

## MariaDB Database Administration

Duration: 5 Days    Course Code: MARDBA

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### Overview:

#### MariaDB Database Administration Course Overview

**English - Please note this course is only available in English.**

Nederlands - Let op: deze training is alleen in het Engels beschikbaar.

Français - Veuillez noter que ce cours est uniquement disponible en anglais.

This MariaDB Database Administration course is designed for MariaDB 10 and 11 Database Administrators who have a basic understanding of

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### Target Audience:

#### Who will the Course Benefit?

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

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### Objectives:

- Course Objectives
    - At the end of the MariaDB Database Administration course, delegates will have the knowledge to use the features available in MariaDB to administer, monitor and support MariaDB databases and servers. Delegates will also be able to set up and administer simple replication topologies.
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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.

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### Follow-on-Courses:

Further Learning

- Apache Web Server
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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
- MariaDB Database Release Versions
- MariaDB Distributions
- An Overview of MariaDB Architecture
- The MariaDB Server
- MariaDB Client Connections
- MariaDB Client Programs
- The MariaDB Command Line
- The mariadb-admin Utility

#### Session 2: OBTAINING METADATA

- What is Metadata?
- The mariadb-slow or mysqlshow Client Program
- The SHOW and DESCRIBE Commands
- The Information\_Schema
- Show Command and Information\_Schema Differences

#### Session 3: CONFIGURE THE SERVER

- Start and Stop the MariaDB Server
- Status Files
- An Overview of MariaDB Storage Engines
- MariaDB Server Options and Variables
- MariaDB Status Variables
- Configuring MariaDB Audit Plugin

#### Session 4: 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 Contents - DAY 2

#### Session 5: MARIADB ARCHITECTURE

- Communication Protocols used to connect a Client to the Server
- The SQL Parser and Storage Engine Tiers

#### Session 6: 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 Command

#### Session 7: 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 8: 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 9: 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
- View the Binary Log
- Recover using the Binary Logs
- Performing Hot Backups with MariaDB Backup
- Performing Recovery with MariaDB Backup
- Exporting and Importing using SQL
- Exporting from the Command Line using mariadb-dump
- Importing from the Command Line using mariadb-import
- Additional Backup Tools

#### Session 10: USER MANAGEMENT

- Introduction
- User Accounts
- Creating Users
- Renaming Users

#### Session 13: TUNING AND TABLES

- General Table Optimizations
- MyISAM Specific Optimizations
- InnoDB Specific Optimizations
- Other Engine Specific Optimizations

#### Session 14: TUNING THE SERVER

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

#### Session 15: THE EVENT SCHEDULER

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

#### Session 16: MARIADB SERVER INSTALLATION AND UPGRADE

- MariaDB Distributions
- Installing MariaDB on Linux and UNIX
- The Installation Directories
- Set a Password for the mysql root User
- Upgrade the MariaDB Server
- Deployment Security
- Database Server Access
- SSL Encrypted Connections MariaDB Database Administration Training Course Course Contents - DAY 5

#### Session 17: OVERVIEW OF HIGH AVAILABILITY

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

#### Session 18: CONFIGURE MASTER SLAVE REPLICATION

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

- Installing and Uninstalling Plugins
- How MariaDB Uses Disk Space
- How MariaDB Uses Memory

- Change a User Password
- Dropping Users
- Granting Privileges to Manage Users
- The User Table
- Connection Validation
- Password Validation Plugins

#### Session 11: PRIVILEGES

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

#### Session 12: 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 19: ADMINISTER A REPLICATION TOPOLOGY

- Replication Files and Threads
- Lagging Slave
- Monitoring Replication
- Troubleshooting Replication Problems
- Semi-synchronous Replication
- Controlled Switchover
- Failover
- MariaDB Replication Manager

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#### Further Information:

For More information, or to book your course, please call us on 0800/84.009

[info@globalknowledge.be](mailto:info@globalknowledge.be)

[www.globalknowledge.com/en-be/](http://www.globalknowledge.com/en-be/)