The SAS® System
Release 8.2 (TS2M0)
Compaq Tru64™ UNIX®

This document provides requirements for installing and running the SAS System for Compaq Tru64 UNIX. 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 is supported on the following operating system:

- Tru64 UNIX, Version 5.1A with PK4

Note: You must have the OSFSVID2*XXX* (where *XXX* refers to the operating system release you are installing) subset installed in order to run the SAS System. This subset provides UNIX SVID2 compatibility. See the `setld` command for further information on how to install this subset or to see if this subset is already installed.

It may be necessary to reconfigure the Compaq Tru64 UNIX kernel in order to run the SAS System. If your operating system version **precedes** Version 5.0A, you should review the following kernel parameters:

- `mapentries`

  Set the `mapentries` value appropriate for the number of concurrent SAS sessions you expect to have. The formula is as follows:

  `mapentries = 200 + 25 * "number of SAS System users"`

  For example, if the number of SAS System users is 8:

  `mapentries = 200 + 25 * 8 = 400`

  Change the parameter in the kernel configuration file for your system's machine (the default value is 200 as shipped).

`mapentries 400`

  Use the method for **Dynamic System Configuration** in the chapter titled *Configuring the Kernel* in the *System Administration* manual. Use the `sysconfig -q vm` command to query the vm subsystem where `mapentries` is one of its attributes (see the `sysconfig` man page for help). Once this attribute is changed, the system must be rebooted. Please note that this can be done after installing the SAS System.

- `vm_vpagemax`

  By increasing this value from the default of 16384, the `mprotect` system call will work properly when running large SAS jobs.

  `vm_vpagemax 32768`

- `vm_maxvas`

  If you will be running large SAS jobs, it is recommended that you change the `vm_maxvas` kernel parameter:

  `vm_maxvas 4294967296`

The kernel attributes `mapentries`, `vm_vpagemax`, and `vm_maxvas` have been removed from Compaq Tru64 UNIX, Version 5.0 and above.

The maximum default virtual address space limit for any process running on Compaq Tru64 UNIX before Version 5.0 is 1 GB. The maximum default virtual address space limit for any process running on Compaq Tru64 UNIX for Version 5.0A and Version 5.1 is 4 GB (the actual number is 4294967296). Large SAS applications can perform better with more virtual address space, so we set the maximum virtual address space limit for any process to be 8 GB (the actual number is 8589934592) in this example. You may set this higher if necessary. Note that it is common to have a virtual address space larger than the amount of physical memory on the system. Also note that setting this parameter to 8 GB does not mean that all processes will then have a 8 GB virtual address space, it only allows the ability to give processes a 8 GB virtual address space. You will need to change the values of the SAS System options for `memsize` and `sortsize` if you want to take advantage of the increased virtual address space.

Use the `sysconfig -q proc` command to query the proc subsystem for these attributes. You can modify process virtual address space attributes by changing the default values for the following parameters:

- `per_proc_address_space`
- `max_per_proc_address_space`
- `per_proc_data_size`
- `max_per_proc_data_size`

Increase the value of the `max_per_proc_address_space` parameter to allow processes to have a larger virtual address space. In this case, the maximum value you would be able to assign the `max_per_proc_address_space` parameter would be 8 GB. This is the value for virtual address space for any process running on Compaq Tru64 UNIX.

```
max_per_proc_address_space 8589934592
```

Similarly, increase the value of the `max_per_proc_data_size` parameter to 8 GB. This is the value for the maximum allowable size of the data space for any process on Compaq Tru64 UNIX.

```
max_per_proc_data_size 8589934592
```

Please remember that the 8 GB (the actual number is 8589934592) value is an example. You can set this value to be larger if you have the resources to support larger values. For example, the value for 16 GB is 17179869184.

This allows a user to increase their virtual address space beyond the defaults by using the Korn Shell `ulimit` command. Use `ulimit -a` to list all resource limits. Use `ulimit -d` to specify the number of KB for the data area up to the `max_per_proc_data_size` value. Use `ulimit -v` to specify the number of KB for virtual address space up to the `max_per_proc_address_space` value.

As a reference to the configuration steps listed in this document or as a reference for Compaq Tru64 UNIX documentation, access Compaq's URL at:

http://www.tru64unix.compaq.com/faqs/publications/pub_page/pubs_page.html

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

Machines Supported

- All models that support DIGITAL UNIX, Version 4.0D
- All models that support Tru64 UNIX, Version 4.0F, Version 5.0A, or Version 5.1

Distribution Media

- CD-ROM

Memory Requirements

- 96 MB or more recommended
- 16 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 Compaq Tru64 UNIX. 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	247.2	7.7
DBCS Asian Language Support Software	74.0	0.0
SAS/ACCESS Interface to Baan Software	0.8	0.0
SAS/ACCESS Interface to CA-OpenIngres Software	2.5	0.2
SAS/ACCESS Interface to INFORMIX Software	0.5	0.2
SAS/ACCESS Interface to ODBC Software	0.7	0.2
SAS/ACCESS Interface to ORACLE Software	4.5	0.2
SAS/ACCESS Interface to PC File Formats Software	0.4	0.0
SAS/ACCESS Interface to PeopleSoft Software	0.7	0.1
SAS/ACCESS Interface to R/3 Software	52.6	0.1
SAS/ACCESS Interface to SAP BW Software	2.0	0.0
SAS/ACCESS Interface to SYBASE Software	1.2	0.2
SAS/AF Software	9.1	0.0
SAS/ASSIST Software	16.6	0.0
SAS/CONNECT Software	4.1	0.2
SAS Data Quality – Cleanse	6.5	0.1
SAS/EIS Software	20.3	10.5
Enterprise Miner Server Software	54.9	44.4
SAS/ETS Software	29.0	0.5
SAS/FSP Software	1.8	0.0
SAS/Genetics Software	1.1	0.1
SAS/GIS Software	57.7	0.3
SAS/GRAPH Software	37.7	2.5
SAS/GRAPH Map Data Sets	127.7	0.0
SAS High-Performance Forecasting Software	0.7	0.0
SAS/IML Software	9.6	0.5
SAS/INSIGHT Software	13.7	0.4
SAS Integration Technologies Software	12.1	1.2
SAS/IntrNet Software	2.3	1.1
SAS IT Resource Management Server Software	167.1	79.8
SAS IT Security Management Server Software	167.1	79.8
SAS IT Service Level Management Software	1.9	12.0
SAS/LAB Software	8.3	0.0
SAS Marketing Optimization Server Software	1.3	.0
SAS/MDDB Server Software	13.7	0.0
SAS OnlineTutor Software	57.7	0.0
SAS/OR Software	37.6	1.9
SAS/QC Software	16.3	1.2
Risk Dimensions Analyst Edition	562.0	3.3
Risk Dimensions Enterprise Edition	673.8	3.3
SAS/SECURE 168-bit Software	1.3	0.0
SAS/SHARE Software	36.0	0.2
SAS/SPECTRAVIEW Software	2.3	11.4

Software Product	Required Disk Space	Additional Space for Samples/Optional Files
SAS/STAT Software	44.5	2.0
SAS/TOOLKIT Software	15.2	0.0
SAS/Warehouse Administrator Software	40.4	0.0
WebHound Software	20.0	0.0

* 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 KB	State	Required Disk Space in KB
Alabama	13.2	Montana	13.1
Alaska	10.3	Nebraska	7.3
Arizona	4.0	Nevada	3.3
Arkansas	11.9	New Hampshire	2.8
California	18.4	New Jersey	4.4
Colorado	8.2	New Mexico	4.8
Connecticut	2.8	New York	15.2
Delaware	0.8	North Carolina	16.0
District of Columbia	0.1	North Dakota	9.8
Florida	15.6	Ohio	12.1
Georgia	15.7	Oklahoma	9.7
Hawaii	1.6	Oregon	10.0
Idaho	8.6	Pennsylvania	14.6
Illinois	14.3	Rhode Island	0.9
Indiana	8.3	South Carolina	9.9
Iowa	8.2	South Dakota	8.7
Kansas	8.9	Tennessee	14.7
Kentucky	12.9	Texas	28.7
Louisiana	17.3	Utah	5.3
Maine	8.3	Vermont	2.1
Maryland	4.5	Virginia	12.5
Massachusetts	4.9	Washington	10.1
Michigan	13.3	West Virginia	7.0
Minnesota	17.8	Wisconsin	13.9
Mississippi	9.8	Wyoming	7.2
Missouri	13.5	**Total for all entries**	**497.3**

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	4.1
Java Tools	1.8
MetaSpace Explorer	10.5
Connection Wizard	7.8
Total	**24.2**

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
SAS/ACCESS Interface to PC Files Formats Software	0.1	0.0	0.1	0.0
Base SAS Software	45.7	0.3	47.0	0.3
SAS/AF Software	0.1	0.0	0.1	0.0
SAS/ASSIST Software	13.6	0.0	14.2	0.0
SAS/EIS Software	15.7	0.0	14.9	0.0
SAS/GRAPH Software	3.8	0.0	3.5	0.0
SAS/GRAPH Map Data Sets	0.9	0.0	0.9	0.0
SAS/INSIGHT Software	0.3	0.0	0.3	0.0
SAS/IntrNet Software	0.3	0.0	0.5	0.0
SAS/MDDB Server Software	0.1	0.0	0.1	0.0
SAS/Warehouse Administrator Software	9.9	0.0	11.1	0.0
WebHound Software	8.8	0.0	8.2	0.0

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 CA-OpenIngres Software

Products Required:

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

DBMS Products Required:

- CA-OpenIngres, 1.2/00

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 INFORMIX Software

Products Required:

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

DBMS Products Required:

The SAS System and Informix both run on a variety of UNIX-based hardware. SAS/ACCESS Interface to INFORMIX software is a network-based Informix client. Using Informix client libraries, SAS/ACCESS Interface to INFORMIX software connects to an Informix DBMS server running on the same machine as the SAS System or running on a different machine. However, SAS/ACCESS Interface to INFORMIX software requires specific versions of Informix client libraries and Informix DBMS server software.

Informix Client Libraries Required:

- Informix Client SDK, Version 2.01 and above
  or
- Informix Connect (I-Connect), Version 2.30 and above

Because of the large number of Informix client and server software versions, not all combinations of Informix client and server software have been validated with the SAS System. The SAS System relies on the **upward compatibility** of Informix software. However, if you have concerns about running the SAS System with a particular combination of Informix client and server software, contact Informix or SAS Institute. Both Informix and SAS Institute provide Web sites that detail what combinations have been tested.

Existing (or legacy) applications can require maintaining an Informix client software version older than 2.01. In this situation, you need to install Informix client software version 2.01 or higher to support the SAS System. Both Informix client software versions can reside on your machine at the same time. Before running the SAS System, set your Informix client "environment" to the new version. When your SAS System, Version 8 processing is complete, reset your Informix client environment to the older version to re-enable existing (or legacy) applications. New Client SDKs can be downloaded free of charge; contact Informix for details.

Informix DBMS Server Software Required:

Informix Dynamic Server Edition must be one of the following IDS or Extended Parallel Server (XPS) versions:

- 7.30
- 8.21
- 9.14

SAS/ACCESS Interface to INFORMIX software runs with any of the 'UC' variants of these server editions, for instance 7.30.UC2 and 8.21.UC1.

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

The MERANT ODBC drivers are available on the Compaq Tru64 UNIX Associated Products CD.

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 `LIBPATH` so that the ODBC drivers can be loaded dynamically at run time.

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

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 that has Oracle SQL*Net support.

One of the following Oracle releases is required:

- Oracle, Release 7.3.4.x
- Oracle, Release 8.0.x
- Oracle, Release 8.1.x

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 3.0A 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/MDDB 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 CT-Library is required:

- SYBASE Open Client, Release 11.1.1 (EBF 8379 or higher)
- SYBASE Open Client, Release 12.x
- Adaptive Server Enterprise, Release 11.x or higher is recommended.

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.

SAS Activity-Based Management Software

Products Required for Activity-Based Management ETL Server:

- Base SAS software
- SAS/ACCESS engine of choice
- SAS Activity-Based Management ETL Server, which contains necessary elements of the following:
  - SAS/CONNECT software
  - SAS Integration Technologies software

Disk Space Required for Activity-Based Management ETL Server:

The disk space required for the Activity-Based Management ETL 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 Activity-Based Management ETL Server should be decreased by the disk space of any of the above products that have been previously installed.

Products Required for Activity-Based Management ETL Administrator:

- Base SAS software
- SAS Activity-Based Management ETL Administrator, which contains necessary elements of the following:
  - SAS/CONNECT software
  - SAS/Warehouse Administrator software

Disk Space Required for Activity-Based Management ETL Administrator:

The disk space required for the Activity-Based Management ETL Administrator 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 Activity-Based Management ETL Administrator should be decreased by the disk space of any of the above products that have been previously installed.

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:

- 96 MB required
- 128 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/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
- 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.

HR Vision Software

Products Required for Human Capital Management Administrator:

- Base SAS software
- Administrator, which contains necessary elements of the following:
    - SAS/CONNECT software
    - SAS/EIS software
    - SAS/FSP software
    - SAS/Warehouse Administrator software

Disk Space Required for Human Capital Management Administrator:

The disk space required for the Human Capital Management Administrator 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 Human Capital Management Administrator 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.

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 IT Resource Management Server Software (Release 2.6)

Products Required for SAS IT Resource Management Server:

- Base SAS software
- SAS IT Resource Management Server Solution, which contains:
    - SAS IT Resource Management Server software
      and necessary elements of the following:
    - SAS/ACCESS to ODBC software
    - SAS/ACCESS to Oracle software
    - SAS/AF software
    - SAS/CONNECT software
    - SAS/EIS software
    - SAS/ETS software
    - SAS/FSP software
    - SAS/GRAPH software
    - SAS/INSIGHT software
    - SAS Integration Technologies software
    - SAS/MDDB Server software
    - SAS/STAT software

Disk Space Required for SAS IT Resource Management Server:

The disk space required for the SAS IT Resource Management 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 SAS IT Resource Management Server Solution should be decreased by the disk space of any of the above products that have been previously installed.

Other Requirements for SAS IT Resource Management Server:

- SAS IT Resource Management 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`.
- SAS IT Resource Management 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 IT Security Management Server Software (Release 2.6, Pre-Production)

SAS IT Security Management is a new product that combines new functionality with SAS IT Resource Management. While SAS is confident in the quality of SAS IT Resource Management, we are delivering the new functionality as pre-production. Therefore, for system requirements specific to installing and running SAS IT Security Management, please use the system requirements for SAS IT Resource Management above, replacing SAS IT Resource Management Server Software with IT Security Management Server Software when calculating file sizes. If you are installing both IT Resource Management and IT Security Management, you should only count the file sizes once.

SAS IT Service Level Management Server Software (Release 2.6)

Products Required for SAS IT Service Level Management Server:

- Base SAS software
- SAS IT Resource Management Server 2.6
- SAS IT Service Level Management, which contains
  - SAS IT Service Level Management software
  - SAS/IntrNet to DB2 software

Disk Space Required for SAS IT Service Level Management Server:

The disk space required for the SAS IT Service Level Management 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 SAS IT Service Level Management Server should be decreased by the disk space of any of the above products that have been previously installed.

SAS/LAB Software

Products Required:

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

SAS Marketing Optimization Software

Products Required for SAS Marketing Optimization:

- Base SAS software
- SAS/ACCESS software of choice
- SAS Marketing Optimization software, which contains necessary elements of the following:
    - SAS Marketing Optimization Server software
    - SAS/CONNECT software
    - SAS/GRAPH software
    - SAS/IntrNet software
    - SAS/OR software
    - SAS/SHARE software
    - SAS/STAT software

Disk Space Required for SAS Marketing Optimization:

The disk space required for the SAS Marketing Optimization 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 Marketing Optimization should be decreased by the disk space of any of the above products that have been previously installed.

SAS/MDDB Server Software

Memory:

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

- 96 MB required
- 128 MB or more 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.

Risk Dimensions (Release 3.3)

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

TCP/IP Access Method:

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

SAS Supplier Relationship Management Software

Products Required for Supplier Relationship Management Server:

- Base SAS software
- SAS/ACCESS software of choice
- SRM Server, which contains necessary elements of the following:
  - SAS/CONNECT software
  - SAS/GRAPH software
  - SAS Integration Technologies software
  - SAS/Intrnet software
  - SAS/OR software
  - SAS/SHARE software
  - SAS/STAT software

Disk Space Required for Supplier Relationship Management Server:

The disk space required for the Supplier Relationship Management 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 Supplier Relationship Management Server should be decreased by the disk space of any of the above products that have been previously installed.

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)

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 datetime 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 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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