

System Requirements

The SAS[®] System Release 8.2 (TS2M0) ABI+ for Intel[®] Architecture

This document provides requirements for installing and running the SAS System on ABI+ for Intel Architecture compliant systems. 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

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 "Contacting SAS Institute Technical Support" in the Installation Instructions included in your package).

Software Requirements

Operating System

The SAS System should run on any ABI+ for Intel Architecture compliant system that conforms to the **ABI+ for the Intel Architecture, Edition 3.0** guide. Should you find that the SAS System will not run on an ABI+ for Intel Architecture compliant system, contact the operating system vendor and SAS Technical Support.

The SAS System has been tested on the following systems. Please check the Alert Notes for any known problems.

Company	Operating System
NCR	UNIX SVR4 MP-RAS, Version 3.02
SCO	UnixWare, Version 7
Sequent	DYNIX/ptx, Version 4.4.1
Sun	Solaris, Release 2.6 and Release 7

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://home.netscape.com/computing/download/index.html>

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.

Utilities

PDF and PostScript Readers

Some documentation delivered with the SAS System is stored in PDF and PostScript formats. You can download readers for files stored in these formats from the following sites:

For PostScript files, you can obtain a copy of Ghostview, Ghostscript, or GSview from:

<http://www.cs.wisc.edu/~ghost/index.html>

For PDF files, you can obtain a copy of Adobe Acrobat Reader from:

<http://www.adobe.com/prodindex/acrobat/readstep.html>

Hardware Requirements

Distribution Media

- CD-ROM

Memory Requirements

- 64 MB recommended
- 8 MB additional recommended for each concurrent user

Terminals Supported

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

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 ABI+ for Intel Architecture. Use this information to help you determine how much free disk space you must have available before you can install the SAS System. The SAS System installation requires that 20 MB of hard disk space be available on the /tmp partition.

Software Product	Required Disk Space	Additional Space for Samples/Optional Files
Base SAS Software	173.4	7.6
DBCS Asian Language Support Software	54.0	0.0
SAS/ACCESS Interface to Baan Software	0.8	0.0
SAS/ACCESS Interface to CA-OpenIngres Software	0.5	0.2
SAS/ACCESS Interface to ORACLE Software	5.0	0.2
SAS/ACCESS Interface to PC File Formats Software	0.2	0.0
SAS/ACCESS Interface to R/3 Software	10.2	0.1
SAS/ACCESS Interface to Teradata Software	0.4	0.2
SAS/AF Software	8.5	0.0
SAS/ASSIST Software	16.2	0.0
SAS/CONNECT Software	2.9	0.2
SAS/EIS Software	19.6	10.4
Enterprise Miner Server Software	51.0	43.1
SAS/ETS Software	23.5	0.5
SAS/FSP Software	0.8	0.0
SAS/GIS Software	54.8	0.3
SAS/GRAPH Software	31.1	2.4
SAS/GRAPH Map Data Sets	127.5	0.0
SAS/IML Software	7.0	0.5
SAS/INSIGHT Software	13.0	0.4
SAS/IntrNet Software	1.8	1.1
SAS/LAB Software	7.4	0.0
SAS/MDDDB Server Software	12.8	0.0
SAS OnlineTutor Software	57.6	0.0
SAS/OR Software	31.3	1.9
SAS/QC Software	24.6	3.7
SAS/SECURE 168-bit Software	0.9	0.0
SAS/SHARE Software	35.6	0.2
SAS/SPECTRAVIEW Software	1.9	11.3
SAS/STAT Software	38.0	2.0
SAS/TOOLKIT Software	21.1	0.0
Total	833.4	86.3

SAS/GIS Census Tract Maps

State	Required Disk Space in MB
Alabama	11.9
Alaska	9.8
Arizona	3.7
Arkansas	10.8
California	16.7
Colorado	7.5
Connecticut	2.3
Delaware	0.7
District of Columbia	0.1
Florida	14.0
Georgia	14.4
Hawaii	1.5
Idaho	8.0
Illinois	12.8
Indiana	7.5
Iowa	7.7
Kansas	8.3
Kentucky	11.8
Louisiana	16.0
Maine	7.7
Maryland	4.0
Massachusetts	4.2
Michigan	11.9
Minnesota	16.4
Mississippi	8.9
Missouri	12.2

State	Required Disk Space in MB
Montana	12.2
Nebraska	6.8
Nevada	3.1
New Hampshire	2.5
New Jersey	3.7
New Mexico	4.4
New York	13.4
North Carolina	14.5
North Dakota	9.0
Ohio	10.6
Oklahoma	8.9
Oregon	9.2
Pennsylvania	12.8
Rhode Island	0.8
South Carolina	9.0
South Dakota	8.0
Tennessee	13.1
Texas	26.3
Utah	4.9
Vermont	1.9
Virginia	11.4
Washington	9.3
West Virginia	6.4
Wisconsin	12.5
Wyoming	6.7
Total for all entries	452.2

SAS/IntrNet Software Components

The SAS/IntrNet Software Components are contained in the *SAS Client-Side Components* CD and have the following disk space requirements if installed:

Software Component	Required Disk Space in MB
CGI Tools for Web Server	3.9
Java Tools	1.8
MetaSpace Explorer	10.5
Connection Wizard	7.8
Total	24.0

Specific Product Requirements

SAS/ACCESS Interface to Baan Software

Operating System Supported:

- NCR UNIX SVR4 MP-RAS, Version 3.02 or higher

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 CA-OpenIngres Software

Operating System Supported:

- Sequent DYNIX/ptx, Version 4.4.1

Products Required:

- Base SAS software
- SAS/ACCESS Interface to CA-OpenIngres software

DBMS Products Required:

- CA-OpenIngres, Version 2.0 (Ingres II)

CA-OpenIngres ESQL/C development tools are required on the local SAS node. The CA-OpenIngres installation can be a Server, NFS Client, or Tools Client installation. To use SAS/ACCESS Interface to CA-OpenIngres software in a distributed environment, CA-OpenIngres/Net is required.

SAS/ACCESS Interface to ORACLE Software

Operating System Supported:

- NCR UNIX SVR4 MP-RAS, Version 3.02 or higher
- Sequent DYNIX/ptx, Version 4.4.1

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 that has Oracle SQL*Net support.

One of the following Oracle releases is required:

- Oracle, Release 7.3.4.5 (includes patch 939775) (NCR)
- Oracle, Release 8.0.5.2 (includes patch 964246) (NCR)
- Oracle, Release 7.3.4.0 prelinked static (Sequent)
- Oracle, Release 8.1.5.0 shared lib (Sequent)

SAS/ACCESS Interface to R/3 Software

Operating System Supported:

- NCR UNIX SVR4 MP-RAS, Version 3.02 or higher

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 3.0A or higher
- SAP R/3 Remote Function Call Software Development Kit (RFCSDK)

SAS/ACCESS Interface to Teradata Software

Operating System Supported:

- NCR UNIX SVR4 MP-RAS, Version 3.02 or higher

Products Required:

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

DBMS Products Required:

- Teradata RDBMS Server, Version 2, Release 2 (V2R2) or higher
- Teradata Client Software installed on Unix MP-RAS. SAS/ACCESS uses CLIV2 libraries supplied with the Teradata Utilities Foundation (TUF)

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.

Video Player Object in SAS/AF Software

Hardware:

- Audio is not supported.

Base SAS Software

External Tape Devices Supported:

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

- 4mm cartridge tapes
- 8mm cartridge tapes

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:

- Audio is not supported.

SAS/CONNECT Software

TCP/IP Access Method:

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

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

Printers:

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

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/ETS software
 - SAS/GRAPH software

Note: Enterprise Miner Server media contains the experimental product Enterprise Miner for Text Mining. Enterprise Miner for Text Mining provides a set of tools to examine documents and text for patterns, to perform semantic analysis, and to mine text for information. Enterprise Miner for Text Mining 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 for Text Mining.

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.

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.

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.

MDDDB 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.

MetaSpace Explorer Applet

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

SAS/LAB Software

Products Required:

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

SAS/MDDDB Server Software

Memory:

The memory requirements for SAS/MDDDB 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/MDDDB 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/SHARE Software

TCP/IP Access Method:

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

SAS/TOOLKIT Software

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

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 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:

Java-enabled Web Browser	Operating System
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 NT Server

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