

System Requirements for SAS® 9.4 Foundation for Microsoft Windows for x64



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Overview

This document provides requirements for installing and running SAS 9.4 Foundation on Microsoft Windows for x64. The requirements in this document have been updated for the fourth maintenance release for SAS 9.4 (SAS 9.4M4).

You must update your system to meet the minimum requirements before running SAS 9.4 Foundation.

The following major requirements are listed in this document:

- Software Requirements
- Hardware Requirements
- Additional Features
- Space Requirements
- Specific Product Requirements

For additional information and to view the latest system requirements for your system, visit the SAS Install Center website, <http://support.sas.com/documentation/installcenter>.

Additional Resources

Configuring your IO Subsystem

We recommend the white paper titled *Best Practices for Configuring your IO Subsystem for SAS®9 Applications*. You can access it at the following web page:

<http://support.sas.com/resources/papers/proceedings15/SAS1501-2015.pdf>.

Troubleshooting System Performance Problems

For a list of papers that are useful for troubleshooting system performance problems, see

<http://support.sas.com/kb/42/197.html>.

SAS Technical Support

For information about SAS Technical Support, visit <http://support.sas.com/techsup/>.

Software Requirements

Preparing for Installation

File System Requirements

For releases prior to SAS 9.4 M3, the 8.3 filename convention must remain enabled. The use of file systems supporting long filenames is recommended.

Administrator Privilege

An installer must have administrator privileges to install various updates. This requirement ensures that SAS 9.4 Foundation can be completely and safely installed.

Anti-virus and/or Firewall Software

Before you start, SAS recommends closing your anti-virus and firewall software. Some anti-virus and/or firewall configurations can prevent an application from installing successfully. If you are unable to close the anti-virus or firewall software, make sure that your configuration allows you to install software and to update the registry. If your SAS installation fails and you have mandatory anti-virus or firewall software running, check with your system administrator.

Conversions of Format Catalogs

Starting with SAS 9.4, the software is architected in a 64-bit format. When you upgrade from an earlier version of SAS Foundation on Windows, your files and catalogs are formatted for 32-bit SAS. Although the data sets are supported, in some cases the permanent formats associated with the variables and the data sets can trigger errors. SAS recommends reading [Usage Note 44047](#) in the SAS Knowledge Base about conversions of format catalogs. The following article about upgrade issues and workarounds may also be helpful:

<http://blogs.sas.com/content/sasdummys/2012/05/01/64-bit-gotchas/>

Windows Software Updates

A Microsoft bug associated with the method that an individual machine is using to retrieve periodic operating-system updates may cause an error during the installation. If you are running Microsoft Windows 8 Pro, Windows Server 2012, or Windows 8 Enterprise, we recommend performing the steps that are described in SAS Installation Note 48410

(<http://support.sas.com/kb/48/410.html>). These steps ensure that the SAS Deployment Wizard can successfully enable the required version of Microsoft .NET Framework on your system during the installation.

Windows for x64 Environments

Note: Software distributed with the SAS release designation SAS 9.4 TS1M0 does not support Windows 32-bit environments, but Windows 32-bit support is provided in SAS release SAS 9.4 TS1M1 and later.

Server Operating Systems

Microsoft Windows Server 2008 Family

SAS 9.4 Foundation is supported on the following x64 editions of the Windows Server 2008 family with SAS 9.4 TS1M0 and later:

- Microsoft Windows Server 2008 SP2 Enterprise Edition
- Microsoft Windows Server 2008 SP2 Standard Edition
- Microsoft Windows Server 2008 SP2 Datacenter Edition

SAS 9.4 Foundation is supported on the following editions of the Windows Server 2008 R2 family with SAS 9.4 TS1M0 and later:

- Microsoft Windows Server 2008 R2 SP1 Enterprise Edition
- Microsoft Windows Server 2008 R2 SP1 Standard Edition
- Microsoft Windows Server 2008 R2 SP1 Datacenter Edition

Microsoft Windows Server 2012 Family

SAS 9.4 Foundation is supported on the following editions of the Windows Server 2012 family with SAS 9.4 TS1M0 and later:

- Microsoft Windows Server 2012 Foundation Edition
- Microsoft Windows Server 2012 Essentials Edition
- Microsoft Windows Server 2012 Standard Edition
- Microsoft Windows Server 2012 Datacenter Edition

SAS 9.4 Foundation is supported on the following editions of the Windows Server 2012 R2 family with SAS 9.4 TS1M0 and later:

- Microsoft Windows Server 2012 R2 Foundation Edition
- Microsoft Windows Server 2012 R2 Essentials Edition
- Microsoft Windows Server 2012 R2 Standard Edition
- Microsoft Windows Server 2012 R2 Datacenter Edition

SAS Support for Windows 7 and Later

Windows 7 SP1 Professional, Ultimate, and Enterprise: Supported in SAS 9.4 Foundation products.

Windows 8 Pro and Enterprise, Windows 8.1 Pro and Enterprise: Supported in SAS 9.4 Foundation products.

Windows 10 Home, Pro, Enterprise, and Education: Supported for all SAS 9.4 Foundation products.

Windows 7 Home Premium, Windows 8, Windows 8.1, and Windows 10: Supported for the Education Analytical Suite (EAS). The following list indicates the Education Analytical Suite products that are supported on Windows 7, Windows 8, and Windows 8.1:

Note: These products are not supported individually on Windows 7 Home Premium, Windows 8, or Windows 8.1.

Base SAS	SAS/EIS
SAS/ACCESS Interface to Greenplum	SAS/ETS
SAS/ACCESS Interface to Microsoft SQL Server	SAS/FSP
SAS/ACCESS Interface to MySQL	SAS/GRAPH
SAS/ACCESS Interface to ODBC	SAS/IML
SAS/ACCESS Interface to PC Files	SAS/OR
SAS/ACCESS Interface to SAP ASE	SAS/QC
SAS/AF	SAS/SECURE
SAS/ASSIST	SAS/SHARE
SAS/CONNECT	SAS/STAT

Supported Operating Environments for Windows

For more information about the Microsoft Windows operating systems that are supported in SAS 9.4, refer to SAS Support Resources / System Requirements:

<http://support.sas.com/resources/sysreq/hosts/pc/>.

Web Browsers

Both SAS 9.4 Foundation software and client applications support recent versions of popular web browsers to display SAS user interfaces. To run SAS clients, use a browser and platform combination that is listed on the following SAS Support page:

<http://support.sas.com/resources/thirdpartysupport/v94/browsers.html>.

For the Google Chrome and Mozilla Firefox browsers, only the minimum supported versions are listed, but SAS also supports subsequent minor versions of these browsers.

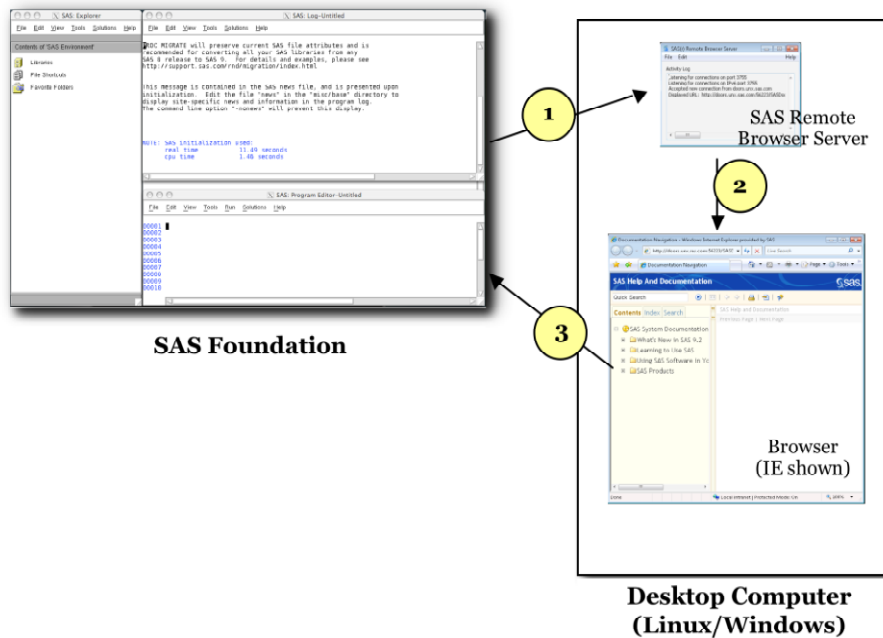
On client machines where you do not plan to deploy the Remote Browsing feature (described below), install a recent version of your preferred web browser, such as Microsoft Internet Explorer 11, Google Chrome 42, or Mozilla Firefox 31, to support the most modern SAS user interfaces.

A few SAS product user interfaces include HTML5 to support newer features. For example, SAS Visual Analytics provides an optional “modern” appearance mode. The individual system requirements documents for these products include a link to information about supported web browsers.

Remote Browsing

SAS 9.4 Foundation uses Remote Browsing to display web-based information. Instead of running a browser on the workstation server, SAS 9.4 Foundation sends the URL to your desktop computer for display in a web browser. This feature removes the browser overhead from the server and allows for the display of output that requires browser plug-ins that do not run on a 64-bit computer. A software agent, the Remote Browser Server, is installed on your desktop computer to enable SAS to communicate with your browser.

SAS creates a URL that references the information to be displayed (usually program help or ODS output) and sends the URL to the SAS Remote Browser Server on your desktop computer (Step 1). The Remote Browser Server sends a request to the browser to display a page (Step 2). The browser then reconnects to SAS to retrieve the information and display it (Step 3).



To use the remote browsing feature, your desktop computer must be running one of the following platforms, and have one of the following supported browsers installed:

Platform	Supported Browser
Windows 7 (32-bit & 64-bit)	Firefox 6 or later (32-bit)
	Internet Explorer 9 (32-bit) or Internet Explorer 10 (32-bit)
	Chrome 15 or later (32-bit)
Windows 8 (32-bit & 64-bit)	Firefox 6 or later (32-bit)
	Internet Explorer 10 and 11 (32-bit)
	Chrome 15 or later (32-bit)
Windows 10 (32-bit & 64-bit)	Firefox 6 or later (32-bit)
	Internet Explorer 11 (32-bit)
	Chrome 15 or later (32-bit)
Linux 64-bit	Firefox 6 or later (32-bit)
	Chrome 15 or later (32-bit)

As the table shows, the SAS Remote Browser Server supports only the 32-bit version of each browser. However, SAS Foundation and client applications support 32-bit or 64-bit browser software.

In addition to the required operating system and browser, the Remote Browser Server must be installed and running on your desktop machine for SAS to display web information. The installer for the Remote Browser Server is available on the SAS 9.4 Software Downloads site (<http://support.sas.com/downloads/>). The browser must also be configured to allow pop-up windows.

Java Requirements

For information about Java Runtime Environment (JRE) requirements, refer to the SAS 9.4 Support for Java Runtime Environments web page, located at <http://support.sas.com/resources/thirdpartysupport/v94/jres.html>.

Hardware Requirements

The following recommendations are for installation of x64 editions of Windows.

Machines Supported

SAS 9.4 supports x64 processor family systems, also known as Intel64 or AMD64 systems.

Distribution Media

The following distribution methods are supported:

- Electronic Software Delivery
- DVD

System Configuration

The following are recommended minimum levels* for a deployment of SAS 9.4 for x64 on Windows for x64 systems:

Desktop Systems

Examples are Windows 7 and Windows 8.

- A minimum of 2 cores
- 2 GB RAM (available to SAS)
- Swap space: 1.5 times physical RAM or 250 GB, whichever is less

Server Systems

Examples are Windows Server 2008, Windows Server 2008 R2, and Windows Server 2012.

- A minimum of 4 cores
- 16 GB RAM (available to SAS)
- I/O Throughput of 400 MB/sec
- Swap space: 1.5 times physical RAM or 250 GB, whichever is less

** Note: We strongly recommend consulting with a SAS Sizing Expert to obtain a hardware recommendation that is based on your estimated workload and number of users.*

Monitors Supported

SVGA (resolution of 800x600 or higher)

Space Requirements

SAS 9.4 Foundation requires approximately 30 MB of disk space to complete the installation. However, space requirements vary depending on the blocking factor and compression algorithms that are in use on the installation disk drive.

SAS strongly recommends consulting with a SAS Sizing Expert to obtain an official hardware recommendation that is based on your estimated SAS workload and number of users. Disk space requirements are provided for individual components in separate documents. However, the space requirements that you can obtain from the individual System Requirements documents that are provided for SAS Solutions and other add-on products are not a substitution for expert advice. To request sizing expertise, send an email to contactcenter@sas.com.

DBCS Support

The following list contains space requirements in MB for SAS 9.4 components that offer DBCS support.

Software Product- DBCS Support	Disk Space (in MB)*
Core of SAS 9.4 DBCS Support Files	34.0
SAS/ACCESS Interface to DB2 DBCS Support Files	0.9
SAS/ACCESS Interface to Oracle DBCS Support Files	0.3
SAS/AF DBCS Support Files	0.5
SAS/CONNECT DBCS Support Files	1.1
SAS/EIS DBCS Support Files	0.4
SAS/Lab	1.9
SAS/SHARE DBCS Support Files	0.1
Total	39.20

* The actual disk space size has been rounded to the nearest tenth. Therefore, the values will differ slightly from the ones shown by the installer.

National Language Support (NLS)

The following list contains space requirements in MB for SAS 9.4 components that support Asian languages.

Languages Supported	Disk Space (in MB)*	See Table
Chinese – traditional	3.0	below
Chinese – simplified	174.0	below
Japanese	262.0	Page 8
Korean	174.0	Page 8

Asian Language Support

The following list contains space requirements in MB for SAS System components that support various Asian Languages.

Traditional Chinese Support	Disk Space (in MB)*
Base SAS Traditional Chinese Support Files	3.0

Simplified Chinese Support	Disk Space (in MB)*
Base SAS Simplified Chinese Support Files	47.8
SAS/ACCESS Interface to DB2 Simplified Chinese Support Files	0.9
SAS/ACCESS Interface to Oracle Simplified Chinese Support Files	0.9
SAS/AF Simplified Chinese Support Files	2.0
SAS/CONNECT Simplified Chinese Support Files	0.9
SAS/EIS Simplified Chinese Support Files	1.9
SAS/GIS Simplified Chinese Support Files	1.8
SAS/IntrNet Simplified Chinese Support Files	1.8
SAS/SHARE Simplified Chinese Support Files	0.8
Total	58.8

Japanese Support	Disk Space (in MB)*
Base SAS Japanese Support Files	78.1
SAS/ACCESS Interface to DB2 Japanese Support Files	0.9
SAS/ACCESS Interface to Oracle Japanese Support Files	0.9
SAS/AF Japanese Support Files	2.0
SAS/CONNECT Japanese Support Files	0.9
SAS/EIS Japanese Support Files	10.1
SAS/GIS Japanese Support Files	1.8
SAS/IntrNet Japanese Support Files	1.8
SAS/SHARE Japanese Support Files	0.8
Total	97.3

Korean Support	Disk Space (in MB)*
Base SAS Korean Support Files	47.8
SAS/ACCESS Interface to DB2 Korean Support Files	0.1
SAS/ACCESS Interface to Oracle Korean Support Files	0.1
SAS/AF Korean Support Files	2.0
SAS/CONNECT Korean Support Files	0.9
SAS/EIS Korean Support Files	1.9
SAS/GIS Korean Support Files	1.8
SAS/IntrNet Korean Support Files	1.6
SAS/SHARE Korean Support Files	0.8
Total	57

Additional Features

The User Installation Experience in SAS 9.4

If you are upgrading to SAS 9.4 Foundation, note that some of the following features were not available in earlier releases of SAS software.

Internet Access

With Internet access, you can view and download documents from the SAS Install Center, and review material on the SAS Support web site.

HTMLHelp Viewer

To conform to the native Windows environment, SAS Help and Documentation are provided in the compiled HTML format supported by the Microsoft HTML Help Viewer, which presents help information in the same layout used in Windows applications. This format is very compact and provides extensive searching capabilities. The highest level of functionality is available when Internet Explorer, Version 6, Service Pack 2 (or later) is installed. Internet Explorer is provided with Windows Server.

SAS Universal Viewer

SAS Universal Viewer is an application for the Windows operating environment that enables you to view SAS data sets and other types of files without invoking SAS and without installing SAS on your computer. SAS Universal Viewer is a replacement for the SAS System Viewer. It is available with Base SAS and as a free download from SAS. You can view, sort, and filter data sets with SAS Universal Viewer, but you cannot edit them.

With SAS Universal Viewer, you can view the following types of files:

- SAS data sets, including those that were created on platforms other than Windows
- SAS v5 transport files
- SAS programs, logs, and listings
- General text files
- HTML and other file types that open in Internet Explorer

Dynamic Data Exchange

Dynamic Data Exchange (DDE) allows for the exchange of data between SAS 9.4 Foundation and any other application supporting DDE. SAS 9.4 Foundation will act as a client only.

Email

Send Mail is provided as a menu item in the File menu. The Send Mail option enables you to initiate email messages from SAS 9.4 Foundation. You can also send mail using a data step file access method or SCL via SAS/AF software. Two mail APIs are supported: MAPI and VIM. Using the Send Mail feature requires you to install a third-party mail program, such as Microsoft Outlook or Microsoft Outlook Express. SMTP email server access via MAPI requires an Internet connection.

SAS Service Configuration Utility

The SAS Service Configuration Utility enables administrators to customize the operation of SAS 9.4 Foundation running as a service on a particular computer. It requires only 0.5 MB of space on the computer using the SAS Service Configuration Utility.

For additional information, refer to the SAS Service Configuration Utility chapter in *Configuration Guide for SAS 9.4 Foundation on Microsoft Windows for x64*.

SAS Deployment Wizard and Subset Orders

The SAS Deployment Wizard enables users to subset orders within a depot when it is being moved or copied. The previous process of creating a Client Software Depot or a Personal Software Depot that was available in the SAS Administrator Wizard in earlier releases of SAS has been replaced. If you typically deploy either of these features, refer to the *SAS Deployment Wizard and SAS Deployment Manager 9.4: User's Guide* for information about how to select specific products to copy into a separate depot. This type of newly created depot can serve the same function as depots in previous releases.

The *User's Guide* can be found here:

<http://support.sas.com/documentation/installcenter/en/ikdeploywizug/66034/PDF/default/user.pdf>

Specific Product Requirements

Base SAS Software

Requirements for SPD Engine on Microsoft Windows for x64

The following are general guidelines for a minimum computer system to support SPD Engine:

SPDE will run with the minimum system specified in the Hardware Requirements section on page 6, but these are the minimum recommended system guidelines to make use of SPDE function:

- An SMP (symmetric multiprocessing) computer with at least two CPUs; four are preferred
- At least one I/O channel per two CPUs
- Enough disk drives to have at least one mount point per CPU isolated on its own disk; two mount points per CPU are preferred

SAS Analytics Accelerator for Teradata

The SAS Analytics Accelerator for Teradata requires Base SAS, SAS/ACCESS Interface to Teradata, and at least one of the following products:

- SAS Enterprise Miner
- SAS/ETS
- SAS/STAT

DBMS Products Required:

- Teradata Database version 13.10 or later
- Teradata CLIV2 client libraries, Teradata Tools and Utilities (TTU) 13.10 or later for Windows (64-bit libraries)

For SAS 9.4M3

DBMS Products Required:

- Teradata Database version 14.10 or later
- Teradata CLIV2 client libraries, TTU 14.10 or later for Windows (64-bit libraries)

For SAS 9.4M4

DBMS Products Required:

- Teradata Database version 15.10 or later
- Teradata CLIV2 client libraries, TTU 15.10 or later for Windows (64-bit libraries)

SAS High-Performance Forecasting

Base SAS is required for the installation of SAS High-Performance Forecasting software.

SAS In-Database Code Accelerator for Greenplum

The SAS In-Database Code Accelerator for Greenplum requires Base SAS and SAS/ACCESS Interface to Greenplum. It also requires the SAS Embedded Process to be installed and configured on your database.

DBMS Products Required:

- Greenplum Database version 4.2.2
- Greenplum Partner Connector (GPPC) version 1.2

For SAS 9.4M2 or Later

DBMS Products Required:

- Greenplum Database version 4.3
- Greenplum Partner Connector (GPPC) version 1.2

The required DBMS operating system is Red Hat Enterprise Linux, 64-bit, version 5.5 or later.

SAS In-Database Code Accelerator for Hadoop

The SAS In-Database Code Accelerator for Hadoop requires Base SAS and SAS/ACCESS Interface to Hadoop. It also requires the SAS Embedded Process to be installed and configured on Hadoop.

For supported Hadoop distributions and versions, refer to the following web page:

<http://support.sas.com/resources/thirdpartysupport/v94/hadoop/>.

SAS In-Database Code Accelerator for Teradata

The SAS In-Database Code Accelerator for Teradata requires Base SAS and SAS/Access Interface to Teradata. It also requires the SAS Embedded Process to be installed and configured on your database.

DBMS Products Required:

- Teradata version 13.10 or later
- Teradata CLIV2 client libraries, TTU 13.10 or later for Windows (64-bit libraries)

For SAS 9.4M3

DBMS Products Required:

- Teradata Database version 14.10 or later
- Teradata CLIV2 client libraries, TTU 14.10 or later for Windows (64-bit libraries)

For SAS 9.4M4

DBMS Products Required:

- Teradata Database version 15.10 or later
- Teradata CLIV2 client libraries, TTU 15.10 or later for Windows (64-bit libraries)
- SAS Embedded Process support functions (sasepfunc-15.10-4 or later).

Note: Contact a Teradata representative to obtain these support functions. It is important to install the latest version from Teradata at Your Service. Teradata Customer Service coordinates installation of the SAS Embedded Process packages and application of the SAS Embedded Process support functions on the DBMS machine.

SAS Scoring Accelerator for Aster

The SAS Scoring Accelerator for Aster requires Base SAS, SAS Enterprise Miner, SAS/ACCESS Interface to Aster, and SAS/STAT.

DBMS Products Required:

- Aster Server version 4.6.3, 5.0.1, 5.1, or 6.0
- Client utilities for Aster version 4.6.3, 5.0.1, or 5.1

For SAS 9.4M2 and 9.4M3

DBMS Products Required:

- Aster Server version 6.0
- Client utilities for Aster version 5.1

For SAS 9.4M4

DBMS Products Required:

- Aster Server version 6.1
- Client utilities for Aster version 6.1

The required DBMS operating system is Red Hat Enterprise Linux 64-bit, version 5.5 or later.

SAS Scoring Accelerator for DB2

The SAS Scoring Accelerator for DB2 requires Base SAS, SAS Enterprise Miner, SAS/ACCESS Interface to DB2, and SAS/STAT.

DBMS Products Required:

- IBM DB2 version 10.1 with FixPack 1 or later
- Client utilities for IBM DB2 version 10.1 with FixPack 1 or later

A current version of the IBM XLC compiler must be installed on the DB2 server where you will be publishing scores. Contact your IBM/DB2 representative to secure the appropriate compiler for your DB2 installation.

For SAS 9.4M1 and Later

DBMS Products Required:

- IBM DB2 10.5 or later
- Client utilities for IBM DB2 version 10.5 or later

DBMS Operating Systems:

- AIX 64-bit, version 7.1 or later
- Red Hat Enterprise Linux 64-bit, version 5.5 or later

For best results, we recommend installing the latest FixPack on the client and server.

SAS Scoring Accelerator for Greenplum

The SAS Scoring Accelerator for Greenplum requires Base SAS, SAS Enterprise Miner, SAS/ACCESS Interface to Greenplum, and SAS/STAT.

The following are the minimum Greenplum database requirements:

- Greenplum Database version 4.2.2.0
- Greenplum Partner Connector (GPPC) version 1.2

For Linux operating systems, the minimum version requirements for the database are Red Hat Enterprise Linux 64-bit, versions 5.5, 5.6, 5.7, 6.1, and 6.2.

For SAS 9.4M2 and Later

DBMS Products Required:

- Greenplum Database version 4.3
- Greenplum Partner Connector version 1.2

The required DBMS operating system is Red Hat Enterprise Linux 64-bit, version 5.5 or later.

SAS Scoring Accelerator for Hadoop

The SAS Scoring Accelerator for Hadoop requires Base SAS, SAS/STAT, and SAS/ACCESS Interface to Hadoop. It also requires SAS Enterprise Miner or SAS Model Manager.

For supported Hadoop distributions and versions, refer to the following web page:
<http://support.sas.com/resources/thirdpartysupport/v94/hadoop/>

SAS Scoring Accelerator for Netezza

The SAS Scoring Accelerator for Netezza requires Base SAS, SAS Enterprise Miner, SAS/ACCESS Interface to Netezza, and SAS/STAT.

DBMS Products Required:

- IBM Netezza version 7.0
- Client utilities for IBM Netezza version 7.0

For SAS 9.4M3 and Later

DBMS Products Required:

- IBM Netezza version 7.0.3 or later. Includes support for multi-schema.
- Client utilities for IBM Netezza version 7.0.3 or later

For best results, match the Netezza ODBC client version with the version of the Netezza server where it will be connected. For example, if you have a Netezza server release 7.0.4, use the ODBC client driver release 7.0.4 with SAS/ACCESS Interface to Netezza.

SAS Scoring Accelerator for Oracle

The SAS Scoring Accelerator for Oracle requires Base SAS, SAS/STAT, SAS/ACCESS Interface to Oracle, and SAS Enterprise Miner.

DBMS Products Required:

- Oracle Server version 11g BP24 or later. The database encoding must be UTF8.
- Oracle Client release 11g (64-bit libraries)

The following are the minimum Linux operating system version requirements for the database:

- Red Hat Enterprise Linux version 5.5
- Oracle Enterprise Linux version 5.5

When this document was published, patches for the following Oracle bugs were not available:

- Bug 12658656 - DUPLICATE SYMBOLS in EXTPROC/AGENT
- Bug 12904682 - CORE DUMP IN MUTEX ACQUIRE WHEN DIAG INITIALIZATION FAILS
- Bug 12904657 - ADR INITIALIZATION FAILS IN SOME EXTPROC THREADS

Until patches can be applied for *all* of these bugs, you *must* add the following line to \$ORACLE_HOME/network/admin/sqlnet.ora:

```
DIAG_ADR_ENABLED=OFF
```

No restart is required.

For SAS 9.4M2 and Later

DBMS Products Required:

- Oracle Server version 11gR2 or Oracle Server version 12c. The database encoding must be UTF8.
- Oracle Client version 11gR2 (64-bit libraries) or Oracle Client version 12c (64 bit libraries).

DBMS Operating System Requirements:

- Red Hat Enterprise Linux 64-bit version 5.5 or later
- Oracle Enterprise Linux version 5.5

SAS Scoring Accelerator for SAP HANA

SAS Scoring Accelerator for SAP HANA was new in SAS 9.4M2. It requires Base SAS, SAS Enterprise Miner, SAS/ACCESS Interface to SAP HANA, and SAS/STAT.

For SAS 9.4M2

DBMS Products Required:

- SAP HANA SPS 08 Server
- Client utilities for SPS 08

DBMS Operating System Requirements:

- Red Hat Enterprise Linux 64-bit, version 5.5 or later
- SUSE Linux Enterprise Server 64-bit, version 11

For SAS 9.4M4

DBMS Products Required:

- SAP HANA SPS 11 Server or later
- Client utilities for SPS 11 or later

DBMS Operating Systems:

- Red Hat Enterprise Linux 64-bit, version 5.5 or later
- SUSE Linux Enterprise Server 64-bit, version 11

For best results, match the SAP HANA client version with the version of the SAP HANA server where it will be connected.

SAS Scoring Accelerator for SPD Server

The SAS Scoring Accelerator for SPD Server requires Base SAS, SAS Enterprise Miner, SAS Scalable Performance Data Server version 5.1 or later, and SAS/STAT.

For SAS 9.4M3

DBMS Product Required: SAS Scalable Performance Data Server version 5.2.

For SAS 9.4M4

DBMS Product Required: SAS Scalable Performance Data Server version 5.3.

SAS Scoring Accelerator for Teradata

The SAS Scoring Accelerator for Teradata requires Base SAS, SAS Embedded Process support functions, SAS Enterprise Miner, SAS/ACCESS Interface to Teradata, and SAS/STAT.

DBMS Products Required:

- Teradata Database version 13.10 or later
- Teradata CLIV2 client libraries, TTU 13.10 or later for Windows (64-bit libraries)

For SAS 9.4M3

DBMS Products Required:

- Teradata Database version 14.10 or later
- Teradata CLIV2 client libraries, TTU 14.10 or later for Windows (64-bit libraries)

For SAS 9.4M4

DBMS Products Required:

- Teradata Database version 15.10 or later
- Teradata CLIV2 client libraries, TTU 15.10 or later for Windows (64-bit libraries)
- SAS Embedded Process support functions (sasepfunc-15.10-4 or later).

Note: Contact a Teradata representative to obtain these support functions. It is important to install the latest version from Teradata at Your Service. Teradata Customer Service coordinates installation of the SAS Embedded Process packages and application of the SAS Embedded Process support functions on the DBMS machine.

SAS/ACCESS Interface to Amazon Redshift

SAS/ACCESS Interface to Amazon Redshift was new with the April 2016 release of SAS/ACCESS.

Base SAS is required for the installation of SAS/ACCESS Interface to Amazon Redshift.

SAS/ACCESS Interface to Amazon Redshift includes a required ODBC driver.

For instructions about how to configure SAS/ACCESS Interface to Amazon Redshift, see the *Configuration Guide for SAS 9.4 Foundation for Microsoft Windows for x64*.

SAS/ACCESS Interface to Aster

Base SAS is required for the installation of SAS/ACCESS Interface to Aster software.

SAS/ACCESS Interface to Aster requires the Aster ODBC driver and a bulk loader client. To obtain the ODBC driver and bulk loader client, contact Aster Data Technical Support.

DBMS Products Required:

- Aster Server version 4.6.3 or later
- Aster ODBC driver version 4.6.3 or later for Windows (64-bit libraries)

For SAS 9.4M3

DBMS Products Required:

- Aster Server version 6.0 or later
- Aster ODBC driver version 5.1 or later for Windows (64-bit libraries)

For SAS 9.4M4

DBMS Products Required:

- Aster Server version 6.1 or later
- Aster ODBC driver version 6.1 or later for Windows (64-bit libraries)

Refer to the *Configuration Guide for SAS® 9.4 Foundation for Microsoft Windows for x64* for information about where to install the ODBC driver and bulk loader client and how to configure your SAS software in order to work with them.

SAS/ACCESS Interface to DB2

Base SAS is required for the installation of SAS/ACCESS Interface to DB2.

SAS/ACCESS Interface to DB2 can be installed on a DB2 server or on a DB2 client node with an installation of the IBM Data Server Client. In addition, DB2 Connect must be licensed to connect to DB2 databases that reside on AS/400, VSE, VM, MVS, and z/OS systems.

DBMS Products Required:

- IBM DB2 version 10.1 or later
- Client utilities for IBM DB2 version 10.1 or later

For SAS 9.4M1 and Later

DBMS Products Required:

- IBM DB2 version 10.5 or later
- Client utilities for IBM DB2 10.5 or later

For best results, we recommend installing the latest FixPack on the client and server.

SAS/ACCESS Interface to Greenplum

Base SAS is required for the installation of SAS/ACCESS Interface to Greenplum.

SAS/ACCESS Interface to Greenplum includes the required 64-bit ODBC driver.

DBMS Product Required: Greenplum Database version 4.2.2 or later

For SAS 9.4M2 and Later

DBMS Product Required: Greenplum Database version 4.3 or later

For instructions about how to configure SAS/ACCESS Interface to Greenplum, see the *Configuration Guide for SAS 9.4 Foundation for Microsoft Windows for x64*.

SAS/ACCESS Interface to Hadoop

Base SAS is required for the installation of SAS/ACCESS Interface to Hadoop.

For supported Hadoop distributions and versions, refer to the following web page:
<http://support.sas.com/resources/thirdpartysupport/v94/hadoop/>

SAS/ACCESS Interface to HAWQ

Base SAS is required for the installation of SAS/ACCESS Interface to HAWQ.

SAS/ACCESS Interface to HAWQ includes the required 64-bit ODBC driver.

For SAS 9.4M3

DBMS Product Required: HAWQ Database version 1.2.1 or later

For SAS 9.4M4

DBMS Product Required: HAWQ Database version 2.0 or later

For instructions about how to configure SAS/ACCESS Interface to HAWQ, see the *Configuration Guide for SAS 9.4 Foundation for Microsoft Windows for x64*.

SAS/ACCESS Interface to Impala

Base SAS is required for the installation of SAS/ACCESS Interface to Impala.

DBMS Products Required:

- Impala server version 1.2.3 or later
- ODBC Driver for Impala release 2.5.13 or later

For SAS 9.4M4

DBMS Products Required:

- Impala server version 2.6 or later
- ODBC Driver for Impala release 2.5.34 or later

SAS/ACCESS Interface to Microsoft SQL Server

Base SAS is required for the installation of SAS/ACCESS Interface to Microsoft SQL Server.

SAS/ACCESS Interface to Microsoft SQL Server includes the required ODBC Driver.

Note: With the release of SAS 9.4 M4, SAS/ACCESS Interface to Microsoft SQL Server now includes support for the Microsoft Azure SQL Database.

For SAS 9.4M3

DBMS Product Required: Microsoft SQL Server 2012 or later

For directions about how to configure SAS/ACCESS Interface to Microsoft SQL Server, see the *Configuration Guide for SAS 9.4 Foundation for Microsoft Windows for x64*.

SAS/ACCESS Interface to MySQL

Base SAS is required for the installation of SAS/ACCESS Interface to MySQL.

DBMS Products Required:

- Any MySQL Client version 5.1 or later
- MySQL Server version 5.0 or later

For SAS 9.4M4

DBMS Products Required:

- Any MySQL Client version 5.6 or later
- MySQL Server version 5.6 or later

For more information about SAS/ACCESS Interface to MySQL software, see the MySQL chapter in *SAS/ACCESS Software for Relational Databases: Reference*.

SAS/ACCESS Interface to Netezza

Base SAS is required for the installation of SAS/ACCESS Interface to Netezza.

SAS/ACCESS Interface to Netezza requires an ODBC driver from IBM. To obtain the IBM Netezza ODBC driver, contact IBM Technical Support at (877) 426-6006, or visit the IBM Fix Central website, <http://www.ibm.com/support/fixcentral/>

DBMS Products Required:

- IBM Netezza version 6.0 or later
- Client utilities for IBM Netezza version 4.6.2 or later

For SAS 9.4M2 and Later

DBMS Products Required:

- IBM Netezza version 7.0 or later
- Client utilities for IBM Netezza version 7.0 or later

For best results, match the Netezza ODBC client version with the version of the Netezza server where it will be connected. For example, if you have a Netezza server release 7.0.4, use the ODBC client driver release 7.0.4 with SAS/ACCESS Interface to Netezza.

SAS/ACCESS Interface to ODBC

Base SAS is required for the installation of SAS/ACCESS Interface to ODBC.

DBMS Product Required: An ODBC driver for the data source.

Before you can use SAS/ACCESS Interface to ODBC software, an ODBC driver for the data source from which you want to access data is required. ODBC drivers are often available from DBMS vendors and other third party ODBC driver developers. The ODBC driver that you select may require additional DBMS software for network access. All required network software that is supplied by your database system vendor must be 64-bit-compliant.

SAS 9.4 for Microsoft Windows for x64 requires the 64-bit version of the ODBC driver for the data source.

See the *Configuration Guide for SAS 9.4 Foundation on Microsoft Windows for x64* for information about the installation:

<http://support.sas.com/documentation/installcenter/en/ikfdtnwx6cg/66385/PDF/default/config.pdf>

SAS/ACCESS Interface to OLE DB

Base SAS software is required for the installation of SAS/ACCESS Interface to OLE DB.

DBMS Product Required: An OLE DB data source provider

Before you can use SAS/ACCESS Interface to OLE DB software, an OLE DB provider for the data source where you want to access data is required. OLE DB providers are often available from DBMS vendors and other third-party software vendors.

The OLE DB provider that you select may require additional DBMS software for network access. All required network software supplied by your database system vendor must be 64-bit-compliant. The 64-bit version of the OLE DB provider is required for the data source.

SAS/ACCESS Interface to Oracle

Base SAS is required for the installation of SAS/ACCESS Interface to Oracle.

You can install an Oracle client on the same machine as SAS/ACCESS Interface to Oracle, or you can use an Oracle server in place of the Oracle client.

DBMS Products Required:

- Oracle Database 11g or later
- Oracle Client 11g (64-bit libraries) or later

Note: To use the Bulk Load feature of this SAS product, you must have the Oracle SQL*Loader data-loading utility installed. This utility can be obtained by running the Oracle installer and selecting the Oracle Utilities product. Refer to your Oracle documentation for information on SQL*Loader.

For SAS 9.4M4

DBMS Products Required:

- Oracle Database 11gR2 or Oracle Server version 12c
- Oracle Client 11gR2 or Oracle Client version 12c (64-bit libraries)

SAS/ACCESS Interface to PC Files

Base SAS is required for the installation of SAS/ACCESS Interface to PC Files.

Product Required on Windows: 32-bit or 64-bit SAS PC Files Server, running the same “bitness” of ACE (Microsoft Access Database Engine 2010 Redistributable) driver on the same Windows machine.

DBMS Product Required on Windows: Microsoft Access Database Engine 2010 Redistributable (ACE) or later version.

SAS/ACCESS Interface to PC Files software supports access to virtually any data source through ODBC support on Windows, as well as the following software formats:

- dBase files (.dbf)
- Excel files (.xls, .xlsx, .xlsb, .xlsm)
- JMP files (.jmp is in Base)
- Lotus files (.wk1, .wk3, and .wk4)
- Microsoft Access database files (.mdb or .accdb)
- Paradox (.db)
- SPSS files (.sav)
- Stata files (.dta)

SAS PC Files Server (`pcfserver.exe` or `pcfservice.exe`) running on Windows is required to use the PCFILES libname engine to access Microsoft Access database files, Microsoft Excel workbook files, or any ODBC supported data sources.

You can run SAS PC Files Server as a Windows service or as an application listening to the PCFILES libname engine. SAS PC Files Server provides data encryption and authentication features with default port 9621, which can be configured through the PC Files Server application console. Note that the “bitness” (32-bit or 64-bit) of SAS PC Files Server must match that of the Microsoft ACE driver on the same Windows machine.

SAS/ACCESS Interface to the PI System

Base SAS is required for the installation of SAS/ACCESS Interface to the PI System.

SAS/ACCESS Interface to the PI System requires the OSIsoft PI System client software, PI Asset Framework Client 2014 (PI AF SDK 2.6) or later.

It also requires the .NET Framework, version 4.5 or later.

For information about configuring the PI System on the server as well as the client that is running SAS, refer to the *Configuration Guide for SAS 9.4 Foundation for Microsoft Windows for x64*.

SAS/ACCESS Interface to PostgreSQL

Base SAS is required for the installation of SAS/ACCESS Interface to PostgreSQL.

SAS/ACCESS Interface to PostgreSQL includes the required ODBC driver.

DBMS Product Required: PostgreSQL Database version 9.1.9 or later

For SAS 9.4M4

DBMS Product Required: PostgreSQL Database version 9.1.23 or later

SAS/ACCESS Interface to SAP ASE

Base SAS is required for the installation of SAS/ACCESS Interface to SAP ASE (formerly SAS/ACCESS Interface to Sybase).

Note: *Connecting to SAP IQ is not supported by SAS/ACCESS Interface to SAP ASE; use SAS/ACCESS Interface to SAP IQ instead.*

DBMS Product Required: SAP Open Client SDK, Release 15.7 or later (64-bit libraries).

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

SAS/ACCESS Interface to SAP HANA

Base SAS is required for the installation of SAS/ACCESS Interface to SAP HANA.

SAS/ACCESS Interface to SAP HANA requires the ODBC driver (64-bit) for SAP HANA from SAP. The ODBC driver is part of the SAP HANA Client.

DBMS Products Required:

- SAP HANA SPS 08 Server or later
- SAP HANA ODBC Client for SPS 08 or later

For SAS 9.4M4

DBMS Products Required:

- SAP HANA SPS 11 Server or later
- SAP HANA ODBC Client for SPS 11 or later

SAS/ACCESS Interface to SAP IQ

Base SAS is required for the installation of SAS/ACCESS Interface to SAP IQ (formerly SAS/ACCESS Interface to Sybase IQ).

To obtain the SAP IQ Network Client, contact your database administrator or SAP Technical Support.

DBMS Products Required:

- SAP IQ Network Client version 15.4
- ODBC driver (64-bit version) from SAP

For SAS 9.4M3 and Later

DBMS Products Required:

- SAP IQ Network Client version 16.0 or later
- SAP IQ Database version 16.0 or later
- ODBC driver (64-bit version) from SAP

SAS/ACCESS Interface to Teradata

Base SAS is required for the installation of SAS/ACCESS Interface to Teradata.

DBMS Products Required:

- Teradata Database version 13.10 or later
- Teradata CLIV2 client libraries, TTU 13.10 or later for Windows (64-bit libraries)

For SAS 9.4M3

DBMS Products Required:

- Teradata Database version 14.10 or later
- Teradata CLIV2 client libraries, TTU 14.10 or later for Windows (64-bit libraries)

For SAS 9.4M4

DBMS Products Required:

- Teradata Database version 15.10 or later
- Teradata CLIV2 client libraries, TTU 15.10 or later for Windows (64-bit libraries)

For more information about SAS/ACCESS Interface to Teradata, see the Teradata chapter in *SAS/ACCESS Software for Relational Databases: Reference*.

SAS/ACCESS Interface to Vertica

Base SAS is required for the installation of SAS/ACCESS Interface to Vertica.

SAS/ACCESS Interface to Vertica Software requires the Vertica ODBC Client driver. To obtain the Vertica Client ODBC driver, contact your database administrator or Hewlett Packard Technical Support.

DBMS Products Required:

- Vertica Database version 6.1 or later
- Vertica ODBC client version 6.1 or later

For SAS 9.4M3 or Later

DBMS Products Required:

- Vertica Database version 7.1 or later
- Vertica ODBC client version 7.1 or later

For information about where to install the ODBC driver and how to configure your SAS software to work with Vertica software, refer to the *Configuration Guide for SAS 9.4 Foundation for Microsoft Windows for x64*.

SAS/AF

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

A color or gray-scale printer is required for printing graphics-based objects.

Depending on the object, certain non-graphic objects may require SAS/GRAPH software to print.

SAS/CONNECT

Base SAS is required for the installation of SAS/CONNECT software.

SAS/CONNECT software uses the TCP/IP access method and supports the Microsoft TCP/IP System Driver, which is provided with Microsoft Windows for x64.

SAS/EIS

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/EIS software
- SAS/GRAPH software

Other products may be required, depending on the application.

Memory: 128 MB required

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

SAS/Genetics

Base SAS and SAS/GRAPH are required for the installation of SAS/Genetics software.

SAS/GIS

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.

SAS/GRAPH

The 32-bit or 64-bit version of Microsoft Internet Explorer 11 is required to run the SAS/GRAPH ActiveX Graph Control from a web browser.

The 32-bit or 64-bit versions of Internet Explorer version 11, Mozilla Firefox version 6.0 or later, or Google Chrome version 15 or later are required to run the SAS/GRAPH Java Applets from a web browser.

The Java plug-in must be installed in order for the SAS/GRAPH Java applets to be displayed in the SAS internal browser, Internet Explorer, Firefox, or Chrome. If the Java plug-in is not installed already, the SAS internal browser and Internet Explorer will prompt you for the installation, but the other web browsers will not. The Java runtime can be installed from the Java website before you run SAS Java applets.

If you are prompted to install the Java plug-in, you must refresh your browser after the plug-in is installed, or the SAS/GRAPH Java applet does not display.

SAS/IntrNet

SAS/IntrNet software consists of several components that may be installed independently. SAS/IntrNet Server software is installed on an existing SAS System and is included on SAS 9.4 media.

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.

Design-Time Controls

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

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 a client system.

Tunnel Feature

Must be installed on a web server running on a UNIX or Windows system.

SAS/OR

The use of graphics in SAS/OR software requires a SAS/GRAPH license. A SAS High-Performance Analytics license is required to invoke the OPTLP, OPTMILP, OPTQP, and OPTMODEL procedures in distributed computing mode.

SAS/TOOLKIT

Products Included:

- Base SAS software
- A compiler

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

SAS/Warehouse Administrator

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 the application (for example, 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.



SAS is the leader in business analytics software and services, and the largest independent vendor in the business intelligence market. Through innovative solutions delivered within an integrated framework, SAS helps customers at more than 50,000 sites improve performance and deliver value by making better decisions faster. Since 1976, SAS has been giving customers around the world THE POWER TO KNOW®.