MySQL Utilities, part 1

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What are they?

A set of tools

What are they?

A set of tools

Like Percona toolkit, Open Ark Kit

What are they?

A set of tools

Like Percona toolkit, Open Ark Kit

Open source

What are they?

A set of tools

Like Percona toolkit, Open Ark Kit

Open source

Written in Python

How To Get Them

Part of MySQL Workbench

How To Get Them

Part of MySQL Workbench

Standalone download

How To Get Them

Part of MySQL Workbench

Standalone download

Packages

Common Options

Connection string

Common Options

Connection string

username:password@host:port

Common Options

Connection string

username:password@host:port

username:password@host:socket

Common Options

Connection string

username:password@host:port

username:password@host:socket

--server1 and –server2 where needed

Common Options

--help

Common Options

--help

--version

Common Options

--help

--version

--verbose or -v for more information

Common Options

--help

--version

--verbose or -v for more information

Can stack verbosity, -vvv

Common Options

--format

Common Options

--format

GRID, VERTICAL, CSV

Common Options

--format

GRID, VERTICAL, CSV

TAB, RAW

Common Gotchas

Most tools do not use .my.cnf files

Common Gotchas

Most tools do not use .my.cnf files

Connection string for localhost uses 127.0.0.1

Common Gotchas

Most tools do not use .my.cnf files

Connection string for localhost uses 127.0.0.1

Use localhost:socket for local connections

mysqlauditadmin

For use with MySQL Audit Plugin

- MySQL enterprise

mysqlauditadmin

For use with MySQL Audit Plugin

- MySQL enterprise

Copy a log

mysqlauditadmin

For use with MySQL Audit Plugin

- MySQL enterprise

Copy a log

Rotate now

mysqlauditadmin

For use with MySQL Audit Plugin

- MySQL enterprise

Copy a log

Rotate now

Rotate at a certain size

mysqlauditadmin

Change audit policy

mysqlauditadmin

Change audit policy

- ALL

mysqlauditadmin

Change audit policy

- ALL
- NONE

mysqlauditadmin

Change audit policy

- ALL
- NONE
- QUERIES

mysqlauditadmin

Change audit policy

- ALL
- NONE
- QUERIES
- LOGINS

mysqlauditadmin

Change audit policy

- ALL
- NONE
- QUERIES
- LOGINS
- DEFAULT

mysqlauditadmin

Can show the audit options before and after a change:

mysqlauditadmin

Can show the audit options before and after a change:

mysqlauditadmin --server=root@localhost

mysqlauditadmin

Can show the audit options before and after a change:

```
mysqlauditadmin --server=root@localhost
  policy --value=QUERIES
```

mysqlauditadmin

Can show the audit options before and after a change:

```
mysqlauditadmin --server=root@localhost
  policy --value=QUERIES
 --show-options
```

```
mysqlauditadmin --server=root@localhost
  policy --value=QUERIES
 --show-options
```

mysqlauditadmin --server=root@localhost policy --value=QUERIES --show-options

```
#
 # Showing options before command.
 #
 # Audit Log Variables and Options
 #
 +---------------------------+----------------+
 | Variable_name             | Value          |
 +---------------------------+----------------+
 | audit_log_buffer_size     | 1048576        |
 | audit_log_file            | audit.log      |
 | audit_log_flush           | OFF            |
 | audit_log_policy          | ALL            |
 | audit_log_rotate_on_size  | 0              |
 | audit_log_strategy        | ASYNCHRONOUS   |
 +---------------------------+----------------+
```

mysqlauditadmin --server=root@localhost policy --value=QUERIES --show-options

```
#
 # Showing options before command.
 #
 # Audit Log Variables and Options
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 +----------------------------+----------------+
 | Variable_name              | Value          |
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 | audit_log_buffer_size      | 1048576        |
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 | audit_log_rotate_on_size   | 0              |
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 +----------------------------+----------------+
```

mysqlauditadmin --server=root@localhost policy --value=QUERIES --show-options

```
#
 # Showing options before command.
 #
 # Audit Log Variables and Options
 #
 +----------------------------+----------------+
 | Variable_name              | Value          |
 +----------------------------+----------------+
 | audit_log_buffer_size      | 1048576        |
 | audit_log_file             | audit.log      |
 | audit_log_flush            | OFF            |
 | audit_log_policy           | ALL            |
 | audit_log_rotate_on_size   | 0              |
 | audit_log_strategy         | ASYNCHRONOUS   |
 +----------------------------+----------------+

 #
 # Executing POLICY command.
 #

 #
 # Showing options after command.
 #
 # Audit Log Variables and Options
 #
```

mysqlauditadmin --server=root@localhost policy --value=QUERIES --show-options

```
#
 # Showing options before command.
 #
 # Audit Log Variables and Options
 #
 +----------------------------+----------------+
 | Variable_name              | Value          |
 +----------------------------+----------------+
 | audit_log_buffer_size      | 1048576        |
 | audit_log_file             | audit.log      |
 | audit_log_flush            | OFF            |
 | audit_log_policy           | ALL            |
 | audit_log_rotate_on_size   | 0              |
 | audit_log_strategy         | ASYNCHRONOUS   |
 +----------------------------+----------------+

 #
 # Executing POLICY command.
 #

 #
 # Showing options after command.
 #
 # Audit Log Variables and Options
 #
```

```
+----------------------------+----------------+
| Variable_name              | Value          |
+----------------------------+----------------+
| audit_log_buffer_size      | 1048576        |
| audit_log_file             | audit.log      |
| audit_log_flush            | OFF            |
| audit_log_policy           | QUERIES        |
| audit_log_rotate_on_size   | 0              |
| audit_log_strategy         | ASYNCHRONOUS   |
+----------------------------+----------------+
```

mysqlauditgrep

Uses format

mysqlauditgrep

mysqlauditgrep

Uses format

--pattern supports SQL pattern matching

mysqlauditgrep

Uses format

--pattern supports SQL pattern matching

- _ and %

mysqlauditgrep

Uses format

--pattern supports SQL pattern matching

- _ and %

--regexp for POSIX regular expressions

mysqlauditgrep

--start-date, --end-date

mysqlauditgrep

--start-date, --end-date

--status

- Numerical status

mysqlauditgrep

--start-date, --end-date

--status

- Numerical status
- 0 is successful

mysqlauditgrep

--start-date, --end-date

--status

- Numerical status
- 0 is successful
- Errors are 1-999

mysqlauditgrep

--start-date, --end-date

--status

- Numerical status
- 0 is successful
- Errors are 1-999
- e.g. 1046 is “no database selected”

mysqlauditgrep

--start-date, --end-date

--status

- Numerical status
- 0 is successful
- Errors are 1-999
- e.g. 1046 is “no database selected”

--users

- Comma-separated list

mysqlauditgrep

--event-type

- 32 events

mysqlauditgrep

--event-type

- 32 events
- Audit, Binlog Dump, Change user, Close stmt, Connect Out, Connect, Create DB, Daemon, Debug, Delayed insert, Drop DB, Execute, Fetch, Field List, Init DB, Kill, Long Data, NoAudit, Ping, Prepare, Processlist, Query, Quit, Refresh, Register Slave, Reset stmt, Set option, Shutdown, Sleep, Statistics, Table Dump, Time.

mysqlauditgrep

--event-type

- 32 events
- Audit, Binlog Dump, Change user, Close stmt, Connect Out, Connect, Create DB, Daemon, Debug, Delayed insert, Drop DB, Execute, Fetch, Field List, Init DB, Kill, Long Data, NoAudit, Ping, Prepare, Processlist, Query, Quit, Refresh, Register Slave, Reset stmt, Set option, Shutdown, Sleep, Statistics, Table Dump, Time.

mysqlauditgrep

--query-type

mysqlauditgrep

--query-type

- 18 query types

mysqlauditgrep

--query-type

- 18 query types
- CREATE, ALTER, DROP, TRUNCATE, RENAME, GRANT, REVOKE, SELECT, INSERT, UPDATE, DELETE, COMMIT, SHOW, SET, CALL, PREPARE, EXECUTE, DEALLOCATE.

mysqlauditgrep

--query-type

- 18 query types
- CREATE, ALTER, DROP, TRUNCATE, RENAME, GRANT, REVOKE, SELECT, INSERT, UPDATE, DELETE, COMMIT, SHOW, SET, CALL, PREPARE, EXECUTE, DEALLOCATE.

mysqlfrm

mysqlfrm

Recovery tool for .frm files

mysqlfrm

Recovery tool for .frm files

Produces a CREATE statement

mysqlfrm

Recovery tool for .frm files

Produces a CREATE statement

- Not complete

mysqlfrm

Recovery tool for .frm files

Produces a CREATE statement

- Not complete
- Only what is in .frm file

mysqlfrm

Recovery tool for .frm files

Produces a CREATE statement

- Not complete
- Only what is in .frm file
- No AUTOINCREMENT

mysqlfrm

Recovery tool for .frm files

Produces a CREATE statement

- Not complete
- Only what is in .frm file
- No AUTOINCREMENT
- No foreign keys

mysqlfrm

Regular mode

- Spawns another instance of MySQL

mysqlfrm

Regular mode

- Spawns another instance of MySQL
- To read the .frm file

mysqlfrm

Regular mode

- Spawns another instance of MySQL
- To read the .frm file
- Without changing the .frm file

mysqlfrm

Regular mode

- Spawns another instance of MySQL
- To read the .frm file
- Without changing the .frm file
- --server option must include port to run on

mysqlfrm

Diagnostic mode

- --diagnostic

mysqlfrm

Diagnostic mode

- --diagnostic
- Tries to recover the .frm file

mysqlfrm

```
mysql> show create table film_actor\G
*************************** 1. row ***************************
       Table: film_actor
Create Table:
```

mysqlfrm

```
mysql> show create table film_actor\G
*************************** 1. row ***************************
       Table: film_actor
Create Table: CREATE TABLE `film_actor` (
  `actor_id` smallint(5) unsigned NOT NULL,
  `film_id` smallint(5) unsigned NOT NULL,
  `last_update` timestamp NOT NULL DEFAULT CURRENT_TIMESTAMP ON
UPDATE CURRENT_TIMESTAMP,
```

mysqlfrm

```
mysql> show create table film_actor\G
*************************** 1. row ***************************
       Table: film_actor
Create Table: CREATE TABLE `film_actor` (
  `actor_id` smallint(5) unsigned NOT NULL,
  `film_id` smallint(5) unsigned NOT NULL,
  `last_update` timestamp NOT NULL DEFAULT CURRENT_TIMESTAMP ON
UPDATE CURRENT_TIMESTAMP,
  PRIMARY KEY (`actor_id`,`film_id`),
```

mysqlfrm

```
mysql> show create table film_actor\G
*************************** 1. row ***************************
       Table: film_actor
Create Table: CREATE TABLE `film_actor` (
  `actor_id` smallint(5) unsigned NOT NULL,
  `film_id` smallint(5) unsigned NOT NULL,
  `last_update` timestamp NOT NULL DEFAULT CURRENT_TIMESTAMP ON
UPDATE CURRENT_TIMESTAMP,
  PRIMARY KEY (`actor_id`,`film_id`),
  KEY `idx_fk_film_id` (`film_id`),
```

mysqlfrm

```
mysql> show create table film_actor\G
*************************** 1. row ***************************
       Table: film_actor
Create Table: CREATE TABLE `film_actor` (
  `actor_id` smallint(5) unsigned NOT NULL,
  `film_id` smallint(5) unsigned NOT NULL,
  `last_update` timestamp NOT NULL DEFAULT CURRENT_TIMESTAMP ON
UPDATE CURRENT_TIMESTAMP,
  PRIMARY KEY (`actor_id`,`film_id`),
  KEY `idx_fk_film_id` (`film_id`),
  CONSTRAINT `fk_film_actor_actor` FOREIGN KEY (`actor_id`)
REFERENCES `actor` (`actor_id`) ON UPDATE CASCADE,
  CONSTRAINT `fk_film_actor_film` FOREIGN KEY (`film_id`) REFERENCES
`film` (`film_id`) ON UPDATE CASCADE
```

mysqlfrm

```
mysql> show create table film_actor\G
*************************** 1. row ***************************
       Table: film_actor
Create Table: CREATE TABLE `film_actor` (
  `actor_id` smallint(5) unsigned NOT NULL,
  `film_id` smallint(5) unsigned NOT NULL,
  `last_update` timestamp NOT NULL DEFAULT CURRENT_TIMESTAMP ON
UPDATE CURRENT_TIMESTAMP,
  PRIMARY KEY (`actor_id`,`film_id`),
  KEY `idx_fk_film_id` (`film_id`),
  CONSTRAINT `fk_film_actor_actor` FOREIGN KEY (`actor_id`)
REFERENCES `actor` (`actor_id`) ON UPDATE CASCADE,
  CONSTRAINT `fk_film_actor_film` FOREIGN KEY (`film_id`) REFERENCES
`film` (`film_id`) ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8
1 row in set (0.00 sec)
```

mysqlfrm

```
# strings film_actor.frm
```

mysqlfrm

```
# strings film_actor.frm
PRIMARY
idx_fk_film_id
InnoDB
)
actor_id
film_id

last_update
actor_id
film_id
last_update
```

mysqlfrm

```
# strings film_actor.frm
PRIMARY
idx_fk_film_id
InnoDB
)
actor_id
film_id

last_update
actor_id
film_id
last_update
```

```
# mysqlfrm --basedir=/usr /var/lib/mysql/sakila/film_actor.frm
                                                --port 1234 --user=root
```

```
# mysqlfrm --basedir=/usr /var/lib/mysql/sakila/film_actor.frm
                                                    --port 1234 --user=root
# Spawning server with --user=root.
# Starting the spawned server on port 1234 ... done.
# Reading .frm files
#
# Reading the film_actor.frm file.
#
```

```
# mysqlfrm --basedir=/usr /var/lib/mysql/sakila/film_actor.frm
                                                    --port 1234 --user=root
# Spawning server with --user=root.
# Starting the spawned server on port 1234 ... done.
# Reading .frm files
#
# Reading the film_actor.frm file.
#
# CREATE statement for /var/lib/mysql/sakila/film_actor.frm:
#
```

```
# mysqlfrm --basedir=/usr /var/lib/mysql/sakila/film_actor.frm
                                                    --port 1234 --user=root
# Spawning server with --user=root.
# Starting the spawned server on port 1234 ... done.
# Reading .frm files
#
# Reading the film_actor.frm file.
#
# CREATE statement for /var/lib/mysql/sakila/film_actor.frm:
#
CREATE TABLE `sakila`.`film_actor` (
  `actor_id` smallint(5) unsigned NOT NULL,
  `film_id` smallint(5) unsigned NOT NULL,
  `last_update` timestamp NOT NULL DEFAULT CURRENT_TIMESTAMP ON
UPDATE CURRENT_TIMESTAMP,
  PRIMARY KEY (`actor_id`,`film_id`),
  KEY `idx_fk_film_id` (`film_id`),
) ENGINE=InnoDB DEFAULT CHARSET=utf8
```

mysqldiskusage

mysqldiskusage

Shows disk usage

mysqldiskusage

Shows disk usage

--format

mysqldiskusage

Shows disk usage

--format

By default, for databases, and total

mysqldiskusage

Shows disk usage

--format

By default, for databases, and total

--quiet for databases only

mysqldiskusage

```
$  mysqldiskusage --server=root:password@localhost
:/var/lib/mysql/mysql.sock
```

mysqldiskusage

```
$  mysqldiskusage --server=root:password@localhost
:/var/lib/mysql/mysql.sock
# Source on localhost: ... connected.
# Database totals:
+----------------------+--------------------+
| db_name              |              total |
+----------------------+--------------------+
| bugs                 | 148,361,416,727    |
| mysql                | 7,396,699          |
| percona              | 238,778,705        |
| performance_schema   | 154,041            |
+----------------------+--------------------+
```

mysqldiskusage

```
$  mysqldiskusage --server=root:password@localhost
:/var/lib/mysql/mysql.sock
# Source on localhost: ... connected.
# Database totals:
+----------------------+--------------------+
| db_name              |              total |
+----------------------+--------------------+
| bugs                 | 148,361,416,727    |
| mysql                | 7,396,699          |
| percona              | 238,778,705        |
| performance_schema   | 154,041            |
+----------------------+--------------------+
Total database disk usage = 148,607,746,172 bytes or
138.40 GB
```

mysqldiskusage

```
$  mysqldiskusage --server=root:password@localhost
:/var/lib/mysql/mysql.sock --quiet
```

mysqldiskusage

```
$  mysqldiskusage --server=root:password@localhost
:/var/lib/mysql/mysql.sock --quiet
# Source on localhost: ... connected.
+----------------------+--------------------+
| db_name              |              total |
+----------------------+--------------------+
| bugs                 | 148,363,540,227    |
| mysql                | 7,396,699          |
| percona              | 238,778,705        |
| performance_schema   | 154,041            |
+----------------------+--------------------+

[no total, just the output]
```

```
# mysqldiskusage --server=root:password@localhost
:/var/lib/mysql/mysql.sock  --all
```

```
# mysqldiskusage --server=root:password@localhost
:/var/lib/mysql/mysql.sock  --all
# Source on localhost: ... connected.
# Database totals:
+----------------------+--------------------+
| db_name              |              total |
+----------------------+--------------------+
| bugs                 | 148,362,478,335    |
| mysql                | 7,396,699          |
| percona              | 238,778,705        |
| performance_schema   | 154,041            |
+----------------------+--------------------+
Total database disk usage = 148,608,807,780 bytes or 138.40
GB
```

```
# mysqldiskusage --server=root:password@localhost
:/var/lib/mysql/mysql.sock  --all
# Source on localhost: ... connected.
# Database totals:
+--------------------+------------------+
| db_name            |            total |
+--------------------+------------------+
| bugs               | 148,362,478,335  |
| mysql              | 7,396,699        |
| percona            | 238,778,705      |
| performance_schema | 154,041          |
+--------------------+------------------+
Total database disk usage = 148,608,807,780 bytes or 138.40
GB
# Log information.
# The general_log is turned off on the server.
+-----------------+--------------+
| log_name        |         size |
+-----------------+--------------+
| mysql-slow.log  |      108,567 |
| mysql.err       | 748,861,887  |
+-----------------+--------------+
Total size of logs = 748,970,454 bytes or 714.27 MB
```

```
# Binary log information:
Current binary log file = bugzilla1-bin.000068
```

```
# Binary log information:
Current binary log file = bugzilla1-bin.000068
+-------------------------+-------------+
| log_file                | size        |
+-------------------------+-------------+
| bugzilla1-bin.000045    | 1073741940  |
| bugzilla1-bin.000046    | 1073747089  |
...
| bugzilla1-bin.000067    | 1073742486  |
| bugzilla1-bin.000068    | 675211533   |
| bugzilla1-bin.index     | 864         |
+-------------------------+-------------+
```

```
# Binary log information:
Current binary log file = bugzilla1-bin.000068
+-------------------------+-------------+
| log_file                | size        |
+-------------------------+-------------+
| bugzilla1-bin.000045    | 1073741940  |
| bugzilla1-bin.000046    | 1073747089  |
...
| bugzilla1-bin.000067    | 1073742486  |
| bugzilla1-bin.000068    | 675211533   |
| bugzilla1-bin.index     | 864         |
+-------------------------+-------------+
Total size of binary logs = 25,377,525,189 bytes or 23.63
GB
```

```
# Binary log information:
Current binary log file = bugzilla1-bin.000068
+-------------------------+-------------+
| log_file                | size        |
+-------------------------+-------------+
| bugzilla1-bin.000045    | 1073741940  |
| bugzilla1-bin.000046    | 1073747089  |
...
| bugzilla1-bin.000067    | 1073742486  |
| bugzilla1-bin.000068    | 675211533   |
| bugzilla1-bin.index     | 864         |
+-------------------------+-------------+
Total size of binary logs = 25,377,525,189 bytes or 23.63
GB
# Relay log information:
Current relay log file = bugzilla1-relay-bin.000205
+-----------------------------+------------+
| log_file                    | size       |
+-----------------------------+------------+
| bugzilla1-relay-bin.000204  | 345        |
| bugzilla1-relay-bin.000205  | 347145270  |
| bugzilla1-relay-bin.index   | 84         |
+-----------------------------+------------+
Total size of relay logs = 347,145,699 bytes or 331.06 MB
```

mysqluserclone

mysqluserclone

Clones users

mysqluserclone

Clones users

- Direct to db

mysqluserclone

Clones users

- Direct to db
- Local or remote

mysqluserclone

Clones users

- Direct to db
- Local or remote
- Or just print the GRANT statement

    --dump

mysqluserclone

Clones users

- Direct to db
- Local or remote
- Or just print the GRANT statement

  --dump

Lists users

mysqluserclone

Clones users

- Direct to db
- Local or remote
- Or just print the GRANT statement

  --dump

Lists users

- Cannot easily list particular users

mysqluserclone

Clones users

- Direct to db
- Local or remote
- Or just print the GRANT statement

  --dump

Lists users

- Cannot easily list particular users
- Compare to pt-show-grants

mysqluserclone

List users:

mysqluserclone --list

mysqluserclone

List users:

```
mysqluserclone --list --source
                root:PASSWORD@localhost:
                        /var/lib/mysql/mysql.sock
```

mysqluserclone

List users:

mysqluserclone --list –source

root:PASSWORD@localhost:

/var/lib/mysql/mysql.sock

```
Remember: does not use .my.cnf
```

mysqluserclone

List users:

mysqluserclone --list –source

root:PASSWORD@localhost:

/var/lib/mysql/mysql.sock

```
+---------+-----------------+
| user    | host            |
+---------+-----------------+
| root    | 127.0.0.1       |
| root    | ::1             |
| root    | localhost       |
| test    | localhost       |
+---------+-----------------+
```

mysqluserclone

List users:

mysqluserclone --list –source **-vv**

root:PASSWORD@localhost:

/var/lib/mysql/mysql.sock

mysqluserclone

List users:

mysqluserclone --list –source **-vv**

root:PASSWORD@localhost:

/var/lib/mysql/mysql.sock

```
+---------+-----------------+-----------+
| user    | host            | database  |
+---------+-----------------+-----------+
| root    | 127.0.0.1       | None      |
| root    | ::1             | None      |
| root    | localhost       | None      |
| test    | localhost       | testdb    |
+---------+-----------------+-----------+
```

mysqluserclone

```
$ mysqluserclone --source=root@localhost \
  --destination=root@localhost \
```

mysqluserclone

```
$ mysqluserclone --source=root@localhost \
  --destination=root@localhost \
  joe@localhost sam:secret1@localhost
sally:secret2@localhost
```

mysqluserclone

```
$ mysqluserclone --source=root@localhost \
  --destination=root@localhost \
  joe@localhost sam:secret1@localhost
sally:secret2@localhost
# Source on localhost: ... connected.
# Destination on localhost: ... connected.
# Cloning 2 users...
```

mysqluserclone

```
$ mysqluserclone --source=root@localhost \
  --destination=root@localhost \
  joe@localhost sam:secret1@localhost
sally:secret2@localhost
# Source on localhost: ... connected.
# Destination on localhost: ... connected.
# Cloning 2 users...
# Cloning joe@localhost to user
sam:secret1@localhost
```

mysqluserclone

```
$ mysqluserclone --source=root@localhost \
  --destination=root@localhost \
  joe@localhost sam:secret1@localhost
sally:secret2@localhost
# Source on localhost: ... connected.
# Destination on localhost: ... connected.
# Cloning 2 users...
# Cloning joe@localhost to user
sam:secret1@localhost
# Cloning joe@localhost to user
sally:secret2@localhost
# ...done.
```

mysqlserverinfo

mysqlserverinfo

Information about a server

mysqlserverinfo

Information about a server

- Can scan for instances of MySQL

mysqlserverinfo

Information about a server

- Can scan for instances of MySQL
- In a given --port range

mysqlserverinfo

Information about a server

- Can scan for instances of MySQL
- In a given --port range
- Show defaults (uses my_print_defaults)

mysqlserverinfo

Information about a server

- Can scan for instances of MySQL
- In a given --port range
- Show defaults (uses my_print_defaults)
- Can use even if server is offline
  - Turns it on in read-only mode with --start

mysqlserverinfo

```
# mysqlserverinfo  --server=root:PASSWORD@localhost
--format=vertical
```

mysqlserverinfo

```
# mysqlserverinfo  --server=root:PASSWORD@localhost
--format=vertical
# Source on localhost: ... connected.
***********************          1. row ***********************
         server: localhost:3306
        version: 5.6.12-log
```

mysqlserverinfo

```
# mysqlserverinfo  --server=root:PASSWORD@localhost
--format=vertical
# Source on localhost: ... connected.
*************************** 1. row ***************************
         server: localhost:3306
        version: 5.6.12-log
        datadir: /var/lib/mysql/
        basedir: /usr
```

mysqlserverinfo

```
# mysqlserverinfo  --server=root:PASSWORD@localhost
--format=vertical
# Source on localhost: ... connected.
*********************           1. row *********************
         server: localhost:3306
        version: 5.6.12-log
        datadir: /var/lib/mysql/
        basedir: /usr
     plugin_dir: /usr/lib64/mysql/plugin/
    config_file: /etc/my.cnf
```

mysqlserverinfo

```
# mysqlserverinfo  --server=root:PASSWORD@localhost
--format=vertical
# Source on localhost: ... connected.
*************************       1. row ***********************
         server: localhost:3306
        version: 5.6.12-log
        datadir: /var/lib/mysql/
        basedir: /usr
     plugin_dir: /usr/lib64/mysql/plugin/
    config_file: /etc/my.cnf
     binary_log: dev2-bin.000756
binary_log_pos: 89453607
```

mysqlserverinfo

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--format=vertical
# Source on localhost: ... connected.
*************************       1. row ***********************
         server: localhost:3306
        version: 5.6.12-log
        datadir: /var/lib/mysql/
        basedir: /usr
     plugin_dir: /usr/lib64/mysql/plugin/
    config_file: /etc/my.cnf
     binary_log: dev2-bin.000756
binary_log_pos: 89453607
      relay_log: dev2-relay-bin.000380
  relay_log_pos: 352985556
1 row.
#...done.
```

mysqldbcompare

mysqldbcompare

Compares databases

mysqldbcompare

Compares databases

- On the same server or different servers

mysqldbcompare

Compares databases

- On the same server or different servers
- Uses checksums

mysqldbcompare

Compares databases

- On the same server or different servers
- Uses checksums
- Different from pt-table-checksum

mysqldbcompare

Compares databases

- On the same server or different servers
- Uses checksums
- Different from pt-table-checksum
- Can compare data and schemas

mysqldbcompare

Full compare goes through steps:

- Check that the dbs exist

mysqldbcompare

Full compare goes through steps:

- Check that the dbs exist
- Check existence of schema objects

mysqldbcompare

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- Check that the dbs exist
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- Compare object definitions

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- Check table row counts

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Full compare goes through steps:

- Check that the dbs exist
- Check existence of schema objects
- Compare object definitions
- Check table row counts
- Check table checksums

mysqldbcompare

Can skip steps

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Stops after failure unless --run-all-tests

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- really “continue” or “force”

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- really “continue” or “force”

Error messages

mysqldbcompare

Can skip steps

Stops after failure unless --run-all-tests

- really “continue” or “force”

Error messages

- “Database does not exist” for wrong permissions

mysqldbcompare

Two different outputs:

--format for data differences

mysqldbcompare

Two different outputs:

--format for data differences

- grid
- vertical
- tab
- csv

mysqldbcompare

Two different outputs:

--difftype for differences

mysqldbcompare

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- Unified (looks like diff -p for patches)

mysqldbcompare

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- Context
- Differ
- SQL (gives ALTER TABLE statement)

mysqldbcompare

Two different outputs:

--difftype for differences

- Unified (looks like diff -p for patches)
- Context
- Differ
- SQL (gives ALTER TABLE statement)

--changes-for-server1 (default) or --changes-for-server2

```
Unified difftype example:
options: --skip-row-count --skip-data-check --run-all-tests
information_schema
```

```
Unified difftype example:
options: --skip-row-count --skip-data-check --run-all-tests
information_schema
# server1 on localhost: ... connected.
# server2 on remote.mozilla.com: ... connected.
# Checking databases information_schema on server1 and
information_schema on server2
```

```
Unified difftype example:
options: --skip-row-count --skip-data-check --run-all-tests
information_schema
# server1 on localhost: ... connected.
# server2 on remote.mozilla.com: ... connected.
# Checking databases information_schema on server1 and
information_schema on server2
#
#                                                    Defn     Row      Data
# Type       Object Name                             Diff     Count    Check
#
------------------------------------------------------------------------
# TABLE      CHARACTER_SETS                          pass     SKIP     SKIP
# TABLE      CLIENT_STATISTICS                       pass     SKIP     SKIP
…
```

```
Unified difftype example:
options: --skip-row-count --skip-data-check --run-all-tests
information_schema
# server1 on localhost: ... connected.
# server2 on remote.mozilla.com: ... connected.
# Checking databases information_schema on server1 and
information_schema on server2
#
#                                                    Defn     Row      Data
# Type       Object Name                             Diff     Count    Check
#
------------------------------------------------------------------------
# TABLE      CHARACTER_SETS                          pass     SKIP     SKIP
# TABLE      CLIENT_STATISTICS                       pass     SKIP     SKIP
…
# TABLE      PLUGINS                                 pass     SKIP     SKIP
# TABLE      PROCESSLIST                             FAIL     SKIP     SKIP
#
# Object definitions differ. (--changes-for=server1)
#
```

```
--- `information_schema`.`PROCESSLIST`
+++ `information_schema`.`PROCESSLIST`
@@ -1,6 +1,6 @@
CREATE TEMPORARY TABLE `PROCESSLIST` (
   `ID` bigint(4) NOT NULL DEFAULT '0',
-  `USER` varchar(16) NOT NULL DEFAULT '',
+  `USER` varchar(128) NOT NULL DEFAULT '',
   `HOST` varchar(64) NOT NULL DEFAULT '',
   `DB` varchar(64) DEFAULT NULL,
   `COMMAND` varchar(16) NOT NULL DEFAULT '',
```

```
--- `information_schema`.`PROCESSLIST`
+++ `information_schema`.`PROCESSLIST`
@@ -1,6 +1,6 @@
CREATE TEMPORARY TABLE `PROCESSLIST` (
   `ID` bigint(4) NOT NULL DEFAULT '0',
-  `USER` varchar(16) NOT NULL DEFAULT '',
+  `USER` varchar(128) NOT NULL DEFAULT '',
   `HOST` varchar(64) NOT NULL DEFAULT '',
   `DB` varchar(64) DEFAULT NULL,
   `COMMAND` varchar(16) NOT NULL DEFAULT '',
# TABLE     PROFILING                              pass    SKIP    SKIP
# TABLE     REFERENTIAL_CONSTRAINTS                pass    SKIP    SKIP
...
# TABLE     VIEWS                                  pass    SKIP    SKIP
# TABLE     XTRADB_ADMIN_COMMAND                   pass    SKIP    SKIP
```

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   `ID` bigint(4) NOT NULL DEFAULT '0',
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+  `USER` varchar(128) NOT NULL DEFAULT '',
   `HOST` varchar(64) NOT NULL DEFAULT '',
   `DB` varchar(64) DEFAULT NULL,
   `COMMAND` varchar(16) NOT NULL DEFAULT '',
# TABLE     PROFILING                              pass    SKIP    SKIP
# TABLE     REFERENTIAL_CONSTRAINTS                pass    SKIP    SKIP
...
# TABLE     VIEWS                                  pass    SKIP    SKIP
# TABLE     XTRADB_ADMIN_COMMAND                   pass    SKIP    SKIP

# Database consistency check failed.
#
# ...done
```

Unified difftype:

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   `HOST` varchar(64) NOT NULL DEFAULT '',
   `DB` varchar(64) DEFAULT NULL,
   `COMMAND` varchar(16) NOT NULL DEFAULT '',
```

```
Unified difftype:

--- `information_schema`.`PROCESSLIST`
+++ `information_schema`.`PROCESSLIST`
@@ -1,6 +1,6 @@
CREATE TEMPORARY TABLE `PROCESSLIST` (
    `ID` bigint(4) NOT NULL DEFAULT '0',
-   `USER` varchar(16) NOT NULL DEFAULT '',
+   `USER` varchar(128) NOT NULL DEFAULT '',
    `HOST` varchar(64) NOT NULL DEFAULT '',
    `DB` varchar(64) DEFAULT NULL,
    `COMMAND` varchar(16) NOT NULL DEFAULT '',

SQL difftype:
ALTER TABLE `information_schema`.`PROCESSLIST`
  CHANGE COLUMN USER USER varchar(128) NOT NULL,
MAX_ROWS=30448;
```

mysqldbcompare

Data differences vs. pt-table-checksum

mysqldbcompare

Data differences vs. pt-table-checksum

- mysqldbcompare is locking

mysqldbcompare

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- mysqldbcompare is not flexible
  - e.g. with pt-table-checksum you can choose what index to use

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- Recommendation: use both

mysqldbcompare

Data differences vs. pt-table-checksum

- mysqldbcompare is locking
- mysqldbcompare is not flexible
  - e.g. with pt-table-checksum you can choose what index to use
- Recommendation: use both
- mysqldbcompare for schema changes
- pt-table-checksum for data changes

mysqldiff

mysqldiff

Precursor to mysqldbcompare

mysqldiff

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mysqldiff only compares object definitions

mysqldiff

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- Not row counts
- Not data differences

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Precursor to mysqldbcompare

mysqldiff only compares object definitions

- Not row counts
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--force to keep going after failure

mysqldiff

Allows choice of a pair of objects to compare

- Databases
- Tables
- Routines (procedures/functions)
- Triggers
- Events

mysqldiff

mysqldiff allows you to choose types of objects

- Databases
- Tables
- Routines (procedures/functions)
- Triggers
- Events
- And by name

```
# InnoDB tablespace information:
+--------------+-----------------+
| innodb_file  |            size |
+--------------+-----------------+
| ib_logfile0  |   314,572,800   |
| ib_logfile1  |   314,572,800   |
| ibdata1      | 4,582,277,120   |
+--------------+-----------------+
Total size of InnoDB files = 5,211,422,720 bytes or 4.85 GB
#...done.
```

mysqldiff

mysqldiff allows you to choose types of objects

- Databases
- Tables
- Routines (procedures/functions)
- Triggers
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- And by name

mysqldiff

mysqldiff allows you to choose types of objects

- Databases
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- And by name

MySQL Utilities left...

Replication

Failover

Import

Export

Index check

Metadata grep

Processlist grep