

# Microsoft SQL Server 2014 Administration

**Duration:** 5 Days (*Face-to-Face & Remote-Live*), or 35 Hours (*On-Demand*)

**Price:** \$2495 (*Face-to-Face & Remote-Live*), or \$1495 (*On-Demand*)

**Discounts:** We offer multiple discount options. [Click here](#) for more information.

**Delivery Options:** Attend face-to-face in the classroom, [remote-live](#) or via [on-demand training](#).

## Description

This class consists of five days of hands-on training that focus on the fundamentals of administering the SQL Server 2014 database engine. Participants in this course will come away with the knowledge and experience required to administer SQL Server 2014. 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. You will learn how to install, configure, manage, secure, automate, monitor, and optimize SQL Server 2014. 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 2014 is architected, so that you will be able to make the proper decisions in configuring and managing your SQL Server instances. Comprehensive hands on exercises are integrated throughout to reinforce learning and develop real competency.

## Prerequisites

Familiarity with database concepts, Windows desktop navigation and software installation techniques. Attendance at SST's [SQL Programming](#) course or [Microsoft Transact-SQL Programming](#) course is highly recommended although not required.

## Course Overview

### An Overview of SQL Server 2014

- SQL Server 2014 Architecture

### Configuring SQL Server 2014

- Registering Servers

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

## Installing SQL Server 2014

- Preparing for Installation
  - Creating Users for Service Accounts
  - Choosing Appropriate File Locations
  - Choosing Instance Names
- Installing SQL Server 2014
  - Choosing Appropriate Features
  - Specifying Service User Accounts
  - Choosing Licensing Mode
  - Choosing Appropriate Collation
  - Installing Multiple Instances
- Upgrading to SQL Server 2014
- Applying a Service Pack

- Setting up a Central Management Server
- 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

## Using SQL Server 2014 Management Tools

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

## Monitoring Data Structures

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

## Creating and Configuring a Database

- Creating Databases
- Creating a Contained Database
- Creating Tables
- Memory Optimized Tables
- Specifying Data Types
- Creating Indexes
- Describing Data File Structure
- Describing Log File Structure and Function
- Creating Filegroups
- Configuring Filestream Storage
- Configuring FileTables
- Creating and Using Database Snapshots

## Monitoring SQL Server Performance

- Using the Windows Performance Tool to Detect the Cause of a Bottleneck
- Using SQL Server Profiler
- Configuring Extended Events
- Using Dynamic Management Functions
- Interpreting Management Studio Reports
- Using Activity Monitor

## Moving a Database to Another SQL Server

### Optimizing SQL Server Performance

- Describing Index Structures
  - Clustered Indexes
  - Nonclustered (NC) Indexes
  - Columnstore Indexes
  - Clustered Columnstore 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

### 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

### Maintaining High Availability of Data

- Windows Clustering
- AlwaysOn Availability Groups
- Database Mirroring
- Implementing Log Shipping

### Backing Up and Restoring Databases

- Choosing Appropriate Database Recovery Model Option
- Describing Automatic Recovery
- Choosing an Appropriate Backup Strategy
- Determining Backup File Contents
- Designing a Database Recovery Plan

### 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 Server and Database Roles
- Granting Permissions
- Using SQLCMD to Test Permissions
- Creating and Using Certificates
- Setting Execution Context
- Encrypting Data
- Encrypting Databases

### Importing and Exporting Data

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

### Maintaining Data Reliability

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

### Maintaining High Availability of Data

- Windows Clustering
- AlwaysOn Availability Groups
- Implementing AlwaysOn
- Implementing Log Shipping

- Using Backup Compression
- Use of Filegroups in a Backup Strategy
- Restoring the Master Database
- Rebuilding System Databases
- Encrypting Backup Files
- Using Backup to URL to Backup or Restore from Windows Azure BLOB

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