

## Course Outline

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# 2790- Troubleshooting and Optimizing Database Servers using Microsoft SQL Server 2005



**Duration:** 2 days (12 hours)

### Learning Objectives:

This course is intended for current professional database administrators who have three or more years of on-the-job experience administering SQL Server database solutions in an enterprise environment

### Target Audience:

This course is intended for current professional database administrators who have three or more years of on-the-job experience administering SQL Server database solutions in an enterprise environment

### Prerequisites:

- Working knowledge of SQL Server 2005 architecture including indexing, SQL execution plans, and SQL Server basic configuration
- Basic monitoring and troubleshooting skills. For example, students should have used Sysmon and Perfmon on the job
- Working knowledge of the operating system and platform. Students should understand how the operating system integrates with the database, what the platform or operating system can do, and the interaction between the operating system and the database
- Basic understanding of server architecture such as CPU and memory utilization and disk input/output (I/O)
- Basic knowledge of application architecture. Students should know how applications can be designed in three layers, what applications can do, the interaction between applications and the database, and the interaction between the database and the platform or operating system
- Understanding of Transact-SQL syntax and programming logic
- Basic knowledge of Microsoft Windows networking. Students should understand how Domain Name Service (DNS) operates and how servers communicate between domains
- Familiarity with SQL Server 2005 features, tools, and technologies
- Microsoft Certified Technology Specialist: Microsoft SQL Server 2005 credential or equivalent experience

In addition, it is recommended, but not required, that students have completed:

- Course 2778, Writing Queries Using Microsoft SQL Server 2005 Transact-SQL
- Course 2779, Implementing a Microsoft SQL Server 2005 Database
- Course 2780, Maintaining a Microsoft SQL Server 2005 Database

### Topics Covered:

- Building a Monitoring Solution for SQL Server Performance Issues
  - Narrowing Down a Performance Issue to an Environment Area
  - Guidelines for Monitoring Database Servers and Instances by Using Profiler and Sysmon
  - Guidelines for Auditing and Comparing Test Results
  - Building a Monitoring Solution for SQL Server performance issues
  - Determining Which Indicators to Monitor

- Implementing a Monitoring Solution
- Auditing Monitoring Results to Identify Problem Areas
- Troubleshooting Database and Database Server Performance issues
  - Narrowing Down a Performance Issue to a Database Object
  - How Profiler Can Help Narrow a Search to a Specific Issue
  - How the SQLdiag Tool Can Be Used to Analyze Outputs
  - Troubleshooting Database and Database Server performance issues
  - Analyzing Sysmon and Profiler Traces
  - Analyzing a Profiler Trace by Using SQL Server Queries
  - Determining Database Server Issues by Using SQLdiag.exe
- Troubleshooting SQL Server Connectivity Issues
  - The Methodology of Troubleshooting SQL Server Connectivity Issues.
  - Areas to Troubleshoot for Common Connectivity Issues.
  - What Are SQL Server 2005 Endpoints?
  - Troubleshooting Server-Not-Found Issues.
  - Troubleshooting an Authentication Error Message.
  - Troubleshooting Endpoint Issues.
- Troubleshooting SQL Server Data Issues
  - The Methodology of Troubleshooting SQL Server Data Issues
  - The Process of Troubleshooting Data Integrity Issues
  - How Torn Pages Can be Resolved Using a Single-Page Restore
  - Troubleshooting and Repairing Torn Pages
  - Troubleshooting a Data Issue
- Troubleshooting SQL Server Data Concurrency Issues
  - The Methodology of Troubleshooting Concurrency Issues
  - What Are SQL Server Latches?
  - Activity: Choosing a Blocking Monitoring Solution
  - Identifying the Objects Involved in a Deadlock
  - Identifying the Objects Involved in a Blocking Issue
  - Determining Concurrency Issues by Using Latch Wait Types