



20764: Administering a SQL Database Infrastructure

Duration: 5 Days

Method: Instructor-Led

***Certification:** Microsoft® Certified Solutions Associate (MCSA): SQL 2016 Database Administration — **Exam 1 of 2:** 70-764 Administering a SQL Database Infrastructure*

Course Description

This course provides participants who administer and maintain SQL Server® databases with the knowledge and skills to administer a SQL Server database infrastructure. Additionally, it will be of use to individuals who develop applications that deliver content from SQL Server databases.

Target Audience

This course is intended for:

- 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.
- Individuals who develop applications that deliver content from SQL Server databases.

Prerequisites

To attend this course, participants must have professional experience along with the following technical knowledge:

- 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.

Course Objectives

Upon successful completion of this course, participants will be able to:

- Authenticate and authorize users.
- Assign server and database roles.
- Authorize users to access resources.
- Protect data with encryption and auditing.
- Describe recovery models and backup strategies.
- Backup SQL Server databases.
- Restore SQL Server databases.
- Automate database management.



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Course Objectives, *Continued*

- 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 Content

Module 1: SQL Server Security

- Authenticating Connections to SQL Server
- Authorizing Logins to Connect to Databases
- Authorization Across Servers
- Partially Contained Databases

Module 2: Assigning Server and Database Roles

- Working with Server Roles
- Working with Fixed Database Roles
- Assigning User-Defined Database Roles

Module 3: Authorizing Users to Access Resources

- Authorizing User Access to Objects
- Authorizing Users to Execute Code
- Configuring Permissions at the Schema Level

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

Module 5: Recovery Models and Backup Strategies

- Understanding Backup Strategies
- SQL Server Transaction Logs
- Planning Backup Strategies

Module 6: Backing Up SQL Server Databases

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

Module 7: Restoring SQL Server 2016 Databases

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

Module 8: Automating SQL Server Management

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



Course Content, *Continued*

Module 9: Configuring Security for SQL Server Agent

- Understanding SQL Server Agent Security
- Configuring Credentials
- Configuring Proxy Accounts

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

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

Module 12: Tracing Access to SQL Server with Extended events

- Extended Events Core Concepts
- Working with Extended Events

Module 13: Monitoring SQL Server

- Monitoring Activity
- Capturing and Managing Performance Data
- Analyzing Collected Performance Data
- SQL Server® Utility

Module 14: Troubleshooting SQL Server®

- A Troubleshooting Methodology for SQL Server®
- Resolving Service Related Issues
- Resolving Connectivity and Log-In Issues

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 and Upgrading Data-Tier Application

LABS INCLUDED

