

# **Using MySQL Meta Data Effectively**

Dossy Shiobara, Panoptic.com

Session 10

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4:45 PM - 5:45 PM

# What is metadata?

- “Data about data”
- Information about the data in your database

- Limited metadata available through 'mysql' metadata database and SHOW statement
- Adding new metadata types meant modifying the parser's grammar

- MySQL 5.0 introduces the INFORMATION\_SCHEMA
  - Typically abbreviated as “I\_S” although MySQL still requires it spelled out fully in queries
  - Specified by the non-free ANSI/ISO SQL:2003 standard
  - MySQL-specific extensions – ENGINES, etc.
  - A very good start!
- MySQL 5.1 exposes even more metadata through I\_S
  - PARTITIONS, PLUGINS, etc.

# Why change now?

- Yet another new thing to learn
- SHOW statements work just fine
- INFORMATION\_SCHEMA is a pain to type

# Standards are good!

- Standards let us reuse our knowledge
  - MySQL, PostgreSQL, SQL Server, DB2 have implemented `INFORMATION_SCHEMA` to varying degrees
- A SQL interface to metadata creates new opportunities to do cool stuff
  - JOIN metadata tables in useful ways
  - INSERT results of metadata queries into tables
- Plugin authors have a consistent way of exposing metadata
- Easier for products to support MySQL

- MySQL documentation on INFORMATION\_SCHEMA is excellent:

## Chapter 19. INFORMATION\_SCHEMA Tables

<http://dev.mysql.com/doc/refman/5.5/en/information-schema.html>

```
mysql> SELECT table_name, column_name, column_type  
        FROM information_schema.columns  
        WHERE table_schema = DATABASE()  
        AND column_type LIKE '%text%';
```

vs.

```
mysql> SHOW COLUMNS FROM <tablename>  
        WHERE type LIKE '%text%';
```

(for each table you want to check, one at a time)

table_name	column_name	column_type
COLUMNS	COLUMN_DEFAULT	longtext
COLUMNS	COLUMN_TYPE	longtext
EVENTS	EVENT_DEFINITION	longtext
PARTITIONS	PARTITION_EXPRESSION	longtext
PARTITIONS	SUBPARTITION_EXPRESSION	longtext
PARTITIONS	PARTITION_DESCRIPTION	longtext
PLUGINS	PLUGIN_DESCRIPTION	longtext
PROCESSLIST	INFO	longtext
ROUTINES	ROUTINE_DEFINITION	longtext
TRIGGERS	ACTION_CONDITION	longtext
TRIGGERS	ACTION_STATEMENT	longtext
VIEWS	VIEW_DEFINITION	longtext

```
mysql> SELECT table_name  
        FROM information_schema.tables  
        WHERE table_schema = DATABASE()  
        AND data_free > 0;
```

```
mysql> SELECT routine_name  
        FROM information_schema.routines  
        WHERE routine_definition  
              LIKE '%FROM tablename%';
```

# Too good to be true

- Not all metadata is stored solely in memory
  - Some queries may require disk I/O – sometimes a lot of it
- Sometimes, a global lock is held during I\_S queries
  - LOCK\_open, the revolving door of MySQL
- Be careful using I\_S in production!

- MySQL will only get better with time
- Performance optimizations of the I\_S implementation will come
- Still very useful knowledge to have
- Great in a non-production environment, today

**Thanks for attending my session!**

**Questions? Comments?**