

Using MySQL Meta Data Effectively

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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?