

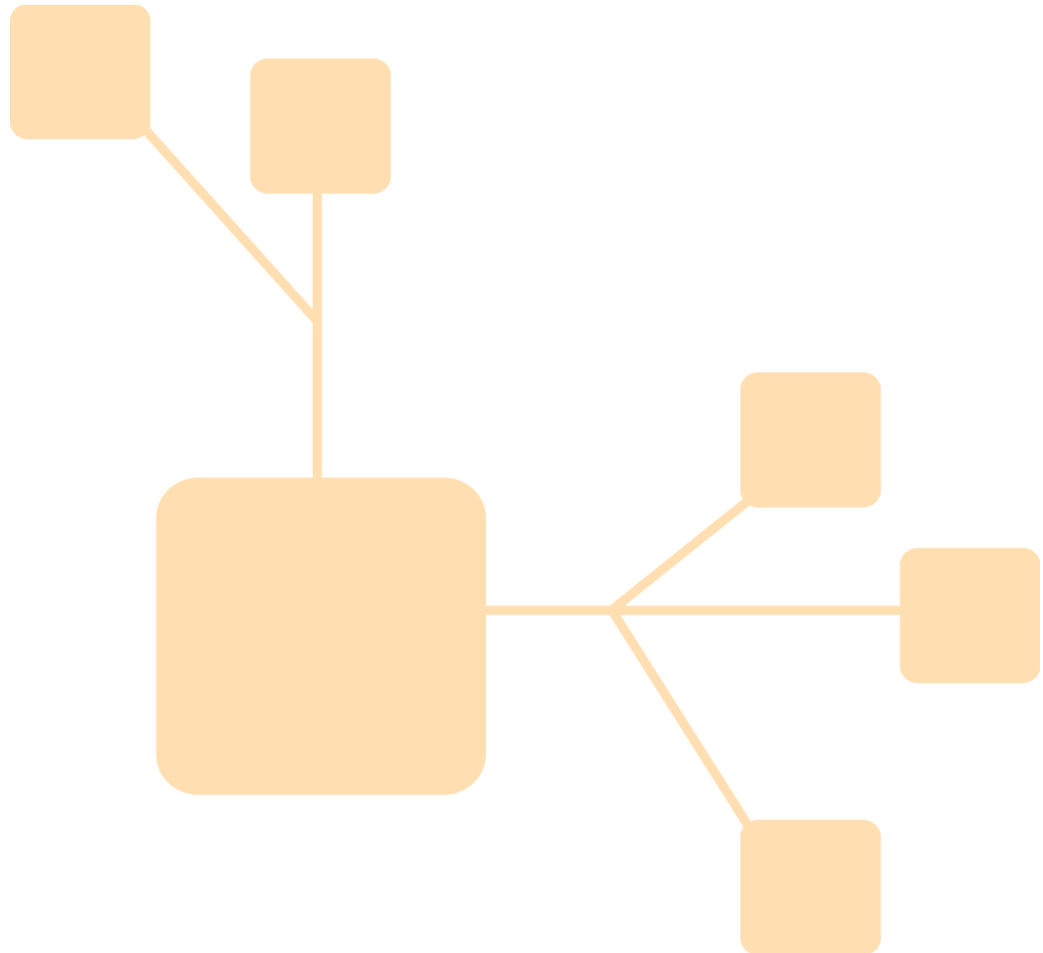


ZRM Enterprise for MySQL Backup **White Paper**



How to set up and verify automated MySQL backups in 15 minutes

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This article will show you how, in about 15 minutes, you can:

- Install ZRM for MySQL locally, on a MySQL Database Server.
- Configure ZRM for MySQL locally, on a MySQL Database Server.
- Perform a backup.
- Setup an automated backup process which adheres to your retention policies.
- Backup reports.
- Verification of backup images.
- Perform a full restoration.

Note: Letters in **green** are commands that must be entered literally.



How to set up and verify automated MySQL backup in 15 minutes

Table of Contents (for this type of Headings use style: h2)

The Problem	4
The Challenge.....	4
The Solution: Zmanda Recovery Manager for MySQL.....	4
Prerequisites	5
Install ZRM for MySQL	5
Configure ZRM for MySQL to backup your database.....	8
Perform a Backup	13
Backup Reports	17
Verification of Backup Images	17
Perform a full restoration	18
Success!	21



How to set up and verify automated MySQL backup in 15 minutes

The Problem

The value of data stored in MySQL grows exponentially. For companies who are using MySQL in production, loss of data can be catastrophic, resulting in lost revenues, lost customers, and a damaged organization. Managing MySQL backup and restore processes typically consumes much of a DBA's time and attention.

The Challenge

For our 15-minute challenge, we will backup a MySQL 5.0 database on Linux, using freely downloadable open source software for the solution.

The scenario

Most DBAs do not have the time to write backup/recovery scripts, and manually backing up the database every 12 hours is not practical. For our example, we will back up a single MySQL database using the InnoDB Storage Engine. The example shows a logical backup. A logical backup 1) contains SQL statements that can reconstruct the database table schema and contents, and 2) can be restored to another platform or another database.

The example also assumes the following environment:

Server OS: **Fedora Core 8**

MySQL Version: **MySQL 5.0.45**

For this example, we use MySQL's '**Sakila**' test database. The **Sakila** sample database was designed as a replacement to the world sample database, also provided by MySQL AB.

The Solution: Zmanda Recovery Manager for MySQL

Zmanda Recovery Manager for MySQL (ZRM for MySQL) simplifies this essential part of database administration with an easy-to-use yet powerful framework for scheduling and monitoring backups and restores.



How to set up and verify automated MySQL backup in 15 minutes

Prerequisites

- MySQL Server installed and configured.
- At least one running database.
- MySQL user with appropriate permissions (backup-user).
 - Grant access to 'backup-user' in mysql with password 'pass123'
 - Grant access to 'backup-user' in mysql with password 'pass123'

```
mysql> grant select,show view, create view, insert, update, create, drop, reload, shutdown, alter, super,
lock tables, replication client on *.* to 'backup-user'@'localhost' identified by 'pass123';
mysql> show grants for 'backup-user'@'localhost';
Grants for backup-user@localhost
| GRANT SELECT, INSERT, UPDATE, CREATE, DROP, RELOAD, SHUTDOWN, ALTER, SUPER,
LOCK TABLES, REPLICATION CLIENT ON *.* TO 'backup-user'@'localhost' IDENTIFIED BY
PASSWORD '591051bb593d2f5b' WITH GRANT OPTION |
mysql> flush privileges;
```

- ZRM 2.1 for MySQL also requires perl-DBI as well as perl-XML-parser. For local raw backups, the perl-DBD-MySQL package is also required. These perl modules must be installed before ZRM 2.1 for MySQL installation. These perl modules are available in all Linux distributions (might be already installed). Packages are also available for these perl modules in the following locations (choose the package based on your distribution) perl-DBI, perl-XML-parser, and perl-DBD-MySQL.

TIP: You can copy and paste from all of the examples here, editing as appropriate for your environment.

Install ZRM for MySQL

1. Log in as root on your Linux Server.

Download ZRM for MySQL:

ZRM for MySQL Version: MySQL-zrm-2.1-1 (<http://www.zmanda.com/download-zrm.php>)



2. Install the ZRM for MySQL 2.1 community edition.

Installation of the package must be performed as root.

```
[root@fc8-build ~]# rpm -ivh MySQL-zrm-2.1-1.noarch.rpm --nodeps
warning: MySQL-zrm-2.1-1.noarch.rpm: Header V3 DSA signature: NOKEY, key ID 3c5d1c92
Preparing...      ##### [100%]
1:MySQL-zrm      ##### [100%]
```

3. Verify ZRM for MySQL Installation.

ZRM for MySQL executables are located in /usr/bin:

```
[root@fc8-build ~]# ls -lh /usr/bin/mysql-zrm*
-rwxr-x--- 1 mysql mysql 3.1K Nov 19 17:14 /usr/bin/mysql-zrm
-rwxr-x--- 1 mysql mysql 1.7K Nov 19 17:14 /usr/bin/mysql-zrm-abort-backup
-rwxr-x--- 1 mysql mysql 57K Nov 19 17:14 /usr/bin/mysql-zrm-backup
-rwxr-x--- 1 mysql mysql 1.6K Nov 19 17:14 /usr/bin/mysql-zrm-check
-rwxr-x--- 1 mysql mysql 2.8K Nov 19 17:14 /usr/bin/mysql-zrm-extract-backup
-rwxr-x--- 1 mysql mysql 1.8K Nov 19 17:14 /usr/bin/mysql-zrm-getconf
-rwxr-x--- 1 mysql mysql 4.4K Nov 19 17:14 /usr/bin/mysql-zrm-list
-rwxr-x--- 1 mysql mysql 11K Nov 19 17:14 /usr/bin/mysql-zrm-manage-backup
-rwxr-x--- 1 mysql mysql 2.7K Nov 19 17:14 /usr/bin/mysql-zrm-migrate-file-ownership
-rwxr-x--- 1 mysql mysql 7.1K Nov 19 17:14 /usr/bin/mysql-zrm-parse-binlogs
-rwxr-x--- 1 mysql mysql 4.7K Nov 19 17:14 /usr/bin/mysql-zrm-purge
-rwxr-x--- 1 mysql mysql 27K Nov 19 17:14 /usr/bin/mysql-zrm-reporter
-rwxr-x--- 1 mysql mysql 20K Nov 19 17:14 /usr/bin/mysql-zrm-restore
-rwxr-x--- 1 mysql mysql 13K Nov 19 17:14 /usr/bin/mysql-zrm-scheduler
-rwxr-x--- 1 mysql mysql 8.0K Nov 19 17:14 /usr/bin/mysql-zrm-verify-backup
-rwxr-x--- 1 mysql mysql 13K 2008-04-07 13:40 /usr/bin/mysql-zrm-scheduler
-rwxr-x--- 1 mysql mysql 7.7K 2008-04-07 13:40 /usr/bin/mysql-zrm-verify-backup
```



How to set up and verify automated MySQL backup in 15 minutes

ZRM for MySQL configuration files are located in `/etc/mysql-zrm/`:

```
[root@fc8-build ~]# ls -lh /etc/mysql-zrm/
total 24K
-rwxrwx--- 1 mysql mysql 11K Nov 19 17:14 mysql-zrm.conf
-rwxrwx--- 1 mysql mysql 46 Nov 19 17:14 mysql-zrm-release
-rwxrwx--- 1 mysql mysql 3.1K Nov 19 17:14 mysql-zrm-reporter.conf
-rw-rw---- 1 mysql mysql 596 Nov 19 17:14 RSS.header
```

Additional ZRM for MySQL files are located here:

Man pages `/usr/share/man/{man1,man5}`

Libraries `/usr/lib/mysql-zrm`

Log files `/var/log/mysql-zrm`

Documentation `/usr/share/doc/MySQL-zrm-2.1`



How to set up and verify automated MySQL backup in 15 minutes

Configure ZRM for MySQL to backup your database

In the example, we back up a database called **sakila** . The **sakila** database includes 23

```
[root@fc8-build mysql]# mysql -u backup-user -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 10
Server version: 5.0.45 Source distribution

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

mysql> use sakila;
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_sakila |
+-----+
| actor              |
| actor_info         |
| address            |
| category           |
| city               |
| country            |
| customer           |
| customer_list      |
| film               |
| film_actor         |
| film_category      |
| film_list          |
| film_text          |
| inventory          |
| language           |
| nicer_but_slower_film_list |
| payment            |
| rental             |
| sales_by_film_category |
| sales_by_store     |
| staff              |
| staff_list         |
| store              |
+-----+
23 rows in set (0.00 sec)
```




How to set up and verify automated MySQL backup in 15 minutes

1. Log in as root on your Linux Server.
2. Configure a daily full backup of the sakila database.

For the example, we will create a directory called **dailyrun**, and copy the sample **mysql-zrm.conf** configuration file to that location. This allows more flexibility to create individual backup sets for individual databases.

```
[root@fc8-build /]# cd /etc/mysql-zrm
[root@fc8-build /]# mkdir dailyrun
[root@fc8-build /]# cp mysql-zrm.conf dailyrun/
[root@fc8-build /]# cd dailyrun/
[root@fc8-build dailyrun]# ls -lh
total 12K
-rwxr-x--- 1 root root 11K Dec  4 21:05 mysql-zrm.conf
```

3. Edit **/etc/mysql-zrm/dailyrun/mysql-zrm.conf** to change the parameters as shown below.

Please be sure to secure this file with the proper permissions, as it stores the password for the MySQL backup user in clear text.

The example demonstrates a full backup:

```
Backup Level:
# Backup level. It can be full or incremental
# Use 0 for full and 1 for incremental backups
# This parameter is optional and default value is full backup.
backup-level=0
```



How to set up and verify automated MySQL backup in 15 minutes

We will be performing logical backups:

```
Backup Method:  
# Backup method  
# Values can be "raw" or "logical". Logical backup are backups using  
# mysqldump(1) tool  
# This parameter is optional and default value is "raw".  
backup-mode=logical
```

The example retains backups for 10 days:

```
Retention Policy:  
# Specifies how long the backup should be retained. The value can be  
# specified in days (suffix D), weeks (suffix: W), months (suffix: M) or  
# years (suffix Y). 30 days in a month and 365 days in a year are assumed  
# This parameter is optional and the default is the backups are retained  
# forever.  
retention-policy=10D
```

Compressing the backups saves disk space:

```
# This parameter should be set to 1 if backups should be compressed. If this  
# parameter is set, gzip(1) command is used by default. If different  
# compression algorithm should be used, it must be set in "compress-plugin"  
# parameter. Default: There is no data compression.  
compress=1
```



How to set up and verify automated MySQL backup in 15 minutes

This portion of the example selects the **sakila** database for backup:

```
Database(s) to backup:  
# List of databases that are part of this backup set. Multiple database  
# names are separated by space character. This parameter is ignored if  
# "all-databases" is set 1.  
databases="sakila"
```

This part of the configuration file stores the MySQL username and password that created above:

(the password below is stored in clear text)

```
MySQL Server Parameters:  
# MySQL database user used for backup and recovery of the backup set.  
# This parameter is optional. If this parameter is not specified, values from  
# my.cnf configuration file.  
user="backup-user"  
  
# MySQL database user password.  
# This parameter is optional. If this parameter is not specified, values from  
# my.cnf configuration file or no password is used.  
password="pass123"
```



How to set up and verify automated MySQL backup in 15 minutes

Verbose mode can be disabled once MySQL is configured and verified:

```
Verbosity of ZRM for MySQL Logging:  
# This parameter controls the verbosity of MySQL ZRM logging. The MySQL ZRM logs  
# are available at /var/log/mysql-zrm/mysql-zrm.log. This parameter is optional  
# default value is 0 (less verbose).  
# The valid values are 0 and 1  
verbose=1
```

If your Linux server can send mail, you can configure MySQL for ZRM to send backup reports to a valid email address):

```
# After a backup run the backup report is emailed to the mailto address  
# This parameter is optional and default behavior is not to send mail notifications.  
mailto="dba@yourcompany.com"
```

Save and close the **/etc/mysql-zrm/dailyrun/mysql-zrm.conf** file.



How to set up and verify automated MySQL backup in 15 minutes

Perform a Backup

These steps must be performed as the **mysql** user.

1. On your MySQL Server, become user **mysql** to run ZRM for MySQL and start the **dailyrun** backup on the **sakila** database.

```
[root@fc8-build ~]# su - mysql
[mysql@fc8-build ~]$ mysql-zrm-backup --backup-set dailyrun
```

2. ZRM for MySQL will output the following report to screen.

```
backup:INFO: ZRM for MySQL Community Edition - version 2.1
dailyrun:backup:INFO: START OF BACKUP
dailyrun:backup:INFO: PHASE START: Initialization
dailyrun:backup:WARNING: last backup directory is not valid
dailyrun:backup:INFO: Mail address: dba@yourcompany.com is ok
dailyrun:backup:INFO: ZRM Temporary configuration file = /etc/mysql-zrm/dailyrun/tmpBrSY.conf
dailyrun:backup:INFO: {
dailyrun:backup:INFO:  verbose=1
dailyrun:backup:INFO:  retention-policy=10D
dailyrun:backup:INFO:  backup-level=0
dailyrun:backup:INFO:  mailto=dba@yourcompany.com
dailyrun:backup:INFO:  databases=sakila
dailyrun:backup:INFO:  backup-mode=logical
dailyrun:backup:INFO:  password=*****
dailyrun:backup:INFO:  compress=
dailyrun:backup:INFO:  user=backup-user
dailyrun:backup:INFO: }
dailyrun:backup:INFO: Getting mysql variables
dailyrun:backup:INFO: mysqladmin --user="backup-user" --password="*****" variables
dailyrun:backup:INFO: datadir is /var/lib/mysql/
dailyrun:backup:INFO: mysql_version is 5.0.45
```



How to set up and verify automated MySQL backup in 15 minutes

```
dailyrun:backup:WARNING: Binary logging is off.
dailyrun:backup:INFO: InnoDB data file are /var/lib/mysql/ibdata1
dailyrun:backup:INFO: InnoDB log dir is /var/lib/mysql/.
dailyrun:backup:INFO: backup set being used is dailyrun
dailyrun:backup:INFO: backup-set=dailyrun
dailyrun:backup:INFO: backup-date=20081204022708
dailyrun:backup:INFO: mysql-server-os=Linux/Unix
dailyrun:backup:INFO: host=localhost
dailyrun:backup:INFO: backup-date-epoch=1208856428
dailyrun:backup:INFO: retention-policy=10D
dailyrun:backup:INFO: mysql-zrm-version=ZRM for MySQL Community Edition - version 2.1
dailyrun:backup:INFO: mysql-version=5.0.45
dailyrun:backup:INFO: backup-directory=/var/lib/mysql-zrm/dailyrun/20081204022708
dailyrun:backup:INFO: backup-level=0
dailyrun:backup:INFO: backup-mode=logical
dailyrun:backup:INFO: PHASE END: Initialization
dailyrun:backup:INFO: PHASE START: Running pre backup plugin
dailyrun:backup:INFO: Executing pre-backup-plugin
dailyrun:backup:INFO: PHASE END: Running pre backup plugin
dailyrun:backup:INFO: PHASE START: Flushing logs
dailyrun:backup:INFO: Flushing the logs
dailyrun:backup:INFO: mysqladmin --user="backup-user" --password="*****" flush-logs
dailyrun:backup:INFO: Getting master logname using command mysql --user="backup-user" --
password="*****" -e "show master status"
dailyrun:backup:INFO: PHASE END: Flushing logs
dailyrun:backup:INFO: PHASE START: Creating logical backup
dailyrun:backup:INFO: Command used for logical backup is mysqldump --opt --extended-insert --
single-transaction --create-options --default-character-set=utf8 --user="backup-user" --
password="*****" --databases sakila > "/var/lib/mysql-zrm/dailyrun/20081204022708/backup.sql"
dailyrun:backup:INFO: Logical backup done for the following database(s)
    sakila
dailyrun:backup:INFO: logical-databases=sakila
dailyrun:backup:INFO: PHASE END: Creating logical backup
dailyrun:backup:INFO: PHASE START: Calculating backup size & checksums
dailyrun:backup:INFO: backup-size=3.22 MB
dailyrun:backup:INFO: PHASE END: Calculating backup size & checksums
```



How to set up and verify automated MySQL backup in 15 minutes

```
dailyrun:backup:INFO: PHASE START: Compression/Encryption
dailyrun:backup:INFO: Compressing backup
dailyrun:backup:INFO: Command used is 'tar --same-owner -cpcS "/var/lib/mysql-
zrm/dailyrun/20080422022708" --exclude=backup-data --exclude=index --exclude=zrm_checksum --
exclude=backup-sql . 2>/tmp/G25pkx1RIq | gzip 2>/tmp/amXpQPUokv > "/var/lib/mysql-
zrm/dailyrun/20081204022708/backup-data" 2>/tmp/agPHdeKqBA'
dailyrun:backup:INFO: compress=
dailyrun:backup:INFO: backup-size-compressed=0.67 MB
dailyrun:backup:INFO: Removing all of the uncompressed/unencrypted data
dailyrun:backup:INFO: PHASE END: Compression/Encryption
dailyrun:backup:INFO: read-locks-time=00:00:01
dailyrun:backup:INFO: flush-logs-time=00:00:00
dailyrun:backup:INFO: compress-encrypt-time=00:00:01
dailyrun:backup:INFO: backup-time=00:00:01
dailyrun:backup:INFO: backup-status=Backup succeeded
dailyrun:backup:INFO: Backup succeeded
dailyrun:backup:INFO: PHASE START: Running post backup plugin
dailyrun:backup:INFO: Executing post-backup-plugin
dailyrun:backup:INFO: PHASE END: Running post backup plugin
dailyrun:backup:INFO: PHASE START: Mailing backup report
dailyrun:backup:INFO: mailing file /tmp/FNumR2o2Br
dailyrun:backup:INFO: mail command is cat "/tmp/FNumR2o2Br"|mail -s "[ZRM for MySQL Report]
backup-set dailyrun" dba@yourcompany.com
dailyrun:backup:INFO: PHASE END: Mailing backup report
dailyrun:backup:INFO: PHASE START: Cleanup
dailyrun:backup:INFO: PHASE END: Cleanup
dailyrun:backup:INFO: END OF BACKUP
```



How to set up and verify automated MySQL backup in 15 minutes

Note: The schedule can be used to schedule backups as shown below.

The example schedules a daily full backup at 1am.

```
[mysql@fc8-build ~]$ mysql-zrm-scheduler --add --interval daily --start 01:00 --backup-level 0 --backup-set
dailyrun
schedule:INFO: ZRM for MySQL Community Edition - version 2.1
Logging to /var/log/mysql-zrm/mysql-zrm-scheduler.log
DONE
```

Verify that the scheduler has been configured correctly:

```
[mysql@fc8-build ~]$ mysql-zrm-scheduler --query
schedule:INFO: ZRM for MySQL Community Edition - version 2.1
Logging to /var/log/mysql-zrm/mysql-zrm-scheduler.log
0 1 * * * /usr/bin/zrm-pre-scheduler --action backup --backup-set dailyrun --backup-level 0 --interval daily
```




Backup Reports

You can run the following **mysql-zrm-reporter** commands for a quick summary of your backup job(s).

```
[mysql@fc8-build ~]$ mysql-zrm-reporter --where backup-set=dailyrun --show backup-status-info
REPORT TYPE : backup-status-info
  backup_set backup_date          backup_level backup_status  comment
-----
  dailyrun  Thu 04 Dec 2008 02:27:08      0 Backup succeeded  ----
           AM PST
```

The first report shows us the status of backup(s) for backup set **dailyrun**, including backup level, and whether the backup was full (**0**) or incremental (**1**).

```
[mysql@fc8-build ~]$ mysql-zrm-reporter --where backup-set=dailyrun --show backup-performance-info
REPORT TYPE : backup-performance-info
  backup_set backup_date          backup_level backup_size backup_size_compressed
  backup_time compress_encrypt_time
-----
-
  dailyrun  Thu 04 Dec 2008 02:27:08      0   3.22 MB 0.67 MB          00:00:01  00:00:01
           AM PST
```

The second report shows the total time the backup(s) ran, as well as the compressed & uncompressed size of the backup(s).

Verification of Backup Images

You can run the following **mysql-zrm** command to quickly verify the integrity of the last backup.

```
[mysql@fc8-build ~]$ mysql-zrm --action verify-backup --backup-set dailyrun
verify-backup:INFO: ZRM for MySQL Community Edition - version 2.1
dailyrun:verify-backup:INFO: Verification successful
```



Perform a full restoration

First we will “accidentally” drop the **sakila** database. To do this, we must login to MySQL as a user with root privileges. In the example, we have renamed the MySQL **root** user to **admin** for security reasons.

```
[root@fc8-build /]# mysql -u admin -p
mysql> show databases;
+-----+
| Database          |
+-----+
| information_schema |
| mysql             |
| sakila            |
| test              |
+-----+
4 rows in set (0.01 sec)

mysql> drop database sakila;
Query OK, 23 rows affected (8.64 sec)

mysql> show databases;
+-----+
| Database          |
+-----+
| information_schema |
| mysql             |
| test              |
+-----+
3 rows in set (0.00 sec)
```

1. Determine which backup to restore from.

```
[mysql@fc8-build ~]$ mysql-zrm-reporter --show restore-info --where backup-set=dailyrun
REPORT TYPE : restore-info
  backup_set  backup_date          backup_level  backup_directory          backup_status
  comment
-----
  dailyrun   Thu 04 Dec 2008 02:27:08      0 /var/lib/mysql-zrm/dailyrun/20081204022708
Backup succeeded ----
              AM PST              08
```



How to set up and verify automated MySQL backup in 15 minutes

2. Start the restore.

The example restores from the last full backup, from 2:27am on December 4th.

```
[mysql@fc7-build ~]$ mysql-zrm-restore --backup-set dailyrun --source-directory /var/lib/mysql-zrm/dailyrun/20081204022708
restore:INFO: ZRM for MySQL Community Edition - version 2.1
dailyrun:restore:INFO: Mail address: dba@yourcompany.com is ok
dailyrun:restore:INFO: ZRM Temporary configuration file = /etc/mysql-zrm/dailyrun/tmpiujTu.conf
dailyrun:restore:INFO: {
dailyrun:restore:INFO: verbose=1
dailyrun:restore:INFO: retention-policy=10D
dailyrun:restore:INFO: backup-level=0
dailyrun:restore:INFO: mailto=dba@yourcompany.com
dailyrun:restore:INFO: databases=sakila
dailyrun:restore:INFO: source-directory=/var/lib/mysql-zrm/dailyrun/20081204022708
dailyrun:restore:INFO: backup-mode=logical
dailyrun:restore:INFO: password=*****
dailyrun:restore:INFO: compress=
dailyrun:restore:INFO: user=backup-user
dailyrun:restore:INFO: }
dailyrun:restore:INFO: Getting mysql variables
dailyrun:restore:INFO: mysqladmin --user="backup-user" --password="*****" variables
dailyrun:restore:INFO: datadir is /var/lib/mysql/
dailyrun:restore:INFO: mysql_version is 5.0.45
dailyrun:restore:WARNING: Binary logging is off.
dailyrun:restore:INFO: InnoDB data file are /var/lib/mysql/ibdata1
dailyrun:restore:INFO: InnoDB log dir is /var/lib/mysql/.
dailyrun:restore:INFO: Command used is 'cat "/var/lib/mysql-zrm/dailyrun/20081204022708/backup-data"
| gzip -d | tar --same-owner -xpsC "/var/lib/mysql-zrm/dailyrun/20081204022708"
2>/tmp/xYAmLhRjkb'
dailyrun:restore:INFO: restoring using command mysql --user="backup-user" --password="*****" -e "set
character_set_client=utf8;set character_set_connection=utf8;set character_set_database=utf8;set
character_set_results=utf8;set character_set_server=utf8;source /tmp/5gD1P8RA8N;"
dailyrun:restore:INFO: Restored database(s) from logical backup: sakila
dailyrun:restore:INFO: Removing all of the uncompressed/unencrypted data
dailyrun:restore:INFO: Restore done in 19 seconds.
```

After starting the MySQL service if it has stopped (as root, type: **/sbin/service mysql start**) Verify the database was restored.



How to set up and verify automated MySQL backup in 15 minutes

```
[root@fc8-build ~]# mysql -u backup-user -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 108
Server version: 5.0.45 Source distribution

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

mysql> show databases;
+-----+
| Database          |
+-----+
| information_schema|
| mysql             |
| sakila            |
| test              |
+-----+
4 rows in set (0.00 sec)

mysql> use sakila;
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_sakila  |
+-----+
| actor              |
| actor_info        |
| address           |
| category          |
| city              |
| country           |
| customer          |
| customer_list     |
| film              |
```



How to set up and verify automated MySQL backup in 15 minutes

```
| film_actor      |
| film_category  |
| film_list      |
| film_text      |
| inventory      |
| language       |
| nicer_but_slower_film_list |
| payment        |

| rental         |
| sales_by_film_category |
| sales_by_store |
| staff         |
| staff_list    |
| store         |
+-----+
23 rows in set (0.00 sec)
```

Success!

In about 15 minutes, we have installed and configured a fast and reliable MySQL backup solution, performed a backup, verified our backup, and performed a restoration. And we did it with free, open source software that you can install from binaries or compile for your unique needs. As a DBA, you now have a reliable and easy to implement backup solution to protect your database using ZRM for MySQL.

If you saw an error or scope of improvement in this paper, please send your feedback to feedback@zmanda.com. We highly value your suggestions.