

MySQL for Database Administrators Ed 3.1

Duration: 5 Days

What you will learn

The MySQL for Database Administrators training is designed for DBAs and other database professionals. Expert Oracle University instructors will teach you how to install and configure the MySQL Server, set up replication and security, perform database backups and performance tuning and protect MySQL databases.

Learn To:

- Describe the MySQL Architecture.
- Install and upgrade MySQL.
- Configure MySQL server options at runtime.
- Evaluate data types and character sets for performance issues.
- Understand the use of the InnoDB storage engine with MySQL.
- Perform backup and restore operations.

Benefits to You

After taking this course, you'll have a greater understanding of new enhancements made available in MySQL 5.5.8 to improve performance, scalability, reliability and manageability for your Web, Cloud and embedded application requirements.

Live Virtual Class Format

A Live Virtual Class (LVC) is exclusively for registered students; unregistered individuals may not view an LVC at any time. Registered students must view the class from the country listed in the registration form. Unauthorized recording, copying, or transmission of LVC content may not be made.

Audience

Database Administrators
Developer

Related Training

Required Prerequisites

Have some experience with relational databases and SQL
MySQL for Beginners Ed 2

Course Objectives

Describe the MySQL Architecture
Install and Upgrade MySQL

- Use the INFORMATION_SCHEMA database to access metadata
- Perform the MySQL start and shutdown operations
- Configure MySQL server options at runtime
- Use available tools including MySQL Workbench
- Evaluate data types and character sets for performance issues
- Understand data locking in MySQL
- Understand the use of the InnoDB storage engine with MySQL
- Maintain integrity of a MySQL installation
- Use triggers for administration tasks
- Use Enterprise Audit and Pluggable Authentication
- Configure advanced replication topologies for high availability
- Describe introductory performance tuning techniques
- Perform backup and restore operations
- Automate administrative tasks with scheduled events

Course Topics

Introduction

- MySQL Overview, Products, Services
- MySQL Services and Support
- Supported Operating Services
- MySQL Certification Program
- Training Curriculum Paths
- MySQL Documentation Resources

MySQL Architecture

- The client/server model
- Communication protocols
- The SQL Layer
- The Storage Layer
- How the server supports storage engines
- How MySQL uses memory and disk space
- The MySQL plug-in interface

System Administration

- Choosing between types of MySQL distributions
- Installing the MySQL Server
- The MySQL Server installation file structure
- Starting and stopping the MySQL server
- Upgrading MySQL
- Running multiple MySQL servers on a single host

Server Configuration

- MySQL server configuration options
- System variables

SQL Modes
Available log files Binary
logging

Clients and Tools

Available clients for administrative tasks
MySQL administrative clients
The mysql command-line client
The mysqladmin command-line client
The MySQL Workbench graphical client
MySQL tools
Available APIs (drivers and connectors)

Data Types

Major categories of data types
Meaning of NULL
Column attributes
Character set usage with data types
Choosing an appropriate data type

Obtaining Metadata

Available metadata access methods
Structure of INFORMATION_SCHEMA
Using the available commands to view metadata
Differences between SHOW statements and INFORMATION_SCHEMA tables
The MySQL show client program
Using INFORMATION_SCHEMA queries to create shell commands and SQL statements

Transactions and Locking

Using transaction control statement to run multiple SQL statements concurrently
The ACID properties of transactions
Transaction isolation levels
Using locking to protect transactions

Storage Engines

Storage engines in MySQL
InnoDB storage engine
InnoDB system and file-per-table tablespaces
NoSQL and the Memcached API
Configuring tablespaces efficiently
Using foreign keys to attain referential integrity
InnoDB locking
Features of available storage engines

Partitioning

Partitioning and its use in MySQL
Reasons for using partitioning
Types of partitioning

- Creating partitioned tables
- Sub partitioning
- Obtaining partition metadata
- Modifying partitions to improve performance
- Storage Engine Support of Partitioning

User Management

- Requirements for user authentication
- Using SHOW PROCESSLIST to show which threads are running
- Creating, modifying and dropping user accounts
- Alternative authentication plugins
- Requirements for user authorization
- Levels of access privileges for users
- Types of privileges
- Granting, modifying and revoking user privileges

Security

- Recognizing common security risks
- Security risks specific to the MySQL installation
- Security problems and counter-measures for network, operating system, filesystem and users
- Protecting your data
- Using SSL for secure MySQL server connections
- How SSH enables a secure remote connection to the MySQL server Finding additional information for common security issues

Table Maintenance

- Types of table maintenance operations
- SQL statements for table maintenance
- Client and utility programs for table maintenance
- Maintaining tables for other storage engines

Exporting and Importing Data

- Exporting Data
- Importing Data

Programming inside MySQL

- Creating and executing Stored Routines
- Describing stored routine execution security
- Creating and executing triggers
- Creating, altering and dropping events
- Event execution scheduling

MySQL Backup and Recovery

- Backup basics
- Types of backup
- Backup tools and utilities
- Making binary and text backups

Role of log and status files in backups Data Recovery

Replication

Managing the MySQL Binary Log
MySQL replication threads and files
Setting up a MySQL Replication Environment
Designing Complex Replication Topologies
Multi-Master and Circular Replication
Performing a Controlled Switchover
Monitoring and Troubleshooting MySQL Replication
Replication with Global Transaction Identifiers (GTIDs)

Introduction to Performance Tuning

Using EXPLAIN to Analyze Queries
General Table Optimizations
Monitoring status variables that affect performance
Setting and Interpreting MySQL server Variables Overview of Performance Schema

Conclusion

Course Overview
MySQL Curriculum
Course Evaluation Thank You!
Q&A Session