

MySQL Administration: Replication, Automation and Security

A focused workshop for experienced database administrators

FA-0639 · 1 day

Data & Analytics · DevOps, Cloud & Infrastructure

Review MySQL replication, stored-object automation, schema tools and security through selected exercises in a prepared database environment.

Introduction

This one-day workshop is for experienced MySQL administrators. It surveys replication, import/update workflows, triggers, views, stored procedures, scheduled SQL events, schema modelling and security.

The lab environment is prepared in advance. Participants complete a few small exercises and review demonstrations for the broader topics; the day is not a fast track to mastery, optimal performance or a production high-availability deployment.

Learning outcomes

The course teaches participants to:

- Inspect a prepared MySQL server and verify the selected Workbench features are compatible.
- Review import/update choices and data-integrity checks for sample data.
- Explain source/replica replication, lag and its operational limitations.
- Create or inspect a selected trigger, view, procedure and scheduled SQL task.
- Use an EER diagram to review schema relationships.
- Evaluate least-privilege access, TLS and available logging/monitoring options.

- Identify prerequisites and verification needed before applying changes to production.

Prerequisites

- Strong understanding of MySQL and relational database management.
- Working experience and solid understanding of SQL queries and database concepts.
- Prior experience with MySQL Workbench.

A disposable prepared MySQL environment, sample data and compatible Workbench tooling; replication examples require supplied isolated instances.

Training outline

1. Environment and Architecture

- Overview of course objectives.
- Inspect a prepared MySQL Community Server and discuss installation/runtime requirements.
- Check Workbench/server compatibility for the selected functions; do not assume every feature works on newer server releases.
- Overview of the MySQL architecture and essential components.

2. Data Import and Updates

Compare import approaches and measure a small prepared example; large-scale efficiency depends on workload/configuration.

- CSV and SQL file imports.
- Batch processing for large-scale imports.

Updating and altering databases:

- Modifying tables and columns.
- Validate updates using appropriate transaction, constraint and recovery considerations.

3. Replication and Reliability

Understanding replication concepts:

- Source-to-replica replication terminology; recognise older master/slave wording in legacy material.
- Multi-source replication overview, not a full hands-on topology.

Configuring replication:

- Inspect or configure one prepared source/replica training example.
- Monitoring and troubleshooting replication issues.

Use cases for replication:

- Where replication can support availability/recovery designs; replicas may lag, and replication alone is not a backup or complete failover plan.

4. Triggers

Introduction to triggers:

- Types of triggers in MySQL (before/after insert, update, delete).

Writing and implementing triggers:

- Automating tasks using triggers.
- Use cases for business logic automation.
- Avoiding common pitfalls with trigger usage.

5. Views

Purpose of views in MySQL:

- Simplifying complex queries.
- Views and privileges: access restriction depends on correct object security and grants.

Creating views:

- Syntax and examples for creating basic and complex views.

Managing views:

- Review view update limitations and safe changes in the disposable schema.

6. EER Schema Modelling

- Introduction to the Enhanced Entity-Relationship (EER) Diagram Editor.

Visualizing database structure:

- Designing schemas and relationships.
- Modifying database designs using the editor.
- Exporting and integrating EER diagrams into your database.

7. Stored Procedures and Scheduled SQL Events

Creating stored procedures:

- Syntax and practical examples.

- Benefits of stored procedures in automation.

Implementing scheduled events:

- Scheduled SQL data-maintenance tasks. External backup tools require appropriate external orchestration and restore verification; an Event Scheduler object is not a general operating-system backup job.
- Inspect event status, privileges and overlapping execution; demonstrate only in the disposable training environment.

8. Security and Operational Review

Importance of database security:

- Common vulnerabilities in MySQL.

Best practices for securing MySQL:

- User roles and permissions.
- Implementing SSL/TLS encryption.

Auditing and monitoring:

- Review available logs, monitoring and alert integration; audit capabilities vary by edition/components and are not assumed to be included in Community Server.

Review selected lab results and distinguish a successful example from a verified production backup, failover or security design.