Administering Microsoft® SQL Server® Databases

Duration: 5 Days   Course Code: M20462

Overview:

This five-day instructor-led course provides students with the knowledge and skills to maintain a Microsoft SQL Server 2014 database. The course focuses on teaching individuals how to use SQL Server 2014 product features and tools related to maintaining a database.

Target Audience:

The primary audience for this course is individuals who administer and maintain SQL Server databases. These individuals perform database administration and maintenance as their primary area of responsibility, or work in environments where databases play a key role in their primary job.

The secondary audience for this course is individuals who develop applications that deliver content from SQL Server databases.

Objectives:

- Plan and install SQL Server.

- Describe system databases, the physical structure of databases, and the most common configuration options related to them.

- Explain the concept of the transaction log and the SQL Server recovery models and implement different backup strategies that are available with SQL Server.

- Back up SQL Server databases.

- Restore SQL Server databases.

- Import and export data by using wizards, the bulk copy utility, and data-tier applications.

- Work with SQL Server security models, logins, users, and contained databases.

- Work with server roles and database roles.

- Use permissions to secure resources.

- Use SQL Server audit and Transparent Data Encryption.

- Work with SQL Server Agent to configure and execute jobs.

- Implement SQL Server Agent security, proxy accounts, and credentials.

- Configure database mail, alerts, and notifications.

- Create database maintenance plans.

- Use SQL Server Profiler, SQL Trace, and Distributed Relay.

- Use Distributed Management Views and configure data collection.

Prerequisites:

- Basic knowledge of the Microsoft Windows operating system and its core functionality.
- Working knowledge of Transact-SQL.
- Working knowledge of relational databases.
- Some experience with database design.
- Students who attend this training can meet the prerequisites by attending the following courses, or obtaining equivalent knowledge and skills:

20461C: Querying Microsoft SQL Server 2014

Content:

- Module 1: Installing SQL Server 2014
- Introduction to the SQL Server Platform
- SQL Server Services and Configuration Options
- Considerations for Installing SQL Server
- Installing SQL Server 2014
- Lab : Installing SQL Server 2014
- Performing Pre-installation Stress Tests
- Installing a SQL Server Instance
- Performing Post-Installation Checks
- Module 2: Working with Databases
- Overview of SQL Server Databases
- Creating Databases
- Using Database Files and Filegroups
- Moving Database Files
- Buffer Pool Extension
- Lab : Creating and Configuring Databases
- Creating a Storage Pool
- Adjusting tempdb Configuration
- Creating and Configuring a Database
- Attaching a Database
- Using Buffer Pool Extension
- Module 3: SQL Server 2014 Recovery Models
- Backup Strategies
- Understanding SQL Server Transaction Logging
- Planning a SQL Server Backup Strategy
- Lab : Understanding SQL Server Recovery Models
- Planning a Backup Strategy
- Configuring Recovery Models
- Reviewing Recovery Models and Strategy
- Module 4: Backup of SQL Server 2014 Databases
- Backing up Databases and Transaction Logs
- Managing Database Backups
- Working with Backup Options
- Lab : Backing Up SQL Server Databases
- Investigating Backup Compression
- Performing Transaction Log Backups
- Performing Differential Backups
- Performing Copy-Only Backups
- Performing Filegroup Backups
- Module 5: Restoring SQL Server 2014 Databases
- Understanding the Restore Process
- Restoring Databases
- Working with Point-in-Time Recovery
- Restoring System Databases and Individual Files
- Lab : Restoring SQL Server Databases
- Determining a Restore Strategy
- Restoring a Database
- Using STANDBY Mode
- Module 6: Importing and Exporting Data
- Transferring Data To/From SQL Server
- Importing and Exporting Table Data
- Inserting Data in Bulk

- Deploying and Upgrading Data-tier Applications
- Lab : Importing and Exporting Data
- Importing an Excel Spreadsheet
- Importing a CSV File
- Creating and Testing an Extraction Package
- Creating and Deploying a Data-tier Application
- Comparing Loading Performance
- Module 7: Authenticating and Authorizing Users
- Authenticating Connections to SQL Server
- Authorizing Logins to Access Databases
- Authorization Across Servers
- Partially Contained Databases
- Lab : Authenticating Users
- Creating Logins
- Correcting an Application Login Issue
- Creating Database Users
- Correcting Access to a Restored Database
- Module 8: Assigning Server and Database Roles
- Working with Server Roles
- Working with Fixed Database Roles
- Creating User-defined Database Roles
- Lab : Assigning Server and Database Roles
- Assigning Server Roles
- Assigning Fixed Database Roles
- Creating and Assigning User-defined Database Roles
- Checking Role Assignments
- After completing this module, you will be able to:
- Assign fixed server roles.
- Configure fixed database roles.
- Create and assign user-defined database roles.
- Module 9: Authorizing Users to Access Resources
- Authorizing User Access to Objects
- Authorizing Users to Execute Code
- Configuring Permissions at the Schema Level
- Lab : Authorizing Users to Access Resources
- Assigning Schema-level Permissions
- Assigning Object-level Permissions
- Testing Permissions
- Module 10: Protecting Data by Using Encryption and Auditing
- Options for Auditing Data Access in SQL Server
- Implementing SQL Server Audit
- Managing SQL Server Audit
- Protecting Data by Using Encryption
- Lab : Using Auditing and Encryption
- Determining Audit Configuration and Creating an Audit
- Creating Server Audit Specifications
- Creating Database Audit Specifications

- Managing SQL Server Agent Jobs
- Multi-Server Management
- Lab : Automating SQL Server Management
- Creating a Job
- Scheduling a Job
- Troubleshooting a Failing Job
- Creating a Multi-Server Job
- Module 12: Configuring Security for SQL Server Agent
- Understanding SQL Server Agent Security
- Configuring Credentials
- Configuring Proxy Server Accounts
- Lab : Configuring Security for SQL Server Agent
- Troubleshooting Job Execution Failure
- Resolving Security Issues
- Performing Further Troubleshooting
- Module 13: Monitoring SQL Server 2014 by Using Alerts and Notifications
- Configuring Database Mail
- Monitoring SQL Server Errors
- Configuring Operators, Alerts, and Notifications
- Lab : Monitoring SQL Server by Using Alerts and Notifications
- Configuring Database Mail
- Implementing Notifications
- Implementing Alerts
- Module 14: Performing Ongoing Database Maintenance
- Ensuring Database Integrity
- Maintaining Indexes
- Automating Routine Database Maintenance
- Lab : Performing Ongoing Database Maintenance
- Check Database Integrity by Using DBCC CHECKDB
- Correcting Index Fragmentation
- Creating a Database Maintenance Plan
- Investigating Table Lock Performance
- Module 15: Tracing Access to SQL Server 2014
- Capturing Activity by Using SQL Server Profiler
- Improving Performance by Using the Database Engine Tuning Advisor
- Working with Tracing Options
- Distributed Replay
- Monitoring Locks
- Lab : Tracing Access to SQL Server
- Capturing a Trace by Using SQL Server Profiler
- Analysing a Trace by Using the Database Engine Tuning Advisor
- Configuring SQL Trace
- Module 16: Monitoring SQL Server 2014
- Monitoring Activity
- Capturing and Managing Performance Data
- Analyzing Collected Performance Data
- SQL Server Utility
- Lab : Monitoring SQL Server

- Testing Audit Functionality
- Using Transparent Data Encryption
- Module 11: Automating SQL Server 2014 Management
- Automating SQL Server Management
- Working with SQL Server Agent

- Creating a Utility Control Point
- Configuring a Health Policy
- Configuring Instances for Data Collection
- Working with Data Collector Reports

Further Information:

For More information, or to book your course, please call or write to us;

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