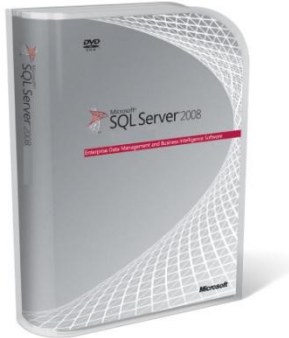




Microsoft® SQL Server® 2008

Your Data, Any Place, Any Time



Microsoft® SQL Server® 2008 provides a trusted, productive, and intelligent data platform that enables you to run your most demanding mission critical applications, reduce time and cost of development and management of applications, and deliver actionable insight to your entire organization. SQL Server provides the highest levels of security, reliability, and scalability.

<http://www.microsoft.com/sqlserver/2008/en/us/default.aspx>

TOP NEW FEATURES

A trusted data platform.

PROTECT VALUABLE INFORMATION

Transparent Data Encryption

Enable encryption of an entire database, data files or log files, without the need for application changes. Benefits of this include search encrypted data using both range and fuzzy searches, prevent access to secure data from unauthorized users, and data encryption without any changes to existing applications.

Extensible Key Management

SQL Server 2005 provides a comprehensive solution for encryption and key management. SQL Server 2008 supports third-party key management and HSM products.

Auditing

Create and manage auditing via DDL while simplifying compliance by providing more comprehensive data auditing. This enables organizations to answer common questions such

as “Who accessed our customer data?”

ENSURE BUSINESS CONTINUITY

Enhanced Database Mirroring

SQL Server 2008 builds on SQL Server 2005 by providing a more reliable platform that has enhanced database mirroring including automatic page repair, improved performance, and enhanced supportability.

Automatic Recovery of Data Pages

SQL Server 2008 enables the principal and mirror machines to transparently recover from common types of data page errors by requesting a fresh copy of the suspect page from the mirroring partner transparently to end users and applications.

Log Stream Compression

Database Mirroring requires data transmissions between the participants of the mirroring implementations. With SQL Server 2008, compression of the outgoing log stream between the participants delivers optimal performance and

minimizes the network bandwidth used by database mirroring.

PREDICTABLE RESPONSE

Resource Governor

Provide a consistent and predictable response to end users with the introduction of Resource Governor. The Resource Governor allows organizations to define resource limits and priorities for different workloads which enable concurrent workloads to provide consistent performance to their end users.

Predictable Query Performance

Enable greater query performance stability and predictability by providing functionality to lock down query plans enabling organizations to promote stable query plans across hardware server replacements, server upgrades, and production deployments.

Data Compression

Enable data to be stored more effectively and reduce the storage requirements for your data. Data Compression also provides significant performance improvements for large I/O bound workloads like data warehousing.

Hot Add CPU

Dynamically scale a database on demand by allowing CPU resources to be added to SQL Server 2008 on supported hardware platforms without forcing any downtime on applications. Note that, as in the previous release, SQL Server also supports the ability to add memory resources online.

A productive data platform.

To take advantages of new opportunities in today's fast-moving business world, companies need the ability to create and deploy data-driven solutions quickly. SQL Server 2008 reduces time and cost of management and development of applications.

MANAGE BY POLICIES

Policy-Based Management

Policy-Based Management is a framework for managing one or more instances of SQL Server 2008. Use this framework to ensure compliance with system configuration policies, monitor and prevent changes to the system that violate your company policies, and reduce total cost of ownership by simplifying administration tasks.

Streamlined Installation

SQL Server 2008 introduces significant improvements to the service lifecycle for SQL Server through the re-engineering of the installation, setup and configuration architecture. These improvements separate the installation of the physical bits on the hardware from the configuration of the SQL Server software enabling organizations and software partners to provide recommended installation configurations.

Performance Data Collection

Performance tuning and troubleshooting are time-consuming tasks for the administrator. To provide actionable performance insights to administrators, SQL

Server 2008 includes more extensive performance data collection, a new centralized data repository for storing performance data and new tools for reporting and monitoring.

SIMPLIFY APPLICATION DEVELOPMENT

Language Integrated Query (LINQ)

Enable developers to issue queries against data using a managed programming language such as C# or VB.NET, instead of SQL statements. Enable seamless, strongly-typed, set-oriented queries written in .NET languages to run against ADO.Net (LINQ to SQL), ADO.Net DataSets (LINQ to DataSets), the ADO.NET Entity Framework (LINQ to Entities) and to the Entity Data Service Mapping provider. Use the new LINQ to SQL provider that enables developers to use LINQ directly on SQL Server 2008 tables and columns.

ADO.Net Object Services

The Object services layer of ADO.NET enables the materialization, change tracking, and persistence of data as CLR objects. Developers using the ADO.NET framework can program against a database using CLR objects that are managed by ADO.NET. SQL Server 2008 introduces more efficient, optimized support that improves performance and simplifies development.

STORE ANY INFORMATION

Date and Time

SQL Server 2008 introduces new date and time data types

- DATE – a date only type
- TIME – a time only type
- DATETIMEOFFSET – a time-zone aware datetime type
- DATETIME2 – a datetime type with larger fractional seconds and year range than the existing DATETIME type

The new data types enable applications to have separate data and time types while providing large data ranges or user defined precision for time values.

HIERARCHY ID

Enable database applications to model tree structures in a more efficient way than currently possible. New system type, HierarchyId, can store values that represent nodes in a hierarchy tree. This new type will be implemented as a CLR User-Defined Type (UDT), and will expose several efficient and useful built-in methods for creating and operating on hierarchy nodes with a flexible programming model.

FILESTREAM Data

Allow binary data to be stored directly in an NTFS file system while preserving it as an integral part of the database and maintaining transactional consistency. Enable the scale-out of large binary data traditionally managed by the database to be stored outside the database on more cost-effective storage without compromise.

Integrated Full Text Search

The Integrated Full Text search makes the transition between Text Search and relational data seamless while enabling users to use the Text Indexes to perform high-speed text searches on large text columns.

Sparse Columns

NULL data consumes no physical space which provides a highly efficient way of managing empty data in a database. For example, Sparse Columns allows object models that typically have numerous null values to be stored in a SQL Server 2008 database without experiencing large space costs.

Large User Defined Types

SQL Server 2008 eliminates the 8KB limit for User Defined Types (UDTs) allowing users to dramatically expand the size of their UDTs.

Spatial Data Types

Build spatial capabilities into your applications by using the support for spatial data.

- Implement *Round Earth* solutions with the **geography** data type. Use latitude and longitude coordinates to define areas on the Earth's surface.
- Implement *Flat Earth* solutions with the **geometry** data type. Store polygons, points, and lines that are associated with projected planar surfaces and naturally planar data, such as interior spaces

An intelligent data platform.

SQL Server 2008 provides a comprehensive platform delivering business intelligence where your users want it.

INTEGRATE ANY DATA

Partitioned Table Parallelism

Partitions enable organizations to manage large growing tables more effectively by transparently breaking them into manageable blocks of data. SQL Server 2008 builds on the advances of partitioning in SQL Server 2005 by improving the performance on large partitioned tables.

Star Join Query Optimizations

SQL Server 2008 provides improved query performance for common data warehouse scenarios. Star Join Query optimizations reduce query response time by recognizing data warehouse join patterns.

Grouping Sets

Grouping Sets is an extension to the GROUP BY clause that lets users define multiple groupings in the

same query. Grouping Sets produces a single result set that is equivalent to a UNION ALL of differently grouped rows making aggregation querying and reporting easier and faster.

Change Data Capture

With Change Data Capture, changes are captured and placed in change tables. It captures complete content of changes and maintains cross table consistency and even works across schema changes. This enables organizations to integrate the latest information into the data warehouse.

- **MERGE SQL Statement**

With the introduction of the MERGE SQL Statement, developers can more effectively handle common data warehousing scenarios like checking whether a row exists and then executing an insert or update.

- **SQL Server Integration Services (SSIS) Pipeline Improvements**

Data Integration packages can now scale more effectively making use of available resources and managing the largest enterprise scale workloads. The new design improves the scalability of runtime into multiple processors.

- **SQL Server Integration Services (SSIS) Persistent Lookups**

The need to perform lookups is one of the most common ETL operations. This is especially prevalent in data warehousing where fact records need to use lookups to transform business keys to their corresponding surrogates. SSIS increases the performance of lookups to support the largest tables.

SSIS High-Performance Connectors

SSIS has new connectors for SAP Netweaver BI, Oracle and Teradata, specially designed for high-performance loading of data into an enterprise data warehouse.

- **Data Profiling**

The new data profiling tool in SSIS enables users to analyze source data for a variety of properties such as data type, lengths, histograms of data values, and the strength of integrity relationships. This helps improve the quality of data going into a data warehouse.

- **Backup Compression**

Keeping disk-based backups online is expensive and time consuming. With SQL Server 2008 backup compression, less storage is required to keep backups online and backups run significantly faster since less disk I/O is required.

DELIVER RELEVANT INFORMATION

Analysis Scale and Performance

SQL Server 2008 drives broader analysis with enhanced analytical capabilities and with more complex computations and aggregations. New cube design tools help users streamline the development of the analysis infrastructure enabling them to build solutions for optimized performance.

Block Computations Block

Computations provide a significant improvement in processing performance enabling users to increase the depth of their hierarchies and complexity of the computations.

Writeback

New MOLAP enabled writeback capabilities in SQL Server 2008 Analysis Services removes the need to query ROLAP partitions. This provides users with enhanced writeback scenarios from within analytical applications without sacrificing the traditional OLAP performance.

DRIVE ACTIONABLE INSIGHTS

Enterprise Reporting Engine

Reports can easily be delivered throughout the organization both internally and externally with simplified deployment and configuration, and increased scalability including the ability to scale out a reporting workload across multiple servers. This enables users to easily create and share reports of any size and complexity.

Internet Report Deployment

Customers and suppliers can effortlessly be reached by deploying reports over the internet.

Manage Reporting Infrastructure

Increase supportability and the ability to control server behavior with memory management, infrastructure consolidation, and easier configuration through a centralized store and API for all configuration settings.

Report Builder Enhancements

Easily build reports with any structure through a redesigned Report Builder end-user tool that has the familiar look and feel of Microsoft Office 2007, including a “ribbon” interface and the ability to integrate powerful visualizations into reports.

Built-in Forms Authentication

Built-in forms authentication enables users to easily switch between Windows and Forms.

Report Server Application Embedding

Report Server application embedding enables the URLs in reports and subscriptions to point back to frontend applications.

Microsoft Office Integration

SQL Server 2008 provides new Word rendering that enables users to consume reports directly from within Microsoft Office Word. In addition, the existing Excel renderer

has been greatly enhanced to accommodate the support of features like nested data regions, sub-reports as well as merged cell improvements. This lets users maintain layout fidelity and improves the overall consumption of reports from Microsoft Office applications.

Predictive Analysis

SQL Server Analysis Services continues to deliver advanced data mining technologies. Better Time Series support extends forecasting capabilities. Enhanced Mining Structures deliver more flexibility to perform focused analysis through filtering as well as to deliver complete information in reports beyond the scope of the mining model. New cross-validation enables confirmation of both accuracy and stability for results that you can trust. Furthermore, the new features delivered with SQL Server 2008 Data Mining Add-ins for Office 2007 empower every user in the organization with even more actionable insight at the desktop.

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