



MariaDB Database Administration

Duration: 5 Days **Course Code: MARDBA** **Delivery Method: Company Event**

Overview:

This MariaDB Database Administration course is designed for MariaDB 10 Database Administrators who have a basic understanding of a MariaDB database and a good working knowledge of SQL commands. The course provides an understanding of MariaDB Architecture and practical experience in setting up, configuring and maintaining a MariaDB server, and backing up and recovering data. This MariaDB Database Administration course also covers MySQL replication and its role in high availability and scalability. Versions supported 10.4, 10.3, 10.2 and 10.1. Exercises and examples are used throughout the course to give practical hands-on experience with the techniques covered.

Company Events

These events can be delivered exclusively for your company at our locations or yours, specifically for your delegates and your needs. The Company Events can be tailored or standard course deliveries.

Target Audience:

Database Administrators, Database Developers and Technical Consultants who need to setup, administer, monitor and support MariaDB databases and servers.

Objectives:

- At the end of the MariaDB Database Administration course, delegates will have the knowledge to use all the features available to administer, monitor and support MariaDB databases and servers.
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Prerequisites:

A working knowledge of MariaDB is required. Delegates should have knowledge of relational database concepts; have knowledge of MySQL data types; be able to run queries using SQL; join tables and run basic DDL and DML statements. This can be gained by attendance on the Introduction to MariaDB course.

This course is run on a Linux operating system, a basic knowledge of Linux/UNIX is essential. This knowledge can be gained by attendance on the Linux Introduction course.

Follow-on-Courses:

- MariaDB Performance & Tuning (MARDBAPT)
 - Perl Programming (PERL)
 - Apache Web Server (APH)
 - PHP Programming & MariaDB for Web Development (PHPPMARWD)
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Content:

MariaDB Database Administration Training Course Course Contents - DAY 1

Course Introduction

- Administration and Course Materials
- Course Structure and Agenda
- Delegate and Trainer Introductions

Session 1: THE SERVER, CLIENTS AND TOOLS

- Introduction
- The versions of MariaDB
- An Overview of MariaDB Architecture
- MySQL Server
- MySQL Client Connections
- MySQL Client Programs
- Mysql Command Line
- Mysqladmin

Session 2: MYSQL WORKBENCH

- Installation of MySQL Workbench
- Connecting to MySQL Workbench
- MySQL Workbench Screens

Session 3: OBTAINING METADATA

- What is Metadata?
- The mysqlshow Client Program
- The SHOW and DESCRIBE Commands
- The Information_Schema
- Show Command and Information_Schema Differences
- Exercises: Obtaining Information about MariaDB

Session 4: CONFIGURE THE SERVER

- Start and Stop the Server
- Status Files
- Time Zone Tables
- An Overview of MySQL Storage Engines
- MariaDB Server Options and Variables
- MariaDB Status Variables
- Configuring MariaDB Enterprise Audit

Session 5: SQL MODES, LOG FILES AND BINARY LOGGING

- Error Messages
- The SHOW Errors Statement
- The SHOW Warnings Statement
- SQL Modes
- Note Messages
- The perror Utility
- The General Log
- The Error Log
- The Slow Query Log
- The Binary Logs MariaDB Database Administration Training Course Course

Session 7: THE INNODB STORAGE ENGINE

- Features of InnoDB
- Transactions and Referential Integrity
- Physical Characteristics of InnoDB Tables
- The System Tablespace Configuration
- File per Table Tablespace
- Log File and Buffer Configuration
- Undo Logs and Undo Tablespaces
- Temporary Table Tablespaces
- InnoDB Shutdown Options
- InnoDB Status

Session 8: OTHER STORAGE ENGINES

- Check Engine Usage
- The MYISAM Engine
- The Merge Engine
- Other Engines: Archive, Aria, Memory, Blackhole, CSV
- Mixing Storage Engines
- Overview of the ColumnStore, MyRocks and Spider Engines

Session 9: TABLE MAINTENANCE

- Table Maintenance Operations
- Check Table
- Repair Table
- Analyze Table
- Optimize Table
- MySQL Check
- MyISAM Table Maintenance and Repair Utilities MariaDB Database Administration Training Course Course Contents - DAY 3

Session 10: BACKUP AND RECOVERY

- The Advantages and Disadvantages of Different Backup Methods
- Overview of Backup Tools
- Binary Backups of MYISAM Tables
- Binary Backups of InnoDB Tables
- Performing Hot Backups
- Performing Recovery
- Import and Export Operations
- Exporting and Importing using SQL
- Exporting from the Command Line using mysqldump
- Importing from the Command Line using mysqlimport
- Additional Backup Tools

Session 11: USER MANAGEMENT

- Introduction
- User Accounts
- Creating Users
- Renaming Users
- Change a User Password
- Dropping Users
- Granting Privileges

Session 15: TUNING THE SERVER

- Status Variables
- Server Variables
- System Variables
- Per Client Variables
- Performance Schema Overview
- The Query Cache

Session 16: THE EVENT SCHEDULER

- Event scheduler concepts
- Event scheduler configuration
- Creating, altering and dropping events
- Event scheduler monitoring
- Events and privileges

Session 17: MARIADB SERVER INSTALLATION AND UPGRADE

- Installing MariaDB on Linux and UNIX
- Upgrade the MariaDB Server
- Deployment Security
- Database Server Access MariaDB Database Administration Training Course Course Contents - DAY 5

Session 18: OVERVIEW OF HIGH AVAILABILITY

- High Availability Goals
- High Availability Concepts
- Design for High Availability
- Definition of Availability
- High Availability Terminology

Session 19: CONFIGURE MASTER SLAVE REPLICATION

- Replication Overview
- When to Use Replication
- Disadvantages of Replication
- Replication Architecture
- Complex Replication Topologies
- Testing Replication
- Excluding Databases or Tables from Replication
- Example: Setting Up a Master Slave Replication
- Replication Using GTIDs
- Controlled Switchover

Session 20: ADMINISTER A REPLICATION TOPOLOGY

- Replication Files and Threads
- Lagging Slave
- Monitoring Replication
- Troubleshooting Replication
- Semi-synchronous Replication
- Failover
- Replication and Failover Utilities

Contents - DAY 2

Session 6: MARIADB ARCHITECTURE

- Communication Protocols used to connect a Client to the Server
- The SQL Parser and Storage Engine Tiers
- Installing and Uninstalling Plugins
- How MariaDB Uses Disk Space
- How MariaDB Uses Memory
- Exercises: Examining the Architecture

- The User Table
- Connection Validation
- Password Validation Plugins

Session 12: PRIVILEGES

- Types of Privileges
- Granting Privileges
- Revoking Privileges
- Resource Limits
- Resource Management
- Role Management
- The mysql Database
- The Show Grants Command
- Role management MariaDB Database Administration Training Course Course Contents - DAY 4

Session 13: TRANSACTIONS AND LOCKING

- Locking Concepts
- Levels of Locking
- Implicit Table Locking with MyISAM and InnoDB
- Explicit Table Locking
- Advisory Locking
- Monitoring Locks
- Turning Autocommit on and off
- Using Transaction Blocks
- Handling Concurrency Problems and Deadlocks

Session 14: TUNING AND TABLES

- General Table Optimizations
- Myisam Specific Optimizations
- Innodb Specific Optimizations
- Other Engine Specific Optimizations

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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