

System Requirements

The SAS[®] System

Version 9 (TS M0) Solaris[®]

This document provides requirements for installing and running the SAS System for Solaris. 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
- ❑ Space Requirements
- ❑ Specific Product Requirements
- ❑ Graphics Hardware and Software Compatibility

Software Requirements

Operating System

Version 9 of the SAS System included in this Installation Kit is supported on the following operating systems:

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- Solaris 8

Web Browser

The SAS System requires:

- Netscape Navigator, Version 4.08 or Netscape Communicator, Version 4.7 or higher

For best performance, Netscape Communicator, Version 4.7.3 or higher is recommended.

The latest version of Netscape can be downloaded from:

<http://www.sun.com/software/solaris/netscape>

Note: Netscape Communicator, Version 6, Preview Releases 1 and 2 have not been extensively tested with the SAS System and there are known incompatibilities between Netscape Communicator, Version 6 and the SAS System; therefore, Netscape Communicator, Version 6, Preview Releases 1 and 2 are not supported in this release.

Java Runtime Environment

Some features of the SAS System require the use of a Java Runtime Environment (also referred to as a JRE, Java Virtual Machine, or JVM) to function properly. Determine that you have at least the following version or release of the Java Runtime Environment:

- Java Version: 1.4.0

This is the version of the JRE that SAS has tested and supports. Later patch-levels and versions of this JRE may work; however, they have not been tested by SAS.

You can install a supported JRE from the *Third Party Software* CD included in your Installation Kit. In addition, you can obtain a copy of the JRE via the Internet from the following URL:

<http://java.sun.com/j2se/1.4>

Hardware Requirements

Machines Supported

- All models that support Solaris 8 for UltraSPARC II or higher

Distribution Media

- CD-ROM

Memory Requirements

For general SAS activities (for example, query and reporting, simple statistics, data manipulation), we recommend 96 MB per user.

More memory is needed for memory-intensive tasks such as OLAP, data mining, heavy statistical analysis, multivariate analysis, formats, and any GUI-based applications. Please see the **Specific Products Requirements** section for more details on memory requirements for specific products.d

Terminals Supported

- Any X Windows-based terminal or server that supports a minimum of 256 colors

Space Requirements

The following list contains space requirements in MB for all of the products available with this release of the SAS System for Solaris. Use this information to help you determine how much free disk space you must have available before you can install the SAS System. In addition, the SAS System installation requires approximately 30 MB of disk space on the /tmp partition to complete the installation.

Software Product	Required Disk Space	Additional Space for Samples/Optional Files
Base SAS Software	412.7	7.8
SAS/ACCESS Interface to Baan Software	1.2	0.0
SAS/ACCESS Interface to DB2 Software	0.9	0.2
SAS/ACCESS Interface to INFORMIX Software	0.6	0.1
SAS/ACCESS Interface to ORACLE Software	1.2	0.1
SAS/ACCESS Interface to PC Files Software	1.7	0.0
SAS/ACCESS Interface to PeopleSoft Software	1.1	0.1
SAS/ACCESS Interface to R/3 Software	100.0	0.1
SAS/ACCESS Interface to SAP BW Software	2.0	0.0
SAS/ACCESS Interface to SYBASE Software	1.6	0.1
SAS/AF Software	10.2	0.0
SAS/ASSIST Software	26.0	0.0
SAS/CONNECT Software	5.1	0.2
SAS Data Quality – Cleanse	19.4	0.0
SAS Data Quality – Cleanse (International Edition)	8.6	0.0
SAS/EIS Software	20.7	10.5
Enterprise Miner Server Software	74.8	34.9
SAS/ETS Software	63.4	0.6
SAS/FSP Software	1.9	0.0
SAS/Genetics Software	2.1	0.1
SAS/GIS Software	67.7	0.3
SAS/GRAPH Software	62.8	2.4
SAS High-Performance Forecasting Software	1.1	0.1
SAS/IML Software	15.1	0.6
SAS/INSIGHT Software	22.7	0.4
SAS Integration Technologies Software	13.7	0.3
SAS/IntrNet Software	5.0	1.2
IT Service Vision Server Software	205.7	0.0
SAS/LAB Software	10.0	0.0
SAS/MDDDB Server Software	13.7	0.0
SAS/OR Software	50.0	2.0
SAS/QC Software	44.9	3.9
Risk Dimensions Analyst Edition	835.9	5.7
Risk Dimensions Enterprise Edition	946.8	5.7
SAS/SHARE Software	19.8	0.2
SAS/SPECTRAVIEW Software	4.7	14.4
SAS/STAT Software	86.5	2.1
SAS/Warehouse Administrator Software	46.9	0.0
WebHound Software	22.2	0.0

Software Product	Required Disk Space	Additional Space for Samples/Optional Files
Total		

* Because Risk Dimensions Analyst Edition and Risk Dimensions Enterprise Edition are separate installations, their disk space values are not reflected in the total.

SAS/GIS Census Tract Maps

State	Required Disk Space in MB
Alabama	12.5
Alaska	10.1
Arizona	3.9
Arkansas	11.2
California	17.9
Colorado	7.8
Connecticut	2.7
Delaware	0.8
District of Columbia	0.1
Florida	15.1
Georgia	15.1
Hawaii	1.6
Idaho	8.3
Illinois	13.6
Indiana	8.0
Iowa	8.0
Kansas	8.7
Kentucky	12.3
Louisiana	16.7
Maine	8.1
Maryland	4.2
Massachusetts	4.8
Michigan	12.6
Minnesota	17.2
Mississippi	9.2
Missouri	12.8

State	Required Disk Space in MB
Montana	12.6
Nebraska	7.1
Nevada	3.2
New Hampshire	2.7
New Jersey	4.1
New Mexico	4.5
New York	14.6
North Carolina	15.2
North Dakota	9.4
Ohio	11.4
Oklahoma	9.3
Oregon	9.6
Pennsylvania	14.0
Rhode Island	0.8
South Carolina	9.5
South Dakota	8.4
Tennessee	13.8
Texas	27.6
Utah	5.1
Vermont	2.0
Virginia	11.9
Washington	9.7
West Virginia	6.7
Wisconsin	13.2
Wyoming	6.9
Total for all entries	

SAS/GRAPH Map Data Sets

Data Set	Required Disk Space
Countries in Africa and Middle East Maps	4.0
Countries in Asia and Pacific Maps	11.3
Countries in Europe Maps	12.6
North America and Canada Maps	5.4
Countries in Latin America and Caribbean Maps	6.6
Canada Maps	2.0
Continents Maps	25.8
World Map	25.7
Very Large US County Map, Unprojected	12.5
Large US County Map, Unprojected and Reduced	1.6
Large US Mainland County Map, Projected and Reduced	1.5
Large US State Outline Map, Unprojected	1.6
Total for all entries	

DBCS Support

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

Software Product	Required Disk Space
Base SAS Software	51.4
SAS/ACCESS Interface to DB2 Software	0.6
SAS/ACCESS Interface to INFORMIX Software	0.1
SAS/ACCESS Interface to ORACLE Software	0.4
SAS/ACCESS Interface to PC Files Software	0.5
SAS/ACCESS Interface to SYBASE Software	0.8
SAS/AF Software	1.0
SAS/CONNECT Software	1.3
SAS/EIS Software	0.4
Enterprise Miner Server Software	0.3
SAS/FSP Software	0.8
SAS/GRAPH Software	20.0
SAS/INSIGHT Software	5.0
SAS Integration Technologies Software	0.2
SAS/LAB Software	1.6
SAS/QC Software	0.8
SAS/SHARE Software	0.1
SAS/STAT Software	1.2

Japanese Language

Japanese Support	Primary Encoding Required Disk Space	Additional Space for Samples/ Optional Files	Secondary Encoding Required Disk Space	Additional Space for Samples/ Optional Files
Base SAS Software	13.1	0.3	13.1	0.3
SAS/GRAPH Software	0.2	0.0	0.2	0.0
SAS/GRAPH Map Data Sets	2.4	0.0	2.4	0.0
SAS/IntrNet Software	0.3	0.0	0.3	0.0
SAS/MDDB Server Software	0.2	0.0	0.2	0.0
WebHound Software	12.6	0.0	12.6	0.0

Korean Language

Korean Support	Required Disk Space
Base SAS Software	7.8
SAS/AF Software	0.1
SAS/GRAPH Software	0.2
SAS/MDDB Server Software	0.2
SAS/QC Software	0.2

Chinese Simplified Language

Chinese Simplified Support	Required Disk Space
Base SAS Software	8.2
SAS/MDDDB Server Software	0.2
SAS/IntrNet Software	0.3

French Language

French Support	Required Disk Space
Base SAS Software	4.0
SAS/ETS Software	0.7
SAS/Genetics Software	0.1
SAS/GRAPH Software	0.2
SAS/OR Software	0.5
SAS/QC Software	0.2
SAS/STAT Software	0.8

Italian Language

Italian Support	Required Disk Space
Base SAS Software	4.1
Enterprise Miner Server Software	0.2
SAS/ETS Software	0.7
SAS/Genetics Software	0.1
SAS/GRAPH Software	0.2
SAS/OR Software	0.5
SAS/QC Software	0.2
SAS/STAT Software	0.8

Spanish-Castillian Language

Spanish-Castillian Support	Required Disk Space
Base SAS Software	4.1
Enterprise Miner Server Software	0.2
SAS/ETS Software	0.7
SAS/Genetics Software	0.1
SAS/GRAPH Software	0.2
SAS/OR Software	0.5
SAS/QC Software	0.2
SAS/STAT Software	0.8

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 Product Required:

- Universal Database, Version 7.1 or higher

SAS/ACCESS Interface to DB2 software can be installed on a DB2 server or on a DB2 Client Application Enabler node. DRDA support is required to connect to host database management systems like DB2 for MVS, DB2 for VSE and VM (formerly SQL/DS), and OS/400.

SAS/ACCESS Interface to INFORMIX Software

Products Required:

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

DBMS Product Required:

- Informix Connect 2.70 or higher on a 64-bit machine

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

SAS/ACCESS Interface to ORACLE Software

Products Required:

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

DBMS Products Required:

SAS/ACCESS Interface to ORACLE software can be installed on either a full Oracle RDBMS server node or on an Oracle client node.

The minimum required Oracle 8 release is:

- Oracle, Release 8.1.7.1

The minimum required Oracle 9 release is:

- Oracle, Release 9i

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.

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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 4.0B or higher
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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 or higher

SAS/ACCESS Interface to SYBASE Software

Products Required:

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

DBMS Products Required:

The following release of SYBASE Open Client software is required:

- SYBASE Open Client Software, Release 12.5 (64-bit libraries)

The following is recommended:

- Adaptive Server Enterprise, Release 11.x or higher

Note: **SAS/ACCESS Interface to SYBASE software no longer supports access to Microsoft SQL Server data.** SAS/ACCESS Interface to SYBASE software uses the CTLIB API calls to access the SYBASE DBMS product. These CTLIB API calls are not supported by Microsoft SQL Server; therefore, you will have to use SAS/ACCESS Interface to ODBC software with an appropriate ODBC driver to obtain access to Microsoft SQL Server data.

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

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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:

- 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.

Base SAS Software**External Tape Devices Supported:**

The `TAPE` device type is supported for the following tape devices:

- 4mm cartridge tapes
- 8mm cartridge tapes

SAS/CONNECT Software**TCP/IP Access Method:**

- Any TCP/IP package that comes with the operating system

SAS Data Quality – Cleanse**Memory:**

- 128 MB required per Data Quality Locale (for example, English USA and German together would require 256 MB)

SAS Data Quality – Cleanse (International Edition)**Products Required:**

- Base SAS Software
- SAS Data Quality – Cleanse

Memory:

- 128 MB required per Data Quality Locale (for example, English USA and German together would require 256 MB)

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:

- 96 MB required per concurrent user
- 128 MB recommended per concurrent user

Printers:

- For printing graphics-based objects, a color or gray scale printer is required.

Enterprise Miner Solution (Release 4.2)**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/ETS software
 - SAS/GRAPH software

Memory Required for Enterprise Miner Server:

- 512 MB required per concurrent user

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 Version 9 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.

SAS/Genetics Software

Products Required:

- Base SAS software
- SAS/Genetics software
- SAS/GRAPH software

SAS/GIS Software

Products Required for Build Mode:

- Base SAS software
- SAS/AF software (recommended)
- 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 (recommended)
- 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.

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 *SAS Client-Side Components* CD.

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.

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.

IT Service Vision Solution (Release 2.5.1)

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/ETS software
 - SAS/FSP software
 - SAS/GRAPH software
 - SAS/INSIGHT software
 - SAS/MDDDB Server software
 - SAS/STAT 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 Version 9 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:

- 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.
- IT Service Vision requires an Xwindows device that supports 256 or more colors.
- 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 Version 9 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.

Risk Dimensions (Release 4.0)

Memory:

- 512 MB per processor required
- 1 GB or more per processor recommended

Other Requirements for Risk Dimensions:

- Web server to view RiskWeb reports

SAS/SHARE Software

Products Required:

- Base SAS software

TCP/IP Access Method:

- Any TCP/IP package that comes with the operating system

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)

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 4.2

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/MDDDB Server software
 - SAS/IntrNet software
 - SAS/Warehouse Administrator software

Memory:

The memory required for the WebHound Solution depends on the complexity and size of the Web server log files. There is an improvement in the performance of large applications with more memory.

- 512 MB (recommended)

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 Version 9 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 server log files in CLF, ELF, IIS, or custom format.
- Datetime stamp that is included in the Web server log files.
- Web server to access WebHound reports using a Web browser.
- Space to store your Web log data and the data that has been processed by the WebHound Solution. The amount of space that is required for your WebHound-processed data depends on the size of your Web site and the length of time that you keep your data.
- A TCP/IP port number for the SAS/IntrNet application service.

Graphics Hardware and Software Compatibility

Printers

SAS/GRAPH software provides device drivers 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:

CalComp ColorMaster, ColorMaster Plus, PlotMaster
Canon Bubble Jet, Laser Shot
Digital printers that 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

SAS/GRAPH device drivers may also be available for additional printers not listed above and that do not support PostScript, HP-GL, or HP PCL. For additional information on these drivers, contact SAS Technical Support.

Terminals and Displays

SAS/GRAPH software supports graphics display on graphics terminals from DEC, Tektronix, HP, and on X Windows terminals. SAS/GRAPH software also supports graphics emulators that emulate any of the above terminals. Note the use of the SAS/GRAPH graphics editor requires an X Windows display or X Windows emulation software.

Plotters

SAS/GRAPH software provides 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 software provides 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. For details, contact SAS Technical Support.

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.

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
EPS - Encapsulated PostScript
GIF - Graphics Interchange Format
PNG - Portable Network Graphics
PPM - Portable Pixmap
PS - PostScript Bitmap
TIF - Tagged Image File Format
XPM - X11 Pixmap
JPG - JPEG Files
XBM - X11 Bitmap

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

BMP - Microsoft Windows Bitmap
 EPS - Encapsulated PostScript
 GIF - Graphics Interchange Format
 PBM - Portable Bitmap
 PCD - Kodak Photo-CD
 PCX - PC PaintBrush
 PGM - Portable Graymap
 PNG - Portable Network Graphics
 PNM - Portable Anymap
 PPM - Portable Pixmap

TGA - Targa format
 TIF - Tagged Image File Format
 XBM - X11 Bitmap
 XPM - X11 Pixmap
 XWD - X Window Dump
 JPG - JPEG Files

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 *with* the following Web browsers *on* the following operating systems:

ActiveX Control Web Browser	Operating System
Internet Explorer, Version 5.5 or higher	Windows NT, Windows 2000, Windows XP
None	Windows 64-bit Editions

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:

Java-enabled Web Browser	Operating System
None	OS/390, OpenVMS Alpha
Netscape 6.2.1	HP-UX
Netscape 6.2.3	Linux for Intel Architecture
Netscape 4.78 - Obtain from http://www.sun.com/software/solaris/netscape	Solaris
Netscape 4.79	HP UX for the Itanium Processor Family Architecture
Netscape Communicator 4.78i	AIX
Netscape 4.76	Compaq Tru64 UNIX
Internet Explorer, Version 5.5 or higher or Netscape, Version 6.2 or higher	Windows NT, Windows 2000, Windows XP
Internet Explorer, Version 6 (32-bit only)	Windows 64-bit editions

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