Chapter 2 - Using MySQL Command-line

MySQL comes with a command-line interface[19] that let you run MySQL commands and SQL queries. While there are graphical tools like phpMyAdmin[20] and MySQL Workbench[21], command-line interface will come in handy when you manage more databases and when you get more familiar with MySQL.

MySQL Path

You should be able to run **mysql** and other command-line utilities like **mysqladmin** and **mysqldump** (discussed later) from any folder. If these utilities are not accessible from any directory, add the path to the utilities to a global path variable in your operating system.

If you have installed XAMPP in Windows, the path would be the **bin** folder under **mysql** folder. For example, if you have installed XAMPP under C drive, path would be **C:\xampp\mysql\bin**. You can verify the path by making sure the utilities are available in the chosen path.

Add this path to the **path** environment variable in Windows, and then you will be able to access the utilities from any folder.

Logging into MySQL

You can log in to MySQL as **root** user (generally the user with all the privileges) by typing the command below.

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

The command above will prompt you to enter the password for user **root**. If your MySQL installation is new and you haven't changed the **root** password, most of the time the **root** password is blank (just press the **Enter** key).

After that, you would see a prompt like below that lets you type commands. Prior to the prompt, you would see few instructions and the MySQL version number.

[19] http://dev.mysql.com/doc/refman/5.5/en/mysql.html
[20] http://www.phpmyadmin.net/
[21] http://www.mysql.com/products/workbench/

```
mysql>
```

Executing Commands

All SQL commands you type at the MySQL prompt should have a semicolon (;) at their ends. The commands will not run till you enter a semicolon (It's possible to use **\G** instead of semicolon as explained below).

In addition to the SQL commands, MySQL has its own set of commands. To see these commands, type **help** at the MySQL prompt as below. These commands aren't required to have a semicolon at the end. After typing a command, hit **Enter** key to execute the command.

```
mysql> help
```

Command-line Pretty Output

If you find the output of a certain SQL command difficult to read, try **\G** in place of the semicolon as shown in the following example. This will display the output in a vertical format and remove surrounding dashed lines.

```
mysql> SHOW TABLE STATUS FROM company_db \G
```

SHOW TABLE STATUS command is covered in **Database Commands** chapter.

Multiple Line Commands

To achieve clarity, you can span a command over multiple lines. Just hit the **Enter** key after each line, and MySQL will prompt an arrow indicating a new line. The following is a multiple line SQL command to create a data table.

```
mysql> create table `employee` (
    ->   `id` int(10),
    ->   `first_name` varchar(40),
    ->   `last_name` varchar(40),
    ->   `age` tinyint(3),
    ->   `joined_date` date,
    ->   `records` text,
    ->  primary key  (`id`)
    -> );
```

How to Clear Command-line

If you are on a Mac OS or a Linux command-line, you can use **Ctrl+L** for clearing the screen and **Ctrl+U** for clearing the current line.

Logging out of MySQL

Use the **exit** command to log out of MySQL.

```
mysql> exit
```

Chapter 3 - MySQL GUI Tools

While you can run all MySQL statements in command-line, having a tool with Graphical User Interface (GUI) can speed up your development.

A GUI tool can be especially helpful when you want to view data and table information. Following are a few popular and free MySQL GUI tools.

phpMyAdmin[22]

- A web application written in PHP.
- Rich set of features.
- Works in any OS with required PHP and MySQL setup.

SQL Buddy[23]

- A web application written in PHP.
- Clean interface.
- Painless installation (Just extract to the web folder).
- Ability to log in via MySQL user accounts without creating user accounts for the tool.
- Works in any OS with required PHP and MySQL setup.

MySQL Workbench[24]

- A Desktop application.
- Rich set of features (Database Design, Server Administration).
- Versions available for Microsoft Windows, Mac OS, Linux.

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[22] http://www.phpmyadmin.net/

[23] http://sqlbuddy.com/

[24] http://www.mysql.com/products/workbench/

Chapter 4 - Managing MySQL Users

In MySQL, you can create user accounts[25] with different privileges. Privileges can vary from accessing several databases to accessing only one column in a table.

Root User

By default, MySQL has a super user called **root** that has all the privileges. You need to be logged in as **root** to execute many MySQL administrative tasks, including managing users.

Changing Root Password

If you didn't specifically set the **root** password when installing MySQL, most of the times it would be empty. If the **root** password is empty, make sure to reset it with a proper password for better security.

In command-line, you can use the following command to change **root** password. Type your preferred password in place of **newpassword**. After hitting the **Enter** key, it will ask you to enter the current password. If the current password is empty, just hit the **Enter** key.

```
mysqladmin -u root -p password 'newpassword'
```

Logging as a User

Use the following command to log in as **root** user. For logging in as a different user, type that username in place of **root**. After hitting the **Enter** key, it will ask you to enter the password. After entering the correct password, you would see the MySQL prompt (**mysql>**) where you can enter MySQL commands.

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

[25] http://dev.mysql.com/doc/refman/5.5/en/adding-users.html

Viewing Existing Users

MySQL user details are stored in a table called **user** of a default database called **mysql**. In this **user** table, usernames are stored in a column called **user**, and corresponding host names are stored in a column called **host**.

Based on these facts, you can use the following SQL command to view the username and the host of existing users. You need to log in as **root** first.

```
SELECT user, host FROM mysql.user;
```

Creating a New User

For creating a user called **robin** with the password **robin123** at **localhost** (is the default host most of the time), log in as **root** and use the following command.

```
CREATE USER 'robin'@'localhost' IDENTIFIED BY 'robin123';
```

Granting Privileges to a User

MySQL has a series of privileges[26]. For a general PHP application, you only need a user with **SELECT**, **INSERT**, **UPDATE**, and **DELETE** privileges for the database you chose. You can grant these privileges to a user called **ronbin** for a database called **my_database** using the following command.

```
GRANT SELECT, INSERT, UPDATE, DELETE ON my_database.* TO 'robin'@'localhost';
```

To grant all the privileges, use **ALL** as below.

```
GRANT ALL ON my_database.* TO 'robin'@'localhost';
```

Changing a User Password

To change the password of a user called **robin** to **robin456**, log in as the **root** user and use the following command.

[26] http://dev.mysql.com/doc/refman/5.5/en/privileges-provided.html

```
SET PASSWORD FOR 'robin'@'localhost' = PASSWORD('robin456');
```

Deleting a User

Log in as **root** and use the following command to delete user **robin**.

```
DROP USER robin@localhost;
```

Be careful when you delete a user, since applications that used the credentials of a deleted user may malfunction.

Summary

PHP needs the host name, username, and password of a privileged MySQL user to connect to a MySQL database. When it comes to production-level PHP applications, instead of using **root** user, for improved security it's a good practice to use a dedicated user with only the required privileges.

You will only need to deal with MySQL users when you manage your own web server or when you develop web applications locally. If you are on a shared web-hosting environment, most of the time, you will be provided privileged MySQL user accounts or a GUI tool to manage MySQL users.