

System Requirements

SAS[®] 9.1.2 Foundation HP-UX for the Itanium Processor Family Architecture

This document provides requirements for installing and running SAS 9.1.2 Foundation for HP-UX for the Itanium Processor Family Architecture. You must update your system to meet the minimum requirements before running SAS 9.1.2 Foundation. 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

SAS 9.1.2 Foundation is supported on the following operating system:

- HP-UX 11i version 2, operating system release identifier B.11.23

We require that you apply the following patch prior to installing SAS 9.1.3 Foundation on HP-UX IPF, Release 11i version 2:

- PHKL_32542

Note: *The patch levels listed were correct at the time this document was printed. However, patches required for HP-UX for the Itanium Processor Family Architecture are subject to unexpected change. To ensure you have the latest patch requirements, go to the Install Center Web page (<http://support.sas.com/installcenter>) and select HP-UX for the Itanium Processor to find the most recent updates to this System Requirements document.*

SAS for HP-UX for the Itanium Processor Family requires "streams" to be turned on and configured. To verify if your system has streams configured, you should perform the following command:

```
/usr/sbin/kctune -q streampipes
```

If streams are configured properly, the following output should be produced:

<u>Tunable</u>	<u>Value</u>	<u>Expression</u>
streampipes	1	1

If the value of the "Value" column is not "1", streams are not configured correctly. To configure streams, please refer to the HP-UX System's Documentation for assistance. A rebuild of the HP-UX kernel will typically be required after defining the kernel parameter streampipes correctly.

Web Browser

SAS 9.1.2 Foundation requires:

- Netscape 7.0

The correct version of Netscape can be downloaded from the Install Center (<http://support.sas.com/documentation/installcenter/hpipf/91/ts1m2/index.html>), under "Third-party software reference links" in the **Resources** section on the right.

For SAS to be able to use your Web browser, the browser must be configured to allow pop-up windows.

Hardware Requirements

Machines Supported

- HP machines conforming to IA64

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.

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 SAS 9.1.2 Foundation for HP-UX for the Itanium Processor Family Architecture. Use this information to help you determine how much free disk space you must have available before you can install SAS 9.1.2. In addition, SAS 9.1.2 Foundation 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	08.2	8.9
SAS/ACCESS Interface to DB2 Software	1.5	0.1
SAS/ACCESS Interface to Microsoft SQL Server	19.2	0.1
SAS/ACCESS Interface to ODBC Software	1.4	0.1
SAS/ACCESS Interface to Oracle Software	1.5	0.1
SAS/ACCESS Interface to PC File Formats Software	3.9	0.0
SAS/ACCESS Interface to R/3 Software	68.8	0.1
SAS/ACCESS Interface to SAP BW Software	2.7	0.0
SAS/AF Software	7.6	0.0
SAS/ASSIST Software	21.9	0.0
SAS/CONNECT Software	6.3	0.3
SAS Data Quality Server Software	136.1	0.1
SAS/EIS Software	18.4	10.5
Enterprise Miner Server Software	111.6	38.2
SAS/ETS Software	70.3	1.5
SAS/FSP Software	2.6	0.0
SAS/GENETICS Software	3.0	0.3
SAS/GIS Software	68.4	0.4
SAS/GRAPH Software	106.7	3.0
SAS High-Performance Forecasting Software	18.8	0.1
SAS/IML Software	22.3	0.9
SAS/INSIGHT Software	26.3	0.5
SAS Integration Technologies Software	10.2	0.5
SAS/IntrNet Software	3.4	1.2
SAS Inventory Replenishment Planning Software	0.7	0.1
SAS/LAB Software	13.6	0.0
SAS Marketing Automation Processes Software	0.4	0.0
SAS OLAP Server Software	6.0	0.0
SAS/OR Software	64.9	2.5
SAS/QC Software	51.1	4.6
SAS/SECURE Software	4.2	0.0
SAS/SHARE Software	1.1	0.2
SAS/SPECTRAVIEW Software	4.9	14.4
SAS/STAT Software	115.0	4.0
SAS/Warehouse Administrator Software	45.3	0.0

SAS/GIS Census Tract Maps

State	Required Disk Space in MB
Alabama	13.0
Alaska	10.5
Arizona	4.1
Arkansas	11.7
California	18.5
Colorado	8.3
Connecticut	2.8
Delaware	0.9
District of Columbia	0.1
Florida	15.7
Georgia	16.0
Hawaii	1.7
Idaho	8.7
Illinois	14.4
Indiana	8.5
Iowa	8.6
Kansas	9.2
Kentucky	13.0
Louisiana	17.3
Maine	8.4
Maryland	4.5
Massachusetts	5.0
Michigan	13.2
Minnesota	18.0
Mississippi	9.7
Missouri	13.5

State	Required Disk Space in MB
Montana	13.1
Nebraska	7.6
Nevada	3.4
New Hampshire	2.9
New Jersey	4.4
New Mexico	4.8
New York	15.2
North Carolina	15.9
North Dakota	9.9
Ohio	12.0
Oklahoma	9.8
Oregon	10.1
Pennsylvania	14.6
Rhode Island	0.9
South Carolina	9.9
South Dakota	8.8
Tennessee	14.5
Texas	29.1
Utah	5.4
Vermont	2.2
Virginia	12.7
Washington	10.1
West Virginia	7.0
Wisconsin	13.8
Wyoming	7.2
Total for all entries	495.0

SAS/GRAPH Map Data Sets

Data Set	Required Disk Space
Countries in Africa and Middle East Maps	6.7
Countries in Asia and Pacific Maps	22.0
Countries in Europe Maps	14.6
North America Maps	5.5
Countries in Latin America and Caribbean Maps	6.9
Canada Maps	1.9
Continents Maps	25.7
World Map	26.0
Very Large US County Map, Unprojected	13.1
Large US County Map, Unprojected and Reduced	1.5
Large US Mainland County Map, Projected and Reduced	1.5
Large US State Outline Map, Unprojected	1.5
Total for all entries	126.9

DBCS Support

The following list contains space requirements in MB for SAS 9.1.2 components that offer DBCS support.

Software Product	Required Disk Space
Base SAS Software	62.2
SAS/ACCESS Interface to DB2 Software	1.4
SAS/ACCESS Interface to Microsoft SQL Server Software	1.3
SAS/ACCESS Interface to ODBC Software	1.3
SAS/ACCESS Interface to Oracle Software	0.5
SAS/ACCESS Interface to PC Files Software	2.6
SAS/ACCESS Interface to R/3 Software	0.2
SAS/AF Software	0.8
SAS/CONNECT Software	2.0
SAS/EIS Software	0.6
Enterprise Miner Server Software	0.3
SAS/FSP Software	1.0
SAS/GRAPH Software	66.1
SAS/INSIGHT Software	11.5
SAS Integration Technologies Software	0.2
SAS/LAB Software	2.8
SAS/QC Software	1.5
SAS/SHARE Software	0.2
SAS/STAT Software	2.3

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	12.8	0.4	12.8	0.4
Enterprise Miner Server Software	3.5	0.0	3.5	0.0
SAS/GRAPH Software	0.2	0.0	0.2	0.0
SAS/IntrNet Software	0.3	0.0	0.3	0.0
SAS OLAP Server Software	0.2	0.0	0.2	0.0
Countries in Asia and Pacific Maps	22.0	0.0	22.0	0.0

Korean Language

Korean Support	Required Disk Space
Base SAS Software	8.2
Enterprise Miner Server Software	0.1
SAS/GRAPH Software	0.2
SAS OLAP Server Software	0.2
SAS/QC Software	0.2

Chinese Simplified Language

Chinese Simplified Support	Required Disk Space
Base SAS Software	8.6
Enterprise Miner Server Software	0.1
SAS/GRAPH Software	0.2
SAS/IntrNet Software	0.3
SAS OLAP Server Software	0.2

Chinese Traditional Language

Chinese Traditional Support	Required Disk Space
Base SAS Software	2.9
SAS/GRAPH Software	16.7
SAS OLAP Server Software	0.2

French Language

French Support	Required Disk Space
Base SAS Software	23.6
Enterprise Miner Server Software	0.2
SAS Data Quality Server Software	0.1
SAS/EIS Software	9.7
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

German Language

German Support	Required Disk Space
Base SAS Software	4.8
Enterprise Miner Server software	0.2
SAS Data Quality Server Software	0.1
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

Hungarian Language

Hungarian Support	Required Disk Space
Base SAS Software	4.5
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 (Castilian) Language

Spanish (Castilian) Support	Required Disk Space
Base SAS Software	20.3
Enterprise Miner Server software	0.2
SAS Data Quality Server Software	0.1
SAS/ETS Software	0.7
SAS/Genetics Software	0.1
SAS/GRAPH Software	0.4
SAS/OR Software	0.5
SAS/QC Software	0.2
SAS/STAT Software	0.8

Specific Product Requirements

SAS/ACCESS Interface to DB2 Software

Products Required:

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

DBMS Product Required:

- DB2 Universal Database, Version 8.1 Fix Pak 4 or higher (64-bit libraries), for HP IA64

SAS/ACCESS Interface to DB2 can be installed on a DB2 server or on a DB2 client node with an installation of the DB2 Run-Time Client, DB2 Application Development Client, or DB2 Administration Client.

SAS/ACCESS Interface to Microsoft SQL Server Software

Products Required:

- Base SAS software
- SAS/ACCESS Interface to Microsoft SQL Server software

DBMS Products Required:

- Microsoft SQL Server, Version 6.5 or later (64-bit libraries)

The SAS/ACCESS Interface to Microsoft SQL Server product is made up of a SAS component and a DBMS access component. The DBMS access component consists of a Microsoft SQL Server ODBC driver from DataDirect Technologies that provides access to Microsoft SQL Server. This ODBC driver is included on the SAS System media and is unloaded when you install the SAS System.

The Microsoft SQL Server ODBC driver contains ODBC API-compliant dynamic link libraries, referred to in UNIX as shared objects. You must include the full path to the dynamic link libraries in LD_LIBRARY_PATH so that the Microsoft SQL Server ODBC driver can be loaded dynamically at run time.

A sample `.odbc.ini` file is included with the DataDirect Microsoft SQL Server ODBC driver. You will need to modify the `.odbc.ini` file to configure your Microsoft SQL Server data source.

SAS/ACCESS Interface to ODBC Software

Products Required:

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

DBMS Products Required:

- A compliant ODBC driver manager and ODBC driver (64-bit libraries)

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 in order to access the data.

You may have to edit the `.odbc.ini` file in your home directory with a text editor to configure data sources. Some ODBC driver vendors may allow a system administrator to maintain a centralized copy by setting an environment variable.

The ODBC drivers are ODBC API-compliant dynamic link libraries, referred to in UNIX as shared objects. You must include the full path to the dynamic link libraries in `LD_LIBRARY_PATH` so that the ODBC drivers can be loaded dynamically at run time.

For more information, please consult your ODBC driver vendor.

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 release is:

- Oracle, Release 9.2.

SAS/ACCESS Interface to PC Files Software

Products Required:

- Base SAS software
- SAS/ACCESS Interface to PC Files software

Products Required on Windows:

- SAS PC Files Server

DBMS Products Required on Windows:

- Microsoft Jet 4.0 Components
- Microsoft Data Access Components(MDAC), Version 2.7 or higher

SAS/ACCESS Interface to PC Files software supports access to delimited file (csv, tab), dBase file (.dbf), JMP file (.jmp), Excel file (.xls), Microsoft Access database file (.mdb) and virtually any data source through ODBC support on Windows.

However, to access Microsoft Access database file(.mdb), Microsoft Excel workbook file(.xls) or any ODBC supported data sources, SAS/ACCESS Interface to PC Files software requires the PC Files Server (pcfserver.exe) running on Windows. The PC Files Server (pcfserver.exe) component is shipped on the Client Side Components CDs.

SAS/ACCESS Interface to R/3 Software

Note: The graphical user interface of the SAS/ACCESS Interface to R/3 is not supported on HP-UX for the Itanium Processor Family Architecture.

Note: The RFC Server is only supported on the following platforms: Windows, HP-UX, Linux Red Hat 8.0 (**not** on Suse Linux), Solaris, AIX, Tru64 UNIX, and z/OS. When running SAS/ACCESS Interface to R/3 on HP-UX for the Itanium Processor Family Architecture, you must run the RFC server on one of the supported platforms.

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 4.5B or higher

SAS/ACCESS Interface to SAP BW Software

Note: The graphical user interface of the SAS/ACCESS Interface to SAP BW is not supported on HP-UX for the Itanium Processor Family Architecture.

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, or
- SAS OLAP Server software

SAP BW Products Required:

- SAP BW, Release 2.0B or higher

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 BI Server 9.1.2

Products Required for SAS BI Server 9.1.2:

- SAS BI Server, which contains:
 - Base SAS software
 - SAS Integration Technologies software
 - SAS/GRAPH software

Disk Space Required for SAS BI Server 9.1.2:

The disk space required for SAS BI Server 9.1.2 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 SAS 9.1.2 Foundation already installed, then the amount of disk space required to install SAS BI Server 9.1.2 should be decreased by the disk space of any of the above products that have been previously installed.

SAS/CONNECT Software

TCP/IP Access Method:

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

SAS Data Quality Server Software

Memory:

The memory requirements for SAS Data Quality Server software are dependent upon the complexity of the data and the number of locales loaded from the Quality Knowledge Base at one time.

- 128 MB recommended per locale

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.

SAS Enterprise BI Server 9.1.2**Products Required for SAS Enterprise BI Server 9.1.2:**

- SAS Enterprise BI Server, which contains:
 - Base SAS software
 - SAS Integration Technologies software
 - SAS/GRAPH software
 - SAS/IntrNet software

Disk Space Required for SAS Enterprise BI Server 9.1.2:

The disk space required for SAS Enterprise BI Server 9.1.2 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 SAS 9.1.2 Foundation already installed, then the amount of disk space required to install SAS Enterprise BI Server 9.1.2 should be decreased by the disk space of any of the above products that have been previously installed.

SAS Enterprise ETL Server 9.1.2**Products Required for SAS Enterprise ETL Server 9.1.2:**

- SAS Enterprise ETL Server, which contains:
 - Base SAS software
 - SAS Data Quality Server and a Quality Knowledge Base of choice
 - SAS Integration Technologies software
 - SAS/ACCESS software of choice
 - A second SAS/ACCESS software of choice
 - SAS/CONNECT software
 - SAS/SHARE software

Disk Space Required for SAS Enterprise ETL Server 9.1.2:

The disk space required for SAS Enterprise ETL Server 9.1.2 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 SAS 9.1.2 Foundation already installed, then the amount of disk space required to install SAS Enterprise ETL Server 9.1.2 should be decreased by the disk space of any of the above products that have been previously installed.

Enterprise Miner Solution 4.3

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
 - SAS Integration Technologies

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 SAS 9.1.2 Foundation 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 ETL Server 9.1.2

Products Required for SAS ETL Server 9.1.2:

- SAS ETL Server, which contains:
 - Base SAS software
 - SAS Integration Technologies software
 - SAS/CONNECT software

Disk Space Required for SAS ETL Server 9.1.2:

The disk space required for SAS ETL Server 9.1.2 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 SAS 9.1.2 Foundation already installed, then the amount of disk space required to install SAS ETL Server 9.1.2 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 SAS 9.1.2 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.

SAS/LAB Software

Products Required:

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

SAS Marketing Automation Server Software

Products Required:

- Base SAS software
- SAS/ACCESS engine of choice
- SAS Marketing Automation Server, which contains:
 - SAS Marketing Automation Processes software and necessary elements of the following:
 - SAS/CONNECT software
 - SAS Enterprise Miner Server software
 - SAS/ETS software
 - SAS/GRAPH software
 - SAS Integration Technologies software
 - SAS/OLAP Server software
 - SAS/OR software
 - SAS/SHARE software
 - SAS/STAT software

Disk Space Required for SAS Marketing Automation Server:

SAS Marketing Automation 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 SAS 9.1.2 Foundation already installed, then the amount of disk space required to install SAS Marketing Automation Server should be decreased by the disk space of any of the above products that have been previously installed.

SAS Metadata Server Software

Products Required:

- Base SAS software
- SAS/Connect

Disk Space Required for SAS Metadata Server:

SAS Metadata 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 SAS 9.1.2 Foundation already installed, then the amount of disk space required to install SAS Metadata Server should be decreased by the disk space of any of the above products that have been previously installed.

SAS OLAP Server Software

Products Required:

- Base SAS software
- SAS OLAP Server contains necessary elements of the following:
 - SAS/AF software
 - SAS/GRAPH software
 - SAS Integration Technologies software

Memory:

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

- 512 MB required

Large applications will see performance improvements with more available memory

Portal Server Components 9.1.2

Products Required:

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

Disk Space Required for SAS Portal Server Components 9.1.2:

The disk space required for Portal Server Components 9.1.2 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 SAS 9.1.2 Foundation already installed, then the amount of disk space required to install Portal Server Components 9.1.2 should be decreased by the disk space of any of the above products that have been previously installed.

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.

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 Institute 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 Institute 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 SAS 9.1.2.

Refer to the "Web Browser" section in this document for a list of browsers with which you can view HTML pages on this operating environment.

To view the Java applets, the Java plug-in must be installed on each client machine. On Windows systems, the user can install the plug-in when prompted if it is not already installed. On other systems, the plug-in can be installed from one of the Third Party Software Components CDs. Follow the instructions included with the Java and web browser installation for your system to enable the Java plug-in.

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