

MAS 200 for SQL

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2010

A large, 3D green arrow pointing upwards and to the right, symbolizing growth or progress. The arrow is positioned diagonally across the frame. At the base of the arrow, the year '2010' is written in large, green, 3D block letters. The background is a solid blue color.

Key Benefits



- Improves data retrieval and transaction processing
- Schedules and automates routine managements tasks, such as:
 - Database consistency checks
 - Index rebuilds and defragmentations
 - Backups (Full, Differential, and Transaction Log)
- Advanced reporting capability
- SQL Server Integration Services (SSIS)

Key Benefits



- Data warehousing
- Performance and diagnostic tools available
 - Index Optimization Advisor
 - Profiler
 - Performance/System Monitor
- SQL Security
- Standardized database relational engine, which most third-party applications and reporting tools are compatible with

Third-Party Products Available



- Microsoft Fax Services (Symantec's WinFax is not supported) - a Fax service component that is included with Windows
- Aatrix - 1099 reporting in Accounts Payable
- Avatax
- ScanCo Barcode
- Crystal Reports Version 11.5
- StarShip Freight
- CompuPay - Used as a payroll solution
- Sage Credit Card Processing
 - PCCharge (only 32 bit is supported on a workstation)
 - Sage Payment Solutions

Databases

Table Basics

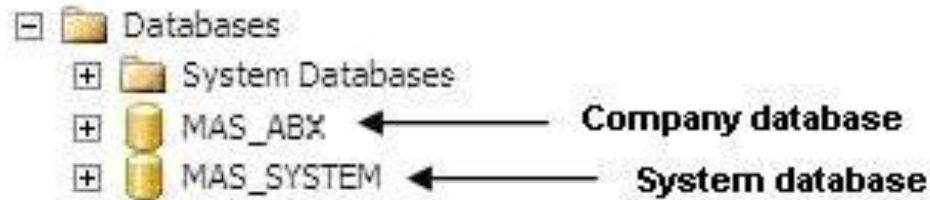
- Databases contain tables of information that are used to store data.
 - Tables contain rows and columns used for storing data.
 - Data is organized in a row and column format similar to a spreadsheet.
 - Each row represents a unique record and each column represents a field within a record.
 - The rows in the table contain the actual data.

The diagram shows a table with four columns and five rows. An arrow labeled 'Rows' points to the first three rows. An arrow labeled 'Column Names' points to the header row. An arrow labeled 'Actual Data' points to the first three rows of data.

Division	VendorNumber	VendorName	AddressLine1
01	AIRWAY	Airway Property	P.O. Box 5443
01	PSTMST	U.S. Postmaster	4152 Lincoln Way
01	STEV	Stevens Supply	2645 Riverside Blvd
02	AVID	Avid Label	P.O. Box 85996
02	MCS	Mcs Long Lines	7622 Northgate Blvd

Sage ERP MAS 200 Databases

- The Database Server requires that Microsoft SQL Server 2008 be used.
- All company and most system data are stored in databases on the SQL Server.
- There is one system database (MAS_SYSTEM). Additionally, each company has its own database as shown below:



- The MAS_SYSTEM database is automatically created during the installation of Sage ERP MAS 200 SQL.
- The MAS_SYSTEM database contains stored data such as users, roles, paperless office files, some Customizer files, etc.

Sage ERP MAS 200 Databases

- Each company's data is stored within a separate company database.
 - Company databases created are prefixed with "MAS".
 - "XXX" represents the three-digit company code entered in Sage ERP MAS 200 SQL. For example, the database created for the ABX company is MAS_ABX.
 - Depending on the modules installed, the company databases store the specific company's data, such as sales orders, accounts payable, etc.
- It is important to ensure that other applications running on the SQL Server do not create databases that start with "MAS_"; otherwise, conflicts may occur.
- For performance reasons, not all files are stored on the SQL Server (Database Server). Some static files are stored on the Sage ERP MAS 200 SQL server (Application Server).
- It is important to treat the Company and MAS_SYSTEM databases as one unit. The MAS_SYSTEM and all company-specific databases should be backed up or restored at the same time.

Security

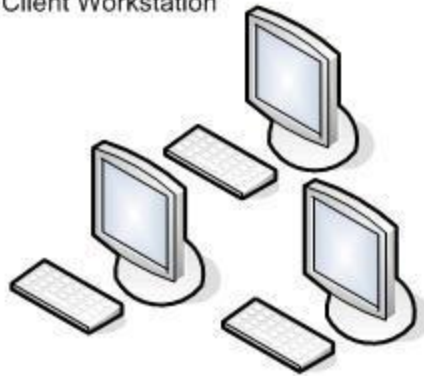


- **Connectivity Between Servers**

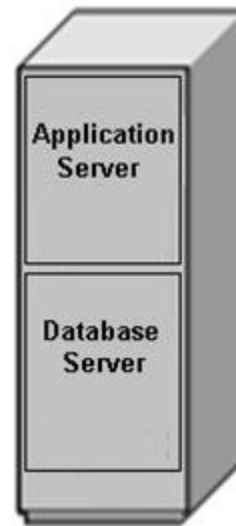
- Sage ERP MAS 200 SQL uses connection string logic to connect to the SQL Server database.
- Some business processes require components on the Client Workstation to have direct connectivity with the Database Server (SQL Server).
- Sage ERP MAS 200 SQL stores its connectivity settings in a text file called MASSQL.Settings. This file is located in the Home directory on the Application Server and should be kept secured.

Understanding the MAS_User and MAS_Reports Logins

The user logs onto the Client Workstation



WindX



MAS_User login is used for SQL Server authentication between the Application Server and the Database Server

MAS_Reports login with db_datareader role is used for SQL Server authentication to communicate directly to the Database Server



Crystal Reports Runtime and Business Insights Explorer (BIE) Use the MAS_Reports login

Understanding the MAS_User and MAS_Reports Logins

MAS_User Login

- The MAS_User login is used for the connection between the Application Server and Database Server.
 - The MAS_User login employs SQL Server authentication when communicating with the Database Server.
 - All database creation and modification uses the MAS_User login.
- Because all Sage ERP MAS 200 SQL databases are created using the MAS_User login, MAS_User is the owner of the MAS 200 SQL databases, which means MAS_User has full read, write, DLL and security permissions to the Sage ERP MAS 200 SQL databases.
- The permissions for MAS_User include:
 - **Server roles:** dbcreator and public
 - **Server level permissions:** view server state
 - **Database ownership:** MAS_User owns all Sage ERP MAS 200 SQL databases

Understanding the MAS_User and MAS_Reports Logins

MAS_Reports Login

- The MAS_Reports login is used for reporting and other read-only operations that occur on the Sage ERP MAS 200 SQL Client Workstation.
 - The MAS_Reports login is automatically assigned the db_reader role to the Sage ERP MAS 200 SQL databases upon database creation, which is used to communicate to SQL Server.
 - It is critical that MAS_Reports have the db_reader role for all the Sage ERP MAS 200 SQL databases when operating using the default configuration.
 - It is the db_reader role that gives the MAS_Reports login the proper database level permissions to enable reporting within Sage ERP MAS 200 SQL.
 - The MAS_Reports login employs SQL Server authentication when communicating with the Database Server.
- Crystal Reports and Business Insights Explorer log on to Microsoft SQL Server directly from the Client Workstation using the MAS_Reports login.
- Permissions for MAS_Reports includes:
 - **Server roles:** public
 - **Database roles:** db_datareader

Setting the Authentication Mode

- Mixed Mode (required) allows you to connect to an instance of Microsoft SQL Server using either Windows authentication or SQL Server authentication.
- The default configuration for Sage ERP MAS 200 SQL uses SQL Server authentication (recommended).
- Although Sage ERP MAS 200 SQL uses SQL Server authentication as its default configuration in order to simplify the installation and maintenance of the product, it can be manually configured to use Windows authentication.
 - If you choose to use Windows authentication, be aware that this method requires an in-depth knowledge of Windows and Microsoft SQL Server security.

Report Writers

Crystal Reports

- It is recommended that access to the Database Server for reporting be performed through the Sage ERP MAS 200 SQL application.
- The SOTAMAS90 Database Source Name (DSN) that was used in previous versions is not used in version 4.45; instead, a new SQL DSN is used.
 - The reports are redirected on-the-fly to the Database Server at runtime.
- When using Crystal Reports in the Sage ERP MAS 200 SQL default configuration, the MAS_Reports login is used at runtime.
 - When a report is launched from the Sage ERP MAS 200 SQL Desktop, a connection is established to the SQL Server database using the MAS_Reports login (if you are using the default configuration).
- When designing a report in the Sage ERP MAS 200 SQL default configuration, the Crystal Reports Designer defaults to use the Windows account of the user designing the report.

Report Writers



Modifying Reports Through the Designer

- Any report that has a Designer button in the report window can be modified.
- A new copy of the Crystal .rpt file is created and saved in the MAS_XXX\Reports folder.
- The Crystal .rpt file will no longer have the SOTAMAS90 DSN information in it, but rather, the new SQL DSN information.

Report Writers



Modifying Reports Outside of Sage ERP MAS 200 SQL

- You can modify a report using Crystal Reports outside of Sage ERP MAS 200SQL as long as the modifications are cosmetic, such as moving objects around, changing font information or hiding/showing information that is already in the database.
 - If you want to add new data fields to the report, you must either use the Designer button or set up a connection to the SQL database.
 - Working with Crystal Reports outside of Sage ERP MAS 200 SQL is not directly supported by Sage Customer Support.

Planning a New Installation



When planning your system, some questions to consider include:

- How large will the database be?
- How many users are there, and what are their usage plans?
- What is the current and anticipated transaction volume?
- Are other third-party systems and customizations being implemented?
- What is the physical topology, including desktops, networks and locations?
- How many databases will occupy the SQL Server?
- Is the server dedicated to SQL Server?

Note: Implementing a Sage ERP MAS 200 SQL system does not end after the installation. It requires the database administrator to analyze and monitor the databases for optimal performance.

Planning a New Installation

Basic Hardware Configuration

Configuration	Processors	Memory	Minimum Data Drive Configuration	SQL Server Edition	Server Operating System Edition
1-30 Users 1-5 GB data	2	8GB	Minimum 6-18 GB drives RAID Conf	2008 Std	2008 Std

Note: RAID may not be appropriate for all systems. Be sure to consider the factors before using a RAID configuration.

Planning a New Installation



Processors

- If both the Application Server and Database Server are on the same machine, consider using the current AMD or Intel x64 quad core processors.
- Use of processors that only support x32 should be avoided. Itanium processors are not supported.

Planning a New Installation

Memory

By default, Microsoft SQL Server uses all the memory that is available.

- When using SQL Server Standard edition, it is recommended having enough memory to achieve 95% to 99% cache hit ratio and up to the operating system maximum for the SQL Server Enterprise edition.
- When purchasing a server, make sure there are available memory slots for expansion.
- SQL Server can put the databases used into memory for faster accessing of the data.
- The Application Server requires more memory than the SQL Server.
 - As an example, in a 20-user system, you could allocate 3 GB to SQL Server and 5 GB to the operating system and Application Server.
 - As always, there are many factors to consider when allocating memory to different components of your system.

Planning a New Installation



Network Cards

- Multiple network cards are recommended to prevent bottlenecks on the network, especially with a large number of clients and concurrent users.
- Other important network elements are speed of the network, latency to the client and performance characteristics of the network card.
- Be aware that having multiple network cards can increase network configuration and network management.

Planning a New Installation



Test Server

- It is not recommended that you use the production server as the test server.
- It is important to budget this additional requirement during the hardware planning phase of the implementation or sales cycle.
- SQL Server instancing can be used for testing, but applying SQL Server updates and managing performance impact are difficult.
- Using virtualization can help reduce the complexity of managing SQL Server updates to test systems.
- It is recommended that the test SQL Server be a separate physical server from the production server.

Supported Operating Systems/Software



Client Workstations

- The supported operating systems for the Client Workstations includes:
 - Windows XP
 - Windows Vista
 - Windows 7 (32 and 64 bit)
- **Note:** These requirements are subject to change. As always, be sure to check the latest minimum requirements that will be available on the Sage Online website at: www.sagesoftwareonline.com.

Supported Operating Systems/Software



Servers

- Windows Server 2008 (32 and 64 bit)
- Windows Server 2008 R2 (32 and 64 bit)

Note: Although some other operating systems such as Windows XP/Vista/7 and Windows Server 2003, are supported with Microsoft SQL Server 2008, only Windows Server 2008 or higher is supported by Sage for use with Sage ERP MAS 200 SQL. You will be allowed to install any of these operating systems; however, Sage Customer Support will not be able to assist you if you encounter problems.

Supported Operating Systems/Software



Terminal Services and Citrix

- Windows Server 2008 (32 and 64 bit)
- Windows Server 2008 R2 (32 and 64 bit)
- Terminal Services (32 and 64 bit)
- Citrix XenApp 5.0 Presentation Server

Internet Browser

- Microsoft Internet Explorer 8

Supported Operating Systems/Software

- **Virtualization Software**

- XenServer 5.0
- Hyper-V R2
- VMWare ESX 3.5
- Windows Virtual PC
- VMWare Workstation
- Microsoft Virtual PC 2007

Client/Server

VM Server

VM Server

VM Server

Client (Windows 7)

Client

Client

(Windows XP/Vista)

Supported Operating Systems/Software



SQL Server Requirements

- SQL Server 2008 (Standard or Enterprise) must be installed and configured appropriately before you can install Sage ERP MAS 200 SQL
- **Note:** Named instances are supported. However, only one-to-one relationships are supported between Microsoft SQL Server instances and Sage ERP MAS 200 SQL installations.

Supported Operating Systems/Software

SQL Server Runtime Edition 2008 Installation DVD

- The SQL Server Runtime Edition 2008 Installation software offered by Sage:
 - Is technically identical to the full Microsoft SQL Server 2008 Standard edition.
 - Is offered on a separate DVD and contains Microsoft SQL Server 2008 with all the required components, such as Windows Installer and .NET Framework.
 - Includes all the same database administration tools (SQL Server Management Studio).
 - Has the same performance as Microsoft SQL Server Standard edition.
 - Has no restrictions on database size.
- **Note:** The Microsoft SQL Server software offered through Sage can only be used with Sage products.

Supported Operating Systems/Software

Authentication Mode

- Mixed Mode authentication is required in SQL Server when used with Sage ERP MAS 200 SQL.
 - Mixed Mode allows you to connect using either Windows authentication or SQL Server authentication.
 - The default configuration of Sage ERP uses SQL Server authentication to simplify the installation and maintenance of the product while maintaining a secure environment.
 - Although SQL Server authentication is recommended, Sage ERP MAS 200 SQL can be manually configured to use Windows authentication.

Supported Operating Systems/Software

Master and Temdb Databases

- The tempdb database is used by the reporting options in Sage ERP MAS 200 SQL for the temporary creation of worktables.
- In SQL Server, there is only one tempdb database per instance.
 - It is recommended that the tempdb database be at least 512 MB in size. However, you may need to adjust this based on your database size.
 - It is recommended that the MAS company databases be at least 512 MB in size.
 - The master database should be at least 350 MB in size and have at least 50% free space.
- **Note:** Many factors can affect the size of a database, such as number of users, size of the data and the types of operations you run. You should adjust the size as needed.

Supported Operating Systems/Software



Fixed Memory

- When allocating fixed memory or a memory range, you should follow Microsoft's rough estimates for dedicated SQL Servers.
- Memory usage should be monitored on the production system and adjusted as needed depending on the number of users and types of transactions performed.
- For additional information on memory usage in SQL Server, refer to the SQL Server Books Online on the MSDN website
- **Note:** Adjustments may need to be made based on other services and applications running on the SQL Server.

Network Communications



IP Addresses

- The Application Server and each Client Workstation must have a valid IP address, either by assigning an IP address or through the Dynamic Host Configuration Protocol (DHCP), which can retrieve IP address assignments.
- Name Resolution to IP addresses must exist for all Sage ERP MAS 200 SQL functions to work properly.

Network Communications

Specific TCP/IP Communication Requirements

- The Sage ERP MAS 200 SQL (Application Server) host listens on a port between 9000 and 10000.
- The Client Workstation must be able to ping the Application Server by name and by IP address. This can be tested with the Windows Ping.exe utility.
- The Client Workstation must be able to communicate with the host on the port it is listening on.
- When the Client Workstation initiates a task, it listens on a random port between 100000 and 11999 for the reply from the host.

Network Communications

Specific TCP/IP Communication Requirements

- You must not block ports 10000-11999. Firewall software, proxy servers, etc. must be configured so these ports are open for the Client.
- Do not use Network Address Translation (NAT) due to the dual listening port scheme and Client Workstation requirements for a wide range of open ports.
 - This includes dynamic NAT and IP masquerading.
 - You must disable NAT when running Sage ERP MAS 200 SQL through firewalls, proxy servers, etc.
- If leaving ports 10000 - 11999 unblocked creates a security concern, or dynamic NAT is being used, Virtual Private Networking (VPN) should be used.
- To determine if a Client Workstation is communicating with a server or vice versa, ping the server or Client Workstation.

Network Communications



Configuring Network Communications

- The default protocol is Transmission Control Protocol/Internet Protocol (TCP/IP)
 - To work properly, TCP/IP requires that IP addresses be assigned to both the Application Server and the Database Server machines.
- TCP/IP is the recommended protocol for the Application Server and Database Server
- Specification of connection using a particular SQL Server network library can influence the selection of network protocol.
- For detailed overviews on configuring protocols and settings, refer to the Window Server 2008 Books Online index on the Microsoft Developer Network (MSDN) website

Questions?



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