
ILTA University - Monday August 24, 2009

Looking Into the New and Improved Functionality of SQL 2008



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- Introduction to SQL Server 2008
- What's new in SQL Server 2008
- Why would you upgrade?
- Editions of SQL Server 2008
- Hardware and OS support & recommendations



- Virtual server support
- Upgrade and migration to SQL Server 2008
- Enhanced business continuity in SQL Server 2008
- Supported legal databases on SQL 2008
- SQL 2008 LAB



- Released on August 6, 2008 – less than three years after SQL 2005
- *Evolutionary* upgrade – not revolutionary
- Designed to improve and augment SQL 2005
- Microsoft considers SQL Server 2008 to be a **“Complete Data Architecture Solution”**
- Provides the highest levels of security, performance, reliability, and scalability than any other Microsoft SQL Server predecessor
- Enhances numerous existing SQL features, while adding dozens more

- Transparent Data Encryption
- External Key Management
- Data Auditing
- Pluggable CPU
- Mirroring Log Compression
- Policy Based Management
- Server Group Management
- Streamlined Installation
- Enterprise System Management
- Performance Data Collection
- System Analysis
- Data Compression
- Query Optimization Modes
- Resource Governor
- Entity Data Model
- LINQ
- Visual Entity Designer
- Entity Aware Adapters
- Change Data Tracking
- Synchronized Programming Model
- Visual Studio Support
- SQL Server Conflict Detection
- FILESTREAM data type
- Integrated Full Text Search
- Sparse Columns
- Large User Defined Types
- Large User Defined Aggregates
- New Date/Time Data Types
- New Spatial data types (GEOGRAPHY & GEOMETRY)
- Virtual Earth Integration
- Partitioned Table Parallelism
- Query Optimizations
- Persistent Lookups
- Backup Compression
- MERGE SQL Statement
- Data Profiling
- Star Join
- Enterprise Reporting Engine
- Internet Report Deployment
- Block Computations
- Scale out Analysis
- BI Platform Management
- Export to Word and Excel
- Author reports in Word and Excel
- Report Builder Enhancements
- TABLIX
- Rich Formatted Data
- Personalized Perspectives
- ... and many more

■ Administration

- Enterprise Policy Management Framework
- SQL Server Management Studio Enhancements
- SQL Server PowerShell
- Resource Governor

■ Data Management

- TSQL enhancements –Intellisense, Date and Time types, MERGE statement
- Full Text Indexing
- Transparent Data Encryption
- Filestream Storage – Allows for storing unstructured BLOB data
- Spatial Data Types – Supports geographic and geometric data types

■ **Performance and Scalability**

- Backup and Data Compression
- Partition Locking
- Supports up to 50 instances on one server

■ **High Availability**

- Snapshot Capabilities
- Enhanced SQL Server Database Replication and Mirroring
- SQL Server Failover Cluster

■ **Business Intelligence**

- Analysis, Reporting & Auditing Services greatly enhanced

- Mainstream support of SQL 2000 expired in April 2008 – Time to upgrade!
- It doesn't make much sense to upgrade to SQL Server 2005 – a version of SQL Server that's already one generation behind
- Improved Enterprise Management
- Improved performance
- Relatively easy upgrade path
- Enhanced DR/BC capabilities
- Better business intelligence features

Core Editions

- SQL Server 2008 Enterprise
- SQL Server 2008 Standard

Specialized Editions

- SQL Server 2008 Workgroup
- SQL Server 2008 Web
- SQL Server 2008 Developer
- SQL Data Services (BETA)

Free Editions

- SQL Server 2008 Express
- SQL Server Compact 3.5

Updates

- **SQL Server 2008 SP1** – Released April 7, 2009
- **SQL Server 2008 R2** – Slated for first half of 2010. Enhances BI capabilities and incorporates hardware advancements to scale data to up to 100TB+.



OS Support

- SQL Server 2008 supports Windows Server 2008 Standard or higher (but not core), Windows Server 2003 SP or higher (and Vista SP1 and XP SP2)
- .NET Framework 3.5 SP1, Windows Installer 4.5 or later required

Note: The Following is Only Supported with SQL 2008 Enterprise

(Unlimited Virtualization, Data and Backup Compression, Resource Governor, Transparent Data Encryption, All actions audited, Extensible Key Management, Advanced Data Mining algorithms, Mirrored Backups, Oracle Publishing, IA64 hardware support)

(We Recommend Windows Server 2008 x64 Standard or x64 Enterprise)

Hardware Support

Note: Ignore the Stated Minimums and Maximums..

- SQL Server 2008 takes full advantage of modern 64-bit hardware including multi-core, and multi-processor systems.
- Memory supported is the Operating system maximum

(We Recommend a minimum spec of Windows Server 2008 x64 Standard running SQL Server 2008 with 8Gig Ram or Windows and SQL Server 2008 Enterprise running with a minimum of 16Gig Ram, up to 64Gig)

- Any Virtual platform (Hyper-V or ESX) obviously must have an x64-based Server/Processor and be running hardware-assisted virtualization.
- SQL Server 2008 is supported in virtual machine environments running on the Hyper-V role in Windows Server 2008 R2 and Windows Server 2008 Standard, Enterprise and Datacenter editions
- Within the Hyper-V role on Windows Server 2008, a maximum of four virtual processors can be allocated to virtual machines running Windows Server 2008 32-bit or 64-bit editions
- A maximum of 2 virtual processors can be allocated to virtual computers that are running Windows Server 2003 32-bit editions
- Windows 2008 and SQL 2008 clustering is supported with virtualization on Hyper-V
- Windows 2008 and SQL Server 2008 is Supported on ESX3.5 update 2 or above (But Microsoft Says it doesn't support clustering under ESX with SCSI disks or RDMs) However, if you present iSCSI disks directly to the Virtual guest OSs, it works perfectly fine and is supported
- NLB Clusters are Supported with both Hyper-V and ESX

- There are really two paths you can take to upgrade to SQL 2008. **In-Place upgrade or Parallel** (side-by-side) **upgrade**
- If going to x64, this almost guarantees you will do a Parallel Upgrade
- SQL Server 2008's backward compatibility ensures the database will function

In-Place Upgrade

- Prior to Upgrading, you should run the SQL 2008 upgrade advisor utility available at <http://www.microsoft.com/downloads> against your SQL 2000 and 2005 instances (analyzes SQL 2000 & SQL 2005 for the upgrade)
- You can also run the SQL 2008 Assessment and Planning Toolkit
- Complete a full Backup of your Databases (In-Place upgrade leaves you with no good fallback position)
- Install SQL Server 2008 on top of SQL 2000 or SQL 2005 (Creates a new instance of SQL 2008) Puts SQL 2000 and 2005 instance in an upgrade state
- Upgrades and Migrates the SQL 2000 or 2005 Databases, Security Settings and configuration options over to SQL 2008
- Removes the SQL 2000 or 2005 Instances
- Starts the SQL 2008 Instance and Services

Parallel Upgrade

- A parallel upgrade involves more manual steps, but it has an advantage in that it leaves SQL 2000/2005 in tact and allows for the upgrade of hardware
- Install SQL Server 2008 instance on new Server hardware without affecting the SQL 2000 and 2005 instances (can't migrate/upgrade system databases)
- Move all of your SQL Server 2000 or 2005 databases, objects and settings over to SQL 2008 by:
 - **Backup and Restore** (Backup in 2000 or 2005, restore in 2008 – watch for options/paths)
 - **Detach and Attach** (Need to Copy the DATA & LOG Files) (can use query or Management Studio)
 - **Copy Database Wizard** (pick any source/destination, specify file locations for database files, schedule the copy/upgrade if needed)
 - **Copy Objects Wizard** (partial database copy)
 - **Publish Database Wizard** (publishes a database to web-hosted SQL Server installation)
- Update statistics on all databases following upgrade
- You may have to manually or script the Re-Creation of Users and Groups and/or Re-Link database Ownership depending on the Application

Courtesy Microsoft Corp.

Upgrade a SQL Server Failover Cluster Instance

- You can upgrade a SQL Server failover cluster In-Place to a SQL Server 2008 failover cluster (using the SQL Server Installation Wizard)
- Or you can upgrade a SQL Server failover cluster in Parallel to a new Microsoft SQL Server Cluster Resource Group
- If Migrating a database cluster in Parallel
 - Build a new Windows 2008 Resource Group Cluster and Install the SQL 2008 failover cluster (Installation goes on each node, name the failover cluster instance)
 - Move databases, settings and objects to the named failover cluster instance
- If Migrating In-Place
 - you must run the Setup with the upgrade action on each failover cluster node, one at a time, starting with the passive nodes
 - When you upgrade each node, it is left out of the possible owners of the failover cluster, the upgraded nodes do not participate in the failover resource group until ownership moved to the upgraded node by the SQL Server Setup
 - The System Configuration Checker of the SQL Server Setup will generate a Cluster Upgrade Report during the Installation and walk you through the upgrades.
 - Upgrade all remaining nodes
 - Restart each server after each upgrade

Courtesy Microsoft Corp.

Other Data Migration Tools Available

Migrating a Database from Oracle

Try SQL Server Migration Assistant for Oracle (SSMA for Oracle)

Download the free SQL Server 2008 Migration Assistant for Oracle from Microsoft

- **Migrating a Database from Microsoft Access**

Try the SQL Server Export and Import Wizard

or *Download the free SQL Server 2008 Migration Assistant for Microsoft Access*

- **Migrating a Database from Sybase**

Try Sql Server Migration Assistant for Sybase (SSMA), but this only supports Sybase version 12.5 or newer

Download the free SQL Server 2008 Migration Assistant for Sybase from Microsoft

<http://www.microsoft.com/downloads>

Courtesy Microsoft Corp.

- **Failover Clustering**

Provide server-level redundancy and remove the single point of failure. Takes advantage of failover clustering enhancements in Windows Server 2008 & SQL Server 2008 (Peer - Peer Cluster or Geographically Dispersed)

- **Enhanced Database Mirroring**

SQL Server 2008 provides a more reliable platform that has enhanced database mirroring services

- **Automatic Recovery of Data Pages**

SQL Server 2008 enables the principal and mirror machines to transparently recover from common types of data page errors

- **Log Stream Compression**

Database Mirroring requires data (log) transmissions between the participants. With SQL Server 2008, compression of the outgoing log stream between the participants improves performance and minimizes traffic

- **Enhanced Backup, Restore and Snapshot**

Use mirrored backup sets to perform a concurrent backup of a database to multiple backup devices and to increase protection

- Document Management Systems

Product	Version	Supported
Autonomy iManage	8.0 / 8.2 / 8.3	NO
	8.5	YES
Hummingbird eDOCS	5.2	NO
	6.0.5	YES

- Accounting Systems & Practice Management

Product	Version	Supported
Elite	3.8	NO
Aderant Expert	7.5.3 (end of year)	YES
Rainmaker	8.3.17	NO
	8.5	YES
Juris	2.35	YES
ProLaw	11.6-11.11	YES
ProVantage	8.7	YES

- CRM**

Product	Version	Supported
Interaction	5.6 SP2	YES
Contact Ease	9.2.6	YES
Legal Ease	4.5.2	NO
Microsoft Dynamics CRM	4.0	YES

- Litigation**

Product	Version	Supported
LAW Pre-Discovery	5.4	YES
Summation Enterprise	CT 2.6.0.4	YES
Concordance	10.0	NOT SQL
Case Map	8.0	NOT SQL
iCONNECT	8020	YES

- WEB Servers, WEB Products**

Product	Version	Supported
SharePoint	2003	NO
	2007	YES
DotNetNuke	5.1	NO

- Management Suites, Other**

Product	Version	Supported
Altiris CMS	7.0	YES
Altiris DS	6.9	YES
SCCM SMS	2007 R2	YES
	2003	NO
LANDesk	8.8	YES
Wise Package Studio	7.0 SP3 (current)	NO
Innova	5.8	YES

SQL 2008 LAB INFO

Installation Notes

The Installation of SQL 2008 took a long time (between 45 minutes and 1 hour) so this had to be pre-installed.

Two Virtual Machines

- ILTASQL2005 (Windows 2003 Standard 32bit with SQL Server 2005)
- ILTASQL2008 (Windows 2008 Enterprise 32bit with SQL Server 2008)

Login Information

- Local Administrator, Password = Ilta09 (*with a Capital I*)

What you will do in the Lab

- Explore SQL Server Management Studio
- Migrate a Database to SQL 2008
- SQL 2008 T-SQL, Full Text, and CDC Features
- SQL 2008 Reporting Services
- Explore Policy Based Management Framework
- Snapshot Recovery in SQL 2008 (Bonus Lab 1)
- Database Mirroring in SQL 2008 (Bonus Lab 2)

Questions and Answers



Have a Great Week with ILTA!