

6231A - Maintaining a Microsoft SQL Server 2008 Database

- **Course Number:** 6231A
- **Course Length:** 5 Days

Certification Exam

This course will help you prepare for the following Microsoft Certified Professional exams:

Exam 70-432: TS: Microsoft SQL Server 2008, Implementation and Maintenance

Course Overview

This five-day instructor-led course provides students with the knowledge and skills to maintain a Microsoft SQL Server 2008 database. The course focuses on teaching individuals how to use SQL Server 2008 product features and tools related to maintaining a database.

Prerequisites

Before attending this course, students must have:

- 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.

Audience

This course is intended for IT Professionals who administer and maintain SQL Server databases.

Course Outline

Course Introduction

4m

Module 01 - Installing and Configuring SQL Server 2008

1h 42m

Lesson: Preparing to Install SQL Server 2008

What are the Editions of SQL Server 2008?

What are the Hardware requirements?

What are the 32-bit Operating Systems Requirements?

What are the 64-bit Operating Systems Requirements?

Exploring the Instances of SQL Server

Comparing Licensing of SQL Server 2008

What are the Security Considerations?
Examining the Collation Considerations
Examining the Upgrade Considerations
Demo - Verifying Pre-Installation Information

Lesson: Installing SQL Server 2008

Overview of the Installation Process
What is the System Configuration Checker?
What are the Options for Installing Components?
Performing an Unattended Installation

Lesson: Configuring a SQL Server 2008 Installation

What is the SQL Server Configuration Manager?
Demo - Using SQL Server Configuration Manager
What is the SQL Server Management Studio?
Using the sqlcmd Command-line Tool
Managing SQL Server 2008 with Windows PowerShell
Demo - Using PowerShell with SQL Server 2008
What are the Server-level Options?
Lab Demonstration: Exercise 1
Lab Demonstration: Exercise 2
Module 01 - Review

Module 02 - Managing Databases and Files

1h 22m

Lesson: Planning Databases

What are the Types of Files?
How is the Data Stored?
How the Transaction Log Works
Considerations for File Placement
What Are Filegroups?
Considerations for Filegroups
What are Partitions?
Considerations for Capacity Planning
Demo - Using Files and Filegroups

Lesson: Creating Databases

Considerations for Creating Databases
Creating Databases
Important Databases Options
Resizing Databases Files
Shrinking a Database
What Are Schemas?
Creating Schemas
Demo - Creating a Database and Schema

Lesson: Using Policy-Based Management

Configuration Servers
Introducing Policy-Based Management
Components of Policy-Based Management
Implementing Policy-Based Management
Demo - Implementing a Policy

Lab Demonstration: Exercise 1
Lab Demonstration: Exercise 2
Lab Demonstration: Exercise 3
Module 02 - Review

Module 03 - Disaster Recovery

2h 6m

Lesson: Planning a Database Backup Strategy

Overview of Microsoft SQL Server Backup Types
What Are Recovery Models?
What Is a Full Database Backup Strategy?
What Is a Database and Transaction Log Backup Strategy?
What Is a Differential Backup Strategy?
What Is a File or Filegroup Backup Strategy?
Considerations for Backup Operators and Media

Lesson: Backing Up User Databases

Checking Database Integrity
Performing a Full Database Backup
Performing a Transaction Log Backup
Performing a Differential Backup
Performing File or Filegroup Backups
Performing a Tail Log and a Copy Only Backup
What Is Backup Compression?
Options for Ensuring Backup Integrity
Demo - Backing Up a Database
Lab Demonstration: Exercise 1

Lesson: Restoring User Databases

How the Restore Process Works
Types of Restores
Restoring a Database
Restoring a Transaction Log
Demo - Restoring a Database

Lesson: Performing Online Restore Operations

Overview of Online Restore Operations
Restoring a Damaged Page
Restoring a File or Filegroup
Performing Piecemeal Restores

Lesson: Recovering Data from Database Snapshots

What is a Database Snapshot?
How Database Snapshots Work
Recovering Data from a Snapshots
Demo - Creating and Recovering a Database Snapshots

Lesson: System Databases and Disaster Recovery

Considerations for Backing Up Systems Databases
Considerations for Restoring Systems Databases
Restoring the Master Database
Lab Demonstration: Exercise 2
Lab Demonstration: Exercise 3

Lab Demonstration: Exercise 4
Module 03 - Review

Module 04 - Managing Security

2h 7m

Lesson: Overview of SQL Server Security

SQL Server Security Framework
What Are Principals?
What Are Securables?
SQL Server Permissions

Lesson: Protecting the Server Scope

What Are SQL Server Authentication Methods?
Password Policies
Server-Level Roles
Managing SQL Server Logins
Delegation Between Instances
What Are Credentials?
Server-Scope Permissions
Demo - Managing Logins

Lesson: Protecting the Database Scope

What Are Database Roles?
What Are Application Roles?
Managing Users
Special Users
Database-Scope Permissions
Schema-Scope Permissions
Ownership Chains
Applying Roles in Common Scenarios
Demo - Managing Roles and Users

Lesson: Managing Keys and Certificates

What Are Keys?
What Are Certificates?
SQL Server Cryptography Architecture
When to Use Keys and Certificates
Transparent Data Encryption
Demo - Encrypting and Decrypting Data

Lesson: Auditing Security

Demo - What Is Auditing?
Security Auditing with Profiler
Auditing with DDL Triggers
Introducing SQL Server Audit
SQL Server Audit Action Groups and Actions
Demo - Using SQL Server Audit
Lab Demonstration: Exercise 1
Lab Demonstration: Exercise 2
Lab Demonstration: Exercise 3
Lab Demonstration: Exercise 4
Module 04 - Review

Module 05 - Transferring Data

1h 36m

Lesson: Overview of Data Transfer

What Is Data Transfer?

Tools for Data Transfer

The Import/Export Wizard

Demo - Using the Import Export Wizard

The Database Copy Wizard

Demo - Using the Database Copy Wizard

Considerations for Bulk Import/Export

Bulk Import/Export Tools

XML Bulk Load

Lesson: Introduction to SQL Server Integration Services

What is Data Transformation?

What Is SQL Server Integration Services?

SQL Server Integration Services Tools

What Are Data Sources and Data Source Views?

What Is a Connection Manager?

How SQL Server Integration Services Processes Tasks

How to deploy Packages

Demo - Using SQL Server Integration Services

Lab Demonstration: Exercise 1

Lab Demonstration: Exercise 2

Lab Demonstration: Exercise 3

Module 05 - Review

Module 06 - Automating Administrative Tasks

1h 45m

Lesson: Automating Administrative Tasks in SQL Server 2008

Benefits of Automation

What is a Job?

What are Operators?

Creating Job Steps

Demo - Creating Jobs and Operators

Using the Job Activity Monitor

Lesson: Using SQL Server Agent

What is SQL Server Agent

Considerations for SQL Server Agent Configuration

Using Database Mail with Server Agent

Demo - Using SQL Server Agent

Lesson: Creating Maintenance Plans

What is a Maintenance Plan?

Creating a Maintenance Plan

Demo - Creating a Maintenance Plan

Lesson: Implementing Alerts

What is an Alert?

Create an Alert

Responding to Alerts
Demo - Using Alerts

Lesson: Managing Multiple Servers

Configuration Servers
Considerations for Multi-Server Jobs
Using Event Forwarding for Multiple Server Jobs

Lesson: Managing SQL Server Agent Security

SQL Server Agent Roles
SQL Server Agent Proxies
Lab Demonstration: Exercise 1
Lab Demonstration: Exercise 2 and 3
Module 06 - Review

Module 07 - Implementing Replication

3h 17m

Lesson: Overview of Replication

Distributing and Synchronizing Data
What is Replication?
Components of Replication
Server Roles in Replication
Types of Replication
Replication Agents

Lesson: Managing Publications and Subscriptions

Create a Publication
Create a Subscription
Demo - Configuring Snapshot Replication
Managing and Monitoring Replication

Lesson: Configuring Replication in Some Common Scenarios

Server-to-Server Replication Scenarios
Server-to-Client Replication Scenarios
HTTP Merge Replication
Demo - Configuring HTTP Merge Replication
Oracle Publishing
Peer-to-Peer Replication
Demo - Configuring Peer-to-Peer Replication
Lab Demonstration: Exercise 1
Lab Demonstration: Exercise 2
Lab Demonstration: Exercise 3
Module 07 - Review

Module 08 - Maintaining High Availability

2h 33m

Lesson: Introduction to High Availability

Discussion: Why High Availability?
What Is High Availability?
Factors Affecting Availability

Lesson: Implementing Log Shipping

What Is Log Shipping?
Configuring Log Shipping
Switching Server Roles
Demo - Configuring Log Shipping

Lesson: Implementing Database Mirroring

What Is Database Mirroring?
Database Mirroring Server Roles
Options for Database Mirroring Configuration
What Are Database Mirroring Endpoints?
Establishing a Mirror Session
Handling Failover
Transparent Client Redirection
Demo - Configuring Database Mirroring

Lesson: Implementing Server Clustering

What Is Server Clustering?
Considerations for Server Clustering
Installing SQL Server in a Cluster

Lesson: Using Distributed High Availability Solutions

Considerations for Peer-to-Peer Replication
Implementing Distributed Load Balancing
Implementing Distributed High Availability
Considerations for Optimizing Database Availability
Lab Demonstration: Exercise 1
Lab Demonstration: Exercise 2
Module 08 - Review

Module 09 - Monitoring SQL Server

1h 58m

Lesson: Viewing Current Activity

Considerations for Monitoring SQL Server
Overview of Activity Monitor
Demo - Using Activity Monitor
Overview of Reliability and Performance Monitor
Overview of Dynamic Management Views and Functions
How to View Activity with Dynamic Management Views
Demo - Using Dynamic Management Views

Lesson: Using SQL Server Profiler

Overview of SQL Server Profiler
SQL Server Profiler Trace Options
Trace Categories, Events, and Columns
Demo - Using SQL Server Profiler

Lesson: Monitoring with DDL Triggers

Overview of DDL Triggers
Creating DDL Triggers
Managing DDL Triggers
Demo - Using DDL Triggers

Lesson: Using Event Notifications

Overview of Event Notifications
Creating Event Notifications
Processing Event Notifications
Managing Event Notifications
Demo - Implementing Event Notifications
Lab Demonstration: Exercise 1
Lab Demonstration: Exercise 2
Lab Demonstration: Exercise 3
Lab Demonstration: Exercise 4
Module 09 - Review

Module 10 - Troubleshooting and Performance Tuning

2h 25m

Lesson: Troubleshooting SQL Server

SQL Server Troubleshooting Methodology
Using the Dedicated Administrator Connection
Troubleshooting Connectivity
Concurrency Concepts
Troubleshooting Concurrency Problems
Demo - Troubleshooting Concurrency Problems
Troubleshooting Disk Space Problems

Lesson: Performance Tuning in SQL Server

What is Performance Tuning?
Performance Tuning Tools
How Indexes Affect Performance
Using the Database Engine Tuning Advisor
Demo - Using the Database Engine Tuning Advisor
Introduction to Query Tuning
Demo - Query Tuning

Lesson: Using Resource Governor

Introducing Resource Governor
Resource Governor Concepts
Implementing Resource Governor
Monitoring Resource Governor
Demo - Configuring Resource Governor

Lesson: Using Data Collector

Introducing Data Collector
Data Collector Concepts
Configuring Data Collector
Demo - Configuring Data Collector
Lab Demonstration: Exercise 1
Lab Demonstration: Exercise 2
Lab Demonstration: Exercise 3
Lab Demonstration: Exercise 4
Lab Demonstration: Exercise 5
Module 10 - Review
Course Closure

Total Duration: 20h 55m