



M20462

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Administering Microsoft SQL Server Databases

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## Overview

**This five-day instructor-led course provides delegates 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.

### 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.

### Delegates will learn how to

At the end of this course you will be able to:

- 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.

Course Outline.

### **Module 1: Introduction to SQL Server 2014 Database Administration**

#### **Lessons**

- Database Administration Overview 1-2
- Introduction to the SQL Server Platform 1-5
- Database Management Tools and Techniques 1-11

**Lab: Using SQL Server Administrative Tools 1-16**

### **Module 2: Installing and Configuring SQL Server 2014**

#### **Lessons**

- Planning SQL Server Installation 2-2
- Installing SQL Server 2014 2-10
- Post-Installation Configuration 2-15

**Lab: Installing SQL Server 2014 2-18**

### **Module 3: Working with Databases and Storage**

#### **Lessons**

- Introduction to Data Storage with SQL Server 3-2
- Managing Storage for System Databases 3-8
- Managing Storage for User Databases 3-12



- Moving Database Files 3-21
- Configuring the Buffer Pool Extension 3-24

**Lab: Managing Database Storage 3-28**

**Module 4: Planning and Implementing a Backup Strategy**

**Lessons**

- Understanding SQL Server Recovery Models 4-2
- Planning a Backup Strategy 4-8
- Backing up Databases and Transaction Logs 4-15
- Using Backup Options 4-24
- Ensuring Backup Reliability 4-29

**Lab: Backing Up Databases 4-35**

**Module 5: Restoring SQL Server 2014 Databases**

**Lessons**

- Understanding the Restore Process 5-2
- Restoring Databases 5-6
- Advanced Restore Scenarios 5-11
- Point-in-Time Recovery 5-17

**Lab: Restoring SQL Server Databases 5-21**

**Module 6: Importing and Exporting Data**

**Lessons**

- Introduction to Transferring Data 6-2
- Importing and Exporting Data 6-9
- Copying or Moving a Database 6-17

**Lab: Importing and Exporting Data 6-22**

**Module 7: Monitoring SQL Server 2014**



## **Lessons**

- Introduction to Monitoring SQL Server 7-2
- Dynamic Management Views and Functions 7-7
- Performance Monitor 7-11

## **Lab: Monitoring SQL Server 2014 7-15**

### **Module 8: Tracing SQL Server Activity**

## **Lessons**

- Tracing SQL Server Workload Activity 8-2
- Using Traces 8-9

## **Lab: Tracing SQL Server Workload Activity 8-18**

### **Module 9: Managing SQL Server Security**

## **Lessons**

- Introduction to SQL Server Security 9-2
- Managing Server-Level Security 9-9
- Managing Database-Level Principals 9-18
- Managing Database Permissions 9-28

## **Lab: Managing SQL Server Security 9-36**

### **Module 10: Auditing Data Access and Encrypting Data**

## **Lessons**

- Auditing Data Access in SQL Server 10-2
- Implementing SQL Server Audit 10-7
- Encrypting Databases 10-16

## **Lab: Auditing Data Access and Encrypting Data 10-22**

### **Module 11: Performing On-going Database Maintenance**



## **Lessons**

- Ensuring Database Integrity 11-2
- Maintaining Indexes 11-7
- Automating Routine Database Maintenance 11-14

## **Lab: Performing Ongoing Database Maintenance 11-17**

### **Module 12: Automating SQL Server 2014 Management**

## **Lessons**

- Automating SQL Server Management 12-2
- Implementing SQL Server Agent Jobs 12-5
- Managing SQL Server Agent Jobs 12-11
- Managing Job Step Security Contexts 12-15
- Managing Jobs on Multiple Servers 12-20

## **Lab: Automating SQL Server Management 12-25**

### **Module 13: Monitoring SQL Server 2014 with Notifications and Alerts**

## **Lessons**

- Monitoring SQL Server Errors 13-2
- Configuring Database Mail 13-6
- Configuring Operators, Notifications, and Alerts 13-11

## **Lab: Using Notifications and Alerts 13-17**