

# System Requirements

## The SAS<sup>®</sup> System Version 9 (TS M0) Linux<sup>®</sup> for Intel<sup>®</sup> Architecture

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This document provides requirements for installing and running the SAS System for Linux for Intel Architecture. You must update your system to meet the minimum requirements before running the SAS System. The major requirements listed in the document are:

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

### Software Requirements

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#### Operating System

- Red Hat Linux 7.1

**Important:** Most other distributions of Linux will not work.

SAS relies on the following operating system components:

- Linux kernel 2.4.x
- [GNU libc 2.2.x](#) (with LDT threads)

Installations that include different levels of the kernel and libc may be compatible with SAS software, but they have not been tested.

If you upgraded to Red Hat Linux 7.1 (as opposed to doing a new install), you may not have LDT threads. If you do not have a `/lib/i686` directory, you do not have LDT threads. To get LDT threads on Red Hat Linux 7.1, you must replace the `i386 glibc` with the `i686 glibc`. Logged in as root with Red Hat installation disk 1 in the CD-ROM drive, issue the following commands:

```
mount /mnt/cdrom
```

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```
rpm -U --force /mnt/cdrom/RedHat/RPMS/glibc-2.2.2-10.i686.rpm
umount /mnt/cdrom
```

Remember, make a backup before modifying your operating system.

There is a Linux kernel bug in the Linux kernel 2.4 series up to 2.4.7 relating to LDT threads on multiprocessor machines. We recommend you upgrade your kernel to 2.4.8 or higher if your computer has more than one processor.

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## Web Browser

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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>

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

## Java Runtime Environment

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

- Java Version: 1.4.0

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

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

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

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## Hardware Requirements

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### Machines Supported

- Pentium II and above

### Distribution Media

- CD-ROM

### Memory Requirements

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

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## Terminals Supported

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

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# Space Requirements

The following list contains space requirements in MB for all of the products available with this release of the SAS System for Linux 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. In addition, the SAS System installation requires approximately 30 MB of disk space on the /tmp partition to complete the installation.

Software Product	Required Disk Space	Additional Space for Samples/Optional Files
Base SAS Software	317.4	8.1
SAS/ACCESS Interface to DB2 Software	0.7	0.2
<a href="#">SAS/ACCESS Interface to ODBC Software</a>	0.6	0.2
<a href="#">SAS/ACCESS Interface to ORACLE Software</a>	0.7	0.2
<a href="#">SAS/ACCESS Interface to PC Files Software</a>	1.5	0.0
SAS/ACCESS Interface to R/3 Software	83.2	0.1
SAS/ACCESS Interface to SAP BW Software	1.9	0.0
SAS/ACCESS Interface to SYBASE Software	0.9	0.2
SAS/AF Software	9.5	0.0
SAS/ASSIST Software	25.6	0.0
SAS/CONNECT Software	3.6	0.3
SAS Data Quality – Cleanse	18.1	0.0
SAS Data Quality - Cleanse (International Edition)	8.7	0.0
SAS/EIS Software	20.1	10.5
Enterprise Miner Server Software	57.7	34.1
SAS/ETS Software	45.9	0.8
SAS/FSP Software	0.9	0.0
SAS/Genetics Software	1.5	0.2
SAS/GIS Software	64.4	0.3
SAS/GRAPH Software	45.9	2.6
SAS High-Performance Forecasting Software	0.7	0.1
SAS/IML Software	9.4	0.7
SAS/INSIGHT Software	20.7	0.5
SAS Integration Technologies Software	8.1	0.2
SAS/IntrNet Software	4.5	1.2
IT Service Vision Server Software	198.1	0.0
SAS/LAB Software	7.3	0.0
SAS/MDDDB Server Software	10.3	0.0
SAS/OR Software	38.9	2.3
SAS/QC Software	36.8	4.3
Risk Dimensions Analyst Edition	651.1	5.6
Risk Dimensions Enterprise Edition	754.4	5.6

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- Deleted: 0.5
- Deleted: 0.8
- Deleted: 45.3
- Deleted: 43.6
- Deleted: 0.1
- Deleted: 0.3
- Deleted: 36.2
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- Deleted: 20.3
- Deleted: 1.4
- Deleted: 1.3
- Deleted: 0.6
- Deleted: 0.8
- Deleted: 8.0
- Deleted: 7.3
- Deleted: 1.1
- Deleted: 12.7
- Deleted: 38.0
- Deleted: 29.9
- Deleted: 1.7
- Deleted: 1.8
- Deleted: 31.0
- Deleted: 22.9
- Deleted: 3.9
- Deleted: 3.7
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Software Product	Required Disk Space	Additional Space for Samples/Optional Files
SAS/SHARE Software	19.7	0.2
SAS/SPECTRAVIEW Software	4.0	14.4
<b>SAS/STAT Software</b>	<b>61.5</b>	<b>2.4</b>
SAS/Warehouse Administrator Software	46.5	0.0
WebHound Software	21.6	0.0
<b>Total</b>	<b>1,196.9</b>	<b>95.3</b>

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

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## SAS/GIS Census Tract Maps

State	Required Disk Space in MB
Alabama	12.0
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	14.1
Georgia	14.5
Hawaii	1.5
Idaho	8.1
Illinois	12.8
Indiana	7.5
Iowa	7.7
Kansas	8.4
Kentucky	11.9
Louisiana	16.0
Maine	7.7
Maryland	4.0
Massachusetts	4.2
Michigan	11.9
Minnesota	16.4
Mississippi	8.9
Missouri	12.3

State	Required Disk Space in MB
Montana	12.3
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	9.3
Pennsylvania	12.8
Rhode Island	0.8
South Carolina	9.0
South Dakota	8.1
Tennessee	13.2
Texas	26.5
Utah	4.9
Vermont	1.9
Virginia	11.5
Washington	9.3
West Virginia	6.4
Wisconsin	12.5
Wyoming	6.7
<b>Total for all entries</b>	<b>453.6</b>

## SAS/GRAPH Map Data Sets

Data Set	Required Disk Space
Countries in Africa and Middle East Maps	4.1
Countries in Asia and Pacific Maps	11.1
Countries in Europe Maps	12.6
North America and Canada Maps	5.4
Countries in Latin America and Caribbean Maps	6.5
Canada Maps	2.0
Continents Maps	25.8
World Map	25.7

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Very Large US County Map, Unprojected	12.5
Large US County Map, Unprojected and Reduced	1.6
Large US Mainland County Map, Projected and Reduced	1.5
Large US State Outline Map, Unprojected	1.6
<b>Total for all entries</b>	<b>110.4</b>

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## DBCS Support

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

Software Product	Required Disk Space
Base SAS Software	27.5
SAS/ACCESS Interface to DB2 Software	0.4
SAS/ACCESS Interface to ODBC Software	0.4
SAS/ACCESS Interface to ORACLE Software	0.2
SAS/ACCESS Interface to PC Files Software	0.2
SAS/ACCESS Interface to SYBASE Software	0.4
SAS/AF Software	0.4
SAS/CONNECT Software	0.7
SAS/EIS Software	0.2
Enterprise Miner Server Software	0.2
SAS/FSP Software	0.4
SAS/GRAPH Software	17.2
SAS/INSIGHT Software	3.1
SAS Integration Technologies Software	0.1
SAS/LAB Software	0.9
SAS/QC Software	0.5
SAS/SHARE Software	0.1
SAS/STAT Software	0.7

## 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	12.9	0.3	12.9	0.3
SAS/GRAPH Software	0.2	0.0	0.2	0.0
SAS/GRAPH Map Data Sets	2.4	0.0	2.4	0.0
SAS/IntrNet Software	0.3	0.0	0.3	0.0
SAS/MDDDB Server Software	0.2	0.0	0.2	0.0
WebHound Software	12.5	0.0	12.5	0.0

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## Korean Language

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Korean Support	Required Disk Space
Base SAS Software	7.7
SAS/AF Software	0.1
SAS/GRAPH Software	0.2
SAS/MDDB Server Software	0.2
SAS/QC Software	0.2

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## Chinese Simplified Language

Chinese Simplified Support	Required Disk Space
Base SAS Software	8.1
SAS/MDDDB Server Software	0.2
SAS/IntrNet Software	0.3

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## Specific Product Requirements

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### SAS/ACCESS Interface to DB2 Software

#### Products Required:

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

#### DBMS Products Required:

- Universal Database, Version 6 or higher

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

### SAS/ACCESS Interface to ODBC Software

#### Products Required:

- [Base SAS software](#)
- [SAS/ACCESS Interface to ODBC software](#)

#### DBMS Products Required:

- [A compliant ODBC driver manager and ODBC driver](#)

[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:

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¶  
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.¶

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- 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.

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The minimum required Oracle 8 release is:

- Oracle, Release 8.1.7.1

The minimum required Oracle 9 release is:

- Oracle, Release 9i

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

#### **Products Required:**

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

Additional functionality is obtained if the following products are installed:

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

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

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

- SAP R/3, Release 4.0B or higher

### **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 or higher

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## SAS/ACCESS Interface to SYBASE Software

### Products Required:

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

### DBMS Products Required:

The following release of SYBASE Open Client software is required:

- SYBASE Open Client Software, Release 12.5

The following is recommended:

- Adaptive Server Enterprise, Release 11.x or higher

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

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

## 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.

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**SAS/ACCESS Interface to R/3 Software**  
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**Operating System Supported:**  
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¶  
**Products Required:**  
¶  
<#>Base SAS software¶  
<#>SAS/ACCESS Interface to R/3 software¶  
¶  
Additional functionality is obtained if the following products are installed:¶  
¶  
<#>SAS/Warehouse Administrator software¶  
<#>SAS/CONNECT software¶  
<#>SAS/SHARE software¶  
¶  
SAS/ACCESS Interface to R/3 software requires the use of communication protocols such as TCP/IP to function properly.¶  
¶  
**SAP R/3 Products Required:**  
¶  
<#>SAP R/3, Release 2.2 or higher¶  
<#>SAP R/3 Remote Function Call Software Development Kit (RFCSDK)¶

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**Operating System Supported:**  
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<#>NCR UNIX SVR4 MP-RAS, Version 3.02 or higher¶  
¶  
**Products Required:**  
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<#>Teradata Client Software (libcliv2.so, libtdusr.so, etc.) on... [4]

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**Base SAS Software**

**External Tape Devices Supported:**

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

- 4mm cartridge tapes
- 8mm cartridge tapes

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## SAS/CONNECT Software

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### TCP/IP Access Method:

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

## SAS Data Quality – Cleanse

### Memory:

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

## SAS Data Quality – Cleanse (International Edition)

### Products Required:

- Base SAS Software
- SAS Data Quality – Cleanse

### Memory:

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

## SAS/EIS Software

### Products Required for Build Mode:

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

### Products Required for Run Mode:

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

### Memory:

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- ~~64~~ MB required
- ~~96~~ MB recommended

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**Printers:**

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

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## Enterprise Miner Solution (Release 4.2)

### Products Required for Enterprise Miner Server:

- Base SAS software
- Enterprise Miner Server software
- SAS/STAT software
- Enterprise Miner Server Solution, which contains necessary elements of the following:
  - SAS/CONNECT software
  - SAS/ETS software
  - SAS/GRAPH software

### Memory Required for Enterprise Miner Server:

- 512 MB required

### Disk Space Required for Enterprise Miner Server:

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

**Note:** If you have Version 9 of the SAS System already installed, then the amount of disk space required to install the Enterprise Miner Server Solution should be decreased by the disk space of any of the above products that have been previously installed.

## SAS/Genetics Software

### Products Required:

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

### Disk Space Required:

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

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

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## 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

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Operating Systems Supported:

Enterprise Miner software is supported on the same ABI+ for Intel Architecture operating systems as the SAS System; however, please see the **Alert Notes** for information on operating system limitations with NCR's UNIX SVR4 MP-RAS.

**Products Required for Enterprise Miner Server:**

<#>Base SAS software  
<#>Enterprise Miner software  
<#>Enterprise Miner Server bundle, which contains necessary elements of the following:  
<#>SAS/CONNECT software  
<#>SAS/ETS software  
<#>SAS/GRAPH software  
<#>SAS/STAT software

**Memory for Enterprise Miner Server:**

<#>512 MB required

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## Products Required for Run Mode:

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

## Printers:

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

## SAS/IntrNet Software

SAS/IntrNet software consists of several components that may be installed independently. SAS/IntrNet Server software is installed on an existing SAS System and is included on the SAS System media. Other SAS/IntrNet software components may be installed from the SAS Client-Side Components CD.

### CGI Tools and Applications

#### Application Dispatcher

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

#### htmSQL

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

#### MDDB Report Viewer Application

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

#### Xplore Sample Web Application

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

### Java Tools and Applications

#### SAS/CONNECT Driver for Java

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Deleted: SAS/IntrNet software consists of several components that may be installed independently. SAS/IntrNet Server software is installed on an existing SAS System and is included on the SAS System media. Other SAS/IntrNet software components may be installed from the SAS/IntrNet software media. 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 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 running on a UNIX or Windows system.

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##### 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/SHARE Driver for JDBC

Requires Base SAS software, SAS/SHARE software, and a SAS/IntrNet software license (SETINIT). The Java Tools package must be installed on a Web server or client system.

##### 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. [5]

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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.

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## IT Service Vision Solution (Release 2.5.1)

### Products Required for IT Service Vision Server:

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

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

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

**Note:** If you have Version 9 of the SAS System already installed, then the amount of disk space required to install the IT Service Vision Server Solution should be decreased by the disk space of any of the above products that have been previously installed.

### Other Requirements for IT Service Vision Server:

- IT Service Vision requires a screen resolution of at least 800x600. If your display is set to a lower screen resolution, some windows may be truncated to fit the screen. If you experience font display problems, you may want to use the default SAS font. To set the default font type, issue the SAS command `dlgfont` at the command prompt. In the `Font` window, select the font `Sasfont`, a style of `regular`, and font size `10`.
- IT Service Vision requires an Xwindows device that supports 256 or more colors.
- Adobe Acrobat Reader 3.x is required for some online documents supplied in printable form.

### SAS/LAB Software

#### Products Required:

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

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- SAS/GRAPH software
- SAS/LAB software

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## SAS/MDDB Server Software

### Memory:

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

- 48 MB required
- 64 MB recommended

Large applications will see performance improvements with more available memory.

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## SAS OLAP Server Package

### Products Required:

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

### Disk Space Required:

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

**Note:** If you have Version 9 of the SAS System already installed, then the amount of disk space required to install the SAS OLAP Server Package should be decreased by the disk space of any of the above products that have been previously installed.

## Risk Dimensions (Release 4.0)

### Memory:

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

### Other Requirements for Risk Dimensions:

- Web server to view RiskWeb reports

## SAS/SHARE Software

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**Products Required:**

- Base SAS software

**TCP/IP Access Method:**

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

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## 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

### Products Required for WebHound Solution:

- Base SAS software
- WebHound Solution, which contains:
  - WebHound software and necessary elements of the following:
  - SAS/AF software
  - SAS/EIS software
  - SAS/FSP software
  - SAS/GRAPH 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 Version 9 of the SAS System already installed, then the amount of disk space required to install the WebHound Solution should be decreased by the disk space of any of the above products that have been previously installed.

### Other Requirements for WebHound Solution:

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- Web logs in CLF, ELF, IIS, or custom format. The Web logs must 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.
- For customizing reports, SAS/IntrNet Design Time Controls located on the SAS *Client-Side Components* CD is recommended.

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# 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.

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## 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 qdevice 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

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

- [BMP - Microsoft Windows Bitmap](#)
- [EPS - Encapsulated PostScript](#)
- [GIF - Graphics Interchange Format](#)
- [PBM - Portable Bitmap](#)
- [PCD - Kodak Photo-CD](#)
- [PCX - PC PaintBrush](#)
- [PGM - Portable Graymap](#)
- [PNG - Portable Network Graphics](#)
- [PNM - Portable Anymap](#)
- [PPM - Portable Pixmap](#)
- [TGA - Targa format](#)
- [TIF - Tagged Image File Format](#)
- [XBM - X11 Bitmap](#)
- [XPM - X11 Pixmap](#)
- [XWD - X Window Dump](#)
- [JPG - JPEG Files](#)

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

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

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

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

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

Java-enabled Web Browser	Operating System
None	OS/390, OpenVMS Alpha
Netscape 6.2.1	HP-UX
Netscape 6.2.3	Linux for Intel Architecture
Netscape 4.78 - Obtain from <a href="http://www.sun.com/software/solaris/netscape">http://www.sun.com/software/solaris/netscape</a>	Solaris
Netscape 4.79	HP UX for the Itanium Processor Family

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¶ 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, ThinkJet, 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 4695, 4696, 4697 (ColorQuick) ¶  
 Tektronix 4691, 4692 and 4693 printers with Tektronix 4510 ras... [6]

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	Architecture
Netscape Communicator 4.78i	AIX
Netscape 4.76	Compaq Tru64 UNIX
Internet Explorer, Version 5.5 or higher or Netscape, Version 6.2 or higher	Windows NT, Windows 2000, Windows XP
Internet Explorer, Version 6 (32-bit only)	Windows 64-bit editions

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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
<b>Total for all entries</b>	<b>452.2</b>

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## 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, Version 2, Release 2 (V2R2) or higher of the Teradata DBS Server

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Ken Larsen

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Teradata Client Software (libcliv2.so, libtdusr.so, etc.) on the client machine that runs the SAS System

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Integrated Solutions

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SAS/IntrNet software consists of several components that may be installed independently. SAS/IntrNet Server software is installed on an existing SAS System and is included on the SAS System media. Other SAS/IntrNet software components may be installed from the SAS/IntrNet software media. 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 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 running on a UNIX or Windows system.

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## Xplore Sample Web Application

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Version Version 9 (TS M0)1 (TS1 M00), Linux for Intel Archite

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

## Java Tools and Applications

### SAS/SHARE Driver for JDBC

Requires Base SAS software, SAS/SHARE software, and a SAS/IntrNet software license (SETINIT). The Java Tools package must be installed on a Web server or client system.

### 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.

## Client Components

### SAS SQL Library for C

Requires Base SAS software, SAS/SHARE software, and a SAS/IntrNet software license (SETINIT). SAS SQL Library for C must be installed on a UNIX or Windows system with a TCP/IP network connection to the SAS/IntrNet Server.

### ODBC Driver

Requires Base SAS software, SAS/SHARE software, and a SAS/IntrNet software license (SETINIT). The ODBC Driver may be installed on any Windows system with TCP/IP network connection to the SAS/IntrNet Server.

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*3Version 8 (TS M0), Intel ABI*

*September 1*

## 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, ThinkJet, 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 4695, 4696, 4697 (ColorQuick)  
Tektronix 4691, 4692 and 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

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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.

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## Film Recorders

SAS/GRAPH software provides device drivers that support the following film recorders:

General Parametrics Videoshow display system  
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.

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*September 1*

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.

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

- BMP - Microsoft Windows Bitmap
- EPS - Encapsulated PostScript
- GIF - Graphics Interchange Format
- 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
- PCX - PC PaintBrush
- PGM - Portable Graymap
- 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

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## Writing Your Own Device Driver

SAS Institute's Metagraphics driver facility can be used to develop driver support for virtually any device you choose. The Metagraphics driver facility is device-intelligent and supports most hardware features. A user-written program is required to translate the metafile into the appropriate graphics language recognized by the hardware. SAS/GRAPH software will, optionally, perform device I/O. For details, contact SAS Institute Technical Support.

## The Macintosh Meta Application

The Macintosh Meta Application is a free program that can be installed on your Macintosh. A metafile produced by the SAS/GRAPH Metagraphics driver can be transferred to the Macintosh from your host system and viewed on the screen. Images can then be stored in PICT or clipboard format to be used by other applications or printed on an attached Apple LaserWriter (or compatible) printer. Images can be saved into the Macintosh clipboard and used by MacDraw and other Macintosh packages. For details, contact SAS Institute Technical Support.

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