

DATA SHEET

SQL Server 2005/2008: Performance Tuning and Optimization

Accelerate time to resolution with proactive planning to keep your IT systems up and running.

The **SQL Server 2005/2008: Performance Tuning & Optimization** 4-day Workshop*PLUS* course provides information on SQL Server general architecture, index and page structures, locking and concurrency, tools and monitoring of SQL Server performance using SQL Management Studio, dynamic management views, query optimization, and insight into SQL OS, memory architecture and programming efficiency.

Students take an in-depth look at analyzing performance counters, Profiler events/features, blocking, and key dynamic management views for performance tuning. Tools such as Resource Governor, Performance Monitor and sqldiag (a unified data collection tool developed by Microsoft SQL Server support) are covered in detail. This course also explores stored procedure optimization, T-SQL programming best practices, auto-parameterization, lock escalation, statistics, and memory structure. Hands-on lab exercises reinforce key learnings.

- This course includes an Incoming Assessment to baseline knowledge and an Outgoing Assessment to measure knowledge transfer.

The workshop contains Level 300 content. Please review the Target Audience information, and contact your Microsoft Services representative to ensure that this workshop is appropriate to the student's experience and technical expertise.

Workshop*PLUS* Benefits

Incoming Assessment to baseline knowledge. It is important for students to get feedback on how much they have learned during the Workshop*PLUS* course. To accomplish that end, the Incoming Assessment measures what students know at the beginning of the course. This 25-question assessment was developed by a team of subject matter experts at Microsoft.

Outgoing Assessment to measure knowledge transfer. Students like to know how much they learned as a result of the training. At the end of the Workshop*PLUS* course, students compare their Incoming and Outgoing results. In addition, the instructor reviews the questions and discusses the answers in detail to ensure that students understand the concepts. (Note: Individual results of the Incoming and Outgoing Assessment are not provided to management.)

Action Planning Exercises to take workshop-acquired knowledge and apply them to the workplace. Applying new knowledge to the real world is key to getting the most value out of your training budget. The purpose of the Action Planning Exercises is to identify key problems or proactive opportunities in your workplace — and then to use the skills learned in this course to develop real-world action plans.

Technical Highlights

- Explore SQL Server 2005 Architecture.
- Investigate SQL Server 2005® Table & Index Structures.
- Discover performance tools and monitoring techniques.
- Understand Dynamic Management Views (DMVs).
- Optimize queries.
- Improve scalability.
- Examine memory management.
- Improve programming efficiency.

Target Audience

To ensure the high-quality knowledge transfer expected by attendees in this 4-day workshop, class size is limited to a maximum of 16 students. Participants should have 1-2 years experience with SQL Server. (Note: This workshop is *not* aimed at developers who wish to learn in-depth CLR and programming in TSQL.) Target-audience job titles include the following:

- SQL Server Database Administrator
- Database Architect
- Capacity Planning Specialist
- Quality Assurance Tester
- Senior Help Desk Specialist
- Database Application Developers
- ISV Program Managers

Syllabus

This workshop runs a *full* 4 days. Students should anticipate consistent start and end times for each day. Early departure on any day is not recommended.

Incoming Assessment. Students take a 25-question quiz that baselines their knowledge.

Module 1: SQL Architecture and Memory. Provides an overview of SQL Server architecture and Windows Memory Management.

Module 2: Table and Index Structure. Covers the behavior and use of various index structures and discusses best practices.

Module 3: Performance Tools and Monitoring. Introduces SQL Management Studio reports, tracing methods, Performance Monitor analysis, the SQLDIAG diagnostics collection utility, and the Database Engine Tuning Advisor. New SQL Server 2008 tools such as Activity Monitor and Management Data Warehouse are discussed.

Module 4: Locking and Concurrency. Focuses on lock and lock management concepts, batch and transaction concepts, and resolution of deadlock and blocking issues.

Module 5: Query Optimization. Describes how the Query Optimizer uses indexes and other information to determine the most efficient method of accessing data. Students are shown how that understanding is applied to information from the monitoring tools to show students how to identify and improve efficiency of poor performing queries.

Module 6: Programming Efficiency. Explains how to leverage stored procedures, describes best practices for query design, and explores database design factors that affect performance.

Module 7: Resource Governor. Provides an introduction to Resource Governor and explores steps to implementing it.

Outgoing Assessment. Students complete the quiz again and compare Incoming with Outgoing results to measure knowledge transfer.

Action Planning Exercises. Students develop Action Plans to improve real-world situations and/or implement proactive measures.

This workshop is just one of many available from Microsoft Services.

For more information, contact your Technical Account Manager or Services representative.