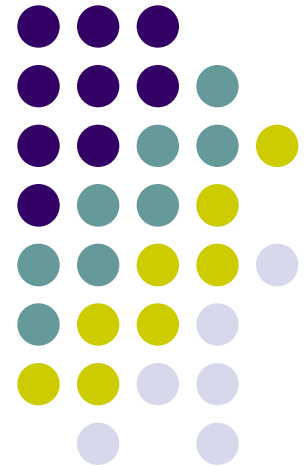


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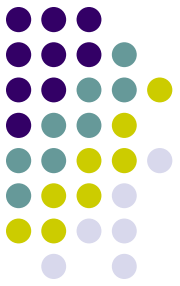
MYSQY 5.0 Developer

Chapter 1/Client/Server Concepts

Chapter 2/ The mysql Client Program



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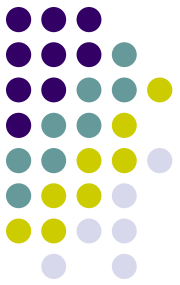


- **MySQL Server or mysqld**

Database server Program

- **Server** : Software (includes its version number, certain features and so forth.) P.22
- **Host** : Physical Machine (includes hardware configuration, operating system, network address and so forth.) P.22

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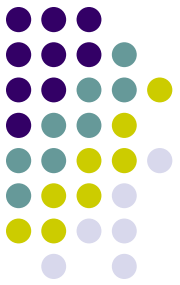


● Client Programs

Programs that are used to communicate with the server to manipulate the information in the databases that the sever manages. Client programs includes:

- mysql command line program
- MySQL Query Browser and MySQL Adminstrator : GUI (Not covered on Cert Exam)
- mysqlimport, mysqldump,(CH.15) mysqlcheck, mysqladmin

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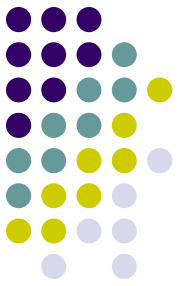


- **Non-client Utilities**

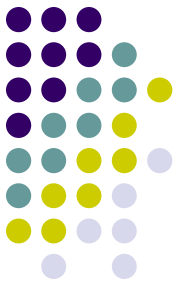
Programs that act independently of the server.
They don't operate by connecting to the server first.

- **myisamchk**: It performs table checking and repair operations.
- **myisampack**: It creates compressed read-only versions of MyISAM tables

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- MySQL runs on many varieties of Windows, Unix, Mac, and Linux.
- **client/server communication is not limited to environment where all computers run the same operating system.**
- MySQL client programs can be invoked from command line such as Windows console prompt or a Unix shell prompt.



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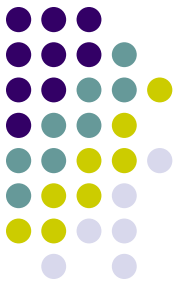
- To check your version of MySQL

Shell > mysql --version or Shell > -V

Options are case sensitive. -V and -v means different things.

- To determine the options supports by a MySQL program, invoke it with the --help (don't use -H, it means different thing)

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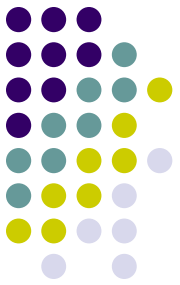


To connect to a server using a client program, the client must know upon which host the server is running. To connect to a server, the user must identify himself/herself to the server with a username and password.

Example: username is abc

```
shell> mysql -h cis363.com -u abc -p
```

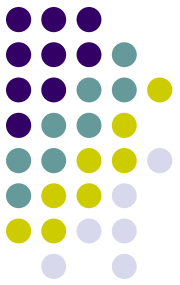
```
shell> mysql -h cis363.com --user abc --password
```



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- Options for establishing a Connect p.24

Option	Meaning
--protocol	The protocol to use for the connection
--host	The host where the server is running
--port	The port number for TCP/IP connection The default port number is 3306
--share-memory-base-name	The share-memory name for shared-memory connections
--socket	The Unix socket filename or named-pipe name

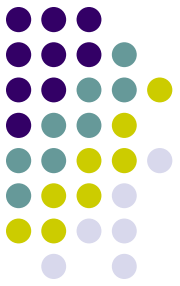


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- The `--protocol` option explicitly selects the communication protocol that the client program should use for connect to the server [p.25](#)

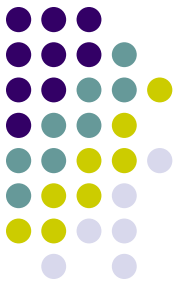
--protocol Value	Connect Protocol	Allowable Operating System
tcp	TCP/IP (local/remote server) <i>Most general protocol</i>	Unix and Windows
socket	Unix socket file connect to local server	Unix Only
Pipe	Name-pipe connection to local server (must be mysqld-nt or mysql-max-nt server) <code>--enable-named-pipe</code> option	Windows only
Memory	Shared-memory connect to local server <code>--shared-memory</code>	Windows only

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- --host=host_name or -h host_name
 - The value can be a a hostname or an IP number
(ex: --host=192.169.1.33 or -h cis363.com)
 - On Windows, the value . (period) means local host
 - --port=port_number or -P port number (default port # **3306**)
 - --share-memory-base-name=memory_name (default name: **MYSQL**)
 - --socket=socket_name or -S socket_name
 - On Unix/Mac/Linux, a client connects to the server using Unix socket file.
 - On Windows, the -socket option is used for specifying a named pipe.(Windows NT-based system only)
 - Default Windows Pipe name is **MySQL**
- ** The share-memory and Windows pipe name is case sensitive MYSQL / MySQL

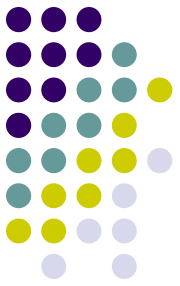
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MySQL client programs look for option files at startup time. Putting an Option file saves you time and effort because no need to specify the option on the command line each time you invoke a program.

- On Windows, programs look for option files in the following order my.ini and my.cnf in the windows directory
- On Unix/Mac/Linux, the file /etc/my.cnf serves as a global option file used by all users.
- For the GUI clients such as MySQL Query Browser and MySQL administrator, these graphical clients store connection parameters in the own file in XML format.

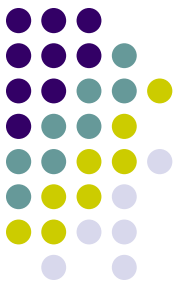
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- To tell a program to read a single specific option file instead of the standard option files, use the `--defaults-file=file_name` option as the first option on the command line.

Ex: shell> `mysql --default-file=C:\my-opts` (ignore the standard option files)

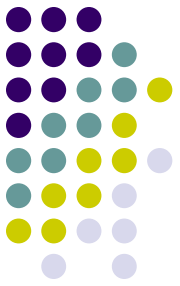
- To tell a program to read a single specific option file in addition to the standard option files, use the `---default-extra-file=file_name` option
- To tell a program to ignore all option files, specify `--no-defaults`
- Option files can reference other files to be read for options by use `!include` and `!includedir`



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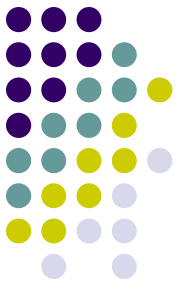
- By setting the SQL mode appropriately, a client program can instruct the server how strict or forgiving to be about accepting input data, enable or disable behaviors relating to standard SQL conformance, or provide better compatibility with other database systems.
- The SQL mode is controlled by means of the `sql_mode` system variable. To assign a value to the variable, use a SET statement.
 - Clear the SQL mode: `SET sql_mode = '';` (must be single-quoted)
 - Set the SQL mode using a single mode value, (quoting is optional)
`SET sql_mode = ANSI_Quotes;` or `SET sql_mode = 'TRADITIONAL';`
 - Set the SQL mode using multiple mode names, (separated by comma)
`SET sql_mode = 'IGNORE_SPACE, ANSI_QUOTES';`

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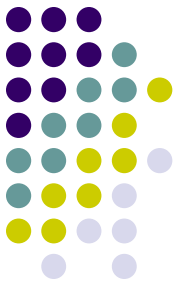
- To check the current `sql_mode` setting, use
`mysql> select @@sql_mode;` or
`mysql> select @@sql_mode\G`
** ; (semicolon) and \G sequence both terminates queries but display query results in different styles.

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- The mysql client program enables you to send queries to the MySQL server and receive the results. It can be used interactively or read query input from a file in a batch file. Batch mode is useful for running queries that have been prewritten and stored in a file. An input file containing SQL statements to be executed is known as a “script file” or a “batch file”. A script file should be a plain text file (can be .txt or .sql file)) containing statements in the same format.
- One way to process a script file is by executing it with a source command.
Ex: `mysql> source c:\mysql\abc.sql;`
- The other way to execute a script file is by naming it on the mysql command line and using < input redirection operator.
Ex: `shell > mysql test < abc.sql (** test is databases name)`
- If a statement in a script file fails with an error, mysql ignore the rest of the file. To execute the entire file regardless of whether errors occur, invoke mysql with `-force` or `-f` option

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- How to invoke mysql interactively from the command line (if you don't know names of databases)?

```
shell> mysql -h host_name -u root -p
```

If you already knew a name of database, you can invoke a query:

```
shell> mysql -h host_name -u root -p db_name
```

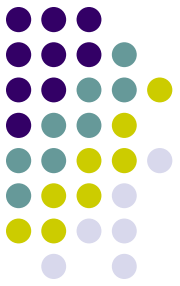
- After mysql connects to the MySQLserver, it prints a mysql> prompt. To look up databases, use

```
mysql> show databases;
```

- To select or change the default database while running mysql, issue a USE db_name statement. (A terminator is necessary after each statement)

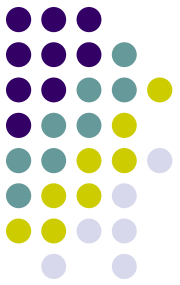
Ex: mysql> use test (when you issue a “USE” statement, semi-colon is optional.)

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- `\c` means that mysql will cancel the statement and return a new `mysql>` prompt
- To quit mysql, use `/q`, `QUIT`, or `EXIT`
- Statement Terminators:
 1. `;` semicolon
 2. `\g` sequence
 3. `\G` sequence (display result in a vertical style)

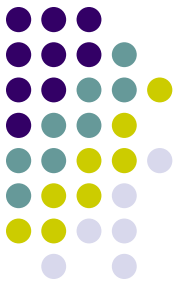
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- The mysql Prompts

Prompt	Means of Prompt
mysql>	Ready for new statement
->	Waiting for next line of statement
'>	Waiting for end of single-quoted string
".	Waiting for end of double-quoted string or identifier
`>	Waiting for end of backtick-quoted identifier
/*>	Waiting for end of C-style comment

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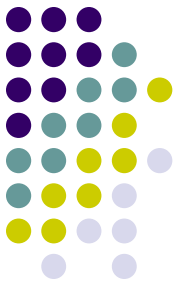


- **Mysql Output Formats**

To override the default output format, use

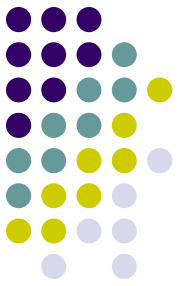
- --batch or -B (produce batch mode output with tab-delimited format)
- --table or -t (produce tabular output format)
- In a batch mode, you can use the --raw or -r option to suppress conversion of characters.
- To select an output format different from default format, use
 - --html or -H (produce output in HTML format)
 - --xml or -X (produce output in XML format)

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- Client Commands and SQL statements
 1. The program sends your SQL statement to the MYSQL server to be executed. SQL statements such as “select”, “insert”, “update”, “delete”.
 2. mysql also understands a number of its own commands that aren't SQL statements such as “source”, “quit”, “status” and more. A list of mysql commands can be obtained use the HELP command.
mysql > help
 3. mysql commands have both a long form and a short form. The long form is a full word (source, use, help, clear...) and may be given in any lettercase. The short form consists of a backslash followed by a single character (\c, \g, \p...) and is case sensitive. (\r and \R means differently)
 4. Unlike SQL statements, mysql statements can NOT be enter over multiple lines. Ex: mysql> source input_file (same line rule applies)
 5. It's better to use short command forms (\c) over long command forms (clear) because the long command forms are Not recognized except at the mysql> prompt.
 6. To have mysql recognize the long command names on any input line, invoke it with the –names-commands option.

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- **--safe-updates Option**

The --safe-updates option (or `-i-am-dummy` option) helps to prevent from inadvertently issuing statements that modify many rows in a table or returning extremely large results. It has the following effects:

1. Update and Delete statements are allowed only if they include a WHERE or LIMIT clause.
2. Output from single-table Select statements is restricted to no more than 1000 rows. (using limit clause can produce more than 1000 rows.)
3. Multiple-table select statements are allowed only if MySQL will examine no more than 1000000 rows to process the query.