to eighty-percent make MySQL a strong standout for both web and business intelligence applications.
- **6. Strong Data Protection**
- Because guarding the data assets of corporations is the number one job of database professionals, MySQL offers exceptional security features that ensure absolute data protection. In terms of database authentication, MySQL provides powerful mechanisms for ensuring only authorized users have entry to the database server, with the ability to block users down to the client machine level being possible. SSH and SSL support are also provided to ensure safe and secure connections. A granular object privilege framework is present so that users only see the data they should, and powerful data encryption and decryption functions ensure that sensitive data is protected from unauthorized viewing. Finally, backup and recovery utilities provided through MySQL and third party software vendors allow for complete logical and physical backup as well as full and point-in-time recovery.

Top Reasons to Use MySQL

- **7. Comprehensive Application Development**
- One of the reasons MySQL is the world's most popular open source database is that it provides comprehensive support for every application development need. Within the database, support can be found for stored procedures, triggers, functions, views, cursors, ANSI-standard SQL, and more. For embedded applications, plug-in libraries are available to embed MySQL database support into nearly any application. MySQL also provides connectors and drivers (ODBC, JDBC, etc.) that allow all forms of applications to make use of MySQL as a preferred data management server. It doesn't matter if it's PHP, Perl, Java, Visual Basic, or .NET, MySQL offers application developers everything they need to be successful in building database-driven information systems.
- **8. Management Ease**
- MySQL offers exceptional quick-start capability with the average time from software download to installation completion being less than fifteen minutes. This rule holds true whether the platform is Microsoft Windows, Linux, Macintosh, or UNIX. Once installed, self-management features like automatic space expansion, auto-restart, and dynamic configuration changes take much of the burden off already overworked database administrators. MySQL also provides a complete suite of graphical management and migration tools that allow a DBA to manage, troubleshoot, and control the operation of many MySQL servers from a single workstation. Many third party software vendor tools are also available for MySQL that handle tasks ranging from data design and ETL, to complete database administration, job management, and performance monitoring.

Top Reasons to Use MySQL

- **9. Open Source Freedom and 24 x 7 Support**
- Many corporations are hesitant to fully commit to open source software because they believe they can't get the type of support or professional service safety nets they currently rely on with proprietary software to ensure the overall success of their key applications. The questions of indemnification come up often as well. These worries can be put to rest with MySQL as complete around-the-clock support as well as indemnification is available through MySQL Network. MySQL is not a typical open source project as all the software is owned and supported by MySQL AB, and because of this, a unique cost and support model are available that provides a unique combination of open source freedom and trusted software with support.
- **10. Lowest Total Cost of Ownership**
- By migrating current database-driven applications to MySQL, or using MySQL for new development projects, corporations are realizing cost savings that many times stretch into seven figures. Accomplished through the use of the MySQL database server and scale-out architectures that utilize low-cost commodity hardware, corporations are finding that they can achieve amazing levels of scalability and performance, all at a cost that is far less than those offered by proprietary and scale-up software vendors. In addition, the reliability and easy maintainability of MySQL means that database administrators don't waste time troubleshooting performance or downtime issues, but instead can concentrate on making a positive impact on higher level tasks that involve the business side of data.

Create a Database

- We seldom have a chance to use command prompt to control our database. Moreover, it's too dangerous for an end user to have too much rights/control.
- We use phpmyadmin to control a database.
- <http://192.168.11.9/phpmyadmin>
- <http://localhost/phpmyadmin>

Login

- Login maybe different than FTP login
- Different login have different rights



localhost

伺服器版本: 5.0.45-community-nt

▶ 通訊協定版本: 10

伺服器: localhost via TCP/IP

▶ 使用者: user32@localhost

MySQL 文字編碼: UTF-8 Unicode (utf8)

MySQL 連線校對: utf8_unicode_ci

建立新資料庫

<input type="text"/>	校對
<input type="button" value="建立"/>	

顯示 MySQL 執行狀態

顯示 MySQL 系統變數

處理

文字編碼及校對

儲存引擎

重新讀取權限

權限

資料庫

輸出

載入

登出系統

phpMyAdmin - 2.11.1

▶ MySQL 客戶端版本: 5.0.45

▶ 已使用 PHP 擴充附件: mysql

Language: 中文 - Chinese traditional

款式: Original

▶ Font size: 82%

phpMyAdmin 說明文件

phpMyAdmin wiki

phpMyAdmin 官方網站

▶ [ChangeLog] [Subversion] [Lists]

運行資訊

[更新](#) [重設](#) [MySQL - 說明文件](#)

這 MySQL 伺服器已啟動了 0 日, 4 小時, 51 分鐘 23 秒. 伺服器於 Aug 04, 2008, 02:11 AM 啟動.

[InnoDB](#) [SSL](#) [操作者](#) [查詢快取](#) [線程](#) [二進制記錄](#) [暫存資料](#) [延遲插入](#) [鍵快取](#) [結合](#) [複製](#) [排序](#) [個資料表](#) [交易協調器](#)

伺服器流量: 這些表顯示了此 **MySQL** 伺服器自啟動以來的網絡流量統計。

流量 ⓘ		每小時	連線		每小時	%
接收	10 MB	2,041 KB	最大連線數目	27	---	---
送出	37 MB	7,855 KB	嘗試失敗	14	2.88	0.92%
總共	47 MB	10 MB	取消	0	0.00	0.00%
			總共	1,523	313.61	100.00%

查詢統計: 當統計啟動後, 共有 **303,975** 個查詢傳送到此伺服器.

總共	每小時	每分鐘	每秒				
304 k	62.59 k	1.04 k	17.39				
查詢方式		每小時	%	查詢方式		每小時	%
admin commands	58 k	11.99 k	19.25%	rollback	0	0.00	0.00%
alter db	0	0.00	0.00%	savepoint	0	0.00	0.00%
alter table	8	1.65	0.00%	select	118 k	24.30 k	39.02%
analyze	0	0.00	0.00%	set option	1 960	403.59	0.65%

何服务器資訊及設定

資訊	程序數值 / 整體值
auto increment increment	1
auto increment offset	1
automatic sp privileges	ON
back log	50
basedir	C:\xampp\mysql\
binlog cache size	32,768
bulk insert buffer size	8,388,608
character set client	utf8
(整體值)	latin1
character set connection	utf8
(整體值)	latin1
character set database	latin1
character set filesystem	binary
character set results	utf8
(整體值)	latin1
character set server	latin1
character set system	utf8
character sets dir	C:\xampp\mysql\share\charsets\
collation connection	utf8_unicode_ci
(整體值)	latin1_general_ci
collation database	latin1_general_ci
collation server	latin1_general_ci

伺服器: localhost

資料庫
 SQL
 狀態
 資訊
 文字編碼
 引擎
 權限
 處理
 輸出
 載入

文字編碼及校對

校對	說明	校對	說明
armscii8 (ARMScii-8 Armenian)		latin2 (ISO 8859-2 Central European)	
armscii8_bin	美式英語, 二進制碼	latin2_bin	中歐語 (多語言), 二進制碼
armscii8_general_ci	美式英語, 大小寫不相符	latin2_croatian_ci	克羅西亞語, 大小寫不相符
ascii (US ASCII)		latin2_czech_cs	捷克語, 大小寫相符
ascii_bin	西歐語文 (多語言), 二進制碼	latin2_general_ci	中歐語 (多語言), 大小寫不相符
ascii_general_ci	西歐語文 (多語言), 大小寫不相符	latin2_hungarian_ci	匈牙利語, 大小寫不相符
big5 (Big5 Traditional Chinese)		latin5 (ISO 8859-9 Turkish)	
big5_bin	繁體中文, 二進制碼	latin5_bin	土耳其語, 二進制碼
big5_chinese_ci	繁體中文, 大小寫不相符	latin5_turkish_ci	土耳其語, 大小寫不相符
binary (Binary pseudo charset)		latin7 (ISO 8859-13 Baltic)	
binary	二進制碼	latin7_bin	波羅的海語 (多語言), 二進制碼
cp1250 (Windows Central European)		latin7_estonian_cs	愛沙尼亞語, 大小寫相符
cp1250_bin	中歐語 (多語言), 二進制碼	latin7_general_ci	波羅的海語 (多語言), 大小寫不相符
cp1250_croatian_ci	克羅西亞語, 大小寫不相符	latin7_general_cs	波羅的海語 (多語言), 大小寫相符
cp1250_czech_cs	捷克語, 大小寫相符	macce (Mac Central European)	
cp1250_general_ci	中歐語 (多語言), 大小寫不相符	macce_bin	中歐語 (多語言), 二進制碼
cp1251 (Windows Cyrillic)		macce_general_ci	中歐語 (多語言), 大小寫不相符
cp1251_bin	西里爾語 (多語言), 二進制碼	macroman (Mac West European)	
cp1251_bulgarian_ci	保加利亞語, 大小寫不相符	macroman_bin	西歐語文 (多語言), 二進制碼
cp1251_general_ci	西里爾語 (多語言), 大小寫不相符	macroman_general_ci	西歐語文 (多語言), 大小寫不相符
cp1251_general_cs	西里爾語 (多語言), 大小寫相符	sjis (Shift-JIS Japanese)	

cp1251_bulgarian_ci	保加利亞語, 大小寫不相符
cp1251_general_ci	西里爾語 (多語言), 大小寫不相符
cp1251_general_cs	西里爾語 (多語言), 大小寫相符
cp1251_ukrainian_ci	烏克蘭語, 大小寫不相符
cp1256 (Windows Arabic)	
cp1256_bin	阿拉伯語, 二進制碼
cp1256_general_ci	阿拉伯語, 大小寫不相符
cp1257 (Windows Baltic)	
cp1257_bin	波羅的海語 (多語言), 二進制碼
cp1257_general_ci	波羅的海語 (多語言), 大小寫不相符
cp1257_lithuanian_ci	立陶宛語, 大小寫不相符
cp850 (DOS West European)	
cp850_bin	西歐語文 (多語言), 二進制碼
cp850_general_ci	西歐語文 (多語言), 大小寫不相符
cp852 (DOS Central European)	
cp852_bin	中歐語 (多語言), 二進制碼
cp852_general_ci	中歐語 (多語言), 大小寫不相符
cp866 (DOS Russian)	
cp866_bin	俄語, 二進制碼
cp866_general_ci	俄語, 大小寫不相符
cp932 (SJIS for Windows Japanese)	
cp932_bin	日語, 二進制碼
cp932_japanese_ci	日語, 大小寫不相符
dec8 (DEC West European)	
dec8_bin	西歐語文 (多語言), 二進制碼
dec8_swedish_ci	瑞典語, 大小寫不相符
latin1 (Latin1 General)	

macroman (mac West European)	
macroman_bin	西歐語文 (多語言), 二進制碼
macroman_general_ci	西歐語文 (多語言), 大小寫不相符
sjis (Shift-JIS Japanese)	
sjis_bin	日語, 二進制碼
sjis_japanese_ci	日語, 大小寫不相符
swe7 (7bit Swedish)	
swe7_bin	瑞典語, 二進制碼
swe7_swedish_ci	瑞典語, 大小寫不相符
tis620 (TIS620 Thai)	
tis620_bin	泰語, 二進制碼
tis620_thai_ci	泰語, 大小寫不相符
ucs2 (UCS-2 Unicode)	
ucs2_bin	統一碼 (Unicode) (多語言), 二進制碼
ucs2_czech_ci	捷克語, 大小寫不相符
ucs2_danish_ci	丹麥語, 大小寫不相符
ucs2_esperanto_ci	世界語, 大小寫不相符
ucs2_estonian_ci	愛沙尼亞語, 大小寫不相符
ucs2_general_ci	統一碼 (Unicode) (多語言), 大小寫不相符
ucs2_hungarian_ci	匈牙利語, 大小寫不相符
ucs2_icelandic_ci	冰島語, 大小寫不相符
ucs2_latvian_ci	拉脫維亞語, 大小寫不相符
ucs2_lithuanian_ci	立陶宛語, 大小寫不相符
ucs2_persian_ci	波斯語, 大小寫不相符
ucs2_polish_ci	波蘭語, 大小寫不相符
ucs2_roman_ci	西歐語文, 大小寫不相符
ucs2_romanian_ci	羅馬尼亞語, 大小寫不相符
ucs2slavic (Ukrainian Cyrillic)	

dec8 (DEC West European)

dec8_bin 西歐語文 (多語言), 二進制碼

dec8_swedish_ci 瑞典語, 大小寫不相符

eucjpms (UJIS for Windows Japanese)

eucjpms_bin 日語, 二進制碼

eucjpms_japanese_ci 日語, 大小寫不相符

euckr (EUC-KR Korean)

euckr_bin 韓語, 二進制碼

euckr_korean_ci 韓語, 大小寫不相符

gb2312 (GB2312 Simplified Chinese)

gb2312_bin 簡體中文, 二進制碼

gb2312_chinese_ci 簡體中文, 大小寫不相符

gbk (GBK Simplified Chinese)

gbk_bin 簡體中文, 二進制碼

gbk_chinese_ci 簡體中文, 大小寫不相符

geostd8 (GEOSTD8 Georgian)

geostd8_bin 格魯吉亞語, 二進制碼

geostd8_general_ci 格魯吉亞語, 大小寫不相符

greek (ISO 8859-7 Greek)

greek_bin 希臘語, 二進制碼

greek_general_ci 希臘語, 大小寫不相符

hebrew (ISO 8859-8 Hebrew)

hebrew_bin 希伯來語, 二進制碼

hebrew_general_ci 希伯來語, 大小寫不相符

hp8 (HP West European)

hp8_bin 西歐語文 (多語言), 二進制碼

hp8_english_ci 英語, 大小寫不相符

ucs2_polish_ci 波蘭語, 大小寫不相符

ucs2_roman_ci 西歐語文, 大小寫不相符

ucs2_romanian_ci 羅馬尼亞語, 大小寫不相符

ucs2_slovak_ci 斯洛伐克語, 大小寫不相符

ucs2_slovenian_ci 斯洛文尼亞語, 大小寫不相符

ucs2_spanish2_ci 傳統西班牙語, 大小寫不相符

ucs2_spanish_ci 西班牙語, 大小寫不相符

ucs2_swedish_ci 瑞典語, 大小寫不相符

ucs2_turkish_ci 土耳其語, 大小寫不相符

ucs2_unicode_ci 統一碼 (Unicode) (多語言), 大小寫不相符

ujis (EUC-JP Japanese)

ujis_bin 日語, 二進制碼

ujis_japanese_ci 日語, 大小寫不相符

utf8 (UTF-8 Unicode)

utf8_bin 統一碼 (Unicode) (多語言), 二進制碼

utf8_czech_ci 捷克語, 大小寫不相符

utf8_danish_ci 丹麥語, 大小寫不相符

utf8_esperanto_ci 世界語, 大小寫不相符

utf8_estonian_ci 愛沙尼亞語, 大小寫不相符

utf8_general_ci 統一碼 (Unicode) (多語言), 大小寫不相符

utf8_hungarian_ci 匈牙利語, 大小寫不相符

utf8_icelandic_ci 冰島語, 大小寫不相符

utf8_latvian_ci 拉脫維亞語, 大小寫不相符

utf8_lithuanian_ci 立陶宛語, 大小寫不相符

utf8_persian_ci 波斯語, 大小寫不相符

utf8_polish_ci 波蘭語, 大小寫不相符

greek_general_ci	希臘語, 大小寫不相符	utf8_general_ci	統一碼 (Unicode) (多語言), 大小寫不相符
hebrew (ISO 8859-8 Hebrew)		utf8_hungarian_ci	匈牙利語, 大小寫不相符
hebrew_bin	希伯來語, 二進制碼	utf8_icelandic_ci	冰島語, 大小寫不相符
hebrew_general_ci	希伯來語, 大小寫不相符	utf8_latvian_ci	拉脫維亞語, 大小寫不相符
hp8 (HP West European)		utf8_lithuanian_ci	立陶宛語, 大小寫不相符
hp8_bin	西歐語文 (多語言), 二進制碼	utf8_persian_ci	波斯語, 大小寫不相符
hp8_english_ci	英語, 大小寫不相符	utf8_polish_ci	波蘭語, 大小寫不相符
keybcs2 (DOS Kamenicky Czech-Slovak)		utf8_roman_ci	西歐語文, 大小寫不相符
keybcs2_bin	捷克語, 二進制碼	utf8_romanian_ci	羅馬尼亞語, 大小寫不相符
keybcs2_general_ci	捷克語, 大小寫不相符	utf8_slovak_ci	斯洛伐克語, 大小寫不相符
koi8r (KOI8-R Relcom Russian)		utf8_slovenian_ci	斯洛文尼亞語, 大小寫不相符
koi8r_bin	俄語, 二進制碼	utf8_spanish2_ci	傳統西班牙語, 大小寫不相符
koi8r_general_ci	俄語, 大小寫不相符	utf8_spanish_ci	西班牙語, 大小寫不相符
koi8u (KOI8-U Ukrainian)		utf8_swedish_ci	瑞典語, 大小寫不相符
koi8u_bin	烏克蘭語, 二進制碼	utf8_turkish_ci	土耳其語, 大小寫不相符
koi8u_general_ci	烏克蘭語, 大小寫不相符	utf8_unicode_ci	統一碼 (Unicode) (多語言), 大小寫不相符
latin1 (cp1252 West European)			
latin1_bin	西歐語文 (多語言), 二進制碼		
latin1_danish_ci	丹麥語, 大小寫不相符		
latin1_general_ci	西歐語文 (多語言), 大小寫不相符		
latin1_general_cs	西歐語文 (多語言), 大小寫相符		
latin1_german1_ci	德語 (字典), 大小寫不相符		
latin1_german2_ci	德語 (電話簿), 大小寫不相符		
latin1_spanish_ci	西班牙語, 大小寫不相符		
latin1_swedish_ci	瑞典語, 大小寫不相符		

Character set

- A character set is a set of symbols and encodings.
- Unicode is the most common way for character set.

Uni-code

- MySQL 5.0 supports two character sets for storing Unicode data:
 - ucs2, the UCS-2 encoding of the Unicode character set using 16 bits per character
 - utf8, a UTF-8 encoding of the Unicode character set using one to three bytes per character
- They usually include a language name, and they end with _ci (case insensitive), _cs (case sensitive), or _bin (binary).

Collation

- A character set is a set of symbols and encodings. A collation is a set of rules for comparing characters in a character set..
- Suppose that we have an alphabet with four letters: “A”, “B”, “a”, “b”. We give each letter a number: “A” = 0, “B” = 1, “a” = 2, “b” = 3. The letter “A” is a symbol, the number 0 is the encoding for “A”, and the combination of all four letters and their encodings is a character set.
- Suppose that we want to compare two string values, “A” and “B”. The simplest way to do this is to look at the encodings: 0 for “A” and 1 for “B”. Because 0 is less than 1, we say “A” is less than “B”.

Database and Excel

- Database = Excel files
- Tables = Sheet
- Record = Row
- Field = Column
- Value = Cell

Schemas

- complete set of table design
- test (id, message)
- Shows each data types of a column and indicate the primary key(underline)
- Primary key is the unique key in the table
- Eg. HKID is primary key, so there are many people can use your name but no one else can have the same HKID as you.

Steps to create database

- Create database
- Create table
- Create fields

localhost

伺服器版本: 5.0.45-community-nt

► 通訊協定版本: 10

伺服器: localhost via TCP/IP

► 使用者: user32@localhost

MySQL 文字編碼: UTF-8 Unicode (utf8)

MySQL 連線校對: utf8_unicode_ci

建立新資料庫

user

校對

建立

顯示 MySQL 執行狀態

顯示 MySQL 系統變數

處理

文字編碼及校對

儲存引擎

重新讀取權限

權限

資料庫

輸出

載入

登出系統

phpMyAdmin - 2.11.1

► MySQL 客戶端版本: 5.0.45

► 已使用 PHP 擴充附件: mysql

Language : 中文 - Chinese traditional

款式: Original

► Font size: 82%

phpMyAdmin 說明文件










phpMyAdmin wiki


phpMyAdmin 官方網站

► [ChangeLog] [Subversion] [Lists]



伺服器: localhost ▸ 資料庫: user31

 結構  SQL  搜索  依範例查詢 (QBE)  輸出  載入  管理  權限  刪除

 資料庫 user31 已經建立

SQL 語法:

```
CREATE DATABASE `user31` DEFAULT CHARACTER SET utf8 COLLATE utf8_unicode_ci;
```

☐ Profiling [[編輯](#)] [[建立 PHP 程式碼](#)]





資料庫中沒有資料表

建立新資料表於資料庫 user31

名稱: 欄位數目:

執行

伺服器: localhost ▶ 資料庫: user31 ▶ 資料表: test

欄位	id	message
型態 [?]	int	VARCHAR
長度/集合 ¹	8	255
校對	utf8_unicode_ci	utf8_unicode_ci
屬性	UNSIGNED	
Null	not null	not null
預設值 ²		
附加	auto_increment	
	<input checked="" type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>
---	<input type="radio"/>	<input checked="" type="radio"/>
	<input type="checkbox"/>	<input type="checkbox"/>
註解		

資料表註解文字:

儲存引擎: [?]

校對:

MyISAM

utf8_unicode_ci

儲存 或 新增 1 個欄位 執行

¹ 如欄位格式是 "enum" 或 "set", 請使用以下的格式輸入: 'a','b','c'...

如在數值上需要輸入反斜線 (\) 或單引號 (') , 請再加上反斜線 (例如 '\\xyz' or 'a\\b').



Create table

- **var**：不定長度→ $n+1$
- **char**宣告的是固定的長度，因此如果宣告 **char(5)**，但是只放**a**這個字，那麼就會補另外4個空白，會補空白補滿是他的特性
- **varchar**是不定長度，因此如果宣告 **varchar(5)**，但是只放**a**這個字，那麼就會放一個**a**，不會補空白。

伺服器: localhost ▶ 資料庫: user31 ▶ 資料表: test















瀏覽 結構 SQL 搜索 新增 輸出 載入 管理 清空 刪除






資料表 `user31`.`test` 已經建立

SQL 語法:

```
CREATE TABLE `user31`.`test` (  
  `id` INT(8) UNSIGNED NOT NULL AUTO_INCREMENT PRIMARY KEY ,  
  `message` VARCHAR(255) CHARACTER SET utf8 COLLATE utf8_unicode_ci NOT NULL  
) ENGINE = MYISAM CHARACTER SET utf8 COLLATE utf8_unicode_ci
```

☐ Profiling [編輯] [建立 PHP 程式碼]

	欄位	型態	校對	屬性	Null	預設值	附加	執行
<input type="checkbox"/>	id	int(8)		UNSIGNED	否		auto_increment	      
<input type="checkbox"/>	message	varchar(255)	utf8_unicode_ci		否			      

↑ 全選 / 全部取消 選擇的資料表:     

列印檢視 分析資料表結構 ?

新增 1 個欄位 ☒ 於資料表尾端 ☐ 於資料表開頭 ☐ 在 id 之後 執行

索引: ?					已使用空間		資料列統計數值	
鍵名	型態	組別	執行	欄位	型態	使用	敘述	值
PRIMARY	PRIMARY	0	 	id	資料	0 Bytes	校對	utf8_unicode_ci
新增 1	組索引欄	執行			索引鍵 INDEX	0 Bytes		
					總共	0 Bytes		

INSERT

伺服器: localhost ▶ 資料庫: user4 ▶ 資料表: test

瀏覽 結構 SQL 搜索 新增 輸出 載入 管理 清空 刪除

欄位	型態	函數	Null	值
id	int(8) unsigned	<input type="text"/>		<input type="text"/>
message	varchar(255)	<input type="text"/>		<input type="text"/>

☒ 忽略

欄位	型態	函數	Null	值
id	int(8) unsigned	<input type="text"/>		<input type="text"/>
message	varchar(255)	<input type="text"/>		<input type="text"/>

儲存為新記錄 ▼

然後

返回 ▼



Restart insertion with rows

INSERT

Field	Type	Function	Null	Value
id	int(8) unsigned			
message	varchar(255)			Hi
id	int(8) unsigned			
message	varchar(255)			How are you?
id	int(8) unsigned			
message	varchar(255)			I am fine
id	int(8) unsigned			
message	varchar(255)			Great!

Add 10 more records

Browse / Query

伺服器: localhost ▶ 資料庫: user4 ▶ 資料表: test

瀏覽
 結構
 SQL
 搜索
 新增
 輸出
 載入
 管理

顯示記錄 0 - 3 (4 總計, 查詢需時 0.0007 秒)

SQL 語法:

```
SELECT *
FROM `test`
LIMIT 0, 30
```

顯示: 筆記錄, 開始列數:

顯示為 方式及每隔 行顯示欄名

依鍵名排序:

← T →			id	message
<input type="checkbox"/>			1	hi
<input type="checkbox"/>			2	how are you
<input type="checkbox"/>			3	I'm fine
<input type="checkbox"/>			4	great!

全選 / 全部取消 選擇的資料表:

顯示: 筆記錄, 開始列數:

顯示為 方式及每隔 行顯示欄名

SQL

- Structured Query Language (SQL) is a computer language designed for the retrieval and management of data in relational database management systems, database schema creation and modification, and database object access control management

SQL

- SELECT (Query)
- INSERT
- UPDATE
- DELETE

Characters in PHPMyAdmin

- By default it uses latin1 as connection. So in MySQL cannot read it.
- 一 二 三
- ä, €ä°OEä, %o
- `mysql_query("SET NAMES 'UTF8'", $db);`