

Duration: 4 Days

Course Content

In this class, you'll learn practical, safe, highly efficient ways to optimize performance for the MySQL Server. This course will prepare each student with the skills needed to utilize tools for monitoring, evaluating and tuning. Students will evaluate the architecture, learn to use the tools, configure the database for performance, tune application and SQL code, tune the server, examine the storage engines, assess the application architecture, and learn general tuning concepts.

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Who Should Attend

- Database Administrators
- Developer
- System Administrator

Prerequisites

- Working knowledge of relational databases.
- Basic knowledge of operating system and its core functionality

Course Objectives

After completing this course, students will be able to:

- Understand the basics of performance tuning
- Use performance tuning tools
- Tune the MySQL Server instance to improve performance
- Improve performance of tables based on the storage engine being used
- Implement proper Schema Design to improve performance
- Improve the performance of MySQL Queries
- Describe additional items related to performance tuning

Course Outline

Introduction

- MySQL Overview, Products and Tools
- MySQL Services and Support
- MySQL Web Pages
- MySQL Courses
- MySQL Certification
- MySQL Documentation

Performance Tuning Basics

- Thinking About Performance
- Areas to Tune
- Performance Tuning Terminology
- Benchmark Planning
- Benchmark Errors
- Tuning Steps
- General Tuning Session
- Deploying MySQL and Benchmarking

Performance Tuning Tools

- MySQL Monitoring Tools
- Open Source Community Monitoring Tools
- Benchmark Tools
- Stress Tools

MySQL Server Tuning

- Major Components of the MySQL Server
- MySQL Thread Handling
- MySQL Memory Usage
- Simultaneous Connections in MySQL
- Reusing Threads
- Effects of Thread Caching
- Reusing Tables
- Setting table_open_cache

MySQL Query Cache

- MySQL Query Cache
- When to Use the MySQL Query Cache
- When NOT to Use the MySQL Query Cache
- MySQL Query Cache Settings
- MySQL Query Cache Status Variables
- Improve Query Cache Results

InnoDB

- InnoDB Storage Engine
- InnoDB Storage Engine Uses
- Using the InnoDB Storage Engine

- InnoDB Log Files and Buffers
- Committing Transactions
- InnoDB Table Design
- SHOW ENGINE INNODB STATUS
- InnoDB Monitors and Settings

MyISAM

- MyISAM Storage Engine Uses
- MyISAM Table Design
- Optimizing MyISAM
- MyISAM Table Locks
- MyISAM Settings
- MyISAM Key Cache
- MyISAM Full-Text Search

Other MySQL Storage Engines and Issues

- Large Objects
- MEMORY Storage Engine Uses
- MEMORY Storage Engine Performance
- Multiple Storage Engine Advantages
- Single Storage Engine Advantages

Schema Design and Performance

- Schema Design Considerations
- Normalization and Performance
- Schema Design
- Data Types
- Indexes
- Partitioning

MySQL Query Performance

- General SQL Tuning Best Practices
- EXPLAIN
- MySQL Optimizer
- Finding Problematic Queries
- Improve Query Executions
- Locate and Correct Problematic Queries

Performance Tuning Extras

- Configuring Hardware
- Considering Operating Systems
- Operating Systems Configurations
- Logging
- Backup and Recovery

Conclusion

- Course Overview
- Training and Certification Website
- Course Evaluation
- Thank You!
- Q&A Session