

Professional Sql Server 2008 Internals And Troubleshooting

While building on the skills you already have, Expert SQL Server 2005 Development will help you become an even better developer by focusing on best practices and demonstrating how to design high-performance, maintainable database applications. This book starts by reintroducing the database as a integral part of the software development ecosystem. You'll learn how to think about SQL Server development as you would any other software development. For example, there's no reason you can't architect and test database routines just as you would architect and test application code. And nothing should stop you from implementing the types of exception handling and security rules that are considered so important in other tiers, even if they are usually ignored in the database. You'll learn how to apply development methodologies like these to produce high-quality encryption and SQLCLR solutions. Furthermore, you'll discover how to exploit a variety of tools that SQL Server offers in order to properly use dynamic SQL and to improve concurrency in your applications. Finally, you'll become well versed in implementing spatial and temporal database designs, as well as approaching graph and hierarchy problems.

This comprehensive introduction to SQL Server begins with an overview of database design basics and the SQL query language along with an in-depth look at SQL Server itself Progresses on to a clear explanation of how to implement fundamental concepts with the new 2008 version of SQL Server Discusses creating and changing tables, managing keys, writing scripts, working with stored procedures, programming with XML, using SQL Server Reporting and Integration Services, and more Features updated and new material, including new examples using Microsoft's AdventureWorks sample database

Pro SQL Server 2012 Practices is an anthology of high-end wisdom from a group of accomplished database administrators who are quietly but relentlessly pushing the performance and feature envelope of Microsoft SQL Server 2012. With an emphasis upon performance—but also branching into release management, auditing, and other issues—the book helps you deliver the most value for your company's investment in Microsoft's flagship database system. Goes beyond the manual to cover good techniques and best practices Delivers knowledge usually gained only by hard experience Focuses upon performance, scalability, reliability Helps achieve the predictability needed to be in control at all times

Learn effective and scalable database design techniques in a SQL Server environment. Pro SQL Server 2008 Relational Database Design and Implementation covers everything from design logic that business users will understand, all the way to the physical implementation of the design in a SQL Server database. Grounded in best practices and a solid understanding of the underlying theory, authors Louis Davidson, Kevin Kline, Scott Klein, and Kurt Windisch show how to 'get it right' in SQL Server database design and lay a solid groundwork for the future use of valuable business data. Solid foundation in best practices and relational theory Maximize SQL Server features to enhance security, performance, scalability Thorough treatment from conceptual design to an effective, physical implementation

Fill the gap between planning and doing with SSIS 2014 The 2014 release of Microsoft's SQL Server Integration Services provides enhancements for managing extraction, transformation, and load operations, plus expanded in-memory capabilities, improved disaster recovery, increased scalability, and much more. The increased functionality will streamline your ETL processes and smooth out your workflow, but the catch is that your workflow must change. New tools come with new best practices, and Professional Microsoft SQL Server 2014 Integration Services will keep you ahead of the curve. SQL Server MVP Brian Knight is the most respected name in the business, and your ultimate guide to navigating the changes to use Microsoft SQL Server Integration Services 2014 to your utmost advantage. Implement new best practices for effective use of SSIS Work through tutorials for hands-on learning of complex techniques Read case studies that illustrate the more advanced concepts Learn directly from the foremost authority on SSIS SQL Server Integration Services is a complex tool, but it's the lifeblood of your work. You need to know it inside out, and you must understand the full potential of its capabilities in order to use it effectively. You need to make sure the right architecture is in place. Professional Microsoft SQL Server 2014 Integration Services is your roadmap to understanding SSIS on a fundamental level, and setting yourself up for success.

Dive deep inside the architecture of SQL Server 2012 Explore the core engine of Microsoft SQL Server 2012--and put that practical knowledge to work. Led by a team of SQL Server experts, you'll learn the skills you need to exploit key architectural features. Go behind the scenes to understand internal operations for creating, expanding, shrinking, and moving databases--whether you're a database developer, architect, or administrator. Discover how to: Dig into SQL Server 2012 architecture and configuration Use the right recovery model and control transaction logging Reduce query execution time through proper index design Track events, from triggers to the Extended Event Engine Examine internal structures with database console commands Transcend row-size limitations with special storage capabilities Choose the right transaction isolation level and concurrency model Take control over query plan caching and reuse

The SQL Server 2014 In-Memory OLTP engine (a.k.a. Hekaton) is designed from the ground up to exploit terabytes of available memory and high numbers of processing cores. It allows us to work with memory-optimized tables and indexes, and natively compiled stored procedures, in addition to the disk-based tables and indexes, and T-SQL stored procedures, that SQL Server has always provided. Hekaton in-memory data is accessible, transparently, using familiar interfaces such as T-SQL and SSMS, but Hekaton's internal behavior and capabilities are very different than those of the standard relational engine. Everything you knew about how your SQL Server stores and accesses data is different in Hekaton. Everything you understood about how multiple concurrent processes are handled needs to be reconsidered. In this book, Kalen Delaney explains how the new In-Memory OLTP engine works, how it stores and manipulates data, and how, even with all data stored in memory and no locking or latching, it can still guarantee the ACID properties of all transactions. Kalen has been working with SQL Server since 1987, specializing in query performance tuning and SQL Server internals. The Hekaton internals knowledge she provides in this book will help you migrate existing tables or databases to Hekaton, and get faster performance from your SQL Server applications than you ever thought possible.

With the growing prevalence of the Internet, rootkit technology has taken center stage in the battle between White Hats and Black Hats. Adopting an approach that favors full disclosure, The Rootkit Arsenal presents the most accessible, timely, and complete coverage of rootkit technology. This book covers more topics, in greater depth, than any other currently available. In doing so, the author forges through the murky back alleys of the Internet, shedding light on material that has traditionally been poorly documented, partially documented, or intentionally

undocumented.

If you need to deploy, manage, or secure Microsoft SQL Server 2008, this is the complete, fast-paced, task-based reference you've been searching for. Authored by a world-class expert on SQL Server in the enterprise, this book goes far beyond the basics, taking on the complex tasks that DBAs need to make the most of Microsoft's flagship database platform. SQL Server MVP, Ross Mistry presents proven techniques for SQL Server 2008 installation, upgrades, backup/restore, data transfer, indexing, high availability, security, and much more. He draws on extensive testing in high-profile production environments to offer step-by-step solutions and powerful tips you won't find anywhere else. Every chapter begins with a section identifying SQL Server 2008's most significant new improvements, and concludes with a convenient summary of best practices. Each chapter also outlines the benefits of leveraging Windows Server 2008. Understand how to: Master DBA tips, tricks, and best practices proven in actual enterprise environments Install, upgrade or transition to SQL Server 2008. Harden and Secure an implementation. Encrypt SQL Server from an end-to-end perspective. Implement high availability—and leverage SQL Server 2008's major improvements to failover clustering and database mirroring Save time with SQL Server 2008's new policy-based management tools Performance tune and troubleshoot a SQL Server 2008 environment. Optimize application performance and manage workloads with the powerful new Resource Governor Implement Performance Studio, maintenance plans, Transparent Data Encryption and much more... Bonus Content: The book is based on Windows Server 2008 Step by step instructions of how to implement a failover cluster on Windows Server 2008 SQL Server PowerShell Administration Tasks Consolidate and virtualize SQL Server with Hyper-V Step by step instructions on how to install Hyper-V Proactively Monitor SQL Server with Operations Manager Install Windows Server 2008 certificates to encrypt SQL Server data Contributing Writers include: Hilary Cotter – SQL Server MVP John Welch – SQL Server MVP Marco Shaw – PowerShell MVP Maciej Pilecki – SQL Server MVP Shirmattie Seenarine – Technical Writer

Hands-on troubleshooting methods on the most recent release of SQL Server The 2012 release of SQL Server is the most significant one since 2005 and introduces an abundance of new features. This critical book provides in-depth coverage of best practices for troubleshooting performance problems based on a solid understanding of both SQL Server and Windows internals and shows experienced DBAs how to ensure reliable performance. The team of authors shows you how to master the use of specific troubleshooting tools and how to interpret their output so you can quickly identify and resolve any performance issue on any server running SQL Server. Covers the core technical topics required to understand how SQL Server and Windows should be working Shares best practices so that you know how to proactively monitor and avoid problems Shows how to use tools to quickly gather, analyze, and effectively respond to the source of a system-wide performance issue Professional SQL Server 2012 Internals and Troubleshooting helps you to quickly become familiar with the changes of this new release so that you can best handle database performance and troubleshooting.

Delve inside the core SQL Server engine—and put that knowledge to work—with guidance from a team of well-known internals experts. Whether database developer, architect, or administrator, you'll gain the deep knowledge you need to exploit key architectural changes—and capture the product's full potential. Discover how SQL Server works behind the scenes, including: What happens internally when SQL Server builds, expands, shrinks, and moves databases How to use event tracking—from triggers to the Extended Events Engine Why the right indexes can drastically reduce your query execution time How to transcend normal row-size limits with new storage capabilities How the Query Optimizer operates Multiple techniques for troubleshooting problematic query plans When to force SQL Server to reuse a cached query plan—or create a new one What SQL Server checks internally when running DBCC How to choose among five isolation levels and two concurrency models when working with multiple concurrent users

"Most T-SQL developers recognize the value of window functions for data analysis calculations. But they can do far more, and recent optimizations make them even more powerful. In T-SQL Window Functions, renowned T-SQL expert Itzik Ben-Gan introduces breakthrough techniques for using them to handle many common T-SQL querying tasks with unprecedented elegance and power. Using extensive code examples, he guides you through window aggregate, ranking, distribution, offset, and ordered set functions. You'll find a detailed section on optimization, plus an extensive collection of business solutions -- including novel techniques available in no other book."--provided by publisher.

Pro SQL Server 2008 Replication is for Microsoft database developers and administrators who want to learn about the different types of replication and those best suited to SQL Server 2008. This book will also cover advanced topics like replication with heterogeneous databases, backup and recovery of replicated databases, database mirroring with replication, log shipping with replication, troubleshooting, plus optimization and tuning. Tools like tablediff, SQLCMD, DTA, SQL Profiler, and Replication Monitor will be discussed to demonstrate the different techniques used in monitoring, administering, and troubleshooting replication. Examines the detailed configuration and the internal workings of the different replication types using real-life scenarios Covers replication with database mirroring and troubleshooting Discusses replication administration using different tools Professional SQL Server 2008 Internals and Troubleshooting John Wiley & Sons

SQL Server 2008 is how-to guide for experienced DBAs. Tutorial-based, this book will get you over the learning curve of how to configure and administer SQL Server 2008. Whether you're an administrator or developer using SQL Server, you can't avoid wearing a DBA hat at some point. The book is loaded with unique tips and workarounds for the most difficult SQL Server admin issues, including managing and monitoring SQL Server, automating administration, security, performance tuning, scaling and replications, clustering, and backup and recovery. A companion website is also available.

Expert Performance Indexing for SQL Server 2012 is a deep dive into perhaps the single-most important facet of good performance: indexes, and how to best use them. The

book begins in the shallow waters with explanations of the types of indexes and how they are stored in databases. Moving deeper into the topic, and further into the book, you will look at the statistics that are accumulated both by indexes and on indexes. All of this will help you progress towards properly achieving your database performance goals. What you'll learn from Expert Performance Indexing for SQL Server 2012 will help you understand what indexes are doing in the database and what can be done to mitigate and improve their effects on performance. The final destination is a guided tour through a number of real-world scenarios and approaches that can be taken to investigate, mitigate, and improve the performance of your database. Defines indexes and provides an understanding of their role Uncovers and explains the statistics that are kept in indexes Teaches strategies and approaches for indexing databases

See how the core components of the Windows operating system work behind the scenes—guided by a team of internationally renowned internals experts. Fully updated for Windows Server(R) 2008 and Windows Vista(R), this classic guide delivers key architectural insights on system design, debugging, performance, and support—along with hands-on experiments to experience Windows internal behavior firsthand. Delve inside Windows architecture and internals: Understand how the core system and management mechanisms work—from the object manager to services to the registry Explore internal system data structures using tools like the kernel debugger Grasp the scheduler's priority and CPU placement algorithms Go inside the Windows security model to see how it authorizes access to data Understand how Windows manages physical and virtual memory Tour the Windows networking stack from top to bottom—including APIs, protocol drivers, and network adapter drivers Troubleshoot file-system access problems and system boot problems Learn how to analyze crashes

Teach yourself SQL Server 2008—one step at a time. Get the practical guidance you need to build database solutions that solve real-world business problems. Learn to integrate SQL Server data in your applications, write queries, develop reports, and employ powerful business intelligence systems. Discover how to: Install and work with core components and tools Create tables and index structures Manipulate and retrieve data Secure, manage, back up, and recover databases Apply tuning plus optimization techniques to generate high-performing database applications Optimize availability through clustering, database mirroring, and log shipping Tap business intelligence tools—Reporting, Analysis, and Integration Services CD features: Practice exercises and code samples Fully searchable eBook For customers who purchase an ebook version of this title, instructions for downloading the CD files can be found in the ebook.

Extend your programming skills with a comprehensive study of the key features of SQL Server 2008. Delve into the new core capabilities, get practical guidance from expert developers, and put their code samples to work. This is a must-read for Microsoft .NET and SQL Server developers who work with data access—at the database, business logic, or presentation levels. Discover how to: Query complex data with powerful Transact-SQL enhancements Use new, non-relational features: hierarchical tables, native file streaming, and geospatial capabilities Exploit XML inside the database to design XML-aware applications Consume and deliver your data using Microsoft LINQ, Entity Framework, and data binding Implement database-level encryption and server auditing Build and maintain data warehouses Use Microsoft Excel to build front ends for OLAP cubes, and MDX to query them Integrate data mining into applications quickly and effectively. Get code samples on the Web.

All medium to large companies have to deal with data being stored in a number of databases, spreadsheets and proprietary applications. Bringing all this data together into one system can be useful to analyzing the business; but can also be quite difficult to do. Integration Services is the next big bet in Microsoft's business intelligence lineup, providing you with true enterprise extract transform and load features (ETL). Microsoft SQL Server 2005 Integration Services concentrates on providing you with real world solutions to real world problems, giving you a head start on various projects. If you are only evaluating Integration Services, you'll be able to focus on the early chapters with the option of drilling down into details in the later chapters where some of the more complex concepts will be discussed in detail. The interesting sidebars peppered throughout the book provide insight into the processes, people and decisions that yielded the final IS product.

An essential how-to guide for experienced DBAs on the most significant product release since 2005! Microsoft SQL Server 2012 will have major changes throughout the SQL Server and will impact how DBAs administer the database. With this book, a team of well-known SQL Server experts introduces the many new features of the most recent version of SQL Server and deciphers how these changes will affect the methods that administrators have been using for years. Loaded with unique tips, tricks, and workarounds for handling the most difficult SQL Server admin issues, this how-to guide deciphers topics such as performance tuning, backup and recovery, scaling and replication, clustering, and security. Serves as a must-have how-to guide on the new features of the 2012 release of Microsoft SQL Server Walks you through ways to manage and monitor SQL Server and automate administration Guides you through SQL Azure for cloud computing, data replication, and data warehouse performance improvements Addresses client-connectivity enhancements, new features that ensure high availability of mission-critical applications, and tighter integration with Excel and SharePoint for data analysis and reporting Highlights major changes to the suite of SQL Server BI tools, including integration, reporting, and analysis services Includes real-world case examples and best practices from Microsoft insiders If you're a database administrator eager to get started with the newest version of SQL Server, then this book is essential reading.

Improve your ability to develop, manage, and troubleshoot SQL Server solutions by learning how different components work “under the hood,” and how they communicate with each other. The detailed knowledge helps in implementing and maintaining high-throughput databases critical to your business and its customers. You'll learn how to identify the root cause of each problem and understand how different design and implementation decisions affect performance of your systems. New in this second edition is coverage of SQL Server 2016 Internals, including In-Memory OLTP, columnstore enhancements, Operational Analytics support, Query Store, JSON, temporal tables, stretch databases, security features, and other improvements in the new SQL Server version. The knowledge also can be applied to Microsoft Azure SQL Databases that share the same code with SQL Server 2016. Pro SQL Server Internals is a book for developers and database administrators, and it covers multiple SQL Server versions starting with SQL Server 2005 and going all the way up to the recently released SQL Server 2016. The book provides a solid road map for understanding the depth and power of the SQL Server database server and teaches how to get the most from the platform and keep your databases running at the level needed to support your business. The book: • Provides detailed knowledge of new SQL Server 2016 features and enhancements • Includes revamped coverage of columnstore indexes and In-Memory OLTP • Covers indexing and transaction strategies • Shows how various database objects and technologies are implemented internally, and when they should or should not be used • Demonstrates how SQL Server executes queries and works with data and transaction log What You Will Learn Design and develop database solutions with SQL Server. Troubleshoot design, concurrency, and performance issues. Choose the right database objects and technologies for the job. Reduce costs and improve availability and manageability. Design disaster recovery and high-availability strategies. Improve performance of OLTP and data warehouse systems through in-memory OLTP and Columnstore indexes. Who This Book Is For Developers and database administrators who want to design, develop, and maintain systems in a way that gets the most from SQL Server. This book is an excellent choice for people who prefer to understand and fix the root cause of a problem rather than applying a 'band aid' to it.

Teach yourself to use SQL Server 2008 Analysis Services for business intelligence—one step at a time. You'll start by building your understanding of the business intelligence platform enabled by SQL Server

and the Microsoft Office System, highlighting the role of Analysis Services. Then, you'll create a simple multidimensional OLAP cube and progressively add features to help improve, secure, deploy, and maintain an Analysis Services database. You'll explore core Analysis Services 2008 features and capabilities, including dimension, cube, and aggregation design wizards; a new attribute relationship designer; designer AMO warnings; and using dynamic management views to monitor resources. And as you complete each lesson, you can hone your skills using the practice exercises from the companion CD. Plus, you can review and download code samples illustrating the author's own, professional techniques—direct from the companion Web site. For customers who purchase an ebook version of this title, instructions for downloading the CD files can be found in the ebook.

Teach yourself the Multidimensional Expressions (MDX) query language—one step at a time. With this practical, learn-by-doing tutorial, you'll build the core techniques for using MDX with Analysis Services to deliver high-performance business intelligence solutions. Discover how to: Construct and execute MDX queries Work with tuples, sets, and expressions Build complex sets to retrieve the exact data users need Perform aggregation functions and navigate data hierarchies Assemble time-based business metrics Customize an Analysis Services cube through the MDX script Implement dynamic security to control data access Develop MDX-driven reports in SQL Server Reporting Services CD features: Practice exercises Database and code samples Fully searchable eBook

Tackle the toughest set-based querying and query tuning problems—guided by an author team with in-depth, inside knowledge of T-SQL. Deepen your understanding of architecture and internals—and gain practical approaches and advanced techniques to optimize your code's performance. Discover how to: Move from procedural programming to the language of sets and logic Optimize query tuning with a top-down methodology Assess algorithmic complexity to predict performance Compare data-aggregation techniques, including new grouping sets Manage data modification—insert, delete, update, merge—for performance Write more efficient queries against partitioned tables Work with graphs, trees, hierarchies, and recursive queries Plus—Use pure-logic puzzles to sharpen your problem-solving skills

Take a deep dive into one of the most significant SQL Server features—support for In-Memory Online Transaction Processing. The latest developments are covered, including support of off-row storage, columnstore indexes and operational analytics, changes in programmability and native compilation, and more. This book describes the architecture and internals of the In-Memory OLTP Engine and explains how to develop, deploy, and maintain systems using it. With it you can dramatically increase transaction throughput to handle thousands of transactions per second supporting millions of customers. Learn the architecture and the internals of In-Memory OLTP in order to recognize when technology can make a difference. Recognize opportunities for In-Memory OLTP in new development and understand how to benefit from it in existing systems. Don't be without Dmitri Korotkevitch and the deep expertise he imparts in Expert SQL Server In-Memory OLTP, 2nd Edition as you move forward in using SQL Server's In-Memory OLTP technology. Dmitri Korotkevitch is the five-star author of Pro SQL Server Internals, and brings the same combination of clear thinking and deep expertise to help you in this second edition. The book: Explains In-Memory OLTP internals, architecture and programmability, including data storage, indexing, multi-version concurrency control, transaction logging and recovery, and native compilation Covers SQL Server 2016 technology enhancements, including columnstore indexes and off-row storage Guides in using In-Memory OLTP in new development and existing systems What You'll Learn Grasp how SQL Server stores and works with data in memory-optimized tables Properly design and index memory-optimized tables Plan successful deployments, including the required memory size and I/O configuration Accelerate T-SQL processing through the creation of natively compiled modules Monitor and report on the benefits and performance of your In-Memory OLTP solutions Benefit from the technology in existing systems and in the systems with the mixed workload Who This Book Is For Application developers and database administrators who create and manage online transaction processing (OLTP) systems; in particular, those wanting to take advantage of SQL Server's new offering of in-memory OLTP to dramatically improve performance and throughput of their systems

Service Broker is a key Microsoft product in support of message-based processing between applications. Pro SQL Server 2008 Service Broker helps you to take full advantage of this key Microsoft technology, beginning from the fundamentals, moving through installation and application development, and ultimately showing you how to develop highly available and scalable applications based upon the service-oriented architecture that is quickly gaining ground as the way forward in application development. Comprehensive approach to developing with Service Broker Strong focus on best practices and real-world scenarios Covers the key aspects of distributed application design

Microsoft SQL Server Integration Services is Microsoft's powerful platform for building enterprise-level data integration and data transformation solutions. It's a powerful product, but it's also complex and can be confusing if you don't have a clear map for the journey. Microsoft SQL Server 2008 Integration Services Unleashed will be the only book you'll need to harness the power that Integration Services provides. Through clear, concise explanations and samples, you'll grasp a clear understanding of working in the Integration Services environment, including how to set up stock components, how to use the various designer features, and how to gain practical knowledge on configuring, deploying, securing, and managing packages. Sample packages are provided to reinforce the discussion and quickly help you gain hands-on experience, and more complex topics such as Data Flow Task internals and tuning, advanced transformations, and writing custom components are all illustrated in easy-to-understand graphics. In addition, there are several custom tasks and transformations and two useful utilities with full source code available for you to use and study, including an ADO.NET destination, a text file encryption task, and a data profiling transform. Detailed information on: Using the powerful Integration Services tools to create solutions without the need to write lines of code Creating packages programmatically or developing custom tasks via the Integration Services object Building robust packages to solve common requirements Securing packages for different environments Using often overlooked or unknown platform features Setting up all the stock components, including data flow components, tasks, Foreach enumerators, connection managers, and log providers Writing robust and useful custom tasks Building packages that seamlessly deploy to other environments Writing custom data flow adapters and transforms Using script tasks and components Easily modifying configurations for multiple packages simultaneously Writing a Task UI that looks just like the stock tasks Tapping into the power of Integration Services for accessing heterogeneous data sources Using expressions to make packages more responsive to the environment Migrating your DTS packages with no stress Kirk Haselden is the Group Program Manager for the Microsoft Master Data Management product forthcoming in the next wave of Office SharePoint Services and owns the long term strategy, vision, planning, and development of that product. Kirk has been with Microsoft for 12 years in various groups including Hardware, eHome, Connected Home, SQL Server, and Office Business Platform. He was the development manager for Integration Services and the primary designer for the runtime, as well as many of the tasks. He has written a number of articles for SQL Server Magazine, speaks regularly at industry events, writes profusely on his personal and MSDN blog, and holds 35 patents or patents

pending. Category: Microsoft SQL Server Covers: Microsoft SQL Server 2008 Integration Services User Level: Intermediate–Advanced

The SQL Server Query Optimizer is perceived by many to be a magic black box, transforming SQL queries into high performance execution plans in the blink of an eye through some unknowable process. The truth is that, while the Query Optimizer is indeed the highly-complex result of decades of research, learning how it works its magic is not only possible, but immensely useful to DBAs and Developers alike. A better understanding of what the Query Optimizer does behind the scenes can help you to improve the performance of your databases and applications, and this book explains the core concepts behind how the SQL Server Query Optimizer works. With this knowledge, you'll be able to write superior queries, provide the Query Optimizer with all the information it needs to produce efficient execution plans, and troubleshoot the cases when the Query Optimizer is not giving you the best plan possible. With over 15 years of experience in the use of Relational Databases (including SQL Server since version 6.5), Benjamin has watched the SQL Server Query Optimizer grow and evolve. His insight will leave you with an excellent foundation in the practicalities of the Query Optimizer, and everything you need to know to start tuning your queries to perfection.

T-SQL insiders help you tackle your toughest queries and query-tuning problems Squeeze maximum performance and efficiency from every T-SQL query you write or tune. Four leading experts take an in-depth look at T-SQL's internal architecture and offer advanced practical techniques for optimizing response time and resource usage. Emphasizing a correct understanding of the language and its foundations, the authors present unique solutions they have spent years developing and refining. All code and techniques are fully updated to reflect new T-SQL enhancements in Microsoft SQL Server 2014 and SQL Server 2012. Write faster, more efficient T-SQL code: Move from procedural programming to the language of sets and logic Master an efficient top-down tuning methodology Assess algorithmic complexity to predict performance Compare data aggregation techniques, including new grouping sets Efficiently perform data-analysis calculations Make the most of T-SQL's optimized bulk import tools Avoid date/time pitfalls that lead to buggy, poorly performing code Create optimized BI statistical queries without additional software Use programmable objects to accelerate queries Unlock major performance improvements with In-Memory OLTP Master useful and elegant approaches to manipulating graphs About This Book For experienced T-SQL practitioners Includes coverage updated from Inside Microsoft SQL Server 2008 T-SQL Querying and Inside Microsoft SQL Server 2008 T-SQL Programming Valuable to developers, DBAs, BI professionals, and data scientists Covers many MCSE 70-464 and MCSA/MCSE 70-461 exam topics

Conquer SQL Server 2019 administration—from the inside out Dive into SQL Server 2019 administration—and really put your SQL Server DBA expertise to work. This supremely organized reference packs hundreds of timesaving solutions, tips, and workarounds—all you need to plan, implement, manage, and secure SQL Server 2019 in any production environment: on-premises, cloud, or hybrid. Six experts thoroughly tour DBA capabilities available in SQL Server 2019 Database Engine, SQL Server Data Tools, SQL Server Management Studio, PowerShell, and Azure Portal. You'll find extensive new coverage of Azure SQL, big data clusters, PolyBase, data protection, automation, and more. Discover how experts tackle today's essential tasks—and challenge yourself to new levels of mastery. Explore SQL Server 2019's toolset, including the improved SQL Server Management Studio, Azure Data Studio, and Configuration Manager Design, implement, manage, and govern on-premises, hybrid, or Azure database infrastructures Install and configure SQL Server on Windows and Linux Master modern maintenance and monitoring with extended events, Resource Governor, and the SQL Assessment API Automate tasks with maintenance plans, PowerShell, Policy-Based Management, and more Plan and manage data recovery, including hybrid backup/restore, Azure SQL Database recovery, and geo-replication Use availability groups for high availability and disaster recovery Protect data with Transparent Data Encryption, Always Encrypted, new Certificate Management capabilities, and other advances Optimize databases with SQL Server 2019's advanced performance and indexing features Provision and operate Azure SQL Database and its managed instances Move SQL Server workloads to Azure: planning, testing, migration, and post-migration

A hands-on resource for SQL Server 2008 troubleshooting methods and tools SQL Server administrators need to ensure that SQL Server remains running 24/7. Authored by leading SQL Server experts and MVPs, this book provides in-depth coverage of best practices based on a deep understanding of the internals of both SQL Server and the Windows operating system. You'll get a thorough look at the SQL Server database architecture and internals as well as Windows OS internals so that you can approach troubleshooting with a solid grasp of the total processing environment. Armed with this comprehensive understanding, readers will then learn how to use a suite of tools for troubleshooting performance problems whether they originate on the database server or operating system side. Topics Covered: SQL Server Architecture Understanding Memory SQL Server Waits and Extended Events Working with Storage CPU and Query Processing Locking and Latches Knowing Tempdb Defining Your Approach To Troubleshooting Viewing Server Performance with PerfMon and the PAL Tool Tracing SQL Server with SQL Trace and Profiler Consolidating Data Collection with SQLDiag and the PerfStats Script Introducing RML Utilities for Stress Testing and Trace File Analysis Bringing It All Together with SQL Nexus Using Management Studio Reports and the Performance Dashboard Using SQL Server Management Data Warehouse Shortcuts to Efficient Data Collection and Quick Analysis Note: CD-ROM/DVD and other supplementary materials are not included as part of eBook file.

Effectively query and modify data using Transact-SQL Master T-SQL fundamentals and write robust code for Microsoft SQL Server and Azure SQL Database. Itzik Ben-Gan explains key T-SQL concepts and helps you apply your knowledge with hands-on exercises. The book first introduces T-SQL's roots and underlying logic. Next, it walks you through core topics such as single-table queries, joins, subqueries, table expressions, and set operators. Then the book covers more-advanced data-query topics such as window functions, pivoting, and grouping sets. The book also explains how to modify data, work with temporal tables, and handle transactions, and provides an overview of programmable objects. Microsoft Data Platform MVP Itzik Ben-Gan shows you how to: Review core SQL concepts and its mathematical roots Create tables and enforce data integrity Perform effective single-table queries by using the SELECT statement Query multiple tables by using joins, subqueries, table expressions, and set operators Use advanced query techniques such as window functions, pivoting, and grouping sets Insert, update, delete, and merge data Use transactions in a concurrent environment Get started with programmable objects—from variables and batches to user-defined functions, stored procedures, triggers, and dynamic SQL

Beginning SQL Server 2008 Administration is essential for anyone wishing to learn about implementing and managing SQL Server 2008 database. From college students, to experienced database administrators from other platforms, to those already familiar with SQL Server and wanting to fill in some gaps of knowledge, this book will bring all readers up to speed on the enterprise platform Microsoft SQL Server 2008. Clearly describes relational database concepts Explains the SQL Server database engine and supporting tools Shows various database maintenance scenarios

This book is your field guide to planning, deploying, managing, and troubleshooting Always On Availability Groups. The Always On Availability Groups feature is an enterprise-level solution for high availability

and disaster recovery. Always On provides a rich set of options that reduce overhead and resource usage and enable database administrators to implement and manage high availability and disaster recovery solutions far more easily than by implementing the log-shipping and database-mirroring solutions of the past. Pro SQL Server Always On Availability Groups shows how to reduce downtime, maximize application availability, and provide data protection. The goal is always to have your SQL Server databases up and running whenever you need them, rain or shine, disaster or otherwise. With a focus on real-world experiences and war stories, authors Uttam Parui and Vivek Sanil offer you: Tips, tricks, and best practices for architecting and deploying availability groups. The confidence required to manage and monitor availability groups. Techniques to troubleshoot common issues that you may face during and after deploying availability groups in a mission-critical production environment. What You Will Learn Grasp important concepts underlying high-availability and disaster recovery. Plan and deploy Always On Availability Groups in your corporate environment. Manage Availability Groups to ensure constant readiness and high throughput. Monitor Availability Group performance and troubleshoot problems fast. Build on the cloud and make Windows Azure part of your availability solution. Employ proven techniques and best practices as tested and shared by the authors. Audience Pro SQL Server Always On Availability Groups is aimed at SQL Server architects, database administrators, and IT professionals who are tasked with architecting and deploying a high-availability and disaster recovery solution involving Microsoft SQL Server. This book is also for SQL Server support staff who will be managing and supporting existing availability group deployments.

This is not an ordinary SQL Server Book. SQL Server MVP Deep Dives brings together the world's most highly-regarded SQL Server experts to create a masterful collection of tips, techniques, and experience-driven best practices for SQL Server development and administration. These SQL Server MVPs-53 in all-each selected a topic of great interest to them, and in this unique book, they share their knowledge and passion with you. SQL Server MVP Deep Dives is organized into five parts: Design and Architecture, Development, Administration, Performance Tuning and Optimization, and Business Intelligence. Within each part, you'll find a collection of brilliantly concise and focused chapters that take on key topics like mobile data strategies, Dynamic Management Views, or query performance. The range of subjects covered is comprehensive, from database design tips to data profiling strategies for BI. Additionally, the authors of this book have generously donated 100% of their royalties to support War Child International. War Child International is a network of independent organizations, working across the world to help children affected by war. War Child was founded upon a fundamental goal: to advance the cause of peace through investing hope in the lives of children caught up in the horrors of war. War Child works in many different conflict areas around the world, helping hundreds of thousands of children every year. Visit www.warchild.org for more information. Purchase of the print book comes with an offer of a free PDF, ePub, and Kindle eBook from Manning. Also available is all code from the book.

Over the years, thousands of tools have been developed for debugging TCP/IP networks. They range from very specialized tools that do one particular task, to generalized suites that do just about everything except replace bad Ethernet cables. Even better, many of them are absolutely free. There's only one problem: who has time to track them all down, sort through them for the best ones for a particular purpose, or figure out how to use them? Network Troubleshooting Tools does the work for you--by describing the best of the freely available tools for debugging and troubleshooting. You can start with a lesser-known version of ping that diagnoses connectivity problems, or take on a much more comprehensive program like MRTG for graphing traffic through network interfaces. There's tkined for mapping and automatically monitoring networks, and Ethereal for capturing packets and debugging low-level problems. This book isn't just about the tools available for troubleshooting common network problems. It also outlines a systematic approach to network troubleshooting: how to document your network so you know how it behaves under normal conditions, and how to think about problems when they arise, so you can solve them more effectively. The topics covered in this book include: Understanding your network Connectivity testing Evaluating the path between two network nodes Tools for capturing packets Tools for network discovery and mapping Tools for working with SNMP Performance monitoring Testing application layer protocols Software sources If you're involved with network operations, this book will save you time, money, and needless experimentation.

Conquer SQL Server 2017 administration—from the inside out Dive into SQL Server 2017 administration—and really put your SQL Server DBA expertise to work. This supremely organized reference packs hundreds of timesaving solutions, tips, and workarounds—all you need to plan, implement, manage, and secure SQL Server 2017 in any production environment: on-premises, cloud, or hybrid. Four SQL Server experts offer a complete tour of DBA capabilities available in SQL Server 2017 Database Engine, SQL Server Data Tools, SQL Server Management Studio, and via PowerShell. Discover how experts tackle today's essential tasks—and challenge yourself to new levels of mastery.

- Install, customize, and use SQL Server 2017's key administration and development tools
- Manage memory, storage, clustering, virtualization, and other components
- Architect and implement database infrastructure, including IaaS, Azure SQL, and hybrid cloud configurations
- Provision SQL Server and Azure SQL databases
- Secure SQL Server via encryption, row-level security, and data masking
- Safeguard Azure SQL databases using platform threat protection, firewalling, and auditing
- Establish SQL Server IaaS network security groups and user-defined routes
- Administer SQL Server user security and permissions
- Efficiently design tables using keys, data types, columns, partitioning, and views
- Utilize BLOBs and external, temporal, and memory-optimized tables
- Master powerful optimization techniques involving concurrency, indexing, parallelism, and execution plans
- Plan, deploy, and perform disaster recovery in traditional, cloud, and hybrid environments

For Experienced SQL Server Administrators and Other Database Professionals

- Your role: Intermediate-to-advanced level SQL Server database administrator, architect, developer, or performance tuning expert
- Prerequisites: Basic understanding of database administration procedures

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