

SQL Server 2005, 2008, 2012 Internals and Query Tuning

May 7-11, 2012 • 9:00 AM – 5:00 PM
2122 Kratky Road • Suite 200 • St. Louis, MO 63114



COURSE DESCRIPTION

Understanding SQL Server means knowing the product inside and out. In this world-renowned five-day course with longtime internals expert and Microsoft MVP Kalen Delaney, students will learn how to take a long, hard look at the SQL Server relational engine. After better understanding what's happening internally, students will get the opportunity to investigate how internals can affect how you set up your databases for maximum performance and reliability. Query tuning within SQL Server 2005 and 2008, as well as parts of SQL Server 2012, will be discussed in depth.

This course is geared toward both SQL Server DBAs and developers with some experience with application development and architecture.

WHO SHOULD ATTEND?

This course is geared toward SQL Server DBAs and developers interested in gaining a better understanding of the relational engine and how it can affect query tuning and troubleshooting. SQL Server DBAs and developers with several years of experience are encouraged to attend, although all who are interested in learning more about the workings of the SQL Server engine will benefit from the course.



Instructor: Kalen Delaney

Kalen Delaney is a Microsoft SQL Server MVP and is a hugely active member of the SQL community. She is the primary author of Microsoft SQL Server 2008 Internals, Inside SQL Server 2005: Query Tuning and Optimization, and Inside SQL Server 7.

**VIEW THE FULL COURSE OUTLINE
ON THE FOLLOWING PAGE**

REGISTRATION

\$2800.00*

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COURSE OUTLINE

SQL Server 2005, 2008, 2012 Internals and Query Tuning

Day 1

Module 1: SQL Server Architecture and Metadata

- Architecture Overview
- Metadata Overview
- Dynamic Management Views
- Memory Management
- Process Management
- The Resource Governor
- SQL Server 2005 Configuration Tools

Module 2: File and Table Structures

- Tools for Examining Physical Structures
- Database Files and Space Allocation
- Table and Page Structures
- Large Datatype Storage
- Sparse Columns
- Data Compression

Day 2

Module 3: Logging and Recovery

- Structure of The Transaction Log
- Management of the Transaction Log
- Recovery and Recovery Models

Module 4: Index Structures and Partitions

- Heaps and B-Trees
- Clustered Indexes
- Nonclustered Indexes
- Fragmentation
- Rebuilding Indexes
- Partitioning Overview
- Metadata for Partitioning

Day 3

Module 5: Query Processing and Query Plans

- SHOWPLAN
- Query Plan Elements
- Types of Joins
- Aggregation
- Sorting
- UNION
- Data Modification

Module 6: Optimization and Recompilation

- Optimization Overview
- SQL Server's Query Optimizer
- Plan Management and Reuse
- Causes of Recompilation
- Forcing Recompilation
- Optimizer Metadata
- XML Plans

Day 4

Module 7: Concurrency Control

- Optimistic and Pessimistic Concurrency
- ANSI SQL Isolation Levels
- Pessimistic Concurrency Control with Locking
- Aspects of Locking
- Locking Resources
- Controlling Locking
- Locking Metadata
- Optimistic Concurrency Control with Row Versioning
- Snapshot Isolation
- Snapshot Isolation Metadata
- Database Snapshots

Module 8: Index Tuning

- Covering Indexes
- Included Columns
- Filtered Indexes
- General Indexing Strategies

Day 5

Module 9: Query Tuning

- Query Improvements
- Search Arguments
- Constants and Variables
- Query Hints and Plan Guides

Module 10: Tracing and Troubleshooting

- Verifying Database Consistency with DBCC
- Maintenance Suggestions
- Tracing
- Other Tools for Tracking Down Problems