



55316 Administering a SQL Database

Summary

Length: 40 hours Level: Experienced

This course will provide training in how to administer and maintain SQL Server, Azure SQL Database and other cloud-based SQL Server databases. IT professionals who work in environments where databases play a key role in their job will find this material useful. By using demonstrations and hands-on lab exercises, students will learn to carry out these important tasks. This course covers content that was in retired Microsoft Course 20764: Administering a SQL Database Infrastructure.

Learning Objectives

After completing this course, you will be able to:

- Authenticate and authorize users
- Assign server and database roles
- Authorize users to access resources
- Use encryption and auditing features to protect data
- Describe recovery models and backup strategies
- Backup and Restore SQL Server databases
- Automate database management
- Configure security for the SQL Server agent
- Manage alerts and notifications
- Managing SQL Server using PowerShell
- Trace access to SQL Server
- Monitor a SQL Server infrastructure
- Troubleshoot a SQL Server infrastructure
- Import and export data

Course Outline

1. **Module 1: SQL Server Security**
 - Authenticating Connections to SQL Server
 - Authorizing Logins to Connect to databases
 - Authorization Across Servers
 - Partially Contained Databases
2. **Module 2: Assigning Server and Database Roles**
 - Lesson 1: Working with Server Roles
 - Lesson 2: Working with Fixed Database Roles
 - Lesson 3: User-Defined Database Roles
3. **Module 3: Authorizing Users to Access Resources**
 - Authorizing User Access to Objects
 - Authorizing Users to Execute Code
 - Configuring Permissions at the Schema Level
4. **Module 4: Protecting Data with Encryption and Auditing**
 - Options for auditing data access in SQL Server
 - Implementing SQL Server Audit

Managing SQL Server Audit
Protecting Data with Encryption

5. **Module 5: Recovery Models and Backup Strategies**

Understanding Backup Strategies
SQL Server Transaction Logs
Planning Backup Strategies

6. **Module 6: Backing Up SQL Server Databases**

Backing Up Databases and Transaction Logs
Managing Database Backups
Advanced Database Options

7. **Module 7: Restoring SQL Server Databases**

Understanding the Restore Process
Restoring Databases
Advanced Restore Scenarios
Point-in-Time Recovery

8. **Module 8: Automating SQL Server Management**

Automating SQL Server management
Working with SQL Server Agent
Managing SQL Server Agent Jobs
Multi-server Management

9. **Module 9: Configuring Security for SQL Server Agent**

Understanding SQL Server Agent Security
Configuring Credentials
Configuring Proxy Accounts

10. **Module 10: Monitoring SQL Server with Alerts and Notifications**

Monitoring SQL Server Errors
Configuring Database Mail
Operators, Alerts, and Notifications
Alerts in Azure SQL Database

11. **Module 11: Introduction to Managing SQL Server by using PowerShell**

Getting Started with Windows PowerShell
Configure SQL Server using PowerShell
Administer and Maintain SQL Server with PowerShell
Managing Azure SQL Databases using PowerShell

12. **Module 12: Tracing Access to SQL Server with Extended Events**

Extended Events Core Concepts
Working with Extended Events

13. **Module 13: Monitoring SQL Server**

Monitoring activity
Capturing and Managing Performance Data
Analyzing Collected Performance Data

14. Module 14: Troubleshooting SQL Server

Applying a Troubleshooting Methodology
Resolving Service-Related Issues
Resolving Connectivity and Login issues

15. Module 15: Importing and Exporting Data

Transferring Data to and from SQL Server
Importing and Exporting Table Data
Using bcp and BULK INSERT to Import Data
Deploying Data-Tier Applications

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 audiences for this course are individuals who develop applications that deliver content from SQL Server databases.

Prerequisites

Experience using applications on Windows Servers Experience working with SQL Server or another RDMS