Hands-On

Microsoft SQL Server 2008 Administration

Course Description

This class consists of five days of hands-on training that focus on the fundamentals of administering the SQL Server 2008 database engine. Participants in this course will come away with the knowledge and experience required to administer SQL Server 2008. The course focuses on performing common administrative tasks, understanding how SQL Server works under the covers, and optimizing SQL Server performance as well as assuring high data availability. Attendees will learn how to install, configure, manage, secure, automate, monitor, and optimize SQL Server 2008. You will also learn how to create, manage, back up, and restore individual databases, transfer and replicate data, configure for high availability, and plan disaster recovery.

Emphasis is placed on how SQL Server 2008 is architected, so that you will be able to make the proper decisions in configuring and managing your SQL Server instances. The hands-on labs provide comprehensive practice performing common administrative tasks.

Students Will Learn

- **Configuring and Installing SQL Server 2008**
- **SQL Server Database Engine Architecture**
- **Replication, Backup and Restore**
- **Database Mirroring**
- **Security Administration**
- **Performance Optimization**
- **Maintaining Data Integrity**
- **Creating and Populating Databases**
- **Automating Procedures**
- **Full-Text Search Architecture**

Prerequisites

Familiarity with database concepts, Windows desktop navigation and software installation techniques.

Course Outline

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An Overview of SQL Server 2008

- SQL Server 2008 Architecture
- Available Features and Tools
- New Capabilities
- SQL Services
- Product Licensing
- Product Editions

Configuring SQL Server 2008

- Registering Servers
- Using Metadata Views to Obtain Object Properties
- Using Object Explorer
    - Configuring a SQL Server Instance
    - Configuring Object Properties
- Using the Query Window
- Creating Transact SQL Projects
- Managing Services
- Configuring Server Network Connections
- Configuring Client Connections and Aliases
- Configuring the Surface Area of SQL Server
- Configuring Policy-Based Management
- Creating a Central Management Server
- Using the Dedicated Administrator Connection
- Configuring Data Replication
- Creation and Maintenance of Full-Text Catalogs
- Describing Full-Text Search

Installing SQL Server 2008

- Preparing for Installation
    - Creating Users for Service Accounts
    - Choosing Appropriate File Locations
    - Choosing Instance Names
- Installing SQL Server 2008
    - Choosing Appropriate Features
    - Specifying Service User Accounts
    - Choosing Licensing Mode
    - Choosing Appropriate Collation
    - Installing Multiple Instances
- Upgrading to SQL Server 2008

Monitoring Data Structures

- Creating DDL Triggers
- Creating Event Notifications
- Configuring SQL Server Audit

Using SQL Server 2008 Management Tools

- SQL Server Management Studio
- SQL Server Configuration Manager
- SQL Server Books Online
- SQLCMD

Monitoring SQL Server Performance

- Using the Windows Performance Tool to Detect the Cause of a Bottleneck
- Using SQL Server Profiler

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- Using Dynamic Management Functions
- Interpreting Management Studio Reports
- Using Activity Monitor

Creating and Configuring a Database

- Creating Databases
- Creating Tables
- Specifying Data Types
- Creating Indexes
- Describing Data File Structure
- Describing Log File Structure and Function
- Creating Filegroups
- Configuring Filestream Storage
- Creating and Using Database Snapshots
- Moving a Database to Another SQL Server

Optimizing SQL Server Performance

- Describing Index Structures
    - Clustered Indexes
    - Nonclustered (NC) Indexes
- Choosing Appropriate Clustered Index
- Choosing Appropriate NC Indexes
- Detecting Index Fragmentation
- Rebuilding and Reorganizing Indexes
- Using the Database Engine Tuning Advisor
- Generating and Interpreting Query Plans
- Configuring the Resource Governor

Securing SQL Server

- SQL Server Security Architecture
- Defining Principals and Securables
- Using the Security Hierarchy
- Creating Logins and Users
- Applying Password Policies to SQL Logins
- Creating Roles
- Granting Permissions
- Using SQLCMD to Test Permissions
- Creating and Using Certificates
- Setting Execution Context
- Encrypting Data
- Encrypting Databases

Automating Tasks

- Creating Maintenance Plans
- Job Creation and Execution
- Creating Schedules for Jobs
- Creating and Using Proxies
- Configuring Alerts
- Creating and Using Operators
- Configuring and Using Database Mail

Importing and Exporting Data

- Using bcp and BULK INSERT
- Using the Import/Export Wizard
- Using Integration Services to Import Data

Backing Up and Restoring Databases

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- Choosing Appropriate Database Recovery Model Option
- Describing Automatic Recovery
- Choosing an Appropriate Backup Strategy
- Determining Backup File Contents
- Designing a Database Recovery Plan
- Using Backup Compression
- Use of Filegroups in a Backup Strategy
- Restoring the Master Database
- Rebuilding System Databases

Maintaining Data Reliability

- Maintaining Data Integrity
    - Creating Constraints
    - Describing and Using DML Triggers
- Configure Data Compression
- Setting Transaction Isolation Levels
- Capturing Changed Data

Maintaining High Availability of Data

- Purpose of Windows Clustering
- Implementing Database Mirroring
- Use of Log Shipping

Equipment Requirements

(This apply's to our hands-on courses only)

BTS always provides equipment to have a very successful Hands-On course. BTS also encourages all attendees to bring their own equipment to the course. This will provide attendees the opportunity to incorporate their own gear into the labs and gain valuable training using their specific equipment.

Course Length

5 Days

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