

# System Requirements

## The SAS<sup>®</sup> System Release 8.2 (TS2M0) Windows<sup>®</sup>, Windows NT<sup>®</sup>, Windows<sup>®</sup> 2000, and Windows XP<sup>®</sup>

This document provides requirements for installing and running the SAS System for Windows, Windows NT, and Windows 2000. You must update your system to meet the minimum requirements before running the SAS System. The major requirements listed in the document are:

- Software Requirements
- Hardware Requirements
- Additional Features
- Space Requirements
- Specific Product Requirements
- Graphics Hardware and Software Compatibility

For additional information and to view the latest system requirements for your system, access the following Web site:

<http://www.sas.com/newversion>

or contact SAS Institute Technical Support (refer to Chapter 4, "Technical Support Services" in the Installation Instructions included in your package).

## Software Requirements

### Operating System

#### ***Windows 2000:***

Release 8.2 (TS2M0) of the SAS System is supported on Windows 2000 Professional and all Windows 2000 Server Editions. Administrator privilege is required to install various system updates. To insure that the SAS System can be completely and safely installed, it is strongly recommended that the installer have administrator privilege.

#### ***Windows NT and Windows NT Server:***

Running Release 8.2 (TS2M0) of the SAS System under Windows NT requires Windows NT, Version 4.0 updated with Service Pack 4 or higher (excluding Service Pack 6, but including Service Pack 6a or higher), plus additional Year 2000 software updates as provided by Microsoft. Administrator privilege is required to install various system updates. To insure that the SAS System can be completely and safely installed, it is strongly recommended that the installer have administrator privilege.

### ***Windows:***

Release 8.2 (TS2M0) of the SAS System is supported on Microsoft Windows 95, Microsoft Windows 98, and Microsoft Windows Me operating systems. Windows 95 must be updated with additional Year 2000 software updates as provided by Microsoft. Windows 98 must be updated *with* Service Pack 1 or *to* Windows 98, Second Edition.

### ***Windows XP (Desktop)***

Release 8.2 (TS2M0) of the SAS System is compatible with Windows XP at the release date (10/25/01). Windows XP Professional is the most full-featured edition of the Windows XP desktop family and provides higher levels of performance, productivity, and security. Release 8.2 (TS2M0) of the SAS System only supports the 32-bit version of Windows XP.

### ***File System Recommendations:***

- The use of file systems supporting long filenames is required.
- For Windows NT, NTFS is recommended.

### ***Network Installations:***

Long filename support is required on any Windows NT Server, Windows 2000 Server, or Novell Server where a server installation is performed.

## **Online Help Browser**

To view the online help within the SAS System, either Internet Explorer, Version 4.01 or Netscape Navigator, Version 4.73 is required. Later versions of either of these Web browsers should also be usable. However, Netscape Navigator, Version 6 has not been tested with the online help within the SAS System. SAS Setup will prompt the user to install Internet Explorer, Version 5 if it is not already installed. It is recommended that Internet Explorer, Version 5 be installed because this will update certain Microsoft system files and greatly reduce the number of reboots required during the installation of the SAS System.

# **Hardware Requirements**

## **Machines Supported**

- Intel or Intel-compatible Pentium class processor (minimum required)

### ***Floating Point Unit or Math Coprocessor:***

A floating point unit or math coprocessor is assumed to be present in the PC. The SAS System is optimized for its presence. Microsoft Windows provides floating point emulation software with decreased performance in the absence of a floating point unit or math coprocessor.

## **Memory Requirements**

### ***Windows, Windows NT, and Windows 2000 Professional:***

- 64 MB minimum or more for improved performance
- 64 MB minimum of swapfile space

### ***Windows NT Server and Windows 2000 Server Editions:***

- 256 MB minimum
- 256 MB minimum of swapfile space

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## **Monitors Supported**

- XGA
- SVGA

*Note:* It is recommended that screen resolution be at least 800x600.

## **Additional Features**

### **Web Browser**

A Web browser is required to use two features of the SAS System. This Web browser must be Internet Explorer, Version 5 or Netscape Navigator, Version 4.73 or later. However, Netscape Navigator, Version 6 has not been tested with the SAS System. The use of Internet Explorer is strongly recommended.

1. Output is rendered as HTML pages using the Version 8 Output Delivery System (ODS). Any Web browser can be used for basic viewing, but if Internet Explorer, Version 5 (or higher) is used, ODS output can be viewed in an integrated browser window that functions as part of the SAS System. Other browsers can be used to view ODS output in a separate application window.
2. The online help system is HTML-based. The highest level of functionality is available when using Internet Explorer, Version 5 (or higher), which presents help information in the same layout used in Windows 98 and other newer Windows applications. This format is very compact and provides extensive searching capabilities. When using other Web browsers, online help can be viewed as basic HTML documents in a separate Web browser window. To support both types of operation, the SAS System is shipped with two sets of online help files.

Although any Web browser can be used for these two features, the use of Internet Explorer, Version 5 (or higher) enables the most completely functional user interface. For that reason, the use of Release 8.2 of the SAS System with Internet Explorer, Version 5 (or higher) is *strongly recommended*.

For your convenience, an installable version of Internet Explorer, Version 5 is included with Release 8.2 (TS2M0) of the SAS System for Windows, Windows NT, and Windows 2000. If SAS Setup detects that Internet Explorer, Version 5 is not already installed, it will prompt the user to accept its installation. The installation of this Web browser will update certain Microsoft system files that will reduce the number of reboots required during the remainder of the installation of the SAS System. For this reason, we recommend that the installation of Internet Explorer, Version 5 be accepted. Installation of this Web browser will not change the default Web browser settings. It can co-exist with Netscape and other Web browsers that may be on your system.

If you are using an older version of Internet Explorer as your default browser, you will notice a change to your system. In this case, Internet Explorer is upgraded to Version 5.

### **SAS System Viewer**

The SAS System Viewer is an application intended for the Windows environment as a *lightweight viewer* for SAS data files and other simple text-based files. The application lets you view the contents of SAS data files without using the SAS System and without requiring the SAS System to be installed on your machine. You may distribute this application royalty-free in order to give other people the ability to view your SAS data.

The SAS System Viewer lets you view the following types of SAS data sets and SAS catalogs, which can reside on a local or network disk:

- SAS data sets generated by Version 8 of the SAS System for Windows, Windows NT, and Windows 2000.
- SAS data sets generated by any Version 6 release of the SAS System for Windows, OS/2, or DOS. These data sets can be compressed and/or encrypted. If you attempt to access an encrypted data set, the SAS System Viewer prompts you for the read password.
- SAS catalogs created by the SAS System for Windows or OS/2 generated by Release 6.04 through Release 6.12.
- SAS programs (.sas files), output listings (.lst files), logs (.log files), configuration files (.cfg files).
- Files created by SAS Institute's JMP product (.jmp files) that reside on a local or network disk.
- Other simple (ASCII) text-based files.
- HTML pages, such as output rendered by Version 8 of the SAS System.

You can also view cross-platform Version 6 data sets and catalogs (OpenVMS, Macintosh, UNIX, OS/2, Windows, and DOS) that you can access from a disk, file server, or using the HTTP and FTP network protocols.

About 4.8 MB of disk space is required to install the SAS System Viewer.

The SAS System Viewer is included on the installation media. You can run the SAS Setup program from the SAS System Installation CD (\SASVIEW\SV.EXE) or you can install the SAS System Viewer from the install menu of the SAS System core installation.

### **Windows NT and Windows 2000 Performance Monitor and Event Log Support**

Support for Windows NT and Windows 2000 Performance Monitor will allow advanced users and administrators to observe some internal characteristics of the SAS System. This facilitates performance analysis and tuning of the SAS System. Also, support for the Event Log on these operating systems allows the tracking of critical errors in the SAS System and SAS Setup. The user account installing the SAS System must have administrator privileges to install these features, so non-administrators will not get these features by default. They can be added later by invoking `setup.exe` (found under the `sas` folder on the Setup Disk) with the following command lines:

To install the Windows NT and Windows 2000 Performance Monitor and Event Log:

```
setup perfmon
```

To uninstall the Windows NT and Windows 2000 Performance Monitor and Event Log:

```
setup uperfmon
```

### **Dynamic Data Exchange**

Dynamic Data Exchange (DDE) allows for the exchange of data between the SAS System and any other application supporting DDE. The SAS System will act as a client only.

### **Object Linking and Embedding**

Object Linking and Embedding (OLE 2.0) container support is available in SAS/AF software and SAS/EIS software. Container support includes the ability to create embedded/linked objects, script OLE Automation servers, and embed OLE controls. Visual editing and drag-and-drop support are also included.

The SAS System also provides OLE Automation server support. This support is provided in Base SAS software to push commands to the command line of the SAS System and submit procedural code. The OLE Automation server can be driven from other OLE Automation controllers such as Microsoft Visual Basic.

## **Electronic Mail**

Send . . . is provided as a menu item in the File pull-down menu. Send . . . allows electronic mail messages to be initiated from the SAS System. It is also possible to send mail using a data step file access method or SCL via SAS/AF software. The following mail APIs are supported - MAPI and VIM. This requires installation of third party products such as MExchange, MSMail 3.2+, Lotus ccMail 8.1 (32-bit version only), or Lotus Notes 4.0 (32-bit version only) and above. SMTP email server access via MAPI requires an Internet connection.

## **Lotus Notes**

The Lotus Notes access method, NOTESDB, allows populating new documents directly to Lotus Notes from the SAS System. The NotesSQL ODBC driver allows Lotus Notes documents to be accessed from within the SAS System. An installed license of Lotus Notes Desktop is required. The SAS System supports the 32-bit version of Lotus Notes 4.0 or later.

## **System Requirements Wizard**

The System Requirements Wizard is used to ensure that a computer onto which you would like to install the SAS System meets the minimum system requirements. Space requirements will vary depending upon the third-party components and the individual files on your computer that need to be updated. The System Requirements Wizard will inform you of the components that do not meet the minimum system requirements before updating them.

The following table shows which updates the System Requirements Wizard performs on the versions of Windows that are supported.

<b>Update</b>	<b>Windows 95</b>	<b>Windows 98</b>	<b>Windows NT</b>	<b>Windows 2000</b>	<b>Windows Me</b>
Microsoft Shell Folder Service 5.50.4027.300	Yes	Yes	Yes	No	No
Microsoft Internet Explorer 5.0	Yes	Yes	Yes	Yes	No
Microsoft Distributed Component Object Model 1.2	Yes	No	No	No	No
Microsoft Distributed Component Object Model Utility 1.2	Yes	No	No	No	No
Microsoft Custom Controls Library 5.80.2614.3600	Yes	Yes	Yes	No	No
Microsoft HTML Help Control 4.74.8875	Yes	Yes	Yes	No	No
Microsoft Data Access Components (MDAC) 2.5	Yes	Yes	Yes	No	No
Visual C++ Redistributables Bundle	Yes	Yes	Yes	Yes	Yes

The Installation Instructions contains an appendix describing the use and operation of the System Requirements Wizard. For additional information, refer to that appendix.

## SAS Administrator Wizard

The SAS Administrator Wizard is intended for use by the administrators who desire to prepare an installation point on the network from which end users may subsequently install the SAS System. In addition to the space required by the SAS System products, the SAS Administrator Wizard places up to an additional 123 MB of installation-related files at the installation point:

Autorun	2 MB
SAS Setup Files	35 MB
SAS Viewer Setup	5 MB
SAS ODBC Driver Setup	11 MB
SAS Service Configuration Utility Setup	1 MB
System Requirements Wizard	62.4 MB
SAS Administrator Wizard	1.2 MB
Installation Instructions Documentation	5.4 MB

The Installation Instructions contains an appendix describing the use and operation of the SAS Administrator Wizard. For additional information, refer to that appendix.

## SAS Service Configuration Utility

The SAS Service Configuration Utility allows administrators to customize the operation of the SAS System running as a service on a particular computer. It requires only 0.5 MB of space on the computer using the SAS Service Configuration Utility.

The Installation Instructions contains an appendix describing the use and operation of the SAS Service Configuration Utility. For additional information, refer to that appendix.

## Space Requirements

The media you received is customized for your site and contains all of the SAS software products for which you are licensed. The following list contains space requirements in MB for all of the products available with this release of the SAS System for Windows, Windows NT, and Windows 2000. Use this information to help you determine how much free disk space you must have available before you can install the SAS System. Disk space requirements will vary depending upon the blocking factor and compression algorithms that are in use on the installation disk drive. Product disk space values were determined with the HTMLHelp System in use.

<b>Software Product</b>	<b>Disk Space (in MB)</b>
Base SAS Software	0.5
Base SAS Shared Components <sup>1</sup>	13.0
Core of the SAS System (required)	144.0
SAS/ACCESS Interface to Baan Software	0.6
SAS/ACCESS Interface to DB2 Software	0.4
SAS/ACCESS Interface to ODBC Software	0.4
SAS/ACCESS Interface to OLE DB Software	0.3
SAS/ACCESS Interface to ORACLE Software	0.5
SAS/ACCESS Interface to PC File Formats Software	1.2
SAS/ACCESS Interface to PeopleSoft Software	0.5
SAS/ACCESS Interface to R/3 Software	14.0
SAS/ACCESS Interface to SAP BW Software	1.8
SAS/ACCESS Interface to SYBASE Software	0.5
SAS/ACCESS Interface to Teradata Software	0.4
SAS/AF Software	4.0
SAS/ASSIST Software	17.0
SAS/CONNECT Software	2.1
SAS Data Quality – Cleanse	5.6

<b>Software Product</b>	<b>Disk Space (in MB)</b>
SAS/EIS Software	26.0
Enterprise Miner Server Software	100.0
SAS/ETS Software	20.0
SAS/FSP Software	0.5
SAS/Genetics Software	0.6
SAS/GIS Software	52.0
SAS/GIS Census Tract Maps <sup>2</sup>	440.0
SAS/GRAPH Software	29.0
SAS/GRAPH Map Data Sets	103.0
SAS/GRAPH Shared Components <sup>1</sup>	5.0
SAS High-Performance Forecasting Software	0.5
SAS/IML Software	5.0
SAS/INSIGHT Software	10.0
SAS Integration Technologies Software	8.5
SAS/IntrNet Software	3.5
IT Service Vision Server Software	155.0
SAS/LAB Software	6.0
SAS/MDDDB Server Software	12.0
SAS OnlineTutor Software	57.0
SAS/OR Software	28.0
SAS Process Intelligence	29.0
SAS/QC Software	22.0
Risk Dimensions Analyst Edition	505.7
Risk Dimensions Enterprise Edition	584.2
SAS/SECURE 168-bit Software	0.5
SAS/SHARE Software	35.0
SAS/SPECTRAVIEW Software	13.0
SAS/STAT Software	29.0
SAS Text Miner	250.0
SAS/TOOLKIT Software	8.0
SAS/Warehouse Administrator Software	17.0
WebHound Software	18.0
Simple HTML Help	110.0
Microsoft's Internet Explorer	23.0

#### **Notes about the Space Requirements Table**

1. Base SAS Shared Components and SAS/GRAPH Shared Components are specific components shipped with the SAS System for Windows, Windows NT, and Windows 2000. The components are intended to be shared with an installation of Enterprise Guide software on the same machine. The Shared Components installation location is selectable the first time shared components are installed and is fixed for all subsequent installations of shared components. It is typically under C:\Program Files.
2. SAS/GIS Census Tract Maps are installed from a separate CD-ROM.

#### **SAS/IntrNet Software Components**

<b>Software Component</b>	<b>Required Disk Space in MB</b>
CGI Tools for Web Server	4.3
Design-Time Controls	2.5
Java Tools	1.8
MetaSpace Explorer	10.5
Connection Wizard	7.8

<b>Total</b>	<b>26.9</b>
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## **DBCS Support**

The following list contains space requirements in MB for SAS System components that offer DBCS support.

<b>Software Product</b>	<b>Disk Space (in MB)<sup>1</sup></b>
DBCS Support	
Core of the SAS System DBCS Support Files	20.1
SAS/AF DBCS Support Files	0.2
SAS/CONNECT DBCS Support Files	0.3
SAS/ACCESS Interface to DB2 DBCS Support Files	0.2
SAS/EIS DBCS Support Files	0.1
SAS/FSP DBCS Support Files	0.2
SAS/GRAPH DBCS Support Files	1.9
Help Files for Systems without Internet Explorer	1.6
SAS/INSIGHT DBCS Support Files	2.5
SAS/IntrNet DBCS Support Files	1.6
SAS Integration Technologies DBCS Support Files	0.1
SAS/LAB DBCS Support Files	0.7
SAS/MDDB Server DBCS Support Files	42.1
SAS/ACCESS Interface to ODBC DBCS Support Files	0.2
SAS/ACCESS Interface to OLE DB DBCS Support Files	0.1
SAS/ACCESS Interface to ORACLE DBCS Support Files	0.2
SAS/ACCESS Interface to PC File Formats DBCS Support Files	1.0
SAS/QC DBCS Support Files	0.3
SAS/SHARE DBCS Support Files	0.1
SAS/STAT DBCS Support Files	0.5
SAS/ACCESS Interface to SYBASE DBCS Support Files	0.2
SAS/ACCESS Interface to Teradata DBCS Support Files	0.1
SAS/Warehouse Administrator DBCS Support Files	0.4
<b>Total</b>	<b>74.7</b>

## **Asian Language Support**

The following list contains space requirements in MB for SAS System components that support various Asian Languages.

<b>Japanese Support</b>	<b>Disk Space (in MB)<sup>1</sup></b>
Core of the SAS System Japanese Support Files	47.9
SAS/AF Japanese Support Files	0.1
SAS/ASSIST Japanese Support Files	12.5
SAS/EIS Japanese Support Files	12.1
Enterprise Miner Japanese Support Files	28.3
SAS/GRAPH Japanese Support Files	10.6
Maps of Japan	0.7
SAS/INSIGHT Japanese Support Files	0.2
SAS/IntrNet Japanese Support Files	0.2
SAS/ACCESS Interface to PC Files Formats Japanese Support Files	0.1
SAS/MDDB Server Japanese Support Files	0.1
SAS/Warehouse Administrator Japanese Support Files	10.3
WebHound Japanese Support Files	6.3
Sample Files Japanese Support	0.2
<b>Total</b>	<b>130.6</b>

<b>Korean Support</b>	<b>Disk Space (in MB)<sup>1</sup></b>
Core of the SAS System Korean Support Files	12.2
SAS/AF Korean Support Files	0.1
SAS/ASSIST Korean Support Files	0.6
Enterprise Miner Korean Support Files	1.6
SAS/EIS Korean Support Files	0.2
SAS/ETS Korean Support Files	0.3
SAS/GRAPH Korean Support Files	0.7
SAS/INSIGHT Korean Support Files	0.2
SAS/LAB Korean Support Files	0.1
SAS/MDDDB Server Korean Support Files <sup>2</sup>	0.1
SAS/OR Korean Support Files	0.1
SAS/QC Korean Support Files	0.3
SAS/STAT Korean Support Files	0.2
SAS/Warehouse Administrator Korean Support Files	0.7
<b>Total</b>	<b>18.4</b>

<b>Simplified Chinese Support</b>	<b>Disk Space (in MB)<sup>1</sup></b>
Core of the SAS System Simplified Chinese Support Files	12.5
SAS/AF Simplified Chinese Support Files	0.1
SAS/ASSIST Simplified Chinese Support Files	0.5
Enterprise Miner Simplified Chinese Support Files	1.3
SAS/EIS Simplified Chinese Support Files	0.2
SAS/ETS Simplified Chinese Support Files	0.3
SAS/GRAPH Simplified Chinese Support Files	6.5
SAS/INSIGHT Simplified Chinese Support Files	0.1
SAS/IntrNet Simplified Chinese Support Files	0.2
SAS/LAB Simplified Chinese Support Files	0.1
SAS/MDDDB Server Simplified Chinese Support Files <sup>2</sup>	0.1
SAS/OR Simplified Chinese Support Files	0.1
SAS/QC Simplified Chinese Support Files	0.2
SAS/STAT Simplified Chinese Support Files	0.2
SAS/Warehouse Administrator Simplified Chinese Support Files	0.7
<b>Total</b>	<b>24.1</b>

<b>Traditional Chinese Support</b>	<b>Disk Space (in MB)<sup>1</sup></b>
Core of the SAS System Traditional Chinese Support Files	1.8
SAS/GRAPH Traditional Chinese Support Files	67.2
<b>Total</b>	<b>70.0</b>

#### Notes about the DBCS Support and Asian Language Support Tables

1. The actual disk space size has been rounded to the nearest tenth. Thus, the values will differ slightly from the ones shown by the installer.
2. Under Korean and Simplified Chinese Support, the installer incorrectly displays SAS/MDDDB Server as sample. Even though the sub-component is incorrectly identified, if selected, the SAS/MDDDB Server Korean and Simplified Chinese Support Files install correctly.

## Using Asian Languages in a non-Asian Language Environment

Depending on the version of Microsoft Windows you are using (Windows 98, Windows NT, Windows 2000, etc), you may experience problems displaying Asian languages on an English operating system.

- Windows 2000/Windows 2000 Server

Windows 2000 offers the most flexibility in supporting multiple languages. During the installation of Windows 2000, you will be asked what languages you want to support. Select the appropriate ones and continue your installation. The necessary components, packages, and Input Method Editors (IMEs) will be installed for you. At the time when you need another language, Windows 2000 should recognize that fact and proceed correctly. If you need to install software that utilizes an installation program not written in English, it may be necessary to change the default code page to that language. This can be done from the **Control Panel** under **Locale Settings**.

- Windows NT/Windows NT Server

Windows NT offers many of the features in Windows 2000, although they are not as robust. To effectively display an Asian language (for example, Japanese) from Internet Explorer, Version 5.01 or higher, select **Windows Update** from the **Tools** menu. After that page has successfully loaded, choose the various items that you want for your chosen language. Japanese, for example, will need the Japanese Input Method Editor, as well as the Japanese Language Pack. Both of these items will aid you in displaying Japanese on your English operating system and will install the proper fonts that you may need.

- Windows 95/Windows 98/Windows Me

The same procedure for Windows NT is recommended for Windows 95, Windows 98, and Windows Me. However, due to the fact that Windows 2000 and Windows NT fully utilize Unicode, and Windows 95, Windows 98, and Windows Me do not, other languages do not display properly on an English operating system.

## European Languages Support

The following list contains space requirements in MB for SAS System components that support various European Languages.

<b>European Languages Support</b>	<b>Disk Space (in MB)<sup>1</sup></b>
Czech	28.0
French	65.0
German	265.0
Italian	265.0
Polish	62.0
Spanish	30.0

# Specific Product Requirements

## SAS/ACCESS Interface to Baan Software

### Products Required:

- Base SAS software
- SAS/ACCESS Interface to Baan software

Additional functionality is obtained if the following product is installed:

- SAS/Warehouse Administrator software

### DBMS Products Required:

One of the following Baan releases is required:

- Baan IV
- BaanERP

SAS/ACCESS Interface to Baan software requires the Exchange Module from Baan Utilities.

## SAS/ACCESS Interface to DB2 Software

### Products Required:

- Base SAS software
- SAS/ACCESS Interface to DB2 software

### DBMS Products Required:

One of the following releases of IBM's Client Application Enabler software is required:

- IBM DB2 Universal Database Client Application Enabler, Version 5 or later
- IBM DB2 Connect Enterprise Edition, Version 5 or later for connections via DRDA

**Note:** If you are running SAS/ACCESS Interface to DB2 software under Windows 98, please use the IBM DB2 Universal Database Client Application Enabler, Version 5.2 or later.

Before using SAS/ACCESS Interface to DB2 software, you must install the appropriate IBM DB2 Client Application Enabler to allow your PC to connect to a DB2 server. Contact your database administrator for assistance with the Client Application Enabler's Client Setup utility.

For more information about SAS/ACCESS Interface to DB2 software, please see the DB2 chapter in **SAS/ACCESS Software for Relational Databases: Reference**.

## SAS/ACCESS Interface to ODBC Software

### Products Required:

- Base SAS software
- SAS/ACCESS Interface to ODBC software

### DBMS Products Required:

- A 32-bit ODBC driver for the data source from which you want to access data
- Microsoft Data Access Components (MDAC), Version 2.5 GA or higher

Before you can use SAS/ACCESS Interface to ODBC software, a 32-bit ODBC driver for the data source from which you want to access data is required. ODBC drivers are often available from DBMS vendors and other third party ODBC driver developers. The ODBC driver you choose may require additional DBMS software for network access. All required network software supplied by your database system vendor must be 32-bit-compliant.

In order to read SAS System Version 6 views that were created with the discontinued SAS/ACCESS Interface to AS/400 software on OS/2, an ODBC Conversion Utility is provided to help users migrate to SAS/ACCESS Interface to ODBC software on Windows. Before you can use the ODBC Conversion Utilities, you need to install the Client Access ODBC Driver (32-bit), Version 3.00.0004 or above from IBM. If your AS/400 Client Access installation loaded a Client Access ODBC Driver prior to this version, you can download Program Temporary Fix (PTF) SF59504 or later from [ftp.software.ibm.com](ftp://ftp.software.ibm.com) for an update. The service packs for the Client Access product can be found in the `/as400/products/clientaccess/win32/v3r1m3/servicepack` directory. When this update is installed, Version 3.00.0004 or later of the Client Access ODBC Driver should be installed. For Version 4.00, service packs for the Client Access product can be found in the `/as400/products/clientaccess/win32/v4r4m01/servicepack` directory.

In order to read SAS System Version 6 views to access data in Microsoft SQL Server that were created with SAS/ACCESS Interface to SYBASE and SQL Server software on Windows, an ODBC Conversion Utility is provided to help users migrate to SAS/ACCESS Interface to ODBC software on Windows. (Note: The Conversion Utility only applies to views that access data in Microsoft SQL Server and does not apply to SYBASE SQL Server.) The ODBC Conversion Utilities require the Microsoft SQL Server ODBC driver (32-bit) from Microsoft. This driver is installed as part of Microsoft Data Access Components (MDAC).

**Note:** The SAS System will automatically install Microsoft Data Access Components (MDAC) when you install SAS/ACCESS Interface to ODBC software.

Please see the **Installation Instructions for Release 8.2 (TS2M0) of the SAS System for Microsoft Windows** for the details of installation.

**Note:** SAS/ACCESS Interface to ODBC software has been tested using the MERANT DataDirect Connect ODBC driver and the DataDirect SequeLink ODBC driver.

**Note:** In order to use SAS/ACCESS Interface to ODBC software to access data on a Sybase Adaptive Server IQ (ASIQ), Release 12.x database, certain restrictions and setup information is required. ASIQ, Release 12.x supports ODBC, Release 3.x, so a certified ODBC driver manager is required. You must also do a full install of ASIQ, Release 12.x on the client machine (Sybase does not have a client install yet). Limitations with using SAS/ACCESS Interface to ODBC software and ASIQ, Release 12.x are that with ASIQ, Release 12.1, you cannot update data at all (for example, a `DATA step modify`, `PROC SQL LIBNAME update`, `SCL` code doing updates, or even a simple Pass-Through Update statement will not work). With ASIQ, Release 12.4.1, GA, the `PROC SQL Pass-Through Facility` will work using the `EXECUTE (UPDATE . . .)` statement. However, updating using a cursor, which is what is used with `DATA step modify` and `PROC SQL LIBNAME update`, is not scheduled to be supported by the Sybase ODBC driver. Also, ASIQ does not support bulk loading, so we recommend using the `DBISQL load` statement to load data from an external sequential file.

The following modification to the Windows registry file is also required:

Modify each of the ASIQ 32 bit ODBC DSN connection definitions, adding 'AutoPreCommit=Y'.  
Make the modifications within the registry for 32 bit definitions as follows:

Manually add the 'AutoPreCommit=Y' parameter to your ODBC definitions as follows:  
32 bit definitions:

Modify the User DSN connection definition directly within the Windows Registry. Load the Registry (regedit), and select the following folders:  
HKEY\_CURRENT\_USER => SOFTWARE => ODBC => ODBC.INI => <dsn name>

From the menu bar, select Edit => New => String Value. Define the "Value Name" as AutoPreCommit and select "OK". Double-click on AutoPreCommit and enter Y for the Value Data within the String Editor box and select "OK".

If your data source is a System DSN, modify the connection definition directly within the Windows Registry by doing the following.

Load the Registry (regedit), and select the following folders:  
HKEY\_LOCAL\_MACHINE => SOFTWARE => ODBC => ODBC.INI => <dsn name>

From the menu bar, select Edit => New => String Value. Define the "Value Name" as AutoPreCommit and select "OK". Double-click on AutoPreCommit and enter Y for the Value Data within the String Editor box and select "OK".

## **SAS/ACCESS Interface to OLE DB Software**

### **Products Required:**

- Base SAS software
- SAS/ACCESS Interface to OLE DB software

### **DBMS Products Required:**

- An OLE DB data source provider
- Microsoft Data Access Components (MDAC), Version 2.5 GA or higher

Before you can use SAS/ACCESS Interface to OLE DB software, an OLE DB provider for the data source from which you want to access data is required. OLE DB providers are often available from DBMS vendors and other third party software vendors. The OLE DB provider you choose may require additional DBMS software for network access. All required network software supplied by your database system vendor must be 32-bit-compliant.

**Note:** The SAS System will automatically install Microsoft Data Access Components (MDAC) when you install SAS/ACCESS Interface to OLE DB software.

## **SAS/ACCESS Interface to ORACLE Software**

**Note:** Currently, SAS/ACCESS Interface to ORACLE software is not supported on Windows Me. As of this release - SAS System, Release 8.2 (TS2M0) - no Oracle clients were available for Windows Me.

### **Products Required:**

- Base SAS software
- SAS/ACCESS Interface to ORACLE software

### **DBMS Products Required:**

- Oracle Client, either:
  - Oracle8i Client, Version 8.1.5.0 or later
  - Oracle8 Client, Version 8.0.5.0.0 or later
  - Oracle7 Client, Version 7.3.4.0 or later

If you are using Oracle Client, Version 7.3.4, you need to install:

- Oracle SQL\*Net Client, Version 2.3 for Windows NT and Windows 95
- Oracle Protocol Adapter, Version 2.3 for Windows NT and Windows 95

If you are using Oracle Client, Version 8.x, you need to install:

- Oracle Net8 Client for Windows NT and Windows 95\98
- Oracle Protocol Adapter, Version 8.x for Windows NT and Windows 95\98

You need to install SAS/ACCESS Interface to ORACLE software and Oracle SQL\*Net Client, Version 2.3 or Oracle Net8 Client on the same client workstation. SAS/ACCESS Interface to ORACLE software only supports Oracle Client, Version 7.3.4 or above. However, it can connect to any version of an Oracle database with the SQL\*Net, Version 2 listener running on the server.

**Note:** In order to use the Bulk Load feature of this SAS product, you must have Oracle's SQL\*Loader data-loading utility installed on your PC. This utility can be obtained by running the Oracle Installer and selecting the Oracle Utilities product. Please refer to your Oracle documentation for information on SQL\*Loader.

## **SAS/ACCESS Interface to PC File Formats Software**

### **Products Required:**

- Base SAS software
- SAS/ACCESS Interface to PC File Formats software

### **DBMS Products Required:**

- Microsoft Data Access Components (MDAC), Version 2.5 GA or higher

**Note:** The SAS System will automatically install Microsoft Data Access Components (MDAC) when you install SAS/ACCESS Interface to PC File Formats software.

## **SAS/ACCESS Interface to PeopleSoft Software**

### **Products Required:**

- Base SAS software
- SAS/ACCESS Interface to PeopleSoft software
- PeopleSoft Software, Version 7.5 or higher

### **DBMS Products Required:**

SAS/ACCESS Interface to PeopleSoft software requires another SAS/ACCESS product to access the underlying PeopleSoft database. The following products are currently supported:

- SAS/ACCESS Interface to ORACLE software
- SAS/ACCESS Interface to ODBC software
- SAS/ACCESS Interface to OLE DB software

Please see the specific product requirements for each of these products.

## **SAS/ACCESS Interface to R/3 Software**

### **Products Required:**

- Base SAS software
- SAS/ACCESS Interface to R/3 software

Additional functionality is obtained if the following products are installed:

- SAS/Warehouse Administrator software
- SAS/CONNECT software
- SAS/SHARE software

SAS/ACCESS Interface to R/3 software requires the use of communication protocols such as TCP/IP to function properly.

### **SAP R/3 Products Required:**

- SAP R/3, Release 2.2 or higher
- SAP R/3 Remote Function Call Software Development Kit (RFCSDK)

## SAS/ACCESS Interface to SAP BW Software

### Products Required:

- Base SAS software
- SAS/ACCESS Interface to R/3 software
- SAS/ACCESS Interface to SAP BW Software

Additional functionality is obtained if the following products are installed:

- SAS/EIS software, *and*
- SAS/MDDDB Server software, *or just*
- SAS OLAP Server Package

### SAP BW Products Required:

- SAP BW, Release 2.0B

## SAS/ACCESS Interface to SYBASE Software

### Products Required:

- Base SAS software
- SAS/ACCESS Interface to SYBASE software

### DBMS Products Required:

One of the following releases of SYBASE Open Client software is required:

- SYBASE, Open Client, Release 11.1 or later
- SYBASE, Open Client, Release 12.0
- Adaptive Server Enterprise, Release 11.x or higher is recommended.

**Note:** SYBASE, Open Client, Release 11.1 requires patch ebf8550 or higher.

**Note:** Sybase ASIQ, Release 12.x is not supported; SAS/ACCESS Interface to ODBC software must be used instead.

For more information about SAS/ACCESS Interface to SYBASE software, refer to **SAS/ACCESS Software for Relational Databases: Reference**.

**Note:** If you want to access Microsoft SQL Server data, you will need to use SAS/ACCESS Interface to ODBC software. Refer to the following appendix, "Installing SAS/ACCESS Interface to ODBC Software" in the **Installation Instructions for Release 8.2 (TS2M0) of the SAS System for Microsoft Windows** for more information.

## SAS/ACCESS Interface to Teradata Software

### Products Required:

- Base SAS software
- SAS/ACCESS Interface to Teradata software

### **DBMS Products Required:**

- Teradata, Version 2, Release 2 (V2R2) or higher of the Teradata DBS Server
- Teradata Utilities Foundation (TUF) Windows software

**Important Note:** Teradata efix DR47606 must be applied for TUF releases prior to Version 6.0.

Before using SAS/ACCESS Interface to Teradata software, you should verify connectivity by logging into your Teradata account with the Teradata BTEQ utility. SAS/ACCESS Interface to Teradata software requires that the DR47606 efix be installed on your machine if the TUF release is prior to Version 6.0. For more information about SAS/ACCESS Interface to Teradata software, please see the Teradata chapter in **SAS/ACCESS Software for Relational Databases: Reference**.

### **SAS/AF Software**

#### **Products Required for Build Mode:**

- Base SAS software
- SAS/AF software
- SAS/GRAPH software (to create and display some graphics objects)
- Other products may be required depending on the application

#### **Products Required for Run Mode:**

- Base SAS software
- SAS/GRAPH software (to display some graphics objects)
- Other products may be required depending on the application

#### **Printers:**

- A color or gray scale printer is required for printing graphics-based objects.
- Certain non-graphic objects may require SAS/GRAPH software to print depending on the object.

### **Video Player Object in SAS/AF Software**

#### **Hardware:**

- SoundBlaster-compatible audio board
- External speakers
- MCI Microsoft Video for Windows driver
- MCI-compliant MPEG boards are supported
- Minimum of 256 colors
  - Video board supporting true color mode (65K or 16.7 MB colors) recommended

## **Base SAS Software**

### **Video Player in Base SAS Software**

A Video Player utility is included with Base SAS software. This allows users to play video clips on their workstations. The Video Player Object (Class) is actually part of SAS/AF software.

#### **Hardware:**

- SoundBlaster-compatible audio board
- External speakers
- MCI Microsoft Video for Windows driver
- MCI-compliant MPEG boards are supported
- Minimum of 256 colors
  - Video board supporting true color mode (65K or 16.7 MB colors) recommended

## **SAS/CONNECT Software**

*Windows 95 and Windows 98:*

#### **APPC Access Method:**

With the APPC access method, a Windows user is provided access to an SNA network. SAS/CONNECT software uses the Microsoft Windows Open Services Architecture (WOSA) standard (WinAPPC). Therefore, you should be able to use software from any vendor that supports this standard. One of the following software packages is required:

- Microsoft's SNA Server, Version 2.11 SP1 (Service Pack 1) or subsequent versions
- IBM's Personal Communications, Version 4.11 or subsequent versions
- Any program that supports WOSA (Windows Open Services Architecture) APPC (WinAPPC) standard

#### **DECnet Access Method:**

The DECnet access method requires the following software:

- Compaq's Pathworks, Version 32 with Microsoft's Winsock, Version 2.0

#### **EHLAPI Access Method:**

The EHLAPI access method requires one of the following emulation packages:

- Wall Data's Rumba 2000, Version 6 or subsequent versions
- Attachmate's EXTRA Personal Client, Version 6.1 or subsequent versions
- Exceed, Version 6.1 or subsequent versions
- IBM's PCOMM (Personal Communications), Version 4.1 or subsequent versions
- Any Windows 95 32-bit emulation program that supports the EHLAPI or WinHLLAPI standards

#### **NetBIOS Access Method:**

For the NetBIOS access method, SAS/CONNECT software supports the NetBIOS protocol that is included with Windows 95 and Windows 98.

#### **TCP/IP Access Method:**

For the TCP/IP access method, SAS/CONNECT software supports Microsoft's TCP/IP System Driver, which is provided with Windows 95 and Windows 98.

*Release 8.2 (TS2M0), Windows, Windows NT, Windows 2000, Windows XP*

*May 28, 2002*

*Windows NT:*

#### **APPC Access Method:**

With the APPC access method, a Windows user is provided access to an SNA network. SAS/CONNECT software uses the Microsoft Windows Open Services Architecture (WOSA) standard (WinAPPC). Therefore, you should be able to use software from any vendor that supports this standard. One of the following software packages is required:

- Microsoft's SNA Server, Version 2.11 SP1 (Service Pack 1) or subsequent versions
- IBM's Personal Communications, Version 4.11 or subsequent versions
- IBM's Communication Server/NT, Version 5.0 or subsequent versions
- Any program that supports WOSA (Windows Open Services Architecture) APPC (WinAPPC) standard

#### **DECnet Access Method:**

If you have Windows, Version 4.0 installed, the DECnet access method requires:

- Compaq's Pathworks 32, Version 4.1B or subsequent version

#### **EHLLAPI Access Method:**

The EHLLAPI access method requires one of the following emulation packages:

- Wall Data's Rumba 2000, Version 6 or subsequent versions
- Attachmate's EXTRA Personal Client, Version 6.1 or subsequent versions
- Exceed, Version 6.1 or subsequent versions
- IBM's PCOMM (Personal Communications), Version 4.1 or subsequent versions
- Any Windows NT 32-bit emulation program that supports the EHLLAPI or WinHLLAPI standards

#### **NetBIOS Access Method:**

For the NetBIOS access method, SAS/CONNECT software supports the NetBIOS protocol that is included with Windows NT.

#### **TCP/IP Access Method:**

For the TCP/IP access method, SAS/CONNECT software supports Microsoft's TCP/IP System Driver, which is provided with Windows NT.

### **SAS/EIS Software**

#### **Products Required for Build Mode:**

- Base SAS software
- SAS/AF software
- SAS/EIS software
- SAS/FSP software
- SAS/GRAPH software
- Other products may be required depending on the application

### **Products Required for Run Mode:**

- Base SAS software
- SAS/GRAPH software
- SAS/EIS software
- Other products may be required depending on the application

### **Memory:**

- 64 MB required
- 96 MB recommended

## **SAS Enterprise Marketing Automation Solution**

### **Products Required for SAS Enterprise Marketing Automation Data Server:**

- Base SAS software
- SAS/ACCESS software of choice
- SAS Enterprise Marketing Automation Data Server Solution, which contains necessary elements of the following:
  - SAS/AF software
  - SAS/CONNECT software
  - SAS/EIS software
  - SAS/GRAPH software
  - SAS Integration Technologies software
  - SAS/IntrNet software
  - SAS/MDDB Server software
  - SAS/SHARE software

### **Disk Space Required for SAS Enterprise Marketing Automation Data Server:**

The disk space required for the SAS Enterprise Marketing Automation Data Server is the combined total space requirements for the SAS software products listed above. See the **Space Requirements** table for more information.

**Note:** If you have Release 8.2 of the SAS System already installed, then the amount of disk space required to install the SAS Enterprise Marketing Automation Data Server should be decreased by the disk space of any of the above products that have been previously installed.

### **Products Required for SAS Enterprise Marketing Automation Analytics Server:**

- Base SAS software
- SAS/ACCESS software of choice
- SAS Enterprise Marketing Automation Analytics Server Solution, which contains necessary elements of the following:
  - SAS/CONNECT software
  - SAS/EIS software
  - Enterprise Miner Server software
  - SAS/ETS software
  - SAS/FSP software
  - SAS/GRAPH software
  - SAS/INSIGHT software
  - SAS/MDDB Server software
  - SAS/OR software
  - SAS/SHARE software
  - SAS/STAT software

### **Disk Space Required for SAS Enterprise Marketing Automation Analytics Server:**

The disk space required for the SAS Enterprise Marketing Automation Analytics Server is the combined total space requirements for the SAS software products listed above. See the **Space Requirements** table for more information.

**Note:** If you have Release 8.2 of the SAS System already installed, then the amount of disk space required to install the SAS Enterprise Marketing Automation Analytics Server should be decreased by the disk space of any of the above products that have been previously installed.

### **Products Required for SAS Enterprise Marketing Automation Data Management Client:**

- Base SAS software
- SAS/ACCESS software of choice
- SAS Enterprise Marketing Automation Data Management Client Solution, which contains necessary elements of the following:
  - SAS/CONNECT software
  - SAS/Warehouse Administrator software

### **Disk Space Required for SAS Enterprise Marketing Automation Data Management Client:**

The disk space required for the SAS Enterprise Marketing Automation Data Management Client is the combined total space requirements for the SAS software products listed above. See the **Space Requirements** table for more information.

**Note:** If you have Release 8.2 of the SAS System already installed, then the amount of disk space required to install the SAS Enterprise Marketing Automation Data Management Client should be decreased by the disk space of any of the above products that have been previously installed.

### **Products Required for SAS Enterprise Marketing Automation Analytics Client:**

- Base SAS software
- SAS/ACCESS software of choice
- SAS Enterprise Marketing Automation Analytics Client Solution, which contains necessary elements of the following:
  - SAS/CONNECT software
  - SAS/EIS software
  - Enterprise Miner Client software
  - SAS/ETS software
  - SAS/FSP software
  - SAS/GRAPH software
  - SAS/INSIGHT software
  - SAS/MDDDB Server software
  - SAS/OR software
  - SAS/STAT software

### **Disk Space Required for SAS Enterprise Marketing Automation Analytics Client:**

The disk space required for the SAS Enterprise Marketing Automation Analytics Client is the combined total space requirements for the SAS software products listed above. See the **Space Requirements** table for more information.

**Note:** If you have Release 8.2 of the SAS System already installed, then the amount of disk space required to install the SAS Enterprise Marketing Automation Analytics Client should be decreased by the disk space of any of the above products that have been previously installed.

## Enterprise Miner Solution (Release 4.1)

### Products Required for Enterprise Miner Server:

- Base SAS software
- SAS/STAT software
- Enterprise Miner Server Solution, which contains:
  - Enterprise Miner Server software and necessary elements of the following:
    - SAS/CONNECT software
    - SAS/EIS software
    - SAS/ETS software
    - SAS/FSP software
    - SAS/GRAPH software
    - SAS/INSIGHT software
    - SAS/MDDDB Server software
    - SAS/OR software

### Memory Required for Enterprise Miner Server:

- 512 MB required

### Disk Space Required for Enterprise Miner Server:

The disk space required for the Enterprise Miner Server Solution is the combined total space requirements for the SAS software products listed above. See the **Space Requirements** table for more information.

**Note:** If you have Release 8.2 of the SAS System already installed, then the amount of disk space required to install the Enterprise Miner Server Solution should be decreased by the disk space of any of the above products that have been previously installed.

### Products Required for Enterprise Miner Client:

- Base SAS software
- Enterprise Miner Client Solution, which contains:
  - Enterprise Miner Client software and necessary elements of the following:
    - SAS/CONNECT software
    - SAS/EIS software
    - SAS/ETS software
    - SAS/FSP software
    - SAS/GRAPH software
    - SAS/INSIGHT software
    - SAS/MDDDB Server software
    - SAS/OR software
    - SAS/STAT software

**Note:** Enterprise Miner Client media contains the experimental product Enterprise Miner J\*Score. Enterprise Miner J\*Score translates the SAS data step score code generated by Enterprise Miner software to a “score” function in the Java programming language. Enterprise Miner J\*Score constitutes pre-production code and may be changed substantially before the first production release. Please see your SAS Support Consultant for more information on Enterprise Miner J\*Score.

### Memory Required for Enterprise Miner Client:

- 48 MB required

## **Disk Space Required for Enterprise Miner Client:**

The disk space required for the Enterprise Miner Client Solution is the combined total space requirements for the SAS software products listed above. See the **Space Requirements** table for more information.

**Note:** If you have Release 8.2 of the SAS System already installed, then the amount of disk space required to install the Enterprise Miner Client Solution should be decreased by the disk space of any of the above products that have been previously installed.

## **SAS/Genetics Software**

### **Products Required:**

- Base SAS software
- SAS/Genetics software, which contains necessary elements of the following:
  - SAS/GRAPH software

### **Disk Space Required:**

The disk space required for SAS/Genetics software is the combined total space requirements for the SAS software products listed above. See the **Space Requirements** table for more information.

**Note:** If you have Release 8.2 of the SAS System already installed, then the amount of disk space required to install SAS/Genetics software should be decreased by the disk space of any of the above products that have been previously installed.

## **SAS/GIS Software**

### **Products Required for Build Mode:**

- Base SAS software
- SAS/AF software
- SAS/GIS software
- SAS/GRAPH software
- Other products may be required depending on the application

### **Products Required for Run Mode:**

- Base SAS software
- SAS/FSP software
- SAS/GIS software
- SAS/GRAPH software
- Other products may be required depending on the application

### **Printers:**

- A color or gray scale printer is required. The list of possible printers can be found in the **Graphics Hardware and Software Compatibility** section.

### **Display:**

- 256 color display adapter strongly recommended

## HR Vision

### **Products Required for HR Vision:**

- Base SAS software
- SAS/ACCESS software of choice
- HR Vision Data Server Solution, which contains necessary elements of the following:
  - SAS/ACCESS Interface to PC File Formats software
  - SAS/AF software
  - SAS/CONNECT software
  - SAS/EIS software
  - SAS/ETS software
  - SAS/FSP software
  - SAS/GRAPH software
  - SAS Integration Technologies software
  - SAS/MDDDB Server software
  - SAS/OR software
  - SAS/SHARE software
  - SAS/STAT software
  - SAS/Warehouse Administrator software

### **Disk Space Required for HR Vision Data Server:**

The disk space required for the HR Vision Data Server is the combined total space requirements for the SAS software products listed above. See the **Space Requirements** table for more information.

**Note:** If you have Release 8.2 of the SAS System already installed, then the amount of disk space required to install the HR Vision Data Server should be decreased by the disk space of any of the above products that have been previously installed.

## SAS Information Delivery Portal (Release 1.1)

### **Products Required for SAS Information Delivery Portal Server:**

- Base SAS software
- SAS Information Delivery Portal Server Components, which contains necessary elements of the following:
  - SAS Integration Technologies Software

### **Disk Space Required for SAS Information Delivery Portal Server:**

The disk space required for the SAS Information Delivery Portal Server Components is the combined total space requirements for the SAS software products listed above. See the **Space Requirements** table for more information.

**Note:** If you have Release 8.2 of the SAS System already installed, then the amount of disk space required to install the SAS Information Delivery Portal Server Components should be decreased by the disk space of any of the above products that have been previously installed.

## **SAS/IntrNet Software**

SAS/IntrNet software consists of several components that may be installed independently. SAS/IntrNet Server software is installed on an existing SAS System and is included on the SAS System media. Other SAS/IntrNet software components may be installed from the Client-Side Components CD. See the **Space Requirements** section for the disk space requirements for these components.

### **CGI Tools and Applications**

#### **Application Dispatcher**

Requires Base SAS software and SAS/IntrNet Server software. The Application Broker component of the Application Dispatcher must be installed on a Web server.

#### **htmSQL**

Requires Base SAS software, SAS/SHARE software, and a SAS/IntrNet software license (SETINIT). The htmSQL component must be installed on a Web server.

#### **MDDB Report Viewer Application**

Requires Base SAS software; SAS/GRAPH software; SAS/IntrNet software; and SAS/EIS software *or* SAS OLAP Server software. The Application Dispatcher component must be installed and configured.

#### **Xplore Sample Web Application**

Requires Base SAS software and SAS/IntrNet Server software. The Application Dispatcher component must be installed and configured.

### **Design-Time Controls**

Requires Base SAS software and SAS/IntrNet Server software. The Application Broker component of the Application Dispatcher must be installed on a Web server.

### **Java Tools and Applications**

#### **SAS/CONNECT Driver for Java**

Requires Base SAS software, SAS/CONNECT software, and SAS/IntrNet Server software. SAS/SHARE software must also be installed if data services are used. The Java Tools package must be installed on a Web server or client system.

#### **Tunnel Feature**

Must be installed on a Web server running on a UNIX or Windows system.

#### **MetaSpace Explorer Applet**

Requires Base SAS software, SAS/CONNECT software, and SAS/IntrNet Server software.

## IT Service Vision Solution (Release 2.5)

### Products Required for IT Service Vision Server:

- Base SAS software
- IT Service Vision Server Solution, which contains:
  - IT Service Vision Server software and necessary elements of the following:
  - SAS/AF software
  - SAS/CONNECT software
  - SAS/EIS software
  - SAS/FSP software
  - SAS/GRAPH software
  - SAS/INSIGHT software
  - SAS/MDDDB Server software

### Disk Space Required for IT Service Vision Server:

The disk space required for the IT Service Vision Server Solution is the combined total space requirements for the SAS software products listed above. See the **Space Requirements** table for more information.

**Note:** If you have Release 8.2 of the SAS System already installed, then the amount of disk space required to install the IT Service Vision Server Solution should be decreased by the disk space of any of the above products that have been previously installed.

### Other Requirements for IT Service Vision Server:

- Demand Technologies NTSMF

**Note:** Installation of NTSMF is only required if you want to gather Windows NT service resource utilization metrics using NTSMF.

### Products Required for IT Service Vision Client:

- Base SAS software
- IT Service Vision Client Solution, which contains:
  - IT Service Vision Client software and necessary elements of the following:
  - SAS/AF software
  - SAS/CONNECT software
  - SAS/EIS software
  - SAS/FSP software
  - SAS/GRAPH software
  - SAS/INSIGHT software

### Disk Space Required for IT Service Vision Client:

The disk space required for the IT Service Vision Client Solution is the combined total space requirements for the SAS software products listed above. See the **Space Requirements** table for more information.

**Note:** If you have Release 8.2 of the SAS System already installed, then the amount of disk space required to install the IT Service Vision Client Solution should be decreased by the disk space of any of the above products that have been previously installed.

## **Other Requirements for IT Service Vision Server and Client:**

- IT Service Vision requires a screen resolution of at least 800x600. If your display is set to a lower screen resolution, some windows may be truncated to fit the screen. If you experience font display problems, you may want to use the default SAS font. To set the default font type, issue the SAS command `dlgfont` at the command prompt. In the `Font` window, select the font `Sasfont`, a style of `regular`, and font size 10.
- Adobe Acrobat Reader 3.x is required for some online documents supplied in printable form.

## **SAS/LAB Software**

### **Products Required:**

- Base SAS software
- SAS/FSP software (required for interactive data entry)
- SAS/GRAPH software
- SAS/LAB software

## **SAS/MDDB Server Software**

### **Memory:**

The memory requirements for SAS/MDDB Server software are dependent upon the complexity of the hierarchies generated.

- 48 MB required
- 64 MB recommended

Large applications will see performance improvements with more available memory.

## **SAS OLAP Server Package**

### **Products Required:**

- Base SAS software
- SAS OLAP Server Package, which contains necessary elements of the following:
  - SAS/MDDB Server software
  - SAS/AF software
  - SAS/GRAPH software

### **Disk Space Required:**

The disk space required for the SAS OLAP Server Package is the combined total space requirements for the SAS software products listed above. See the **Space Requirements** table for more information.

**Note:** If you have Release 8.2 of the SAS System already installed, then the amount of disk space required to install the SAS OLAP Server Package should be decreased by the disk space of any of the above products that have been previously installed.

## SAS OnlineTutor Software

Netscape Navigator, Version 4.7 or higher is required if running SAS OnlineTutor software from a Web browser.

## SAS Process Intelligence (Version 2.0)

### **Products Required for SAS Process Intelligence Application Tier:**

- Base SAS software
- SAS Process Intelligence Server, which contains:
  - SAS Process Intelligence and necessary elements of the following:
    - SAS/ACCESS software of choice
    - SAS/ACCESS Interface to PC File Formats software
    - SAS/ACCESS Interface to ODBC software
    - SAS/AF software
    - SAS/CONNECT software
    - SAS/ETS software
    - SAS/GRAPH software
    - SAS Integration Technologies software
    - SAS/IntrNet software
    - SAS/QC software
    - SAS/SHARE software
    - SAS/STAT software

### **Disk Space Required for SAS Process Intelligence Application Tier:**

The disk space required for the SAS Process Intelligence Application Tier is the combined total space requirements for the SAS software products listed above. See the **Space Requirements** table for more information.

**Note:** If you have Release 8.2 of the SAS System already installed, then the amount of disk space required to install the SAS Process Intelligence Application Tier should be decreased by the disk space of any of the above products that have been previously installed.

### **Products Required for SAS Process Intelligence Admin Tier:**

- Base SAS software
- SAS Process Intelligence Administrator, which contains necessary elements of the following:
  - SAS/AF software
  - SAS/CONNECT software
  - SAS/Warehouse Administrator software

### **Disk Space Required for SAS Process Intelligence Admin Tier:**

The disk space required for the SAS Process Intelligence Admin Tier is the combined total space requirements for the SAS software products listed above. See the **Space Requirements** table for more information.

**Note:** If you have Release 8.2 of the SAS System already installed, then the amount of disk space required to install the SAS Process Intelligence Admin Tier should be decreased by the disk space of any of the above products that have been previously installed.

### **Software Required for SAS Process Intelligence Client Tier:**

- Internet Explorer, Version 5.5 with Service Pack 2

### **Software Required for SAS Process Intelligence Middle Tier:**

- Web server with CGI capability
- Java 2 Standard Edition (J2SE)
- JSP/Servlet container
- *SAS Process Intelligence Web Application Components* CD. See the CD insert for system requirements.

### **Software Required for SAS Process Intelligence Data Tier:**

- Scalable Performance Data Server, or
- DBMS of choice, or
- Existing SAS System, Release 8.2 data sets

## **Risk Dimensions (Release 3.3)**

### **Online Help Browser Required:**

To view the online help, Internet Explorer, Version 5 is required.

### **Software:**

Risk Dimensions runs on Windows NT and Windows 2000.

### **Hardware Required:**

- Single Pentium II processor, 400 MHz or faster minimum
- Dual Pentium III processor, 400 MHz or faster recommended
- VGA monitor minimum (SVGA recommended)
- 10 GB of disk space recommended

### **Memory:**

- 512 MB RAM minimum per processor
- 1 GB RAM recommended per processor

### **Other Requirements for Risk Dimensions:**

- Web server to view RiskWeb reports

## **SAS/SECURE 168-bit Software**

CryptoAPI from Microsoft is an application programming interface that provides access to the cryptographic services that are provided by:

- Windows 95 (as part of Internet Explorer 3.0+)
- Windows NT 4.0+ (as part of the Operating system) with Service Pack 3 or a subsequent release installed

You must have either of the following packages installed on your Windows host to use CryptoAPI:

- Microsoft Base Cryptographic Service Provider (supports weak encryption)
- Microsoft Enhanced Cryptographic Service Provider (supports strong encryption)

## **SAS/SHARE Software**

*Windows 95 and 98:*

### **APPC Access Method:**

With the APPC access method, a Windows user is provided access to an SNA network. SAS/SHARE software uses the Microsoft Windows Open Services Architecture (WOSA) standard (WinAPPC). Therefore, you should be able to use software from any vendor that supports this standard. One of the following software packages is required:

- Microsoft's SNA Server, Version 2.11 SP1 (Service Pack 1) or subsequent versions
- IBM's Personal Communications, Version 4.11 or subsequent versions
- Any program that supports WOSA (Windows Open Services Architecture) APPC (WinAPPC) standard

### **DECnet Access Method:**

The DECnet access method requires the following software:

- Compaq's Pathworks, Version 3.2 with Microsoft's Winsock, Version 2.0

### **NetBIOS Access Method:**

For the NetBIOS access method, SAS/SHARE software supports the IBM-compatible or NetWare-compatible NetBIOS that is included with Windows 95.

### **TCP/IP Access Method:**

For the TCP/IP access method, SAS/SHARE software supports Microsoft's TCP/IP System Driver, which is provided with Windows 95.

*Windows NT:*

### **APPC Access Method:**

With the APPC access method, a Windows user is provided access to an SNA network. SAS/SHARE software uses the Microsoft Windows Open Services Architecture (WOSA) standard (WinAPPC). Therefore, you should be able to use software from any vendor that supports this standard. One of the following software packages is required:

- Microsoft's SNA Server, Version 2.11 SP1 (Service Pack 1) or subsequent versions
- IBM's Personal Communications, Version 4.11 or subsequent versions
- Any program that supports WOSA (Windows Open Services Architecture) APPC (WinAPPC) standard

### **DECnet Access Method:**

One of the following software packages is required to use the DECnet access method:

If you have Windows, Version 4.0 installed, you must use:

- Compaq's Pathworks 32

### **NetBIOS Access Method:**

For the NetBIOS access method, SAS/SHARE software supports the IBM-compatible or NetWare-compatible NetBIOS that is included with Windows NT.

## **TCP/IP Access Method:**

For the TCP/IP access method, SAS/SHARE software supports Microsoft's TCP/IP System Driver, which is provided with Windows NT.

## **SAS/SPECTRAVIEW Software**

SAS/SPECTRAVIEW software, one of the SAS System's newest data visualization and modeling tools, allows you to create, analyze, and modify geometric images representing multidimensional data. This software is useful for a variety of applications, including medical imaging, oil exploration, environmental sciences, chemical analysis, pharmaceutical studies, and financial analysis.

### **Hardware:**

- Minimum screen resolution - 800x600
- Minimum of 256 colors

## **Strategic Performance Management (Release 1.4)**

### **Products Required:**

- Base SAS software
- Strategic Performance Management SAS Server, which contains necessary elements of the following:
  - SAS/ACCESS Interface to ODBC software
  - SAS/CONNECT software
  - SAS Integration Technologies software
  - SAS/IntrNet software
  - SAS/SHARE software
  - SAS/Warehouse Administrator software

### **Disk Space Required:**

The disk space required for Strategic Performance Management is the combined total space requirements for the SAS software products listed above. See the **Space Requirements** table for more information.

**Note:** If you have Release 8.2 of the SAS System already installed, then the amount of disk space required to install Strategic Performance Management should be decreased by the disk space of any of the above products that have been previously installed.

## **SAS Text Miner**

### **Products Required:**

- Enterprise Miner Server Solution

### **Operating Systems Supported:**

- Windows NT and Windows 2000 only

## **SAS/TOOLKIT Software**

The only language with a Production status for SAS/TOOLKIT software is C. Other languages have a Beta status.

## **SAS/Warehouse Administrator Software**

### **Products Required for Build Mode:**

- Base SAS software
- SAS/AF software (required only for API usage)

### **Products Required for Run Mode:**

- Base SAS software
- Other products depending on application (e.g., SAS/ACCESS software for access to DBMS tables, SAS/CONNECT software for access to remote data, or SAS/AF software to access warehouse via method calls)

### **Memory:**

- 64 MB recommended

### **CPU:**

- 200 MHz Pentium Processor recommended

### **Monitors Supported:**

- VGA
- SVGA
- XGA

### **Printers:**

- For printing graphics-based objects, a color or gray scale printer is required.
- Certain non-graphic objects may require SAS/GRAPH software to print depending on the object.

## **WebHound Solution (Release 4)**

### **Products Required for WebHound Solution:**

- Base SAS software
- WebHound Solution, which contains:
  - WebHound software and necessary elements of the following:
  - SAS/AF software
  - SAS/CONNECT software
  - SAS/EIS software
  - SAS/ETS software
  - SAS/FSP software
  - SAS/GRAPH software
  - SAS High-Performance Forecasting software
  - SAS/MDDB Server software
  - SAS/IntrNet software
  - SAS/Warehouse Administrator software

**Disk Space Required for WebHound Solution:**

The disk space required for the WebHound Solution is the combined total space requirements for the SAS software products listed above. See the **Space Requirements** table for more information.

**Note:** If you have Release 8.2 of the SAS System already installed, then the amount of disk space required to install the WebHound Solution should be decreased by the disk space of any of the above products that have been previously installed.

**Other Requirements for WebHound Solution:**

- Web logs in CLF, ELF, IIS, or custom format. The Web logs should contain a datettime stamp.
- Web server to view WebHound reports.
- In addition to the space needed for installation of the software listed above, space will be needed for storing your Web log data and WebHound processed data. The amount of space required for your WebHound processed data depends on the size of your Web site and the length of time you keep your data.
- A TCP/IP port number for the SAS/IntrNet application service used by the WebHound Solution.

# Graphics Hardware and Software Compatibility

## Printers

SAS/GRAPH software supports any graphics printer that has a Microsoft Windows device driver available. This support is provided via the WINPRTM (for monochrome printers), WINPRTG (for printers that support gray-scale shading), and WINPRTC (for color printers) device drivers.

As an alternative to the WINPRTx series of drivers, SAS/GRAPH native device drivers are available for all Hewlett-Packard printers (and compatibles), and printers that support PostScript, HP-GL, HP PCL, and other printer languages.

Here is a partial list of printers that SAS/GRAPH software supports with native device drivers:

CalComp ColorMaster, ColorMaster Plus, PlotMaster  
Canon Bubble Jet, Laser Shot  
Digital printers which support either SIXEL, HP PCL, Tektronix, or PostScript emulation modes  
Epson FX and LQ series printers (and all printers running in Epson emulation mode)  
Hewlett-Packard LaserJet, DeskJet, PaintJet, and DesignJet printers (and compatibles)  
IBM Graphics, Proprinter, and ColorJet printers  
PostScript printers (including color and gray-scale PostScript printers)  
QMS Colorgrafix with CGM interpreter  
QMS 800, 1200, 1500, 2200, and 2400 using QUIC or Tektronix emulation modes  
Talaris 800, 802, 1200, 1500, and 2400 using QUIC or Tektronix emulation modes  
Talaris printers using the EXCL language  
Tektronix Phaser printers (all models)  
Tektronix 4693 printers with Tektronix 4510 rasterizer  
Xerox 2700 and 4045 printers with a GRAPHX cartridge  
Xerox 3700 (with imaging board and at least 1M of memory)  
Xerox 4030 (contact Technical Support), 4213, 4235, and 4700  
Xerox 4700 printer  
Xerox 5775 color copier with an EFI Fiery attachment

Native drivers may also be available for additional printers not listed above and that do not support PostScript, HP-GL, or HP PCL. Contact SAS Institute Technical Support for additional information on these drivers.

## Plotters

SAS/GRAPH software supports any plotter that has a Microsoft Windows plotter driver available. This support is provided via the WINPLOT device driver.

As an alternative to the WINPLOT device driver, SAS/GRAPH software also provides native device drivers for all HP plotters supporting HP-GL or HP-GL/2, and plotters from other manufacturers that support the HP-GL or HP-GL/2 language. SAS/GRAPH software also supports Houston Instruments plotters using the DMPL language and ZETA plotters that support the GML language.

## **Film Recorders**

SAS/GRAPH supports any film recorder that has a Microsoft Windows driver available. This support is provided via the WINPRTC device driver. As an alternative to the WINPRTC device driver, SAS/GRAPH software also provides native device drivers that support the following film recorders:

Genigraphics Masterpiece Camera System with SCODL interface  
Lasergraphics MPS 2000 film recorder with a Lasergraphics UI-100 or RASCOL rasterizer  
Matrix QCR and PCR cameras with Matrix QVP, MVP, or Lasergraphics rasterizers  
Polaroid Palette CI-3000 and CI-5000  
Presentation Technologies Montage film recorder

Support may be available for other film recorders not listed here. Contact SAS Institute Technical Support for details.

## **Interfaces to Other Graphics Software**

Included with SAS/GRAPH software is a series of drivers that can produce Computer Graphics Metafiles (CGM) in binary, character, and clear-text formats. These drivers can be used to transfer SAS/GRAPH output to other products that support CGM input, such as Word for Windows, WordPerfect for Windows, Harvard Graphics, and Lotus Freelance, or to devices that can process CGM input.

SAS/GRAPH software can also generate encapsulated PostScript vector files, which can be exported to word processing packages such as Microsoft Word, WordPerfect, and several others.

SAS/GRAPH software can also generate Windows metafiles that can be exported to numerous packages including Microsoft Office, Lotus Smart Suite, and Perfect Office. Contact SAS Institute Technical Support for details.

Many other graphics and word processing applications can process files in Hewlett-Packard (HP-GL) format. The HPGL driver can be used to produce files that can be transferred to most applications that can process HP-GL files. In addition, there are drivers for PDF, PBM, PPM, GIF, JPEG, EMF, WMF, PNG, TIFF, EPSI, and PaintBrush image formats. To view a complete list of all SAS/GRAPH device drivers, submit the following SAS program:

```
proc gdevice c=sashelp.devices nofs;  
  list _all_;  
run; quit;
```

SAS/GRAPH software can also export graphics in the following formats:

BMP - Microsoft Windows Bitmap  
DIB - Device Independent Bitmap  
EMF - Microsoft NT Enhanced Metafile  
EPSI - Encapsulated PostScript Interchange  
GIF - Graphics Interchange Format  
JPG - JPEG Files  
PBM - Portable Bitmap  
PNG - Portable Network Graphics  
PS - PostScript Bitmap  
TIF - Tagged Image File Format  
WMF - Microsoft Windows Metafile Format

In addition, SAS/GRAPH software can import graphics in the following formats:

BMP - Microsoft Windows Bitmap  
DIB - Device Independent Bitmap  
EMF - Microsoft NT Enhanced Metafile  
EPSI - Encapsulated PostScript Interchange  
GIF - Graphics Interchange Format  
JPG – JPEG Files  
PBM - Portable Bitmap  
PCD - PHOTO CD  
PCX - PC PaintBrush  
PNG - Portable Network Graphics  
TGA - TARGA Format  
TIF - Tagged Image File Format  
WMF - Microsoft Windows Metafile Format  
XBM - X Window Bitmaps  
XWD - X Window Dump

### **Viewing HTML Pages Created with the ActiveX and Java Device Drivers**

The ActiveX and Java device drivers allow you to create HTML pages from within the SAS System.

The HTML pages created with the ActiveX device driver can only be viewed on Windows operating systems with Internet Explorer, Version 5.

The HTML pages created with the Java device driver can only be viewed *with* the following Java-enabled Web browsers *on* the following operating systems:

<b>Java-enabled Web Browser</b>	<b>Operating System</b>
Netscape Navigator, Version 4.08 or higher	AIX, HP-UX, Solaris, ABI for Intel Architecture, IRIX, Compaq Tru64 UNIX
Netscape Communicator, Version 4.04 for Warp 4	OS/2
Internet Explorer, Version 5 (with Java VM 5.0.0.3167 or higher) or Netscape Navigator, Version 4.07	Windows, Windows NT, Windows 2000

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