

DAT300 : MySQL Administration

Code : DAT300 **Duur :** 5 dagen

Categorie : Databases

Doelgroep :

Iedereen die wil leren MySQL databases en MySQL servers te beheren, te monitoren en te ondersteunen.

Voorkennis :

Voor deelname aan deze cursus is kennis van de SQL query taal en databases een vereiste.

Uitvoering :

De stof wordt behandeld aan de hand van presentatie slides. Demo's verduidelijken de theorie en praktische oefeningen zorgen voor een verwerking van de stof. Deze cursus behandelt de stof die nodig is voor de Oracle MySQL 5 Database Administrator certificering.



MySQL Administration



Inhoud :

De cursus MySQL Administration is bedoeld voor MySQL database beheerders die basis kennis hebben van een MySQL database en SQL commando's. De cursus biedt praktische ervaring in het opzetten en onderhouden van een MySQL server, inclusief back-up, recovery, configuratie en optimalisatie. In deze cursus zullen de deelnemers leren om een MySQL server te installeren, op te starten en af te sluiten, MySQL componenten te configureren en de verschillende storage engines die MySQL ondersteunt te gebruiken. Ze zullen ook leren om de beveiliging van een MySQL installatie te onderhouden door het beheer van gebruikers en toegangsrechten. Tenslotte zullen ze leren om met de MySQL Administrator Graphical User Interface te werken voor het maken back-ups en het uitvoeren van restore activiteiten en zullen ze met behulp van diverse MySQL tools leren database replicatie uit te voeren in MySQL.

Module 1 : Intro MySQL

- Introduction
- Client Program Limitations
- mysql
- MySQL Admin
- What is Metadata?
- The mysqlshow Utility
- The SHOW and DESCRIBE Commands
- The Information_Schema Database
- MySQL Server Options and Variables
- MySQL Status Variables
- MySQL Distributions

Module 2 : Configuring MySQL

- Installing on Windows
- Installing on Linux and UNIX
- Starting and Stopping on Windows
- Starting and Stopping on UNIX/Linux
- Log and Status Files
- The Default SQL Mode
- Time Zone Tables
- Some Security Issues
- MySQL Error Messages
- The SHOW Statement
- SQL Modes
- The PERROR Utility
- The Log
- The Error Log
- The Slow Query Log

Module 3 : MySQL Architecture

- Client/Server Overview
- Communication Protocols
- The SQL Parser and Storage Engine Tiers
- How MySQL Uses Disk Space and Memory
- Table Properties
- Creating and altering Tables
- Dropping and emptying Tables
- Obtaining Table Metadata
- Column Attributes
- Bit and Numeric Data Types
- Character String Data Types
- Binary String Data Types
- Enum and Set Data Types
- Temporal Data Types
- Auto_Increment
- Handling Missing or Invalid Data Values
- Performance Issues with Character sets

Module 4 : Storage and Locking

- Locking Concepts
- Explicit Table Locking
- Advisory Locking
- Preventing Locking Problems
- Introduction
- The MYISAM Engine
- Locking with MYISAM Tables
- The Merge Engine
- Other Engines: Archive, Memory, Federated, Blackhole, NDBCluster

Module 5 : Table Maintenance

- Features of Innodb
- Transactions
- Referential Integrity
- Physical Characteristics of Innodb Tables
- Tablespace Configuration
- Log File and Buffer Configuration
- Innodb Status
- Table Maintenance Operations
- Check Table
- Repair Table
- Analyze Table
- Optimize Table
- MySQL Check
- MYISAMCHK
- Repairing Innodb Tables
- Enabling MYISAM AutoRepair

Module 6 : Backup and Recovery

- Planning and Implementing a Backup and Recovery Strategy
- Defining a Disaster Recovery Plan
- Testing a Backup and Recovery Plan
- The Advantages and Disadvantages of Different Methods
- Binary Backups of MYISAM Tables
- Binary Backups of Innodb Tables
- Recovery
- Import and Export Operations
- Exporting Using SQL
- Importing Using SQL
- Exporting from the Command Line using mysqldump
- Importing from the Command Line using mysqlimport

Module 7 : Security

- User Accounts
- Creating Users
- Renaming Users
- Changing Passwords
- Dropping Users
- Granting Privileges
- The User Table
- Connection Validation
- Types of Privileges
- Revoking Privileges
- Resource Limits
- The MySQL Database
- The Show Grants Command
- Privileges
- Security Issues
- Operating System Security
- Filesystem Security
- Log Files and Security
- Network Security
- Upgrade-related Security Issues
- Upgrading the Privilege Tables
- Security-Related SQL_Mode Values

Module 8 : Stored Procedures and Triggers

- User Variables
- Prepared Statements
- Types of Stored Routines
- Benefits of Stored Routines
- Stored Routines Features
- Stored Routine Maintenance
- Stored Routine Privileges and Execution
- Security
- DML Triggers
- The Create Trigger Statement
- Managing Triggers

Module 9 : Optimization

- Optimization Overview
- Optimization Process
- Planning a Routine Monitoring Regime
- Setting Suitable Goals
- Identifying Candidates for Query Analysis
- Using Explain to Analyze Queries
- Meaning of Explain Output
- Using Explain Extended
- Indexes for Performance
- Creating and Dropping Indexes
- Obtaining Index Metadata
- Indexing and Joins
- MyIsam Index Caching
- Normalisation
- General Table Optimizations
- MyIsam Specific Optimizations
- Innodb Specific Optimizations
- Other Engine Specific Optimizations
- Measuring Server Load
- System Factors
- Server Parameters
- Query Optimizer Performance
- The Query Cache

Module 10 : Environment Optimization

Choosing the Platform
Hardware Configurations
Disk Issues on Linux
Symbolic Links
Optimizing the Operating System
Exercises: Optimizing the Environment
Event scheduler concepts
Event scheduler configuration
Creating, altering and dropping events
Event scheduler monitoring
Events and privileges

Module 11 : Scaling MYSQL

Partitioned tables concepts
Range partitioning
Hash partitioning
Key partitioning
List partitioning
Composite partitioning or subpartitioning
Maintenance of partitioned tables
Using Multiple Servers
Replication

Module 12 : MySQL Workbench

Installation
Connecting
Server Information
Service Control
User Administration
Privileges
Health
Backup and Restore
Catalogs