

COURSE OUTLINE

Administering a SQL Database Infrastructure (20764C)

Overview

This five-day instructor-led course provides students 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.

Duration

5 Days

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

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Pre-Requisites

In addition to their professional experience, students who attend this training should already have 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 Outcomes

After completing this course, students 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

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

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Course Contents

SQL Server Security

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

Assigning Server and Database Roles

- Working with server roles
- Working with Fixed Database Roles
- Assigning User-Defined Database Roles

Authorizing Users to Access Resources

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

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

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Recovery Models and Backup Strategies

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

Backing Up SQL Server Databases

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

Restoring SQL Server 2016 Databases

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

Automating SQL Server Management

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

Configuring Security for SQL Server Agent

- Understanding SQL Server Agent Security

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- Configuring Credentials
- Configuring Proxy Accounts

Monitoring SQL Server with Alerts and Notifications

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

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

Tracing Access to SQL Server with Extended events

- Extended Events Core Concepts
- Working with Extended Events

Monitoring SQL Server

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

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Troubleshooting SQL Server

- A Trouble Shooting Methodology for SQL Server
- Resolving Service Related Issues
- Resolving Connectivity and Log-in issues

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