

MySQL

Configuration and Security

A Brief Overview

Configuration

Several parameters can be set in order to optimize throughput, particularly for a heavily-accessed database. For light use, the defaults should be fine. Examples include `key_buffer_size`, `sort_buffer_size`, `query_cache_size`, `query_cache_limit`, and `query_cache_type`.

Running the Commandline Client

Common options:

`-h|--host=hostname`

Connect to the specified host.

`-p|--password[=pwd]`

Employ the specified password when connecting to the database server. If a password is not supplied, it will be requested interactively.

`-P|--port=pnum`

Employ the specified port number for connecting to the database server.

`-s|--silent`

Silent mode: reduce the amount of output.

`-u|--user=username`

Employ the specified user name for logging in to the server.

`-v|--verbose`

Verbose mode: write more. Specifying this option twice produces a tabular output format.

Examples:

```
mysql -h dbserver.mydomain.com -u jsmith -psecret somedb
```

Attach to MySQL server at `dbserver.mydomain.com` as user “jsmith” with password “secret” using database “somedb”. Note that there is no space between the `-p` parameter and its value.

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

Attach to MySQL server on localhost as user “root” and prompt for password.

Common SQL Statements

```
use <database name>;
```

Specify the active database.

```
show databases;
```

List the available databases.

```
show tables;
```

List the tables in the active database.

```
describe <table name>;
```

List fields and their attributes.

```
grant <privilege list> on <database name>.<table name> to <user name>@'<hostname>' identified by '<password>';
```

Create a user and grant him privileges on particular databases and/or tables.

Example:

```
grant * on jsmith.* to jsmith@'%.mydomain.com' identified by 'secret';
```

```
flush privileges;
```

Activate the privilege changes you have just made.

```
quit;
```

Don't forget that mysql has an internal command history!

Security Tables

The tables used for security reside in the “mysql” database.

```
dax:~# mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 1258 to server version: 3.23.49-log

Type 'help;' or '\h' for help. Type '\c' to clear the buffer.

mysql> use mysql;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> show tables;
+-----+
| Tables_in_mysql |
+-----+
| columns_priv    |
| db              |
| func            |
| host            |
| tables_priv     |
| user            |
+-----+
6 rows in set (0.00 sec)
```

Host

This table lists privileges given to all users on a given host. I usually leave this table empty.

```
mysql> describe host;
```

```
+-----+-----+-----+-----+-----+-----+
| Field          | Type                | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Host           | char(60) binary    |      | PRI |          |       |
| Db             | char(64) binary    |      | PRI |          |       |
| Select_priv    | enum('N','Y')      |      |     | N        |       |
| Insert_priv    | enum('N','Y')      |      |     | N        |       |
| Update_priv    | enum('N','Y')      |      |     | N        |       |
| Delete_priv    | enum('N','Y')      |      |     | N        |       |
| Create_priv    | enum('N','Y')      |      |     | N        |       |
| Drop_priv      | enum('N','Y')      |      |     | N        |       |
| Grant_priv     | enum('N','Y')      |      |     | N        |       |
| References_priv | enum('N','Y')      |      |     | N        |       |
| Index_priv     | enum('N','Y')      |      |     | N        |       |
| Alter_priv     | enum('N','Y')      |      |     | N        |       |
+-----+-----+-----+-----+-----+-----+
12 rows in set (0.00 sec)

mysql> select * from host;
Empty set (0.00 sec)
```

User

Shows user information and the privileges they have which apply to all databases. Most users should not have any privileges set here.

```
mysql> describe user;
```

Field	Type	Null	Key	Default	Extra
Host	char(60) binary		PRI		
User	char(16) binary		PRI		
Password	char(16) binary				
Select_priv	enum('N','Y')			N	
Insert_priv	enum('N','Y')			N	
Update_priv	enum('N','Y')			N	
Delete_priv	enum('N','Y')			N	
Create_priv	enum('N','Y')			N	
Drop_priv	enum('N','Y')			N	
Reload_priv	enum('N','Y')			N	
Shutdown_priv	enum('N','Y')			N	
Process_priv	enum('N','Y')			N	
File_priv	enum('N','Y')			N	
Grant_priv	enum('N','Y')			N	
References_priv	enum('N','Y')			N	
Index_priv	enum('N','Y')			N	
Alter_priv	enum('N','Y')			N	

```
17 rows in set (0.00 sec)
```

```
mysql> select host,user,select_priv,drop_priv,grant_priv from user;
```

host	user	select_priv	drop_priv	grant_priv
localhost	root	Y	Y	Y
dax.dayton-phoenix.com	root	Y	Y	Y
localhost	debian-sys-maint	N	N	N
localhost	www	N	N	N
localhost	ddp	N	N	N
dayton-phoenix.com	ddpread	N	N	N
%	wwwadmin	N	N	N

```
7 rows in set (0.00 sec)
```

DB

Shows privileges granted to particular users on particular databases. This is the most common place to have access records in a multi-user environment.

```
mysql> describe db;
```

Field	Type	Null	Key	Default	Extra
Host	char(60) binary		PRI		
Db	char(64) binary		PRI		
User	char(16) binary		PRI		
Select_priv	enum('N','Y')			N	
Insert_priv	enum('N','Y')			N	
Update_priv	enum('N','Y')			N	
Delete_priv	enum('N','Y')			N	
Create_priv	enum('N','Y')			N	
Drop_priv	enum('N','Y')			N	
Grant_priv	enum('N','Y')			N	
References_priv	enum('N','Y')			N	
Index_priv	enum('N','Y')			N	
Alter_priv	enum('N','Y')			N	

```
13 rows in set (0.00 sec)
```

```
mysql> select host,db,user,select_priv,drop_priv,grant_priv from db;
```

host	db	user	select_priv	drop_priv	grant_priv
localhost	ddp	ddp	Y	N	N
%	ddp	wwwadmin	Y	Y	N
localhost	dpgweb	www	Y	N	N
%	dpgweb	wwwadmin	Y	Y	N
%	ddptest	wwwadmin	Y	Y	N
dayton-phoenix.com	ddp	ddpread	Y	N	N
localhost	ddptest	ddp	Y	N	N

```
7 rows in set (0.00 sec)
```

Tables_priv

Shows privileges granted on individual tables.

Columns_priv

Shows privileges granted on individual columns.