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SQL Server 2005

SQL Server 2005

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INTRODUCTION

Government of Gujarat has already commissioned many important ICT projects in the state and it is still going further. In all the projects Database is playing vital role. There are many database products available in the market like Oracle (9i & 10g), DB2, Microsoft SQL, MySQL, MS Access etc. Most of the Departments are using either one of the above mentioned Database product. In our earlier news letter we had covered overview and features of the Oracle database. In this news letter, we have covered SQL Sever 2005.

SQL Server 2005 is a comprehensive database platform providing enterprise-class data management with integrated business intelligence (BI) tools. The SQL Server 2005 database engine provides more secure, reliable storage for both relational and structured data, enabling you to build and manage highly available, performant data applications for use in your business.

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Overview - SQL Server

The SQL Server 2005 data engine lies at the core of this enterprise data management solution. Additionally, SQL Server 2005 combines the best in analysis, reporting, integration, and notification. This enables your business to build and deploy cost-effective BI solutions that help your team drive data into every corner of the business through scorecards, dashboards, Web services, and mobile devices.

Close integration with Microsoft Visual Studio, the Microsoft Office System, and a suite of new development tools, including the Business Intelligence Development Studio, sets SQL Server 2005 apart. Whether you are a developer, database administrator, information worker, or decision maker, SQL Server 2005 provides innovative solutions that help you gain more value from your data.

Data Management

SQL Server 2005 delivers a more reliable, secure, and productive data platform for line-of-business and analytical applications. This version of SQL Server is the largest release of SQL Server ever, as well as the most dependable and secure release.

Developer Productivity

SQL Server 2005 provides an end-to-end development environment that includes many new technologies that empower developers and significantly increase developer productivity.

Business Intelligence

The comprehensive analytical, integration, and data migration capabilities of SQL Server 2005 enable companies to extend the value of their existing applications, regardless of the underlying platform. BI solutions built on SQL Server 2005 put critical, timely information in the hands of all employees, empowering them to make better decisions faster.

- Build, deploy, and manage enterprise applications that are more secure, scalable, and reliable.
- Maximize IT productivity by reducing the complexity of developing and supporting database applications.
- Share data across multiple platforms, applications, and devices to make it easier to connect internal and external systems.
- Control costs without sacrificing performance, availability, scalability, or security.

Key Enhancements

The following table provides an overview of several key enhancements in SQL Server 2005, focusing on enterprise data management, developer productivity, and business intelligence.

Enterprise Data Management

Technology	Capabilities
High Availability	Failover clustering and database mirroring technology in SQL Server 2005 will enable enterprises to deliver highly reliable, available applications to employees, customers, and partners.
Management Tools	SQL Server 2005 introduces an integrated suite of management tools and management application programming interfaces (APIs) to provide ease of use, manageability, and support for operating large-scale SQL Server deployments.
Security Enhancements	SQL Server 2005 has been designed to help provide the highest level of security for enterprise data through features such as database encryption, more secure default settings, password policy enforcement, granular permissions control, and an enhanced security model.
Scalability	Scalability advancements in SQL Server 2005 include table partitioning, replication enhancements, and 64-bit support.

Developer Productivity

Technology	Capabilities
Common Language Runtime (CLR) Integration	SQL Server 2005 introduces the capability to develop database objects using any Microsoft .NET language.
Deep XML Integration	SQL Server 2005 delivers a new XML data type, enabling the storage of XML fragments or documents in SQL Server databases.
Transact-SQL Enhancements	New query types and the capability to use error handling in transactions provide developers with more flexibility and control in SQL Server query development.
SQL Service Broker	SQL Service Broker provides an innovative distributed asynchronous application framework for new levels of scalability.

Business Intelligence	
Technology	Capabilities
Analysis Services	Analysis Services delivers extensions to the scalability, manageability, reliability, availability, and programmability of data warehousing, business intelligence, and line-of-business solutions.
Data Transformation Services (DTS)	A complete redesign of the DTS architecture and tools provides developers and database administrators with increased flexibility and manageability.
Reporting Services	Reporting Services is a new report server and tool set for building, managing, and deploying enterprise reports.
Data Mining	Data mining is enhanced with four new algorithms as well as improved data modeling and manipulation tools.

System Requirements

Standard Edition System Requirements			
	32-bit	x64	Itanium
Processor	600-megahertz (MHz) Pentium III-compatible or faster processor; 1-gigahertz (GHz) or faster processor recommended	1-GHz AMD Opteron, AMD Athlon 64, Intel Xeon with Intel EM64T support, Intel Pentium IV with EM64T support processor	1-GHz Itanium or faster processor
Operating System	Microsoft Windows 2000 Server with Service Pack (SP) 4 or later; Windows 2000 Professional Edition with SP 4 or later; Windows XP with SP 2 or later; Windows Server 2003 Enterprise Edition, Standard Edition, or Datacenter Edition with SP 1 or later; Windows Small Business Server 2003 with SP 1 or later	Microsoft Windows Server 2003 Standard x64 Edition, Enterprise x64 Edition, or Datacenter x64 Edition with SP 1 or later; Windows XP Professional x64 Edition or later	Microsoft Windows Server 2003 Enterprise Edition or Datacenter Edition for Itanium-based systems with SP 1 or later
Memory	512 megabytes (MB) of RAM or more; 1 gigabyte (GB) or more recommended	512 MB of RAM or more; 1 GB or more recommended	512 MB of RAM or more; 1 GB or more recommended
Hard Disk	<ul style="list-style-type: none"> • Approximately 350 MB of available hard-disk space for the recommended installation • Approximately 425 MB of additional available hard-disk space for SQL Server Books Online, SQL Server Mobile Books Online, and sample databases 	<ul style="list-style-type: none"> • Approximately 350 MB of available hard-disk space for the recommended installation • Approximately 425 MB of additional available hard-disk space for SQL Server Books Online, SQL Server Mobile Books Online, and sample databases 	<ul style="list-style-type: none"> • Approximately 350 MB of available hard-disk space for the recommended installation • Approximately 425 MB of additional available hard-disk space for SQL Server Books Online, SQL Server Mobile Books Online, and sample databases

Drive	CD-ROM or DVD-ROM drive	CD-ROM or DVD-ROM drive	CD-ROM or DVD-ROM drive
Display	Super VGA (1,024x768) or higher-resolution video adapter and monitor	Super VGA (1,024x768) or higher-resolution video adapter and monitor	Super VGA (1,024x768) or higher-resolution video adapter and monitor
Other Devices	Microsoft Mouse or compatible pointing device	Microsoft Mouse or compatible pointing device	Microsoft Mouse or compatible pointing device
Other Requirements	<ul style="list-style-type: none"> • Microsoft Internet Explorer 6.0 SP1 or later 	<ul style="list-style-type: none"> • Microsoft Internet Explorer 6.0 SP1 or later 	<ul style="list-style-type: none"> • Microsoft Internet Explorer 6.0 SP1 or later
	<ul style="list-style-type: none"> • For Reporting Services, you need Microsoft Internet Information Services (IIS) 5.0 or later, and ASP.NET 2.0 or later 	<ul style="list-style-type: none"> • For Reporting Services, you need Microsoft Internet Information Services (IIS) 5.0 or later, and ASP.NET 2.0 or later 	<ul style="list-style-type: none"> • For Reporting Services, you need Microsoft Internet Information Services (IIS) 5.0 or later, and ASP.NET 2.0 or later

Top 10 Features for Database Administration

Feature	Description
Database Mirroring	Extend log shipping capabilities with the new database mirroring solution. You will be able to use database mirroring to enhance availability of your SQL Server systems by setting up automatic failover to a standby server.
Online Restore	With SQL Server 2005, database administrators will be able to perform a restore operation while an instance of SQL Server is running. Online restore improves the availability of SQL Server because only the data being restored is unavailable; the rest of the database remains online and available.
Online Indexing Operations	The online index option will allow concurrent modifications (updates, deletes, and inserts) to the underlying table or clustered index data and any associated indexes during index data definition language (DDL) execution. For example, while a clustered index is being rebuilt, you can continue to make updates to the underlying data and perform queries against the data.
Fast Recovery	A new faster recovery option will improve availability of SQL Server databases. Administrators will be able to reconnect to a recovering database after the transaction log has been rolled forward.
Security Enhancements	SQL Server 2005 includes security enhancements such as database encryption, secure default settings, password policy enforcement, fine grained permissions control, and an enhanced security model.
New SQL Server Management Studio	SQL Server 2005 will introduce SQL Server Management Studio, a new integrated suite of management tools. This toolset will include new functionality to develop, deploy, and troubleshoot SQL Server databases, as well as enhancements to previous functionality.
Dedicated Administrator Connection	SQL Server 2005 will introduce a dedicated administrator connection that administrators can use to access a running server even if the server is locked or otherwise unavailable. This capability will enable administrators to troubleshoot problems on a server by executing diagnostic functions or Transact-SQL statements.

<p>Snapshot Isolation</p>	<p>A new Snapshot Isolation (SI) level will be provided at the database level. With SI, users will be able to access the last committed row using a transitionally consistent view of the database. This capability will provide greater scalability.</p>
<p>Data Partitioning</p>	<p>Data partitioning will be enhanced with native table and index partitioning that enables efficient manageability of large tables and indexes.</p>
<p>Replication Enhancements</p>	<p>For distributed databases, SQL Server 2005 provides comprehensive schema change (DDL) replication, next-generation monitoring capabilities, built in replication from Oracle to SQL Server, merge replication over https, and significant merge replication scalability and performance improvements. Additionally, the new peer-to-peer transactional replication feature improves support for data scale out using replication.</p>

Top 10 Features for Development

Feature	Description
.NET Framework Hosting	With SQL Server 2005 developers will be able to create database objects using familiar languages such as Microsoft Visual C# .NET and Microsoft Visual Basic .NET. Developers will also be able to create two new objects—user-defined types and aggregates.
XML Technologies	Extensible Markup Language (XML) is an important standard for disseminating data between different applications over local networks and the Internet. SQL Server 2005 will natively support storage and query of XML documents.
ADO.NET version 2.0	From new support for SQL Types to Multiple Active Result Sets (MARS), ADO.NET in SQL Server 2005 will evolve dataset access and manipulation to achieve greater scalability and flexibility.
Security Enhancements	A new security model in SQL Server 2005 will separate users from objects, provide fine-grain access, and enable greater control of data access. Additionally, all system tables will be implemented as views, providing more control over database system objects.
Transact-SQL Enhancements	SQL Server 2005 provides new language capabilities for developing scalable database applications. These enhancements include error handling, recursive query capabilities, relational operator PIVOT, APPLY, ROW_NUMBER and other row ranking functions, and more.

SQL Service Broker	SQL Service Broker will provide a distributed, asynchronous application framework for large-scale, line-of-business applications.
Notification Services	Notification Services enables businesses to build rich notification applications that deliver personalized and timely information, such as stock market alerts, news subscriptions, package delivery alerts, and airline ticket prices, to any device. With SQL Server 2005, Notification Services is more tightly integrated with technologies such as Analysis Services and SQL Server Management Studio.
Web Services	With SQL Server 2005 developers will be able to develop Web services in the database tier, making SQL Server a hypertext transfer protocol (HTTP) listener and providing a new type of data access capability for Web services-centric applications.
Reporting Services	With SQL Server 2005, Reporting Services will provide report controls that will be shipped with Visual Studio 2005. Integrated reporting controls will provide improved reporting capabilities for enterprise applications.
Full-Text Search Enhancements	SQL Server 2005 will support rich, full-text search applications. Cataloging capabilities will be enhanced to provide greater flexibility over what is cataloged. Query performance and scalability will be improved dramatically, and new management tools will provide greater insight into the full-text implementation.

Top 10 Features for Business Intelligence

Feature	Description
Analysis Services	With SQL Server 2005 Analysis Services moves into the realm of real- time analytics. From scalability enhancements to deep integration with Microsoft Office, SQL Server 2005 will help extend business intelligence to every level of your business.
Data Transformation Services (DTS)	DTS is a set of graphical tools and programmable objects that you can use to extract, transform, and load (ETL) data from disparate sources and move it to a single or multiple destinations. SQL Server 2005 will introduce a complete redesign of DTS that provides a comprehensive ETL platform.
Data Mining	Four new data mining algorithms will be introduced, as well as improved tools and wizards that will make data mining easier for businesses of any size.
Reporting Services	With SQL Server 2005, Reporting Services will provide self service, end-user ad hoc report creation, enhanced query development for online analytical processing (OLAP) environments and enhancements in scale allowing for rich and easy-to-maintain enterprise reporting environments.
Clustering Support	Analysis Services improves availability with support for failover clustering, enhanced multi-instance support, and support for backing up and restoring Analysis Services objects and data.

Key Performance Indicators	Key performance indicators (KPIs) provide businesses with the capability to define graphic, customizable business metrics to help generate and track key corporate benchmarks.
Scalability and Performance	Features such as parallel partition processing, creation of remote relational online analytical processing (ROLAP) or hybrid online analytical processing (HOLAP) partitions, distributed partitioned cubes, persisted calculations, and proactive caching will greatly improve the scalability and performance of Analysis Services in SQL Server 2005.
One-Click Cube	When creating a cube in a data warehouse project, the Cube Wizard will include an option to enable one-click-cube detection and suggestions. This option will examine the relationships in a data source view and make suggestions for fact tables, dimension tables, and measures.
Proactive Caching	Proactive Caching combines MOLAP class query performance with real-time data analysis and eliminates the need to maintain OLAP stores. The Proactive Cache transparently synchronizes and maintains an updated copy of the data organized specifically for high-speed querying and for isolating end-users from overloading the relational databases. The structure of the cache is automatically derived from the Universal Data Model (UDM) structure and can be finely tuned to balance performance with latency of data.
Integration with the Microsoft Office System	Reports that are served up by the Report Server in Reporting Services can run in the context of Microsoft Share Point Portal Server and Microsoft Office System applications such as Microsoft Word and Microsoft Excel. You can use Share Point features to subscribe to reports, create new versions of reports, and distribute reports. You can also open reports in Word or Excel to view HTML versions of the reports.

User Departments

Departments using SQL Server:

- 1 GSRTC (Gujarat State Road Transport Corporation)
- 2 Food, Civil Supply & Consumer affairs Department
- 3 Revenue Department
- 4 SSNNL (Sardar Sarovar Narmada Nigam Limited)
- 5 DET (Directorate of Employment & Training)
- 6 Road & Building Department
- 7 Industries & Mines Department
- 8 Industries Commissionerate Office
- 9 Settlement Commissionerate Office

eGovernance News

Rural PC in Gujarat

Preamble

Government of India has taken the initiative to participate with industry and design homologated end user equipment which suits the requirements of the rural India and recognizes the realities of the harsh operating environments.

The Action Plan

As a first step, the needs were identified and formed into an engineering wish list. Then, after various deliberations within the industry, with other constituents in the eco-system, particularly the operating community service providers and the finance bodies, a final short list of desirable features were drawn up.

A few prototypes of such a machine have now been made, and the intent is to submit these for field trials. Intel has proposed to carry out a pilot testing of certain newly developed PC platforms at the field location in Gujarat and is interested in obtaining feedbacks for analysis and incorporation in its future designs. GIL has signed the MoU with Intel for the Rural PC in Gujarat.

The necessary real environment in Gujarat is being provided at Juna Chamu Village Panchayat located within the Vadali Taluka of Sabarkantha District for conducting field pilot and gathering such information. This pilot for about 6 months will help in refining specific usage model based products and solutions to address unique rural market needs.

Specifications: The specifications of the machine that is being supplied for field trial are as follows: It's a Celeron M machine 1.3 GHz with 256 MB on-board RAM, 80 GB hard disk, 15 inch color monitor, 4 USB Ports, 1 parallel port, 1 serial port, RJ 45 Ethernet port, and RJ 11 modem interface with a built-in modem card, 48xCD Reader, 1 101-key keyboard, 1 mouse, and power cords to connect to ac mains, and to connect to battery. It comes with a licensed copy of Windows XP Home edition.

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- ✚ Juna Chamu village Panchayat will provide their feedback every 15 days. E-Gram software developed by NIC and 3-D Educational software have been installed on the trial PC provided by Intel. They will be using this PC in live environment to gauge the utility of this PC.

- ✚ The Rural PC provided by Intel has got the following key features:
 - Works efficiently even in high temperatures
 - Battery backup of up to 8 hrs and UPS circuitry is inbuilt in PC.
 - Low power consumption than the ordinary PC because of newly design of chipset and processor.
 - Reduction of damage due to sand or air particles especially in rural environment

WEB CORNER

Web Developer's Site

<http://www.w3schools.com>

Conflux 2005

<http://www.conflux.csdms.in>

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