Sage MAS 500

Version 7.20

Compatibility and Resource Guide

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Sage MAS 500 Compatibility and Resource Guide
Version 7.20

Introduction

Sage MAS 500 is an enterprise level, multi-user client/server accounting software application and development platform. To correctly operate the software, certain requirements must be satisfied regarding the environment in which the software functions. These requirements include a database engine running on a server platform, a network backbone to handle remote data requests, a client platform to present the user interface, and finally you, the customer, to run the application. The charts contained in this document represent supported compatibility of Sage MAS 500 with various platforms and third-party products. This information will help you properly configure and update the environment in which you operate Sage MAS 500.

Support is provided for the product combinations indicated because they have been proven to operate under either fundamental or full functional testing protocols. If you are using an operating system, SQL Server version, service pack, or product that is not listed in this guide, Sage Software Customer Support will not provide full support for the product combination being used in conjunction with Sage MAS 500. For more information on issues that should be addressed to Sage Software Customer Support, see the Introduction to Customer Support Web page located on the Sage Software Online Web site at: http://support.sagesoftwareonline.com/cssintro.cfm

This compatibility document should be thoroughly reviewed prior to the installation of Sage MAS 500, or implementation of any third-party products that are to be used in combination with this product. For information on known issues, refer to the Sage Software Online KnowledgeBase at: http://support.sagesoftwareonline.com. For product overviews, refer to the Products page on the Sage Software Web site at: http://www.sagesoftware.com/mas500/product/default.htm

How to Use This Guide

This guide is divided into three sections: Matrices containing compatibility information, text describing requirements and system configuration, and additional considerations with tips and tricks on performance and troubleshooting.

The compatibility information in the first section is in a table format. The matrix provided by each table details supported operating systems and database engines, the service packs and tested updates, as well as compatible add-on applications and tools. Review the information and notes.

The requirements detail the minimum configuration for servers and clients, as well as requirements for the systems you use with Sage MAS 500. Review this text carefully as it also contains licensing information on Microsoft Windows, Microsoft SQL Server, and Sage MAS 500.

The performance and troubleshooting tips section concludes this guide. Use the information and tools detailed in this section to determine how to identify an issue or potential problem, before and after implementation.

Document Style Information

Links to publications stored on Web sites and cross-references to information are referenced in this guide. Click the underlined text to access information on Web sites when you are connected to the Internet, or to bookmarks to other sections of this guide.

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Sage MAS 500 Support Information

Mailing Address

Sage Software
Mid-Market Accounting Solutions
56 Technology Drive
Irvine, California USA 92618-2301

Phone Numbers

U.S./Canada Support	800.944.5481
U.S./Canada Support Fax	800.378.6560
International Support	949.788.5367
International Support Fax	949.453.1650
U.S. Technical Support	800.944.5481
U.S. Technical Support Fax	800.378.6560
U.S./Canada Corporate (toll free)	800.854.3415
Corporate	949.753.1222
Corporate Fax	949.753.6084

Support Hours & Contact Information

Mid-Market Hours and Holiday Schedule at:
http://support.sagesoftwareonline.com/supporthours.cfm

Mid-Market Support Management Contacts at:
http://support.sagesoftwareonline.com/CSSKeyContacts.pdf

Contact Information for all Divisions at:
http://www.sagesoftwareinc.com/company/contact_us.cfm

Web Site Resources

Sage Software Online Manual at: http://support.sagesoftwareonline.com/bossum.pdf

Sage Software Online (Customer Support and KnowledgeBase) at: http://support.sagesoftwareonline.com/

Sage MAS 500 Customer Support Site at: http://support.sagesoftwareonline.com/mas500

E-Support Services at: http://support.sagesoftwareonline.com/mas500/email_forms.cfm

Sage MAS 500 Service Packs and Monthly Updates at:
http://support.sagesoftwareonline.com/mas500/support/updates/default.cfm

Self-Service Product Registration at:
http://registration.bestsoftwareinc.com/registration/IssueRegistration.asp

SageTalk Online Forum (interactive user forum) at: http://support.sagesoftwareonline.com/besttalk

Product Information at: http://www.sagemas.com/products/sagemas500

Product Solutions Directory (Sage MAS 500 add-ons) at: http://www.sagesoftware.com/psd/index.cfm

Sage Professional Services Group (PSG) at: http://www.sagepsg.com

Sage MAS 500 Extended Solutions (Sage MAS 500 add-ons by PSG) at: http://www.sagepsg.com/xsolutions

SQL Server Production Platforms

SQL Server 2000 Editions	SQL Server 2005 Editions	Windows 2000 Small Business	Windows 2000 Server	Windows 2000 Advanced Server	Windows Small Business Premium 2003	Windows Standard Edition Server 2003	Windows Enterprise Edition Server 2003	Remarks
Developer Edition	**Developer Edition**		**32-bit Only**	**32-bit Only**		**32-bit Only**	**32-bit Only**	• Supported on demo, test, and development systems only.
Microsoft Desktop Engine (MSDE)	**SQL 2005 Express**		**32-bit Only**	**32-bit Only**		**32-bit Only**	**32-bit Only**	• Supported on demo, test, and production systems.
Personal Edition	**Personal Edition**							• Not Supported.
Standard Edition	**Standard Edition**		**32-bit Only**	**32-bit Only**		**32-bit & 64-bit**	**32-bit & 64-bit**	• Supported on demo, test, and production systems.
SBS Standard Edition					**32-bit Only**			• Supported on demo, test, and production systems.
Enterprise Edition	**Enterprise Edition**		**32-bit Only**	**32-bit Only**		**32-bit & 64-bit**	**32-bit & 64-bit**	• Supported on demo, test, and production systems.
Workgroup Edition	**Workgroup Edition**							• Not Supported.

Production SQL Server Platform Notes

- Production systems are those used in the daily operation and data entry tasks performed within Sage MAS 500. Only the Desktop Engine (MSDE) and Standard and Enterprise Editions of SQL Server are supported in this role. For additional infromation on licensing, see Hardware and Licensing Considerations.
- Check the System Requirements from Microsoft for Windows and SQL Server edition compatibility.
- Developer systems provide an enterprise platform on which to prepare, demonstrate, or test functionality modifications. The Developer Edition of SQL Server should be used for this purpose only and is not supported in a production environment.
- Demonstration or test systems are defined as those on which the Sage MAS 500 databases are installed for the purpose of demonstrating or testing functionality within the software.
- SQL Server 2005 Express with Advanced Services is automatically installed when using the Sage MAS 500 Express Install when no version of SQL Server is present. This allows for demonstration or use of the functionality within the software without the need to install another edition of SQL Server. Use the Express Install for creating demonstration systems or production systems that will use SQL 2005 Express. You must choose a Windows Server edition of the operating system for the production SQL Server to service multiple clients (non-local).
- For additional guidelines and installation instructions, see the *Sage MAS 500 Installation and System Configuration Guide*. Also, refer to the Product Lifecycle Schedule for the version and platform retirement dates located at: http://support.sagesoftwareonline.com/mas500/support/documents/versionretirement.cfm
- Only 32-bit SQL Server is currently supported.

Production Client Platforms

Local Client Installation			
	Supported	**Unsupported**	**Remarks**
Macintosh OS X 10.4	X		• Supported as an eTimesheets client only.
Windows CE	X		• Supported with Shop Floor Control only with minimum 640x480 resolution and Terminal Services client. • Touch screen devices with CE driver can also be used with this task. For examples, go to www.fujitsupc.com/www/products_pentablets.shtml
Windows 2000 Professional	X		• Not supported as production SQL Server.
Windows XP Professional	X		• Not supported as production SQL Server.
Window Vista	X		• Supported as Sage MAS 500 client only.

Thin-Client Solutions			
	Supported	**Unsupported**	**Remarks**
Windows 2000 Terminal Services	**X**		• Can be used in single server configuration, or published using Advanced Client (TSAC). • Should not be used as production SQL Server.
Windows 2003 Terminal Services	**X**		• Can be used in single server or cluster configuration, and can be published using Advanced Client (TSAC). • Should not be used as production SQL Server. Small Business Server is not supported as client.
Citrix Presentation Server 4.0	**X**		• Can be used in single server or farm configuration, and should be published. • Should not be used as production SQL Server.
Citrix XPe Future Release 3	**X**		• Can be used in single server or farm configuration. • Application should be published. Should not be used as production SQL Server.

Production Client Platform Notes

- Client operating systems are typically where the client software is installed. Use the Client Install for this purpose. You cannot use the Express Install to install only the client software.
- Only 32-bit Client Applications is currently supported.
- Windows Terminal Services is currently required for installation and operation of Citrix. For more information, see relevant subjects at: http://www.citrix.com or http://www.microsoft.com
- For additional information and installation instructions, see the *Sage MAS 500 Installation and System Configuration Guide*.

Operating System Service Packs

Windows Servers			
	Service Pack 2	**Service Pack 4**	**Remarks**
Windows 2000 Server Editions		X	• Includes Internet Information Server 5.0.
Windows Server 2003 Editions	X		• Includes Internet Information Server 6.0.
Windows Client Operating Systems			
	Service Pack 2	**Service Pack 4**	**Remarks**
Windows 2000 Professional		X	
Windows XP Professional	X		
Windows 2000/2003 Terminal Services		X	• Thin-client only. • Citrix is also supported with these updates.

Operating System Service Packs and Updates Notes

- The updates in this matrix are supported on systems where the Sage MAS 500 client, Internet Applications, or databases are installed.
- Sage MAS 500 is normally regression tested only with generally available releases of service packs or similar updates. Critical updates, patches, and hot fixes released by Microsoft that affect systems, or services necessary for operation of Sage MAS 500 may also be tested under functional testing protocols and will be noted in the matrix. Less severe updates are generally not tested or certified with Sage MAS 500. Review the patch information contained in this guide carefully. Additionally, refer to the Microsoft's article Why Service Packs are Better Than Patches located at: http://www.microsoft.com/technet/archive/community/columns/security/essays/srvpatch.mspx
- refer to the Product Lifecycle Schedule for the version and platform retirement dates located at:
- Sage MAS 500 is optimistically supported with updates available for supported operating system editions and components; however, if after due diligence, an operating system or component problem cannot be resolved, and that operating system contains untested updates, Sage Software Customer Support may defer to the supported updates within this guide. This general practice does not extend to SQL Server updates. Only supported updates should be applied to the SQL Server database engine and clients.
- Quality assurance testing is performed with the latest updates available for Sage MAS 500 with the latest supported updates to Windows, SQL Server, MDAC, and others listed in this guide. Previous updates to these components are not tested with current updates of Sage MAS 500. To ensure a compatible environment, apply the latest supported updates listed here with the latest Sage MAS 500 update. The minimum service pack listed is generally that which was available when this version of Sage MAS 500 was initially released.

SQL Server and MDAC Service Packs and Patches

SQL Server 2000		
	Service Pack 4	Remarks
Microsoft Data Engine (MSDE)	X	• Included with new installations of Sage MAS 500 Small Business Edition and supported with all Sage MAS 500 editions. • For information on applying Service Pack 4 to existing systems with MSDE/SBE, see the Sage MAS 500 Release Notes. • If upgrading from a version prior to version 6.30, the Database chaining option must be selected for all Sage MAS 500 databases.
Standard Edition	X	• Supported with Sage MAS 500 Standard and Enterprise Editions or with the SQL Server upgrade option. • Service packs should be applied to clients with SQL Client Utilities, as well as SQL Servers. • If upgrading from a version prior to version 6.30, the Database chaining option must be selected for all Sage MAS 500 databases.
Enterprise Edition	X	• Supported with Sage MAS 500 Standard and Enterprise Editions or with the SQL Server upgrade option. • Service packs should be applied to clients with SQL Client Utilities, as well as SQL Servers. • If upgrading from a version prior to version 6.30, the Database chaining option must be selected for all Sage MAS 500 databases.

SQL Server 2005

	Service Pack 2	Remarks
SQL 2005 Express	X	• Included with new installations of Sage MAS 500 Small Business Edition and supported with all Sage MAS 500 editions. • For information on applying Service Pack 4 to existing systems with MSDE/SBE, see the Sage MAS 500 Release Notes. • If upgrading from a version prior to version 6.30, the Database chaining option must be selected for all Sage MAS 500 databases.
Standard Edition	X	• Supported with Sage MAS 500 Standard and Enterprise Editions or with the SQL Server upgrade option. • Service packs should be applied to clients with SQL Client Utilities, as well as SQL Servers. • If upgrading from a version prior to version 6.30, the Database chaining option must be selected for all Sage MAS 500 databases.
Enterprise Edition	X	• Supported with Sage MAS 500 Standard and Enterprise Editions or with the SQL Server upgrade option. • Service packs should be applied to clients with SQL Client Utilities, as well as SQL Servers.

Microsoft Data Access Components (MDAC)

	Security Patch MS04-003	Remarks
2.8	X	• Installed with Sage MAS 500 client.

SQL Server and MDAC Service Packs and Updates Notes

- Service packs and other supported updates for SQL Server or MDAC should be applied to the SQL Server and all clients, especially those on which you have installed the SQL Server Client Utilities.
- Sage MAS 500 is optimistically supported with updates available for supported operating system editions and components; however, if after due diligence, an operating system or component problem cannot be resolved and that operating system contains untested updates, Sage Software Customer Support may defer to the supported updates within this guide. This general practice does not extend to SQL Server updates. Only supported updates should be applied to the SQL Server database engine.
- Quality assurance testing is performed with the latest updates available for Sage MAS 500 with the latest supported updates to Windows, SQL Server, MDAC, and others listed in this guide. Previous updates to these components are not tested with current updates of Sage MAS 500. To ensure a compatible environment, apply the latest supported updates listed here with the latest Sage MAS 500 update. The minimum service pack listed is generally that which was available when this version of Sage MAS 500 was initially released.
- For additional information on how to license Sage MAS 500, see Sage MAS 500 Licensing.

Internet Applications Server Platforms

	Windows Edition and Version							
	2000 Pro*	XP Pro*	2000 Server Editions	Small Business Server 2003	Web Edition Server 2003	Std Edition Server 2003	Ent Edition Server 2003	Remarks
eCustomer	X	X	X	X	X	X	X	• Requires Microsoft Message Queue (MSMQ) on the server.
eOrder / eSalesforce	X	X	X	X	X	X	X	• Interface functions are dependent on SalesLogix CRM.
eTimesheets	X	X	X	X	X	X	X	• Project Accounting Module required. • Also supported in offline mode.
Business Insights Dashboard	X	X	X	X	X	X	X	• Business Insights Dashboard is installed on Windows 2003 server.
Web Reports	X	X	X	X	X	X	X	• Displays reports for registered modules only.

*Supported on demonstration systems only.

Internet Applications Server Platform Notes

- Production systems are those used in the inquiry and data entry tasks performed within the Sage MAS 500 Internet Applications. Only Internet Information Services (IIS) version 5.0 on Windows 2000 Server or Advanced Server, and IIS version 6.0 on Windows Server 2003 are supported in this role. Terminal Services servers are not supported as production IIS servers.
- Demonstration or test systems are defined as those on which the Sage MAS 500 Internet Applications are installed for the purpose of demonstrating or testing functionality within the software. These are typically single-user systems employing the MSDE Edition of SQL Server. Use the Express Install for creating demonstration systems or production servers that will use MSDE.
- The eOrder module is the same as eSalesforce, without the Sage SalesLogix CRM functionality of Opportunity Conversion and Prospect Conversion. These functions are enabled after Sage SalesLogix is installed.
- Review the *Sage MAS 500 Internet Applications Guide* for primary guidelines and installation instructions. Additionally, examine Sage MAS 500 online Help for eTimesheets setup considerations.
- The Internet Applications are not supported on a server running Active Directory Service (ADS). This service causes permission conflicts with certain components on which the Internet Applications rely. This is also inadvisable from a security perspective because of the nature of making this type of information available over the Internet.
- Internet Applications with IIS version 6.0 on Windows Server 2003 requires Active Server Pages in your Web Services Extensions and to select the Run WWW service in IIS 5.0 isolation mode option in your Web site properties window. See the installation subjects in the Sage Software Online KnowledgeBase for additional information.
- For additional information on Windows Firewall and Security configuration and Distributed Transaction Coordinator (DTC) settings when configuring a Windows Server 2003 Service Pack 2 or Windows XP Service Pack 2 system, refer to Microsoft article 839279 located at: http://support.microsoft.com/default.aspx?scid=kb;en-us;839279

Internet Applications Client Browsers

Local Client Installation

	Internet Explorer 6.x	Internet Explorer 7.x	Netscape 8.x	Remarks
Macintosh OS X 10.4	X		X	• Supported as an eTimesheets client only.
Windows CE or XP Tablet				• Not tested.
Windows 2000 Professional	X	X		
Windows XP Professional	X	X		
Windows Vista		X		

Thin-Client Installation				
Windows 2000 Terminal Services	**X**	**X**		• Review installation procedures in the *Sage MAS 500 Installation and System Configuration Guide*, as well as the Sage Software Online KnowledgeBase.
Windows 2003 Terminal Services	**X**	**X**		• Review installation procedures in the *Sage MAS 500 Installation and System Configuration Guide*, as well as the Sage Software Online KnowledgeBase.
Citrix Presentation Server 4.0	**X**	**X**		• Review compatibility with the Windows version you are using for Terminal Services.
Citrix MetaFrame XPe Future Release 3	**X**	**X**		• Review compatibility with the Windows version you are using for Terminal Services.

Internet Applications Client Browser Notes

- Service Packs and patches from Microsoft generally do not affect the Internet Applications clients.
- The Internet Applications are designed to work by connecting from your local browser to the site over the Internet or an Intranet. These applications are not generally designed for multi-user access from a single thin-client platform like Terminal Services or Citrix.
- Users should add the Web site you use for Internet Applications to their list of trusted sites. Also, edit the trusted zone security settings to enable scripting for controls not marked as safe for scripting.

SQL Server Demo and Test Platforms

SQL Server 2000 Editions	SQL Server 2005 Editions	Windows 2000 Professional	Windows XP Professional	Windows Server 2000	Windows Server 2003	Remarks
Developer Edition	Developer Edition	X	X	X	X	• Supported with Sage MAS 500 Customization Tools.
Microsoft Desktop Engine (MSDE)	SQL 2005 Express	X	X	X	X	• Supported with Sage MAS 500 Small Business, Std, or Enterprise SQL Server license.
Personal Edition	Personal Edition					• Not supported.
Standard Edition	Standard Edition			X*	X*	• Supported with Sage MAS 500 Std or Enterprise SQL Server license. • 64-bit Server support for SQL Server 2005 running on Windows 2003 Server
SBS Standard Edition					X	• Supported with Sage MAS 500 Small Business or Std SQL Server license.
Enterprise Edition	Enterprise Edition			X*	X*	• Supported with Sage MAS 500 Enterprise SQL Server license. • 64-bit Server support for SQL Server 2005 running on Windows 2003 Server
Workgroup Edition	Workgroup Edition					• Not tested.

SQL Server Demo and Test Platform Notes

- When registering Sage MAS 500 demonstration, test, or development systems, select the proper license type in the Maintain Site task according to the following:
  - Demonstration – Select this license type if you are a Sage Software partner.
  - Developer – Select this license type if you are Sage MAS 500 Customization Tools developer.
  - Test – Select this license type if you are a Sage MAS 500 user.
- The MSDE edition of SQL Server is automatically installed when using the Express Install and no version of SQL Server is present. This allows for demonstration or use of the functionality within the software without the need to install another edition of SQL Server. Use the Express Install for creating demonstration or test systems that will use MSDE. The Express Install feature automatically installs the client software, Internet Applications, and creates the databases on a single machine.
- For additional guidelines and installation instructions, see the *Sage MAS 500 Installation and System Configuration Guide*. Also, refer to the Product Lifecycle Schedule for the version and platform retirement dates located at: http://support.sagesoftwareonline.com/mas500/support/documents/versionretirement.cfm

Integrated Sage Software Products

	Product Version	Link/Update Version	Compatible	Incompatible	Remarks
Sage Abra	**7.6.83**	**5.01.04**	**X**		• Primary support is obtained from the Specialized Business Solutions Division.
Sage Analytics	**7.46**	**N/A**	**X**		• Sage Analytics contains Sage Active Planner and Sage Allocations. • Primary support is obtained from the Specialized Business Solutions Division.
Sage SalesLogix	**7.2**	**N/A**		**X**	• Sage SalesLogix version 7.20 and DynaLink version 7.0 are currently not compatible with Sage MAS 500 version 7.20. • Sage SalesLogix version 7.20 and DynaLink version 7.0 are supported with Sage MAS 500 version 7.05. • Primary support for Sage SalesLogix and DynaLink is obtained from the Contact Management & CRM Solutions Division.
Sage FAS Stand-Alone Client	**2008.1.1**	**5.0**	**X**		• Sage FAS 2008.1.1 upgrade patch available from www.fas.com • Product and General Ledger links are supported by the Specialized Business Solutions Division.
Sage FAS SQL Server Version	**2008.1.1**	**5.0**	**X**		• Includes Accounts Payable and Purchase Order asset tracking integration. For more information, see the Fixed Asset Accounting information in the Sage MAS 500 Help system. • Accounts Payable and Purchase Order links (FAS SDK) are located on the Tools and Utilities CD-ROM and are supported by Sage MAS 500 Customer Support. • Product and General Ledger links are supported primarily by the Specialized Business Solutions Division.

	Product Version	Link/Update Version	Compatible	Incompatible	Remarks
Sage FAS First Step	**2008.1.1**	**5.0**	**X**		• General Ledger link only. • Product and General Ledger links are supported primarily by the Specialized Business Solutions Division.
Sage Timesheets	**9.7**	**N/A**	**X**		• Integrated with Project Accounting for recording time against projects. • Primary Sage Timesheets support is obtained from the Specialized Business Solutions Division.
AvaTax	**7.2**	**N/A**		**X**	• Sage MAS 500 adaptor download available from Avalara approximately 30 days after Sage MAS 500 product release. • Primary AvaTax support is obtained from Avalara at: http://www.avalara.com/index.cfm/page/MAS%20500

Integrated Sage Software Products Notes

- SQL Server 2000 Service Pack 4 and SQL Server 2005 Service Pack 2 are supported with all Sage Software solutions.

Third-Party Application Compatibility

	Product Version	Link/Update Version	Compatible	Incompatible	Remarks
Crystal Reports® for Sage	10.0.5.820	N/A	X		• Runtime components installed with client. Report designer is located on the Tools and Utilities CD-ROM. • The Crystal Reports package is a custom OEM build for Sage Software. It is the only version tested with Sage MAS 500.
Dr. DWG	ViewPro	5.0	X		• Used to view CAD drawings in manufacturing.
FRx Desktop	6.7 Service Pack 9	N/A	X		• Custom financial report builder located on the Sage MAS 500 CD-ROM #3. • Must be logged on as the administrator to build the database for a new installation.
Microsoft Office Standard & Professional	XP	Svc Pack 3	X		• Includes Microsoft Project compatibility. • For additional information, see the Microsoft Office section of this guide.
	2003	Svc Pack 2			
	2007				
Microsoft Office Web Components	XP	Svc Pack 3	X		• Displays and manipulates graphics elements in Business Insights. • For additional information, see the Microsoft Office Web Components Compatibility section of this guide.
	2003	Svc Pack 2			
.NET Framework	2.0	N/A	X		• Installed with the Sage MAS 500 client.
StarShip Parcel	9.9.3	N/A	X		• Supported by V-Technologies. For information on compatibility with Windows Vista, see the StarShip on Vista document located at: http://www.vtechnologies.com/Docs/Help/Printable/all/SSonVista.pdf

Third-Party Application Compatibility Notes

- Microsoft Office XP or 2003 is required to interact with the pivot table and chart data elements in Sage MAS 500 Business Insights. For additional information, see the Microsoft Office Compatibility section of this guide.

Development Tools and Controls

Tool/Control	Manufacturer	Version	Function	Remarks
Crystal Reports® for Sage	Business Objects	10.0.5.820	• Report designer is used to build reports. • Runtime components are called from report engine to display reports.	• Report designer is located on the Tools and Utilities CD-ROM that accompanies the standard product.
ERwin	Computer Associates	3.5.2 Service Pack 3	• CASE tool used in designing database schema and referential integrity.	• Files included with Application Framework are saved as version 2.6 (lowest compatibility).
ImageMan	GigaSoft	7.2	• Used in MRP Planning user interface in Manufacturing.	• Included in the suite of controls from GigaSoft.
.NET Windows Controls	Infragistics	NetAdvantage 2007: Vol 3	• .NET control used in Sage MAS 500 Desktop and Business Insights.	• Source code is not distributed for Sage MAS 500 Desktop or Business Insights.
.NET Windows Controls	Syncfusion	4.2.0.37	• .NET control used in Sage MAS 500 Desktop and Business Insights.	• Source code is not distributed for Sage MAS 500 Desktop or Business Insights.
RoboHelp Office	Macromedia	X5	• Online Help and What's This? Help authoring tool.	• Help files are included with the module source code.
ScheduleBoard	GigaSoft	3.0.0.2	• Used in Schedule Generation user interface in Manufacturing.	• Included in the suite of controls from GigaSoft.
Sheridan 3D (threed32.ocx)	Infragistics	1.0.41.0	• Suite of controls used throughout user interface.	• Included with the Customization Tools Application Framework and Visual Studio.

Tool/Control	Manufacturer	Version	Function	Remarks
Spreadsheet Control (SPR32x30.ocx)	**FarPoint**	**7.0.33**	• Grid control used throughout user interface.	• License is not included with the Application Framework and must be purchased separately from FarPoint Technologies. (http://www.fpoint.com)
Visual Studio Enterprise Edition	**Microsoft**	**6.0 Service Pack 6**	• Module user interfaces are written in Visual Basic 6.0.	• Enterprise Edition is required. • Professional Edition is incompatible.
Visual Studio Enterprise Developer	**Microsoft**	**2005**	• .NET Framework used to develop Sage MAS 500 Desktop and Business Insights.	• Review required .NET Framework version in the Third-Party Application Compatibility section of this guide.

Bar Code and Wireless Devices

Bar Codes

	Compatible	Incompatible	Remarks
Code 39/ Code 3 of 9	**X**		• All bar code readers are supported. • Bar codes are printed with work orders and are available for bin labels. • For work orders, printers must be able to produce a work order number of 15 characters. • For examples, refer to http://www.socketcom.com/product/bar.htm

Wireless Devices

	Compatible	Incompatible	Remarks
Wireless LAN/WAN Solutions	**X**		• For examples, refer to http://www.iwpc.org or http://www.enterasys.com/roamabout

Data Migrator Migrations

Sage MAS 90	Sage MAS 200	Supported	Unsupported	Remarks
3.60	**3.60**	**X**		
3.61	**3.61**	**X**		
3.70	**3.70**	**X**		
3.71	**3.71**	**X**		
	3.72	**X**		
	3.73	**X**		
4.00	**4.00**		**X**	
4.05	**4.05**	**X**		

Data Migrator Migrations Notes

- Apply the latest Sage MAS 500 Monthly Update before attempting a data migration. The update contains corrections for reported problems.
- Prior to migrating data, you should download the GL Level 3 Account Analysis utility for Sage MAS 90 and 200. This utility was created for Sage MAS 90 version 4.0 but will also verify that accounts exist for your Sage MAS 500 migration. General Ledger accounts must exist for the General Ledger transactions you will be migrating into Sage MAS 500.
- Back up your Sage MAS 90 or 200 data, then use Rebuild Application Sort Files, Rebuild Application Key Files, and Analyze and Relink Line Files to ensure data consistency. Corrupted data or data files may not migrate correctly.
- Review your Sage MAS 90 and 200 system for modifications. Changes to data file structures because of master developer modifications or other program add-ins may not be accommodated by the Sage MAS 500 Data Migrator. This data may have to be imported separately into Sage MAS 500.

- It is recommended you verify the migration on a test system prior to attempting a production system migration.
- Search the Sage Software Online KnowledgeBase, Release Notes, and Implementation Planning User Guide for Data Migrator subjects. Also, refer to the following for additional information:
  - MAS 500 Migration Troubleshooting
  - Data Migration and MAS 500 White Paper

Warehouse Automation

	Product Version	Link/Update Version	Compatible	Incompatible	Remarks
LX Pressman	**2.0**	**N/A**	**X**		• Runtime components installed with client. Report designer is located on the Sage MAS 500 CD-ROM. • Not supported with Windows Vista.
LX Designer	**2.0**	**N/A**	**X**		• Runtime components installed with client. Report designer is located on the Sage MAS 500 CD-ROM. • Not supported with Windows Vista.
LX Print Server	**2.0**	**N/A**	**X**		• Runtime components installed with client. Report designer is located on the Sage MAS 500 CD-ROM. • Not supported with Windows Vista.
Label Matrix	**8.10**		**X**		• Label Matrix is available on a separate CD-ROM. • Call Sage MAS 500 Sales department if you need the CD-ROM. • Label Matrix needs to be installed where the print server is installed. • For Label Matrix version 8.x, change the Label Matrix path in LabelXpert Maintenance menu > Set Up LabelXpert Print Server to: C:\Program Files\lm8. • Not suported with Windows Vista.
DCD Data Collection Devices	**Intermec 751**		**X**		• DCD Manager must be installed to update your handheld to be compatible with Sage MAS 500. • DCD Manager is located on the Sage MAS 500 CD-ROM #3. • Review the installation procedures in the *Sage MAS 500 Implementing and Configuring Warehouse Automation* guide.
	Intermec CN3				
	Intermec CK61				

	Product Version	Link/Update Version	Compatible	Incompatible	Remarks
Active Sync	**4.5**		**X**		• For use with the Windows XP operating system only.
Windows Mobile Device Center	**6.1**		**X**		• For use with the Windows Vista operating system only.
Pocket Controller Professional	**5.04**	**Build 748**	**X**		• Graphical User interface for use with keyboard and Data Collection Device (DCD).
Windows Vista			**X**		• Must be logged on as the administrator to install the software. • Warehouse Automation is not supported with Windows Vista.
XP Professional			**X**		

Hardware and Licensing Considerations

The Windows Server, SQL Server, and Sage MAS 500 edition you use needs to correspond to your business requirements. Review the following information and edition limitations carefully before purchasing your systems and licenses.

Windows Licensing

The Windows Server operating systems are available in different editions with each having different licensing costs and limitations. Review the following information on Windows Servers at Microsoft's Web site:
http://www.microsoft.com/windowsserver2003/evaluation/features/comparefeatures.mspx

You should review the following documentation on Microsoft's Web site for additional details on licensing and purchasing Windows Server operating systems:

- Windows 2003
  - System requirements
  - Pricing and licensing
  - Edition comparisons
- Windows 2000
  - System requirements
  - Pricing and licensing

The SQL Server and Sage MAS 500 licensing sections of this guide will also help you in determining your requirements. The *Comprehensive Product Licensing* section contains additional information on licensing a complete Sage MAS 500 solution to meet your needs.

SQL Server Licensing

When choosing an edition of SQL Server, review the following feature comparison documentation on Microsoft's Web site:
http://www.microsoft.com/sql/prodinfo/features/compare-features.mspx

For additional details on licensing and purchasing SQL Server:

- Common SQL Server questions
- Feature comparison
- Supported feature by edition
- Choosing how to license SQL Server
- How to Buy

Sage MAS 500 Licensing

The platform and SQL Server edition you use normally corresponds to the Sage MAS 500 edition you license. Also examine limitations in the user range, available modules, companies and warehouses allowed. Upgrades to the SQL Server edition on which you can run Sage MAS 500 are also allowed.

	Sage MAS 500 Edition		
	Enterprise	**Standard**	**Small Business**
Customer Profile	250+ Employees $75m and up	20 – 500 Employees $25 – $100m	10 – 100 Employees $1 – $50m
User Range Permitted	Any	<= 30	<= 10
Database Platform	SQL Server 2000/2005 Enterprise Edition or Standard	SQL Server 2000/2005 Standard Edition or SQL 2005 Express	SQL Server 2005 Express *(Included)*
Typical Server OS Platform	Windows Server 2000/2003 Standard, Advanced or Enterprise Edition	Windows Server 2000/2003 Standard Edition	Windows Server 2000/2003 Standard Edition
CRM Modules	eSalesforce, eCustomer & SalesLogix	eSalesforce, eCustomer & SalesLogix	eSalesforce, eCustomer
Modules Not Available	None	Source Code	Alerts, Multicurrency, Consolidations, Application Framework, Source Code
Maximum Number of Companies in System	Unlimited	Unlimited	4
Maximum Number of Warehouses in Each Company	Unlimited	Unlimited	4
FRx Designer Users Included	4	4	1

The Sage MAS 500 Small Business Edition automatically installs SQL Server 2005 Express when using the Express Install feature. This database engine is added to the system when no other SQL Server version is detected; therefore, you do not need to purchase SQL Server separately. Only one version of Microsoft SQL Server can reside on the operating system when using Sage MAS 500 Small Business Edition with SQL Server 2005 Express.

The Sage MAS 500 version you purchase can also be used with lower versions of SQL Server but not with higher versions unless you upgrade the SQL Server version with which you have licensed Sage MAS 500. For example, Sage MAS 500 Standard Edition with SQL Server Standard licensing can be used with SQL Server Standard Edition and MSDE, but not SQL Server Enterprise Edition; however, the Sage MAS 500 Standard Edition with the SQL Server Enterprise Edition license can be run on SQL Server Enterprise, as well as all lower versions of SQL Server. The Sage MAS 500 Small Business Edition is generally licensed for SQL Server 2005 Express only.

Internet Information Server Licensing

The eCustomer, Business Insights Dashboard, eSalesforce/eOrder, and eTimeSheets Internet Applications require Windows 2000 or Windows Server 2003 and require to the Sage MAS 500 data stored on your SQL Server. The Internet Applications rely on Internet Information Server (IIS) version 5.0 on Windows 2000, or IIS version 6.0 on Windows Server 2003. It is strongly recommended that you do not install SQL Server with the Sage MAS 500 databases and the Web server on the same server.

There are no special IIS licensing requirements needed to accommodate the Sage MAS 500 Internet Applications, other than the purchase of the necessary Sage MAS 500 modules, Windows Server, and SQL Server licensing. As a customer, you automatically receive licensing for the Business Insights Dashboard and Web Reports modules, but the other Internet Applications must be purchased separately.

For more information about configuring Internet Applications, review the *Sage MAS 500 Internet Applications Guide*, the Internet Application Server Platforms, and the Internet Applications Client Browsers sections of this guide.

Comprehensive Product Licensing

The following presents compatibility information inclusive of the Sage MAS 500, Windows Server and SQL Server editions without a separate SQL Server version upgrade. Recommended platform configurations are also included. Review the previous sections of this guide for licensing details, as well as SQL Server Hardware Requirements with the Hardware Recommendation Matrix for information on typical hardware configurations.

Sage MAS 500 Edition	Windows Edition	SQL Server Edition	IIS Recommendation	Recommended SQL Server Platform
Small Business	Windows Server 2000/2003 Standard, Advanced/Enterprise	SQL 2005 Express	Windows Server 2003 Web or Standard Edition	Windows Server 2003 Standard Edition
Standard	Windows Server 2000/2003 Standard, Advanced/Enterprise	Standard or SQL 2005 Express	Windows Server 2003 Web or Standard Edition	Windows Server 2003 Standard Edition
Enterprise	Windows Server 2000/2003 Standard, Advanced/Enterprise	Enterprise, Standard, or SQL 2005 Express	Windows Server 2003 Web or Standard Edition	Windows Server 2003 Standard or Enterprise Edition

SQL Server Hardware Requirements

Sage MAS 500 has certain platform and hardware configuration requirements. Verify your servers and clients meet the minimum hardware configuration outlined. Supported operating systems and their updates are detailed in the *SQL Server Production Platforms*, the *Production Client Platforms*, and the *Internet Applications Server Platforms* sections of this guide.

Windows 2000 Professional and Windows XP Professional may be used as a SQL Server for demonstration purposes only - these versions of Windows are not supported as production servers.

Hardware

Sage Software recommends name-brand hardware over generic equivalents for both the client machines and servers. The benefit of quality, performance, and level of support from the mainstream manufacturers far exceeds the usually minor difference in cost over generic hardware. Most major manufacturers also have specification tools for OLTP or SQL servers that can be used to help define the hardware requirements.

In addition, Microsoft only supports hardware that appears on their Hardware Compatibility Listings (HCL) . Verifying that your hardware appears on the HCL ensures Microsoft support. Currently, only 32-bit processor hardware platforms are supported by Sage MAS 500. For information on Microsoft's compatibility list, refer to the Microsoft web site at: http://www.microsoft.com/whdc/hcl/default.mspx

Minimum Requirements

Following is a simple chart detailing guidelines for the Windows, SQL Server, and Sage MAS 500 edition, as well as the hardware you typically require. You must meet or exceed these minimums.

Sage MAS 500 Edition	Windows Edition	SQL Server Edition (Default Edition)	Minimum Requirements	Recommended Minimum
Small Business	Windows Server 2000/2003 Standard, Advanced/Enterprise	SQL 2005 Express	Single Pentium III 450 512 MB RAM 1 GB disk space	Single Pentium Xeon or better 512 MB RAM 2 GB disk space
Standard	Windows Server 2000/2003 Standard, Advanced/Enterprise	Standard or SQL 2005 Express	Dual Pentium III 450 512 MB RAM 1 GB disk space	Dual Pentium Xeon or better 2-4 GB RAM 4 GB disk space
Enterprise	Windows Server 2000/2003 Standard, Advanced/Enterprise	Standard or Enterprise	Dual Pentium III 450 512 MB RAM 1 GB disk space	Dual Pentium Xeon or better (Quad capable) 4-8 GB RAM 10 GB disk space

Variations in SQL Server edition and Sage MAS 500 edition licensing are allowed. Licensing variations are typically used to upgrade the SQL Server edition. For example, the Sage MAS 500 Standard edition can be purchased with a SQL Server Enterprise edition upgrade. The default SQL Server editions listed are those compatible with corresponding Sage MAS 500 editions and do not require a separate upgrade.

Scaling Your Server

When reviewing your requirements for appropriate SQL Server hardware, consider the following:

Use a Single Processor

A single processor server generally services about five users with Small Business Edition. Current dual processor servers can service about 30 to 50 concurrent users under the Standard (30-user limit) or Enterprise (unlimited users) editions of Sage MAS 500.

Consider increasing processing power when servicing 50 or more users or when deploying under the following conditions:

- Distribution systems with freater than or equal to 30% of users.
- Manufacturing and distribution systems with freater than or equal to 30% of users.

Increase Memory

The minimum requirement of 512 MB of memory services about 10 users. Consider increasing the amount of memory to use under the following conditions:

- If you are servicing more than 10 users or deploying distribution or manufacturing systems.
- Database sizes grow, or are expected to grow to more than 1 GB.
- Performance monitoring indicates disk paging due to insufficient memory.

Always Employ a RAID 1 or 10 Disk Array Configuration

Always employ a RAID 1 or 10 disk array configuration and abstract databases and objects. The following are more guidelines for this configuration:

- A minimum of 3 arrays for SQL Server objects are generally used:
  - One array for databases.
  - One array for transaction logs.
  - One array for the tempdb database (the tempdb is included with other logs).
- Add additional arrays when the performance monitor indicates drive bottlenecks to the following:
  - Abstract indexes for either all tables or table groups.
  - Group tables normally associated with heavy usage or specific modules. For example, tglAccount (read) and tglTransaction (write/read).

Symmetrical Multiprocessing Environment (SMP) and Performance

SQL Server works best in a symmetrical multiprocessing (SMP) environment; the more processors in the pool, the better the query processing performance. The following are additional performance considerations:

- Uses the maximum amount of physical memory available to the server within the edition limitations.
  - The server performance may decrease due to excessive paging of memory to disk when the server is not dedicated.
- Review how SQL Server uses memory in the SQL Server documentation; the more data and procedures you can cache in memory, the faster the general performance.
- The best overall performance is realized when the server and clients have hardware resources above the specified minimums and the server is dedicated to Sage MAS 500 or SQL Server services.
  - Production servers generally include memory well above the specified minimum: greater allocations of processor cache, 2 to 8 CPUs, or CPUs of greater power (Hyper-threading or dual-core Xeon) multiple RAID 1 or 10 arrays; fast switches and multiple NICs, as well as a host of other advanced hardware.
  - The server configuration will affect server performance in data manipulation, form load, and response times at the client.

- Variations in the amount of data, number of users, and modules in use can affect performance. For additional information, refer to the Performance Considerations section of this guide.

Hardware to Scale Your Business

If you expect your business to grow, purchase hardware that can scale with your business. The following are more considerations:

- Instead of ordering a server limited to a maximum of two processors, order one with two processors that is expandable to four
- Instead of specifying a memory configuration that fills all available slots, such as four modules with 256 MB of memory, select a configuration that allows you to easily add more memory, such as two modules with 512 MB of memory.
- Consider the limitations of the Windows and SQL Server editions you are deploying.
- Consider the best solution for your intended activity and SQL Server load when scaling your hardware.
  - Systems that surpass 100 users or process a large amount of data – 30 GB or more database growth per year - are considered large or higher volume sites.

Support of Large Number of Users

Supporting a large number of users typically requires a powerful SQL Server with multiple CPUs and additional memory and disk arrays.

- A good solution may be a blade solution with an attached Storage Area Network (SAN) that can also include a SQL Server cluster solution for reliability and a Windows Terminal Services cluster to ease administration.
- The network infrastructure might include a minimum of 1 GB connection between the devices with a minimum of 100 MB of Ethernet backbone.
- A storage solution is very important to overall performance. For example, processing a 50 GB of data per year (approximately 10 million General Ledger transactions with supporting data from subsidiary modules) requires the ability to house this data, and to adequately process user requests against the data.
  - This can include data requests for reports, Business Insights, or data entry and posting that can aggregate millions of rows of data.
  - Solutions generally start at a large Storage Area Network, with dozens of drives in a number of arrays with a RAID 10 (0+1) configuration. This allows the ability to separate database and log files, and to configure file groups comprising different database objects to different arrays, all to improve performance.
- Perpetual review of the server performance is typically required for all customer sites using SQL Server, especially large or higher volume sites.
  - This is primarily because the data and sometimes the environment are changing at a constant pace.

- How this affects a specific environment and how best to compensate for the changes is best handled by a qualified database administrator (DBA) well versed in working with SQL Server and Sage MAS 500.

Hardware Recommendation Matrix

The following matrix can be used as an approximate guide to help in determining the basic hardware configuration to use for your Sage MAS 500 SQL Server. Typical usage scenarios are detailed with number of users, amount of data created per year, and module groups purchased.

Configuration	Processors	Memory	Minimum Data Drive Configuration	Sage MAS 500 Edition	SQL Server Edition	Server Operating System Edition
1-10 users < 1 GB data Core, Dist	1	1 GB	2 - 18 GB drives arrayed in RAID 1 configuration	Small Business	MSDE/SQL 2005 Express	Standard
11-30 users 1-5 GB data Core, Dist, Mfg	2	3 GB	Minimum 6 – 18 GB drives arrayed in RAID 1 configuration	Standard	Standard	Standard
11–30 users 6-10 GB data Core, Dist, Mfg	4	4 GB	Minimum 6 – 36 GB drives arrayed in RAID 1 or 10 configuration	Standard	Enterprise	Standard
31–60 users 2-4 GB data Core, Dist, Mfg	2	3 GB	Minimum 6 – 18 GB drives arrayed in RAID 1 or 10 configuration	Enterprise	Standard	Standard
31–60 users 1-5 GB data Core, Dist, Mfg	4	4 GB	Minimum 6 – 36 GB drives arrayed in RAID 1 or 10 configuration	Enterprise	Enterprise	Standard
31–60 users 6-15 GB data Core, Dist, Mfg	4	4-8 GB	Multi-drive RAID 1 or 10 storage enclosure or Storage Area Network	Enterprise	Enterprise	Standard-Enterprise
61–100 users 6-15 GB data Core, Dist, Mfg	4	8 GB	Multi-drive RAID 1 or 10 storage enclosure or Storage Area Network	Enterprise	Enterprise	Enterprise

Configuration	Processors	Memory	Minimum Data Drive Configuration	Sage MAS 500 Edition	SQL Server Edition	Server Operating System Edition
61–100 users 16-30 GB data Core, Dist, Mfg	4-8	8-16 GB	Multi-drive RAID 1 or 10 storage enclosure or Storage Area Network	Enterprise	Enterprise	Enterprise
61–100 users 31+ GB data Core, Dist, Mfg	4-8	16 GB	Storage Area Network (SAN)	Enterprise	Enterprise	Enterprise
101+ users	4-8	16-32 GB	Storage Area Network (SAN)	Enterprise	Enterprise	Enterprise

Additional Notes

- For more information, review the performance subjects in the Sage Software Online KnowledgeBase, the Performance Considerations section of this guide, and general publications regarding SQL Server performance.
- These recommendations provide for generally adequate performance and require expertise in the configuration of hardware, SQL Server, and in working with Sage MAS 500. Review this information, the referenced documentation, and consult certified hardware and SQL Server professionals for advice on the appropriate configuration for your business needs.

SQL Server Configuration Requirements

Sage MAS 500 requires that Microsoft SQL Server be installed on operating systems with supported service packs as specified in the SQL Server Production Platforms and Operating System Service Packs sections of this guide.

For a complete overview of the installation procedures, see the *Sage MAS 500 Installation and System Configuration Guide*. The Sage MAS 500 Database Utilities are installed at the SQL Server or a workstation where the SQL Client Utilities have been installed. The Sage MAS 500 Database Utilities are used to create or upgrade Sage MAS 500 databases.

Multiple Named Instances

Multiple instances of SQL Server can be configured but only a single active instance of Sage MAS 500 is supported on the production server. You can specify the <server> and <instance> to which your client connection will be directed using the Desktop Configuration Utility, or the Advanced Options feature at the Sage MAS 500 logon window. Information on the Desktop Configuration Utility and logon options is available in the *Sage MAS 500 Installation and System Configuration Guide*.

Configuration Options

This section covers memory management and other SQL Server setting information. To view or change these settings, use SQL Server Enterprise Manager or Query Analyzer. The amount and configuration of memory on the SQL Server will affect system performance.

Memory

Refer to the Minimum Requirements section of this guide for minimum and recommended memory configurations. Follow Microsoft's recommendations for a dedicated SQL Server when using fixed memory.

General recommendations:

- Exceed minimum requirements (see *Minimum Requirements*)
- Properly configure and tune your server (see *Scaling Your Server*)
- Dedicate your server (Microsoft article Optimizing Server Performance)
- Allow SQL Server to manage the memory (Microsoft article Server Memory Options)

For detailed information on configuring your SQL Server options, see article SQL Server Configuration Parameters by Microsoft Press located at: http://www.microsoft.com/learning/books/default.mspx. Observe the requirements noted in the Minimum Requirements, Database Sizes and Settings, and Performance Considerations sections of this guide.

Required Settings

The following table shows the supported Microsoft SQL Server configuration for Sage MAS 500.

Setting	Requirement
Character Set	ISO - Code Page 1252
Sort Order	Dictionary Order, Case Insensitive - ID 52 (Default)
Default language for user	English
Allow nested triggers	Selected
Query governor cost	0
Y2K support	1950 and 2049
Minimum concurrent user connections	15 x <number of client connections>
Default Connection Options	None of the Attribute values selected
Use Windows NT fibers	Unselected

Security and Domain Configuration

Sage MAS 500 supports both SQL Server and Windows Authentication security settings in SQL Server. You can create SQL Server users by creating Sage MAS 500 users or grant access rights to users who have existing logins in domains or on the SQL Server. There are a number of methods that can be used in configuring security. For additional information, see the *Sage MAS 500 Installation and System Configuration Guide*, as well as the System Manager Maintain Users and Maintain Security Groups online Help.

Case Sensitivity

Sage MAS 500 does not support SQL Server case-sensitive sort order settings. Only the Dictionary Order and Case-Insensitive sort order is supported.

Database Options and Sizing

You need to configure databases used by Sage MAS 500 to certain minimum sizes. The databases affected by these requirements are the following:

- SQL Server tempdb database
- SQL Server master database
- Application and Internet Application databases you use with Sage MAS 500

SQL Server 2000 allows you to define growth parameters to automatically expand your database. For more information on dynamic resizing in SQL Server, refer to the SQL Server Books Online.

Master and Msdb Databases

The master and msdb databases in SQL Server should have at least 50 percent free space. You also should set the following options:

Setting	Recommendation
Database and transaction log	Automatically grow
	Unrestricted growth
Database	Simple

Tempdb Database

Sage MAS 500 uses tempdb extensively: therefore, the tempdb size must be at least 1024 MB or greater depending on your data processing volume. You also should set the following options:

Setting	Recommendation
Database and transaction log	Automatically grow
	Unrestricted growth or limit to amount of free drive space
Database	Simple

New Sage MAS 500 Databases

When running the Sage MAS 500 Database Creation Utility, the program recommends a minimum database size for the databases. For production environments, you should change the application database size to at least 500 MB.

Use SQL Server's automatic resizing features to ensure that databases can accommodate the volume of transactions you require, or manually resize the databases to avoid the processing delays the autogrow option can cause.

Database Sizes and Settings

If you do not define growth parameters when you create the database, the databases and transaction logs cannot be smaller than the sizes specified in the Database Creation Utility. If you need to increase sizes later on, you can do so manually using the following recommendations:

Database or log	Recommended Size or Increase
Application database	25 MB for every 5,000 expected General Ledger transactions (includes subsidiary module data)
Log size	Minimum 20% to 30% of the database size

Set the following options for the Sage MAS 500 application (_app), eCustomer (_iapp), and Microsoft Project Link (_pl) databases:

Setting	Requirement
Database and transaction log	Automatically grow in megabytes: 20
	Unrestricted growth or limit to amount of free drive space
Database	Recovery Model: Simple (when backup is performed once a day)
	Auto update statistics
	Torn page detection
	Auto create statistics
	Auto close (MSDE only)
	Database compatibility level 80 (required)
	Database chaining (required for all Sage MAS 500 databases)

Existing Sage MAS 500 Databases (Upgrades)

If you are upgrading existing Sage MAS 500 databases, they need to meet the following minimum requirements:

Database	Amount of required available data space
Application database	100 MB of available data space

Review the Upgrading Existing Databases section of the *Sage MAS 500 Installation and System Configuration Guide* and the Sage Software Online KnowledgeBase article titled How to upgrade Sage MAS 500 (Knowledge Object ID: 144) for additional upgrade recommendations.

Local Client Requirements

Sage MAS 500 requires Windows operating systems with supported service packs or other updates as specified in the Production Client Platforms or the Operating System Service Packs sections of this guide. If you are not using a supported edition and version of Windows, you need to update your Windows operating system.

For a complete overview of the installation procedures, see the *Sage MAS 500 Installation and System Configuration Guide*. The Sage MAS 500 client is installed as a local client or thin client.

The local client workstation needs to meet the following general requirements:

- Pentium® IV class processor
- Minimum of 512 MB of RAM
- SVGA monitor and video drivers (minimum 1024 x 768 resolution for Sales Order tasks).
- 400 MB of available disk space.
- A supported version of Microsoft Windows (see Production Client Platforms). Only English versions and locales are currently tested and supported.
- A default print device for each Windows user account (required for Crystal Reports).

Microsoft Office Compatibility

The following Microsoft Office applications are required for the following Sage MAS 500 applications or features. For version compatibility, see the Third-Party Application section of this guide.

Sage MAS 500 Application	Microsoft Office Application
Advanced Consolidations	Microsoft Excel
Business Insights (export functions)	Microsoft Excel, Word
Data Migrator (Assisted Company Setup)	Microsoft Excel
Data Porter	Microsoft Excel
Document Email	Microsoft Outlook*
Business Insights Dashboard	Microsoft Office
Export grid functionality	Microsoft Excel
Microsoft Project Link (Project Accounting)	Microsoft Project
Sage MAS 500 Office	Microsoft Office

* Optional. Also supported with SMTP

If you have not installed any Microsoft Office applications, you can install them after installing the Sage MAS 500 client software, but you will need to register the MS Office DLL manually. For instructions, refer to the Registering the DLL File for Microsoft Office section of the *Sage MAS 500 Installation and System Configuration Guide*.

Microsoft Office Web Components Compatibility

The following Microsoft Office and Microsoft Office Web Components are required for the following Sage MAS 500 applications or features. For additional version compatibility information, see the Third-Party Application section of this guide.

Sage MAS 500 Application/Function	Web Components Version	Display	Manipulate
Business Insights Data View	**XP**	**X**	**X**
	2003	**X**	**X**
Business Insights Pivot Table	**XP**	**X**	**X**
	2003	**X**	**X**
Business Insights Chart	**XP**	**X**	**X**
	2003	**X**	**X**

* You can install versions of the Web Components that differ from your Microsoft Office version, but the Microsoft Office version controls your ability to work within the application. For example, you can display pivot table data elements with Microsoft Office 2003 and Web Components 2003, but you cannot manipulate those data elements.

You can download the Microsoft Office Web Components, or activate this feature using instructions from Microsoft. Click the link below that corresponds to your Office version.

- Microsoft Office XP
- Microsoft Office 2003
- Microsoft Office 2007

You must have a license to use the Microsoft Office Web Components. For information on configuring the web components settings, see the Microsoft article Managing Office Web Components.

Terminal Services Thin Client Requirements

Sage MAS 500 supports the use of Microsoft Terminal Services and Terminal Services Advanced Client to enable multiple user sessions to run concurrently on a shared server. You can use one Windows user account to establish multiple Windows Terminal sessions from the same terminal or different terminals.

This section explains the requirements for using Sage MAS 500 with Terminal Services. For more information, see the following:

- For instructions on setting up Sage MAS 500 to use Terminal Services and Terminal Services Advanced Client, see Client Installation in the *Sage MAS 500 Installation and System Configuration Guide*.
- For general information about using Terminal Services or Remote Desktop, see the Terminal Services or Remote Desktop documentation from Microsoft Web site.

Hardware

The server where Terminal Services is running needs to meet the following requirements:

- Dual Intel Pentium® IV class or higher processor. This allows you to add capacity as the number of users grows. Processor and memory requirements scale linearly.
- A minimum of 512 MB of RAM plus an additional 128 MB for each typical user.
- A minimum of 500 MB of available disk space.
- SCSI hard drives (caching array recommended).
- A supported version of Microsoft Windows (see Production Client Platforms). Only English versions and locales are currently tested and supported.

Consider the following recommendations for best performance:

- High-performance and multiple network interface cards (NICs) for user connections.
- Fast switch (1 GB recommended) between the SQL Server and Terminals Services server. Consider separate blades for SQL and Terminal Services on one blade server.
- A microprocessor-based multi-port asynchronous communications adapter to reduce interrupt overhead for dial-in users.
- Reduce network traffic by turning off the Sage MAS 500 startup logo with the Business Desktop Configuration Utility. For information about using the Client Configuration Utility, refer to the *Sage MAS 500 Getting Started Guide*.
- Employ the Remote Desktop Client available from Microsoft Web site.

Advanced Client (Remote Client)

Terminal Services Advanced Client is an ActiveX control that runs in Internet Explorer. Users obtain the ActiveX control as follows:

- For Windows XP Home or Professional, the ActiveX control is part of the operating system and is immediately available when users visit a site that requires it.
- For Windows 95, 98, 98 Second Edition, ME, or 2000 (all editions), users are prompted to download the ActiveX control the first time they visit a site that requires it.

Usage

When planning your Terminal Services implementation using Terminal Services or Terminal Services Advanced Client, only one instance of Sage MAS 500 can run under each Windows user account. You can have more than one user running Sage MAS 500 on Terminal Services; however, the users must have different Windows user accounts. You cannot use a Windows user account more than once to establish a Terminal session and run Sage MAS 500.

Licensing

You may need to change the configuration of Terminal Services to enable additional users to use the Sage MAS 500 client software. By default, Terminal Services is installed as an administrator server. Configure it as an application server to use it as a production client.

To access Terminal Services, the client system needs to have a Terminal Client Access License (TCAL). You need to install Terminal Services Licensing and purchase Terminal Services licenses from Microsoft; otherwise, you are limited to two administrative connections. See the Microsoft web site for information on Terminal Services licensing.

Limitations

Some restrictions exist with Terminal Services, especially between Windows 2000 and 2003 Server editions. You should be aware of the following when considering a Terminal Services solution:

- Clustering is not available with Windows 2000. It is available with Windows Server 2003 Enterprise Edition and higher. Alternatively, Citrix can be used to create a server farm solution.
- Display limitations in Windows 2000 restricts resolution to 256 colors. This limitation is not present in Windows Server 2003 editions.
- Local drives are not automatically available in Windows 2000.

Terminal Services versus Citrix

Windows includes the Terminal Services feature natively, but an alternative is Citrix. Both technologies have many common features and are designed for application and workspace sharing using lower bandwidth connections.

The Microsoft RDP client and Citrix client include the following features:

- Graphical Windows application screen presentation
- Full-screen presentation
- Cut and paste across clients and servers (available with latest RDP client)
- Keyboard and mouse input
- Session control
- Error detection and recovery
- Communications encryption
- Data compression
- Multiple security levels
- General purpose Terminal Server/Citrix Server browsing
- Multiple client platforms, including MS-DOS, Windows 3.1, Macintosh, and UNIX
- Web browser access

Citrix clients add the following features:

- Framing for asynchronous connections
- File system redirection
- Print redirection
- COM port redirection
- Multiple generic virtual channels

Both the Microsoft and Citrix clients are designed to transmit keyboard, mouse, and video information, but displaying graphics can require quite a bit of bandwidth. Bitmaps require more bandwidth than vector graphics because all of the image data for each unique bitmap must be transmitted from the server at least one time. The Microsoft and Citrix clients compensate for this by allowing you to cache each unique bitmap on the client system. If a bitmap is to be displayed, it is compared with the client's locally cached bitmaps. If the displayed bitmap matches one that is already cached at the client, a command is sent that tells the client to display the local copy instead of sending the image over the network. You can select to cache bitmaps in your connection settings.

The use of TrueType fonts for your display is preferred because these fonts are stored on the client. If an application must use custom fonts, verify the fonts are configured as embedded Windows fonts to allow faster display.

Blinking cursors and animated icons also cause unnecessary bandwidth use because every blink or image change requires data packets to be transmitted. Sage MAS 500 does not use a blinking cursor or animated icons in the Terminal Services or Citrix environment.

Network Protocol Requirements

Sage MAS 500 requires the TCP/IP network protocol and IP addresses assigned to the client and server systems. The following SQL network libraries can be used with the TCP/IP protocol:

- Named Pipes
- Multi-Protocol
- TCP/IP Sockets

Adjusting Connectivity Settings

Depending on the version of Windows you are using, and the other network protocols installed, you may need to adjust connectivity settings. For more information, see Appendix B, Protocol Issues in the *Sage MAS 500 Installation and System Configuration Guide*.

Installing Network Protocols

Install the network protocols at the client using the Network applet in the Control Panel. For more information about protocols, see the online Help for the version of Windows you are using. At a minimum, you must have installed and configured the TCP/IP protocol.

Communications Ports

Certain communication ports must be open in your firewall to facilitate connections between a SQL Server and its clients, including Sage MAS 500. The default ports that SQL Server listens on are 1433 for TCP/IP Sockets and 1434 for Multi-Protocol. The ports that SQL Server uses can be configured using the SQL Server Network Utility. The Internet Applications generally use port 80 for communications.

Troubleshooting Communications Issues

Microsoft SQL Server has specific requirements to accommodate communications over a network. Sage MAS 500 employs these network and SQL Server mechanisms to service client server connections through the ADO.NET, SQL Server Net-Lib, and TCP/IP protocol layers. Detailed troubleshooting instructions are contained in the How to troubleshoot connectivity issues in SQL Server 2000 article on Microsoft's Web site.

Performance Considerations

Sage MAS 500's architecture is important to understand when considering how best to configure hardware or troubleshoot performance issues. The following points summarize the architecture:

Two-Tier Client/Server Application

- Primary business logic is embedded in user interface.
- Additional business logic and data rules are embedded in databases.
  - Intensive data manipulation is performed by stored procedures.
  - Stored procedures use resources only at the database server.

Referential Integrity

- Referential integrity is maintained at the database.
- Parent and child rules are enforced by triggers and foreign key constraints.
- Other rules are enforced by primary key, check constraints, and not null attributes.
- Data integrity is generally considered before performance and concurrency.

Report and Posting Operations

- Report and posting operations are performed primarily at the database.
- Data is organized within temporary tables in tempdb with results individual to the user.
- Presentation or print operations are completed by Crystal Reports at the client.

OLAP and Replication Solutions

To offload heavy reporting requirements, you can set up an Online Analytical Processing (OLAP) server. Offloading the reporting requirements will allow dedication to processing of the Sage MAS 500 workload on the Online Transaction Processing (OLTP) server. You can also extract data directly from SQL Server using Microsoft Office applications.

Configuring an OLAP server for reporting on the Sage MAS 500 data elements you dimension is one solution. Custom reporting requirements can then be fulfilled using a specific OLAP solution and/or Microsoft Office applications or Crystal Reports. Custom reports created in Crystal Reports can also be attached directly to the Business Desktop. For additional information on attaching and maintaining custom reports, see the Adding Custom Reports section of the *Sage MAS 500 Installation and System Configuration Guide*.

You can also configure another SQL Server instance or a separate server to provide similar services. Different forms of transactional replication can be used to copy data for report generation using the Sage MAS 500 front-end. Merge replication cannot be used primarily due to the surrogate key scheme used to identify data within the database. For information on how to use the Desktop Configuration Utility to direct the client to different SQL Servers or databases, see the *Sage MAS 500 Installation and System Configuration Guide*.

Customization Best Practices

When designing customizations to the schema or application source code, consider the following:

Behavior and Added Functionality

The architecture of Sage MAS 500 has an open back-end: You can modify or add objects to the SQL Server databases without purchasing source code separately.

- Simple behavior or appearance changes to the user interface can be performed using Customizer.
  - Available in nearly all Sage MAS 500 tasks launched from the Desktop except Business Insights.
  - Source code available with the Customization Tools is required when performing more complex modifications.
- Add custom Crystal Reports to accommodate additional reporting needs. Review the Adding Custom Reports section of the *Sage MAS 500 Installation and System Configuration Guide*.
- Add Business Insights views to accommodate other custom reporting needs. Review Chapter 5, Viewing and Analyzing Data in the *Sage MAS 500 Getting Started Guide*, as well as Business Insights online Help and the Sage Software Online KnowledgeBase.
- Use the lookup functionality to accommodate custom lookup requirements.
  - Create custom views and associate with existing lookups.
  - Specify available columns and view settings administratively. Review the Search Form Customization section of the *Sage MAS 500 Installation and System Configuration Guide*, as well as online Help on Maintain Lookups and Maintain Lookup Views.
  - Instruct users on how to customize their own lookups. Review the Search Features section of the *Sage MAS 500 Getting Started Guide*.

Tables, Procedures, and Projects

Add separate tables to accommodate additional data requirements.

- Use the Database Viewer to determine key columns in existing schema, and link the tables using a foreign key from the parent table.
  - Import your table into Data Dictionary. Follow the instructions in the Customization Tools guides.
  - Name your tables using defined standards. Follow the guidelines in the Customization Tools guides.
- Maintain your referential integrity between parent and child. Use constraints and triggers.
- Properly index your tables. Each table should contain a primary key constraint and a clustered index.
- Add proper security to your objects. All permissions for native objects are granted in ApplicationDBRole.

Add separate stored procedures, triggers, or functions to accommodate additional processing requirements performed at the SQL Server.

- Modify existing procedures only to call your object.
- Test and profile your code to verify it performs properly.
- Name your objects using defined standards. Follow the guidelines in the Customization Tools guides.

Add separate Visual Basic projects to accommodate modified behavior of the user interface.

- Test and profile your code to verify it performs properly.
- Name your projects using defined standards. Follow the guidelines in the Customization Tools guides.
- Always test and profile your changes to ensure proper function and performance.

Application Usage and Tuning

Knowing how Sage MAS 500 and SQL Server process data requests is important in understanding how to properly configure and maintain the system, as well as how best to educate the typical application user.

Application Actions

Make sure your users know the impact of certain actions they may take within the application and tune the application in anticipation of their usage.

- If users consistently search unindexed columns in a lookup, you may want to index the columns they frequently search and restrict the columns users can search by selecting the Restrict to Display Columns check box in the Maintain Lookup Views window in the System Manager module.
- Consider clearing the Load Data Immediately check box in the Maintain Lookup Views window in System Manager for your lookups that search large data sets and train users to add filter criteria to their search and add saved settings.
- Instruct users on the proper use of Business Insights Explorer by creating default saved settings, if necessary, and consider clearing the Load Data at Start option.
- Defer compilation of large reports, Business Insights data sets, or batches to off-peak processing hours.
    - Some reports can be thousands of pages given the data set and filter criteria.
    - Aggregations of large data sets can negatively affect overall system performance.
    - Configure and tune the SQL Server hardware and databases to accommodate this activity, if necessary, and alternatively offload these requirements to another SQL Server or OLAP/reporting server.
- Improve print speed by removing banners or other extraneous graphics (company logos) from reports using Maintain Report Format.

Access to Sage MAS 500 Data and Logon Maintenance

Limit direct access to Sage MAS 500 data by activating Application AppRole in System Manager Maintain Site.

- Selected by user in Maintain Users after role activation. Read-only access can be granted outside of Sage MAS 500 by user.
- Role usage allows data access from the Sage MAS 500 interface only.
- Streamline logon maintenance and provide a more secure environment by employing Windows Authentication.

SQL Server Clustering and Failover

SQL Server supports failover for a high-availability model, as well as network load balancing clusters. This is supported in up to a two-node configuration with Windows 2000 Advanced Server, a four-node configuration with Windows 2000 Datacenter Server, and an eight-node cluster in Windows Server 2003. Follow the guidelines detailed in the Server Clusters: Network Configuration Best Practices for Windows 2000 and Windows Server 2003 article by Microsoft for Windows 2000 and Windows 2003.

Limitations

Sage MAS 500 is not currently designed as a cluster-aware application; application queries cannot be load-balanced. Also, Sage MAS 500 maintains separate active connections to the SQL Server that are opened by each form instantiated at the client, including the Sage MAS 500 Desktop. The application framework does not have the ability to reestablish a connection if it is closed; therefore, when a form's connection to the virtual server is lost in a failover event, it cannot be reconnected. In this scenario, the users must close their Sage MAS 500 session and reconnect to the virtual server.

Implementation

Configuration of Sage MAS 500 in a cluster requires a slightly different procedure related to the registration component. The Sage MAS 500 ActiveX Registration Component, LicReg.dll, needs to be copied to the SAN sharepoint and registered from all nodes. This component is installed with the Database Utilities and is registered with the operating system using the regsvr32 program that is included with Windows. After the LicReg.dll component is located and registered on the SAN, you can then register Sage MAS 500 using the System Manager Maintenance menu > Maintain Site.

The cluster configuration procedure is described in greater detail in the Sage Software Online KnowledgeBase article titled How to configure a SQL Server cluster for MAS 500. For additional information on SQL Server failover clustering, see the Microsoft Web site.

DOs and DON'Ts of SQL Server Performance

DO:

- Dedicate the server to SQL Server services.
- Exceed the minimum hardware requirements.
- Enable Address Windowing Extensions (AWE) when enough memory is available.
- Ensure the Auto create statistics and Auto update statistics options are selected at the databases.
- Ensure the disk drive, RAID controllers, etc. are updated with the most current BIOS and device drivers.
- Employ RAID 1 or 10 arrays instead of RAID 5 arrays or SCSI drives with no array controller. Try to place each array on a separate channel or controller. Employ write-caching array controllers with an onboard battery for better performance and reliability
- Place SQL log files (including the tempdb log), data files, and tempdb on different arrays when using RAID 1, and/or establish proper file grouping and array management when using RAID 10 (0+1) or 1.
- Tune the SQL Server. Download the SQL I/O Stress utility from Microsoft's Web site to test for bottlenecks. Review the available SQL Server documentation on tuning.
- Back up your databases at least once a day (Microsoft article 328747).
- Run the SQL statement DBCC CHECKDB and review the results before every database backup to verify there is no corruption.
- Rebuild your indexes at least once a week (DBCC DBREINDEX).
- Maintain and update an offsite backup at least once a month.
- Design a disaster recovery plan in the event of a catastrophe.
- Consider defragging your drives on a periodic basis if databases are automatically expanding.

Note: We recommend using SAN (Storage Area Network) because it utilizes fiber channel interconnects which typically operate at higher speeds than connection methods of NAS (Network Attached Storage). NAS uses Ethernet and TCP/IP connections. Also the method by which a SAN addresses the data stored is by disk blocks, whereas NAS does not utilize this access method.

DON'T:

- Run CPU or disk intensive applications like ODBC traces, Performance Monitor, CHKDSK, Defrag, or SQL Profiler on the server during production hours unless absolutely necessary.
- Select a screen saver on the server. The 3D screen savers are extremely CPU intensive. If using a screen saver on the server, select Blank Screen or None for optimum performance - (MS Articles Q121282 and Q186600).
- Create Microsoft SQL Server databases on a compressed drive or in a compressed folder.
- Compress SQL Server data or log files after creation.
- Employ removable media for your database file locations.

- Install Microsoft SQL Server on a domain controller or ADS server. These computers perform the resource-intensive tasks of maintaining and replicating the network accounts database and performing network logon authentication.
- Run services such as Active Directory Services (ADS), Dynamic Host Configuration Protocol (DHCP), Windows Internet Naming Services (WINS), Internet Information Services (IIS), Remote Access Services (RAS), print, file, or Terminal Services (WTS) on your SQL Server. With Small Business Server (SBS), run as few extraneous services as possible or upgrade to a dedicated platform.

Troubleshooting Performance Issues

Potential performance issues with SQL Server can normally be identified before they become a problem, but other issues can appear without warning. Always configure your network properly to avoid fundamental communications issues between client and server machines that may appear to be SQL Server problems. If an issue is occurring at one client machine, test another to verify consistency.

Network Configuration

When connecting the client to the server, employ the TCP/IP Sockets SQL net-lib over the TCP/IP protocol. Other SQL network libraries are supported for communications, but this mechanism tends to be the most reliable. Another tip is to specify the IP address of the server instead of the server name in ODBC or the SQL Client Network Utility. This provides for a quicker and more reliable connection since a naming service does not have to resolve the IP address for you; however, you should make sure your SQL Servers IP address remains fixed and is not using Dynamic Host Configuration Protocol (DHCP).

You should also verify that the server and client network settings and IP addresses are properly configured. For example, the following would be an incorrect configuration:

Server IP address: 10.1.3.5	subnet mask: 255.255.255.0	gateway: 10.1.9.7
Client IP address: 10.1.4.6	subnet mask: 255.255.0.0	gateway: 10.1.9.7

In this case, server communication to the client would be routed through the gateway and would therefore be much slower. The subnet mask of the server could be set to 255.255.0.0 to correct the problem, or the subnet masks should be adjusted to a common setting to accommodate the network requirements.

If network problems seem to be occurring, have a network engineer verify that the network collisions and packet loss are not excessive. Poor performance can be attributed to a lack of network capacity, or a problem with the physical network itself such as hubs, network cards, routers, wiring, and patch cables.

SQL Server Tuning with Performance Monitor

Performance Monitor can be used for troubleshooting SQL Server issues. Observe fundamental SQL Server performance by monitoring the following counters in Performance Monitor. Set the

update seconds to a lower value to monitor the short-term transactions more accurately. The following sections are possible settings and counters:

Processor - % Processor Time - Each Processor or _Total

The percentage of time the processors are peaked or near peak represents slow performance for your users during those periods. If these conditions occur frequently, it may be indicative of server configuration issues (non-dedicated), insufficient processor or memory resources, improper indexing, or even application code bottlenecks.

SQL Server: Cache Manager - Cache Hit Ratio - Prepared SQL Plans, Procedure Plans, Adhoc SQL Plans

This setting generally indicates whether or not you have enough memory dedicated to SQL Server. The counter results should consistently exceed 70 percent, with most at or above 90 percent. If results are significantly lower than this, you either do not have enough server memory or you do not have enough of the physical memory dedicated to SQL Server. The cache is extremely important to overall system performance because retrieving objects from memory is much faster than having to access the disk drive to find them. Insufficient memory can result in more disk activity and increase disk queuing. Be sure to set your scale to 1.0.

Paging File - % Usage Peak - _Total

A peak amount of paging file usage above 10 percent generally indicates more memory is needed. An increase in this number normally corresponds to a decrease in the cache hit ratio.

PhysicalDisk - % Disk Time_Total

A high percentage of disk time can indicate slow drives or a poor or poorly configured array that is inadequate for the workload, too little memory on the server, non-dedicated server configuration, inadequate disk space, severely fragmented files, better workload distribution required (separate arrays/drives for data, logs and tempdb), table scans resulting from insufficient index tuning, and application code bottlenecks.

Additional Counters

The following counters can also be monitored to specifically observe disk performance. The diskperf -y command must be run at a command prompt and the server rebooted before adding these counters.

PhysicalDisk - Current Disk Queue Length

A high disk queue length usually indicates a bottleneck at the disks or arrays. Set your counter scale to 1.0 for better readability. You would typically tune indexes, then abstract databases, tables, indexes, or other objects to resolve the problem.

PhysicalDisk - Disk Write Bytes/Sec, Disk Read Bytes/Sec

Monitor these counters to help determine if a disk or array bottleneck is occurring in read or write operations. For example, brief reads and slow writes are usually indicative of a busy RAID array.

You would typically tune indexes, then abstract databases, tables, indexes, or other objects to resolve the problem.

Note: The following two reporting tools can assist in troubleshooting performance issues:

- **SQL Server 2005 Standard Reporting** can help identify performance problems. For more information please review SQL Server 2005 BOL(Books online) or Microsoft support website (www.support.microsoft.com).

- **Dynamic management views and functions** (dmv, dmf) returns information about the state of SQL Server. If you have SQL Server 2005 installed, see BOL (Books online) at ms-help://MS.SQLCC.v9/MS.SQLSVR.v9.en/tsqlref9/html/cf893ecb-0bf6-4cbf-ac00-8a1099e405b1.htm

Database Index Tuning with SQL Profiler

Sage MAS 500 is shipped with indexes that accommodate general usage of the application. Because indexes add overhead and can actually impede performance, the indexes included may not meet the needs of how all customers use the application. This is where SQL Profiler can be used by a Database Administrator to diagnose code or index bottlenecks. This can include determination of when to add new indexes or tune existing indexes, as well as identifying possible logic changes that could be made to the code to improve performance under specific usage scenarios.

You can use SQL Profiler to record the query activity against SQL Server for specific processes; the recorded activity can then be examined. Generally, high read rates for any single query indicate an area that needs to be reviewed more closely for possible index tuning or changes.

Additional Troubleshooting Information

Sage Software continually strives to increase the performance of Sage MAS 500 with each release. Upgrading to the latest version of Sage MAS 500 can provide increases in performance. Also, consider upgrading the server and client operating systems and SQL Server to the latest version supported by Sage Software.

Use common application deployment logic. Do not install the Sage MAS 500 client on a compressed drive or in a compressed folder. Test to ensure enough network bandwidth is available to run the client from remote locations.

When publishing a site using Internet Applications, take security precautions to prevent unauthorized users from accessing your critical data or breaking into your network. Establish a DMZ around your Web servers and configure your firewalls and routers accordingly.

Review how task security works within Sage MAS 500 to establish a secure SQL and application environment. Using Windows Authentication and the Sage MAS 500 Application Role, along with a properly managed SQL Server, will ensure the security of your data. In this configuration, users can access application data only through the Sage MAS 500 interface.

Additional Resources

SQL Server Articles

SQL Server tuning guides can help you properly configure or plan for your SQL Server implementation. The SQL Server 2000 tuning guide can be purchased from Microsoft at: http://www.microsoft.com/mspress/books/4944.asp

Articles and sites of interest to review on Microsoft's Web site are:

- SQL Server 2000 Administration
- SQL Server 2000 Operations Guide
- SQL Server 2000 Resources
- When to upgrade MSDE to SQL Server Standard
- Disaster Recovery options for Microsoft SQL Server
- How to troubleshoot connectivity issues in SQL Server 2000
- How to Troubleshoot Orphaned Connections in SQL Server
- Troubleshoot Application Performance Issues
- High Rate of Collisions on 100-MB Networks
- SQL Server Technical Bulletin - The Index Tuning Wizard
- How To Create and Configure Performance Monitor Alerts in Windows Server 2003

Tools and Utilities

- Server Performance Advisor - Windows Server 2003

Security

- Securing Your Database Server
- Security Best Practices Checklist

Storage and RAID

- RAID Levels and SQL Server (Microsoft)
- Performance Management Guide (IBM)
- SQL Server 2000 I/O Configuration in a SAN/NAS Environment (SQL-Server-Performance.com)

Microsoft Webcasts and Presentations

Microsoft also conducts Webcasts to present different SQL Server subjects to a large audience. Here are a few:

- Using SQL Profiler
- Effective Indexing
- Analyzing Performance
- Microsoft Data Engine: Deploying and Troubleshooting MSDE 2.0
- SQL Server 2000 Performance

Cheat Sheets

Platform Updates	Windows 2000 Server	Windows Server 2003	SQL Server 2000	SQL Server 2005	Windows 2000 Professional	Windows XP Professional
Service Pack	**SP 4**	**SP 2**	**SP 4**	**SP 2**	**SP 4**	**SP 2**

Dev Tools	Visual Studio Enterprise Edition	Farpoint Spreadsheet Control	Crystal Reports® for Sage	ERwin (optional)	RoboHelp Office (optional)	GigaSoft Scheduleboard (optional)
Version	**6.0**	**7.0.33**	**10.0.5.820**	**3.5.2**	**X5**	**3.0.0.2**
Update	**SP 6**			**SP 3**		