System Requirements for SAS® 9.4 Foundation (32-Bit) for Microsoft Windows

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Overview

The *System Requirements for SAS 9.4 Foundation(32-Bit) for Microsoft Windows* provides requirements for installing and running 32-bit SAS 9.4 Foundation on Microsoft Windows. This document was last updated for SAS 9.4M9 (TS1M9).

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
- Space Requirements
- Additional Features
- Specific Product Requirements

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

Additional Resources

Configuring Your I/O Subsystem

SAS recommends the white paper titled *Best Practices for Configuring your I/O Subsystem for SAS 9 Applications.* You can access it here: https://support.sas.com/resources/papers/proceedings16/SAS6761-2016.pdf.

Troubleshooting System Performance Problems

For a list of papers that are useful for troubleshooting system performance issues, see SAS KB 42197.

Maintenance Releases and Third-Party Support

Note: *SAS 9.4M7 entered Limited Support from SAS in September 2025. SAS 9.4M0 through 9.4M6 entered Limited Support from SAS in February 2025.*

If you do not upgrade SAS 9.4 Foundation with each maintenance release, you are assuming some risks. Your environment lacks the patches and security updates that are included with these releases. In addition, the only versions of third-party database technologies that are supported by an older SAS 9.4 maintenance release might not be supported by the third-party vendor. If your version of the database or client software is no longer supported by the vendor, SAS cannot troubleshoot issues that you might encounter because representatives from that vendor are not available to provide assistance.

In addition, SAS reserves the right to move products that are affected by a lack of third-party vendor support to SAS Limited Support. For the official SAS support policy regarding the loss of vendor support, see SAS Software Support When Third-Party Vendors Drop Support.

For more information about SAS Technical Support, visit https://support.sas.com/en/technical-support.html.

Software Requirements

File System Requirements

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

Administrator Privileges

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, Endpoint-Protection, and System-Monitoring Software

The configuration and activities of security software can interfere with SAS applications or even prevent them from executing.

Anti-virus scanning can cause issues by locking files that are used for SAS operations. To prevent such disruptions, SAS strongly recommends that you exclude SAS applications from live virus scanning. For example, you can add SAS executables and known file extensions (such as *.sas7bdat, *.lck, *.sas) to a list of files to exclude from scanning. SAS also recommends that you exclude the ports that are used by SAS Foundation and SAS solutions from port-scanning activities.

Endpoint protection software can stop SAS applications from running. System-monitoring applications seem to be less likely to disrupt SAS, but when these applications undergo changes, such as during routine maintenance, they can cause issues.

SAS recommends that you temporarily disable all actively running security software when performing SAS installation, configuration, and software maintenance tasks. In addition, make sure that your configuration allows you to install software and to update the registry.

If your SAS deployment stops working (especially on a recurring basis) consider whether conflicts with actively running security software could be the root cause. You might be able to resolve these issues quickly by taking one or more of the following troubleshooting steps:

- Investigate whether other applications that are not SAS are also affected.
- Use nmon, collect-l, or top to find out which resources are actively used by the security products.
- Temporarily disable each active security program, one at a time, to determine whether they are causing the disruptions to SAS or to other applications.

As described in the SAS Technical Support General Support policy regarding third-party software, SAS Technical Support will convey any knowledge that it has, but cannot provide support for another vendor's software.

Windows Software Updates

Some SAS software requires the Microsoft .NET Framework, which SAS provides as a convenience. SAS obtains the latest version of .NET as a system redistributable from Microsoft when preparing SAS software for release. Such redistributables are tightly integrated with the Windows operating system update process. As a result, SAS strongly recommends that you apply the latest operating-system updates to maintain a fully secured environment.

A Microsoft bug associated with the method that an individual machine is using to retrieve periodic operating-system updates might cause an error during the installation. If you are running Microsoft Windows 8 Pro, Windows Server 2012, or Windows 8 Enterprise, SAS recommends performing the steps that are described in SAS Installation Note 48410. These steps ensure that the SAS Deployment Wizard can successfully enable the required version of Microsoft .NET Framework on your system during the installation.

Supported Microsoft Windows Environments

Note: *SAS 9.4 Foundation (32-bit) is available starting with SAS 9.4M1. Software distributed with the SAS release designation SAS 9.4M0 does not support Windows in 32-bit environments, but Windows 32-bit support is provided in SAS 9.4M1 and later.*

Windows Server Operating Systems

Important: *SAS 9.4M8 and later do not support 32-bit Microsoft Windows Server operating systems. You can deploy 32-bit SAS 9.4 Foundation on 64-bit Windows operating systems.*

For each supported Microsoft Windows Server operating system, SAS tests with the following varieties, with exceptions noted:

- Datacenter Edition with Desktop Experience
- Standard Edition with Desktop Experience

Windows Server 2025

SAS 9.4 Foundation is supported on 64-bit editions of Windows Server 2025 with SAS 9.4M9.

Windows Server 2022

SAS 9.4 Foundation is supported on 64-bit editions of Windows Server 2022 with SAS 9.4M7 and later.

Windows Server 2019

SAS 9.4 Foundation is supported on 64-bit editions of Windows Server 2019 with SAS 9.4M6 and later.

Windows Server 2016

SAS 9.4 Foundation is supported on the following 64-bit editions of Windows Server 2016 with SAS 9.4M5 and later:

- Microsoft Windows Server 2016 Essentials Edition
- Microsoft Windows Server 2016 Standard Edition with Desktop Experience
- Microsoft Windows Server 2016 Datacenter Edition with Desktop Experience

Windows Server 2012

Note*: Microsoft ended support for the Windows Server 2012 operating system in 2023.*

SAS 9.4 Foundation is supported on the following 32-bit and 64-bit editions of Windows Server 2012 with SAS 9.4M1 through SAS 9.4M8:

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

Windows Server 2008

Note: *Microsoft ended support for the Windows Server 2008 operating system in 2020.*

SAS 9.4 Foundation is supported on the following 32-bit and 64-bit editions of Windows Server 2008 with SAS 9.4M1 through SAS 9.4M7:

- Microsoft Windows Server 2008 SP2 Datacenter, Enterprise, and Standard Edition
- Microsoft Windows Server 2008 R2 SP1 Datacenter, Enterprise, and Standard Edition

Windows Workstation Operating Systems

Note: *The only 32-bit Windows workstation operating system that is supported on SAS 9.4M8 and SAS 9.4M9 is Windows 10. Microsoft has ended support for Windows 10.*

Windows 11 Home, Pro, Enterprise, and Education (64-bit): Supported for SAS 9.4 Foundation products and Base SAS 9.4M1 and later.

Windows 10 Home, Pro, Enterprise, and Education (32-bit or 64-bit): Supported for SAS 9.4 Foundation products and Base SAS 9.4M1 and later. Microsoft ended support for Windows 10 in 2025.

Windows 8 Pro and Enterprise, Windows 8.1 Pro and Enterprise (32-bit or 64-bit): Supported for SAS 9.4 Foundation products and Base SAS 9.4M1 through 9.4M7. Microsoft ended support for Windows 8 and Windows 8.1 in 2023.

Windows 7 SP1 Professional, Ultimate, and Enterprise (32-bit or 64-bit): Supported for client installations of SAS 9.4 Foundation products and Base SAS 9.4M1 through 9.4M7. Microsoft ended support for Windows 7 in 2020.

Education Analytical Suite

Windows 10 and Windows 11: Supported for the Education Analytical Suite (EAS). The following list indicates the EAS products that are supported on Windows 7 and later:

Notes: *With SAS 9.4M1 through SAS 9.4M7, Windows 7 Home Premium, Windows 8, and Windows 8.1 were also supported. However, these EAS products are not supported individually on Windows 7 Home Premium, Windows 8, Windows 8.1, Windows 10, or Windows 11.*

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

To verify version compatibility, see the SAS 9.4 Operating System Compatibility page.

Web Browsers

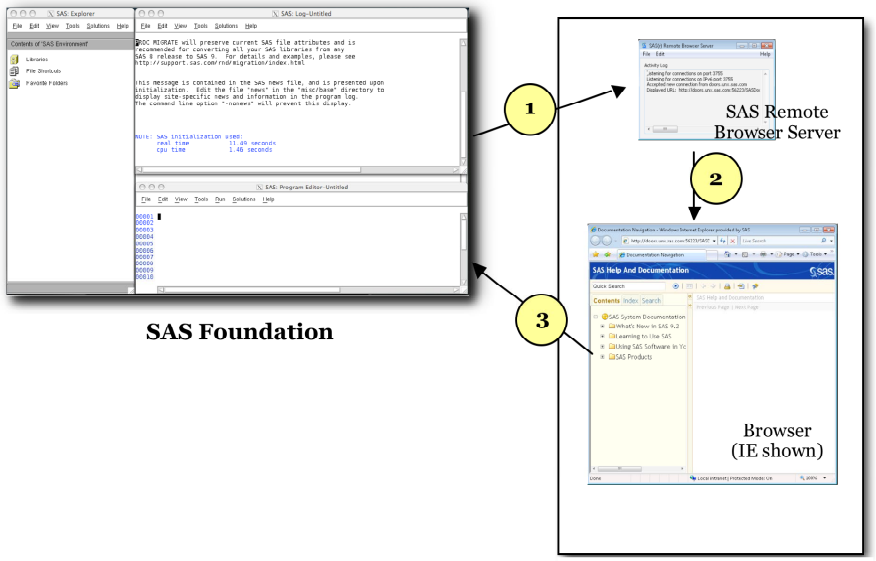
Both SAS 9.4 Foundation software and client applications support recent versions of popular web browsers to display SAS user interfaces. To run SAS clients, use a browser and platform combination that is listed on the SAS 9.4 Support for Browsers page.

Most SAS product user interfaces include HMTL5 to support newer features. Where applicable, 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).



With SAS 9.4M8 and SAS 9.4M9, Remote Browsing runs on Windows 10 and Windows 11 and on 64-bit Linux. To support the remote browsing feature, your desktop computer must have a recent version of one of the following browsers installed:

- Google Chrome
- Microsoft Edge on Chromium
- Mozilla Firefox

The SAS Remote Browser Server, SAS Foundation, and client applications support 32-bit or 64-bit browser software. However, 64-bit browsers are recommended.

A supported operating system and browser and the Remote Browser Server must be installed and running on your desktop machine to enable Remote Browsing. The installer for the Remote Browser Server can be found on the SAS 9.4 Software Downloads site. The browser must also be configured to allow pop-up windows. In addition, make sure that the default browser on the local machine is set to the browser that you want to use, and then select **Default Browser** for the **Display with browser** setting in the Remote Browser Preferences dialog box.

Java Requirements

For information about Java Runtime Environment (JRE) requirements, refer to the SAS 9.4 Support for Java page.

Security Requirements

Starting with SAS 9.4M8, SAS Foundation servers use the cryptographic libraries that are available from the operating systems supported by SAS. Each SAS-supported cipher suite might not be available from all operating systems. When this issue is encountered, use a cipher suite that is supported by both SAS and that operating system, or install a third-party SSL provider for use by SAS. For more information, see *Encryption in SAS 9.4*.

Hardware Requirements

The following recommendations are for installations of SAS 9.4 Foundation (32-bit) on Windows.

Machines Supported

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

System Configuration

The following are minimum resource levels for a deployment of SAS 9.4 Foundation on 32-bit Windows systems. These are the minimum requirements for SAS software to function. However, more memory and additional resources are typically needed to meet your organization's requirements:

Desktop Systems

The machine where a Windows desktop operating system is running has the following requirements:

- a minimum of 2 cores
- 2 GB RAM (available to SAS)
- Swap space: 32 GB (minimum).
  If the host machine has more than 12 CPU cores and heavy memory usage, consider allocating 64 GB or more of swap space. If your system administrator detects that swap is regularly using more swap space than this resource level provides, increase the swap space to match the workload requirements. If you observe that swap space levels are exceeded regularly, SAS recommends adding RAM in order to avoid swapping, which is detrimental to performance.

Server Systems

Note: *Starting with Windows Server 2012, Microsoft no longer offers 32-bit versions of Windows Server operating systems.*

- A minimum of 4 cores for any server that hosts a SAS Workspace Server, or for any server where SAS jobs execute
- 8 GB of RAM per physical core (available to SAS)
- I/O throughput of 400 MB/sec. SAS strongly recommends this minimum level for the file system, with the following specific minimum I/O throughput levels for key SAS components:
  - SASWORK file system – 150 MB per second, per physical core on the host
  - SAS UTILLOC file system – 150 MB per second, per physical core on the host
  - Persistent upstream file systems that SAS reads (data sources) – 125 MB per second, per physical core on the host

  These rates support excellent performance, even for resource-intensive SAS jobs.
- Swap space: 32 GB (minimum).

  If the host machine has more than 12 CPU cores and heavy memory usage, consider allocating 64 GB or more of swap space. If your system administrator detects that swap is

regularly using more swap space than this resource level provides, increase the swap space to match the workload requirements. If you observe that swap space levels are exceeded regularly, SAS recommends adding RAM in order to avoid swapping.

- Network bandwidth: The minimum network bandwidth for any SAS host is 10 GB network host adapters (NICs) and 10 GB switches. For SAS Grid solutions or other distributed deployments, SAS strongly recommends that you install SAS on hosts with 20 GB NICs and 20 GB switches.

***Note**: SAS recommends obtaining a hardware recommendation that is based on your estimated workload and number of users.*

Monitors Supported

SVGA (resolution of 800x600 or higher)

Space Requirements

The binary files associated with SAS 9.4 Foundation require approximately 30 MB of disk space to complete the installation. These space requirements will 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 summarizes disk space requirements 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. 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 9
Korean	174.0	Page 10

Asian Language Support

The following lists contain 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

Japanese Support	Disk Space (in MB)*
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

Specific Product Requirements

Base SAS Software

Requirements for 32-bit SPD Engine on Microsoft Windows:

SPDE will run with the minimum system specified in the Hardware Requirements section on page 7. However, the following list provides the minimum recommended system guidelines to make use of SPDE functionality:

- 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 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 Operating Systems:

- Red Hat Enterprise Linux 64-bit, version 6.7 or later (recommended)
- SUSE Linux Enterprise Server 64-bit, version 11 or later with the latest Service Pack

DBMS Products Required:

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

For SAS 9.4M2 – 9.4M5

DBMS Products Required:

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

In Greenplum 5.x, the Partner Connector library (GPPC) is integrated natively into the database. If you are using a Greenplum 5.0 or later database, it is not necessary to install the package. For best performance, SAS recommends using Greenplum 5.7 or later.

For SAS 9.4M6 – 9.4M8

DBMS Product Required: Greenplum Database version 5.7 or later.

For SAS 9.4M9

DBMS Product Required: Greenplum Database version 6.5 or later

For best results, SAS recommends installing the latest Service Packs on the client and server.

SAS In-Database Code Accelerator for Hadoop

Important: *Starting with SAS 9.4M9, the procedures for deploying SAS/ACCESS Interface to Hadoop and SAS In-Database products for Hadoop have changed. Several manual steps are required in order to configure the drivers and run a configuration script. Full details are available in the SAS 9.4 Hadoop Configuration Guide for Base SAS and SAS/ACCESS.*

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 information about SAS Embedded Process deployment, see *SAS 9.4 and SAS Viya 3.5 Embedded Process: Deployment Guide*.

For supported Hadoop distributions and versions, refer to the SAS Support for Hadoop web page.

For SAS 9.4M4 – 9.4M6

Hive 0.14 or later is required.

For SAS 9.4M7 – 9.4M8

Hive 1.1 or later is required.

For SAS 9.4M9

The Cloudera Hive JDBC Driver 2.6.25 or later is required. For more information, see `https://www.cloudera.com/downloads/connectors/hive/jdbc/2-6-25.html`.

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.

Contact a Teradata representative to obtain the required support functions for the SAS Embedded Process. 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 (sasepfunc) on the DBMS machine.

Note: *The version number for sasepfunc indicates the latest version of Teradata database that is supported. It is backward-compatible with Teradata Database 15.xx and earlier versions of Teradata Database 16.xx.*

SAS has extended SAS/ACCESS and SAS In-Database Technologies support to selected cloud and database variants of supported data sources. For more information about the supported variants, see SAS Support for Cloud and Database Variants.

DBMS Products Required:

- Teradata 13.10 or later
- Teradata CLIv2 client libraries, TTU 13.10 - 16.20 for Windows (32-bit libraries)

For SAS 9.4M3

DBMS Products Required:

- Teradata Database 14.10 or later
- Teradata CLIv2 client libraries, TTU 14.10 - 16.20 for Windows (32-bit libraries)

For SAS 9.4M4 – 9.4M5

DBMS Products Required:

- Teradata Database version 15.10 or later
- Teradata CLIv2 client libraries, TTU 15.10 - 16.20 for Windows (32-bit libraries)

For SAS 9.4M6 - 9.4M7

DBMS Products Required:

- Teradata Database version 16.10 or later
- Teradata CLIv2 client libraries, TTU 16.10 - 16.20 for Windows (32-bit libraries)

For SAS 9.4M8

DBMS Products Required:

- Teradata Database version 17.10 or later
- Teradata CLIv2 client libraries, TTU 17.10 or later for Windows (32-bit libraries)

SAS Scoring Accelerator for Aster

Important: *Starting with SAS 9.4M8, SAS Scoring Accelerator for Aster is not available. If you upgrade or migrate SAS Foundation to SAS 9.4M8, SAS recommends that you install and use a different SAS/ACCESS engine and data source instead. Consult the system requirements for the selected SAS/ACCESS engine or contact your SAS representative for assistance.*

If you have an existing installation of SAS Scoring Accelerator for Aster in your environment, SAS recommends that you first unconfigure and uninstall before upgrading or migrating to SAS 9.4M8. A best practice is to unconfigure retired SAS products before you upgrade and to uninstall them after you upgrade. For more information, see "Unconfiguring and Uninstalling Retired Products" in the SAS Guide to Software Updates and Product Changes.

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

DBMS Operating System: Red Hat Enterprise Linux 64-bit version 6.7 or later.

For SAS 9.4M2 and Later

DBMS Products Required:

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

SAS Scoring Accelerator for DB2

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

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.

DBMS Operating Systems:

- IBM AIX 64-bit version 7.1 with Service Pack 3 or later
- Red Hat Enterprise Linux 64-bit, version 6.7 or later

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

For SAS 9.4M1 – 9.4M8

DBMS Products Required:

- IBM Db2 10.5 or later
- Client utilities for IBM Db2 version 10.5 or later

For SAS 9.4M9

DBMS Products Required:

- IBM Db2 version 11.5 or later
- Client utilities for IBM Db2 version 11.5 or later

For best results, SAS recommends 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.

DBMS Operating Systems:

- Red Hat Enterprise Linux 64-bit, version 6.7 or later
- SUSE Linux Enterprise Server 64-bit, version 11 or later with the latest Service Pack

DBMS Products Required:

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

For SAS 9.4M2 – 9.4M5

DBMS Products Required:

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

In Greenplum 5.x, the Partner Connector library (GPPC) is integrated natively into the database. If you are using a Greenplum 5.0 or later database, it is not necessary to install the package. For best performance, SAS recommends using Greenplum 5.7 or later.

For SAS 9.4M6

DBMS Product Required: Greenplum Database version 5.7 or later.

For SAS 9.4M7 – 9.4M8

DBMS Product Required: Greenplum Database version 6.0 or later

For SAS 9.4M9

DBMS Product Required: Greenplum Database version 6.5 or later

For best results, SAS recommends installing the latest Service Packs on the client and server.

SAS Scoring Accelerator for Hadoop

Important: *Starting with SAS 9.4M9, the procedures for deploying SAS/ACCESS Interface to Hadoop and SAS In-Database products for Hadoop have changed. Several manual steps are required in order to configure the drivers and run a configuration script. Full details are available in the SAS 9.4 Hadoop Configuration Guide for Base SAS and SAS/ACCESS.*

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

For supported Hadoop distributions and versions, refer to the SAS Support for Hadoop web page.

For SAS 9.4M4 – 9.4M6

Hive 0.14 or later is required.

For SAS 9.4M7 – 9.4M8

Hive 1.1 or later is required.

For SAS 9.4M9

The Cloudera Hive JDBC Driver 2.6.25 or later is required. For more information, see `https://www.cloudera.com/downloads/connectors/hive/jdbc/2-6-25.html`.

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.

SAS has extended SAS/ACCESS and SAS In-Database Technologies support to selected cloud and database variants of supported data sources. For more information about the supported variants, see SAS Support for Cloud and Database Variants.

DBMS Products Required:

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

For SAS 9.4M3 – 9.4M5

DBMS Products Required:

- IBM Netezza version 7.0.3 or later
- Client utilities for IBM Netezza version 7.0.3 or later

For SAS 9.4M6 and Later

DBMS Products Required:

- IBM Netezza version 7.2.1 or later
- Client utilities for IBM Netezza version 7.2.1 or later

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

SAS Scoring Accelerator for Oracle

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

SAS has extended SAS/ACCESS and SAS In-Database Technologies support to selected cloud and database variants of supported data sources. For more information about the supported variants, see SAS Support for Cloud and Database Variants.

DBMS Operating Systems:

- Red Hat Enterprise Linux version 6.7 or later
- Oracle Enterprise Linux version 5.5 or later

DBMS Products Required:

- Oracle Server version 11gR2 or later. The database encoding must be UTF8.
- Oracle Client 11gR2 (32-bit libraries) or later

Notes: *Some additional configuration might be required to use the 12c, 18c, or later client. See the Configuration Guide for SAS 9.4 Foundation (32-Bit) for Microsoft Windows for more information.*

You can also use the Oracle Instant Client with SAS Scoring Accelerator for Oracle. However, if you find any issues, you should switch to the full Oracle client, which is the only Oracle client that SAS uses in official tests. SAS Technical Support will only investigate issues that can be reproduced with the full Oracle client.

Due to an incompatibility, SAS versions prior to SAS 9.4M9 do not support Oracle Client 23ai. To use an Oracle 23ai client, upgrade to SAS 9.4M9.

For SAS 9.4M7 – 9.4M8

DBMS Products Required:

- Oracle Database 12.1 or later
- Oracle Client 12.1 or later, except for 23ai

If your version of the Oracle Database or Client is no longer supported by Oracle, SAS cannot assist you in troubleshooting any issues that you might encounter. Representatives from Oracle are not available to advise SAS on problems with these versions.

For SAS 9.4M9

DBMS Products Required:

- Oracle Database 19c or later
- Oracle Client 19c or 23ai

For best results, SAS recommends installing the latest patches on the client and server.

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, 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

For SAS 9.4M5 and Later

DBMS Product Required: SAS Scalable Performance Data Server version 5.4

SAS Scoring Accelerator for Teradata

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

You must also license either SAS Enterprise Miner or SAS Model Manager (or both), depending on the type of models that are exported. SAS Model Manager is required for STAT Linear models. SAS Enterprise Miner is required for Enterprise Miner models.

Contact a Teradata representative to obtain the required support functions for the SAS Embedded Process. 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 (sasepfunc) on the DBMS machine.

Note: *The version number for sasepfunc indicates the latest version of Teradata Database that is supported. It is backward-compatible with Teradata Database 15.xx and earlier versions of Teradata Database 16.xx.*

SAS has extended SAS/ACCESS and SAS In-Database Technologies support to selected cloud and database variants of supported data sources. For more information about the supported variants, see SAS Support for Cloud and Database Variants.

DBMS Products Required:

- Teradata Database version 13.10 or later
- Client utilities for Teradata (CLIv2 client libraries), TTU 13.10 - 16.20 for Windows (32-bit libraries)

For SAS 9.4M3

DBMS Products Required:

- Teradata 13 Database version 14.10.02.01 or later
- Teradata CLIv2 client libraries, TTU 14.10 - 16.20 for Windows (32-bit libraries)

For SAS 9.4M4 and 9.4M5

DBMS Products Required:

- Teradata Database version 15.10 or later
- Teradata CLIv2 client libraries, TTU 15.10 - 16.20 for Windows (32-bit libraries)

For SAS 9.4M6 - 9.4M7

DBMS Products Required:

- Teradata Database version 16.10 or later
- Teradata CLIv2 client libraries, TTU 16.10 - 16.20 for Windows (64-bit libraries)

For SAS 9.4M8

DBMS Products Required:

- Teradata Database version 17.10 or later
- Teradata CLIv2 client libraries, TTU 17.10 or later for Windows (64-bit libraries)

For SAS 9.4M9

Starting with SAS 9.4M9, TPT API is the default and the only supported method that is used for all Teradata utility processing. For more information, see the *Configuration Guide for SAS 9.4 Foundation (32-Bit) for Microsoft Windows*.

DBMS Products Required:

- Teradata Database 17.*xx*
- Teradata CLIv2 client libraries, TTU 17.20 or later (64-bit libraries)

SAS/ACCESS Interface to Amazon Redshift

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 (32-Bit) for Microsoft Windows*.

SAS/ACCESS Interface to Aster

Important: *Starting with SAS 9.4M8, SAS/ACCESS Interface to Aster is not available. If you upgrade or migrate SAS Foundation to SAS 9.4M8, SAS recommends that you install and use a different SAS/ACCESS engine and data source instead. Consult the system requirements for the selected SAS/ACCESS engine or contact your SAS representative for assistance.*

If you have an existing installation of SAS/ACCESS Interface to Aster in your environment, SAS recommends that you first unconfigure and uninstall before upgrading or migrating to SAS 9.4M8. A best practice is to unconfigure retired SAS products before you upgrade and to uninstall them after you upgrade. For more information, see "Unconfiguring and Uninstalling Retired Products" in the SAS Guide to Software Updates and Product Changes.

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

SAS/ACCESS Interface to Aster requires the Aster ODBC driver and the bulk loading clients, ncluster_loader.exe. To obtain the ODBC driver and bulk loading clients, contact Aster Data Technical Support.

DBMS Products Required:

- Aster Server version 4.5.1 or later
- Aster ODBC driver version 4.5.1 or later for Windows

For SAS 9.4M3

DBMS Products Required:

- Aster Server version 6.0 or later
- Aster ODBC driver version 5.1 or later for Windows

For SAS 9.4M4 and Later

DBMS Products Required:

- Aster Server version 6.1 or later
- Aster ODBC driver version 6.1 or later for Windows

Refer to the *Configuration Guide for SAS 9.4 Foundation (32-Bit) for Microsoft Windows* 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 an IBM Db2 server or on a Db2 client node with an installation of the IBM Data Server Client. In addition, IBM Db2 Connect must be installed 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 - SAS 9.4M6

DBMS Products Required:

- IBM Db2 version 10.5 or later
- Client utilities for IBM Db2 10.5 or later

For SAS 9.4M7 – 9.4M8

DBMS Products Required:

- IBM Db2 version 11 or later
- Client utilities for IBM Db2 11 or later

For SAS 9.4M9

DBMS Products Required:

- IBM Db2 version 11.5 or later
- Client utilities for IBM Db2 version 11.5 or later

For best results, SAS recommends 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 ODBC driver. For instructions, see "Configuring SAS/ACCESS Interface to Greenplum" in the *Configuration Guide for SAS 9.4 Foundation (32-Bit) for Microsoft Windows*.

DBMS Product Required:

Greenplum Database version 4.3 or later. SAS does not recommend using Greenplum Database versions 5.0 - 5.6.

For SAS 9.4M6

DBMS Product Required: Greenplum Database version 5.7 or later

For SAS 9.4M7 – 9.4M8

DBMS Product Required: Greenplum Database version 6.0 or later

For SAS 9.4M9

DBMS Product Required: Greenplum Database version 6.5 or later

For best results, SAS recommends installing the latest Service Packs on the client and server.

SAS/ACCESS Interface to Hadoop

Important: *Starting with SAS 9.4M9, the procedures for deploying SAS/ACCESS Interface to Hadoop have changed. Several manual steps are required in order to configure the drivers and run a configuration script. Full details are available in the SAS 9.4 Hadoop Configuration Guide for Base SAS and SAS/ACCESS*.

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

For supported Hadoop distributions and versions, refer to the SAS Support for Hadoop web page.

For SAS 9.4M4 – 9.4M6

Hive 0.14 or later is required.

For SAS 9.4M7 – 9.4M8

Hive 1.1 or later is required.

For SAS 9.4M9

The Cloudera Hive JDBC Driver 2.6.25 or later is required. For more information, see `https://www.cloudera.com/downloads/connectors/hive/jdbc/2-6-25.html`.

SAS/ACCESS Interface to HAWQ

Important: *Starting with SAS 9.4M8, SAS/ACCESS Interface to HAWQ is not available. If you upgrade or migrate SAS Foundation to SAS 9.4M8, SAS recommends that you install and use SAS/ACCESS Interface to Greenplum instead. Consult the system requirements for SAS/ACCESS Interface to Greenplum or contact your SAS representative for assistance.*

If you have an existing installation of SAS/ACCESS Interface to HAWQ in your environment, SAS recommends that you first unconfigure and uninstall before upgrading or migrating to SAS 9.4M8. A best practice is to unconfigure retired SAS products before you upgrade and to uninstall them after you upgrade. For more information, see "Unconfiguring and Uninstalling Retired Products" in the SAS Guide to Software Updates and Product Changes. Base SAS is required for the installation of SAS/ACCESS Interface to HAWQ.

SAS/ACCESS Interface to HAWQ includes the required 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 SAS 9.4M5 and Later

DBMS Product Required: HAWQ Database version 2.2 or later.

For instructions about how to configure SAS/ACCESS Interface to HAWQ, see the *Configuration Guide for SAS 9.4 Foundation (32-Bit) for Microsoft Windows*.

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 – 9.4M6

DBMS Products Required:

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

For SAS 9.4M7 – 9.4M8

DBMS Products Required:

- Impala server version 3.2.0 or later
- ODBC Driver for Impala release 2.6.9 or later

For SAS 9.4M9

Supported Environments:

Cloudera (Simba) 2.7.2 or later on Cloudera Data Platform (CDP):

- CDP 7.1.x (Private Cloud)
- CDP 7.2.x (Public Cloud)

Required Database Components:

- Impala server 3.2.0 or later
- ODBC Driver for Impala 2.7.2 or later

SAS/ACCESS Interface to JDBC

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

SAS/ACCESS Interface to JDBC requires a Java Database Connectivity (JDBC) driver. JDBC drivers are often available from DBMS vendors and from other third-party JDBC driver developers. SAS recommends using JDBC drivers that comply with the JDBC 4.1 specification 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.*

SAS has extended SAS/ACCESS and SAS In-Database Technologies support to selected cloud and database variants of supported data sources. For more information about the supported variants, see SAS Support for Cloud and Database Variants.

For SAS 9.4M3 – 9.4M8

DBMS Product Required: Microsoft SQL Server 2012 or later.

For SAS 9.4M9

DBMS Product Required: Microsoft SQL Server 2019 or later.

For information about how to configure SAS/ACCESS Interface to Microsoft SQL Server, see the *Configuration Guide for SAS 9.4 Foundation (32-Bit) for Microsoft Windows*.

SAS/ACCESS Interface to MySQL

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

SAS has extended SAS/ACCESS and SAS In-Database Technologies support to selected cloud and database variants of supported data sources. For more information about the supported variants, see SAS Support for Cloud and Database Variants.

DBMS Products Required:

- MySQL Client version 5.1, 5.6, or 5.7
- MySQL Server version 5.1 or later

For SAS 9.4M4 – SAS 9.4M6

DBMS Products Required:

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

For SAS 9.4M7 – 9.4M8

DBMS Products Required:

- MySQL Client version 5.7 or 8.0.*x*
- MySQL Server version 5.7 or later (including MySQL 8.0.*x*)

For SAS 9.4M9

DBMS Products Required:

MySQL Client version 8.0.35 or later
MySQL Server version 8.0.42 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, release 4.6.2 or later, contact IBM Technical Support at (877) 426-6006, or visit the IBM Fix Central website, `http://www.ibm.com/support/fixcentral/`

SAS has extended SAS/ACCESS and SAS In-Database Technologies support to selected cloud and database variants of supported data sources. For more information about the supported variants, see SAS Support for Cloud and Database Variants.

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 – 9.4M5

DBMS Products Required:

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

For SAS 9.4M6 and Later

DBMS Products Required:

- IBM Netezza version 7.2.1 or later
- Client utilities for IBM Netezza version 7.2.1 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 you select might require additional DBMS software for network access. All required network software supplied by your database system vendor must be 32-bit-compliant.

The 32-bit version of the ODBC Driver is required for the data source. All database clients for Windows 32 must be 32-bit.

See the *Configuration Guide for SAS 9.4 Foundation (32-Bit) for Microsoft Windows* for information about the installation.

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 desired data source is required. OLE DB providers are often available from DBMS vendors and other third-party software vendors. The OLE DB provider you select may require additional DBMS software for network access.

All required network software that is supplied by your database system vendor must be 32-bit-compliant. The 32-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 an Oracle server can be used in place of the Oracle client.

In order 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.

SAS has extended SAS/ACCESS and SAS In-Database Technologies support to selected cloud and database variants of supported data sources. For more information about the supported variants, see SAS Support for Cloud and Database Variants.

Notes: *Some additional configuration might be required to use the 12c, 18c, or later client. See the Configuration Guide for SAS 9.4 Foundation (32-Bit) for Microsoft Windows for more information.*

You can also use the Oracle Instant Client with SAS/ACCESS Interface to Oracle. However, if you find any issues, you should switch to the full Oracle client, which is the only Oracle client that SAS uses in official tests. SAS Technical Support will only investigate issues that can be reproduced with the full Oracle client.

Due to an incompatibility, SAS versions prior to SAS 9.4M9 do not support Oracle Client 23ai. To use an Oracle 23ai client, upgrade to SAS 9.4M9.

DBMS Products Required:

- Oracle Database 11gR2 or later
- Oracle Client 11gR2 or later

For SAS 9.4M7 – 9.4M8

DBMS Products Required:

- Oracle Database 12.1 or later
- Oracle Client 12.1 or later, except for 23ai

If your version of the Oracle Database or Client is no longer supported by Oracle, SAS cannot assist you in troubleshooting any issues that you might encounter. Representatives from Oracle are not available to advise SAS on problems with these versions.

For SAS 9.4M9

DBMS Products Required:

- Oracle Database 19c or later
- Oracle Client 19c or 23ai

For best results, SAS recommends installing the latest patches on the client and server.

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 a 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 SAS)
- Lotus files (`.wk1`, `.wk3` and `.wk4`)
- Microsoft Access database files (`.mdb` or `.accdb`)
- Paradox(`.db`)
- SPSS files (`.sav`)
- Stata files (`.dta`)

For SAS 9.4M9, SAS has validated SAS/ACCESS Interface to PC Files with the following software formats:

- .jmp
- .spss
- .stata
- .xlsx or .xls

SAS 9.4 will automatically install the Access Database Engine 2010 Redistributable (ACE driver) when you install SAS/ACCESS Interface to PC Files software if no previous ACE driver is installed; otherwise the existing ACE installation is left as is.

Note: *32-bit and 64-bit Microsoft ACE engines cannot co-exist on 64-bit Windows. SAS recommends installing a Microsoft ACE driver to match the SAS bitness on 64-bit Windows.*

Use of an ACCESS or EXCEL libname engine requires the installation of a 64-bit Microsoft ACE driver. If the message "`ERROR: Connect: Class not registered`" appears while you are using the libname ACCESS or EXCEL libname engine, you have the incompatible 32-bit Microsoft Access database engine (ACE) installed.

If you must use the 32-bit ACE driver with 64-bit SAS installed, a 32-bit PC Files Server must be used to bridge the "bitness gap" with PCFILES libname engine. 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 number 9621, which can be configured through the SAS PC Files Server application console. Note that the bitness of SAS PC Files Server must match that of the Microsoft ACE driver on the same Windows machine.

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.

For SAS 9.4M8, PostgreSQL client 14.7 or later is required in order to bulk load and bulk unload files that are larger than 2 GB. Otherwise, the psql tool is limited to files that are smaller than 2 GB. You can download the latest client from the following PostgreSQL site: `https://www.enterprisedb.com/downloads/postgres-postgresql-downloads`.

SAS has extended SAS/ACCESS and SAS In-Database Technologies support to selected cloud and database variants of supported data sources. For more information about the supported variants, see SAS Support for Cloud and Database Variants.

DBMS Products Required: PostgreSQL Database version 9.1.9 or later.

For SAS 9.4M4 and 9.4M5

DBMS Products Required: PostgreSQL Database version 9.1.23 or later.

For SAS 9.4M6 – 9.4M7

DBMS Product Required: PostgreSQL Database version 9.5.14 or later.

For SAS 9.4M8

DBMS Product Required: PostgreSQL Database version 12 or later

For SAS 9.4M8 and later, PostgreSQL client 14.7 or later is required in order to bulk load and bulk unload files that are larger than 2 GB. Otherwise, the psql tool is limited to files that are smaller than 2 GB. You can download the latest client from the following PostgreSQL site: https://www.enterprisedb.com/downloads/postgres-postgresql-downloads.

For SAS 9.4M9

DBMS Product Required: PostgreSQL Database version 16 or later

SAS/ACCESS Interface to R/3

Base SAS is required for the installation of SAS/ACCESS Interface to SAP R/3. To use the SAS client/server support, SAS/CONNECT or SAS/SHARE is required.

SAS/ACCESS Interface to SAP R/3 requires extensive post-installation configuration before it can be used. For detailed information about configuration and additional requirements, refer to the *Post-Installation Instructions for SAS/ACCESS 9.4 Interface to R/3*.

Products Required:

- SAP NetWeaver 7.0 (Application Server ABAP) or later
- SAP NetWeaver RFC library 7.20 or later (64-bit)

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 ASE (Sybase) Open Client SDK, Release 15.7 or later.

Note: *SAS/ACCESS Interface to SAP ASE no longer supports access to Microsoft SQL Server data.*

SAS/ACCESS Interface to SAP ASE software uses 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 in order to access 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 (32-bit) for SAP HANA from SAP. The ODBC driver is part of the SAP HANA Client.

DBMS Products Required:

- SAP HANA 1.0 SPS 08 Server or later
- SAP HANA ODBC Client for SAP HANA 1.0 SPS 08 or later

For SAS 9.4M4 - 9.4M6

DBMS Products Required:

- SAP HANA 1.0 SPS 12 Server or later
- SAP HANA ODBC Client for SAP HANA 1.0 SPS 12 or later

For SAS 9.4M7 – 9.4M8

DBMS Products Required:

- SAP HANA 2.0 SPS 4 Server or later
- SAP HANA ODBC Client for SAP HANA 2.2.83 or later

For SAS 9.4M9

DBMS Products Required:

- SAP HANA 2.0 SPS 11 Server or later
- SAP HANA ODBC Client (64-bit) for SPS 11 or later

For best results, SAS recommends installing the latest Service Packs on the client and server. SAS also recommends matching the SAP HANA client version with the version of the SAP HANA server where it will be connected.

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 required SAP IQ Network Client, contact your database administrator or SAP Technical Support.

DBMS Products Required:

- SAP IQ Network Client version 15.4 or later
- SAP IQ Database version 15.4 or later

For SAS 9.4M3 – 9.4M5

DBMS Products Required:

- SAP IQ Network Client version 16.0
- SAP IQ Database version 16.0

For SAS 9.4M6 - 9.4M7

DBMS Products Required:

- SAP IQ Network Client version 16.0 or 16.1*
- SAP IQ Database version 16.0 or 16.1

For SAS 9.4M8

DBMS Products Required:

- SAP IQ Network Client version 16.1
- SAP IQ Database version 16.0 or 16.1

For SAS 9.4M9

DBMS Products Required:

- SAP IQ Network Client version 16.1 or later
- SAP IQ Database version 16.0 or later

* Prior to SAS 9.4M8, a hot fix for SAS/ACCESS Interface to SAP IQ is required in order to use version 16.1 of the client. Once you have applied the hot fix or upgraded to SAS 9.4M8, only the version 16.1 client is supported. See the following SAS note for instructions: 67439.

SAS/ACCESS Interface to Teradata

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

SAS has extended SAS/ACCESS and SAS In-Database Technologies support to selected cloud and database variants of supported data sources. For more information about the supported variants, see SAS Support for Cloud and Database Variants.

TLS 1.2 is supported when using SAS/ACCESS Interface to Teradata. The Teradata database must use version 17.10 or later and TTU version 17.10 or later. When you have configured the database for TLS, you can encrypt data that is transferred between Teradata and SAS 9.4M8 or later. For more information, see Configure TLS for SAS/ACCESS Connection to Teradata.

Note: *SAS 9.4M9 supports TLS 1.3. For connections to Teradata, TLS 1.2 is used transparently.*

Teradata has ended support for versions that precede Teradata 17.*xx*. For more information, see the Teradata Products Support Lifecycle and Compatibility Matrix.

DBMS Products Required:

- Teradata Database version 13.10 or later
- Teradata CLIv2 client libraries, TTU 13.10 - 16.20

For SAS 9.4M3

DBMS Products Required:

- Teradata Database version 14.10 or later
- Teradata CLIv2 client libraries, TTU 14.10 - 16.20

For SAS 9.4M4 – SAS 9.4M6

DBMS Products Required:

- Teradata Database version 15.10 or later
- Teradata CLIv2 client libraries, TTU 15.10 - 16.20

For SAS 9.4M7

DBMS Products Required:

- Teradata Database version 16.10 or later
- Teradata CLIv2 client libraries, TTU 17.10 if using TPT and not using Legacy Utilities
- Teradata Database version 16.xx if using TTU 16.10 or TTU 16.20
- Teradata Database version 17.*xx* if using TTU 17.10

For SAS 9.4M8

DBMS Products Required:

- Teradata CLIv2 client libraries, TTU 17.10 or later
- Teradata Database version 17.*xx* or later

For SAS 9.4M9

Starting with SAS 9.4M9, TPT API is the default and the only supported method that is used for all Teradata utility processing. For more information, see the *Configuration Guide for SAS 9.4 Foundation (32-Bit) for Microsoft Windows*.

DBMS Products Required:

- Teradata CLIv2 client libraries, TTU 17.20 or later (64-bit libraries)
- Teradata Database 17.*xx*

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

SAS/AF

Products Required for Build Mode:

- Base SAS
- SAS/AF
- SAS/GRAPH (to create and display some graphics objects)

Other products may be required, depending on the application.

Products Required for Run Mode:

- Base SAS
- SAS/GRAPH (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 might require SAS/GRAPH to enable printing.

SAS/CONNECT

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

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

SAS/EIS

Products Required for Build Mode:

- Base SAS
- SAS/AF
- SAS/EIS

- SAS/FSP
- SAS/GRAPH

Other products may be required, depending on the application.

Products Required for Run Mode:

- Base SAS
- SAS/GRAPH
- SAS/EIS

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

Important: *Starting with SAS 9.4M8, SAS/Genetics is not available. In order to continue using SAS/Genetics, do not upgrade Base SAS or SAS Foundation to SAS 9.4M8.*

A best practice is to unconfigure retired SAS products before you upgrade and to uninstall them after you upgrade. For more information, see "Unconfiguring and Uninstalling Retired Products" in the SAS Guide to Software Updates and Product Changes.

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

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 Edge is required to run the SAS/GRAPH ActiveX Graph Control from a web browser.

The 32-bit or 64-bit versions of Edge, 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, Edge, Firefox, or Chrome. If the Java plug-in is not installed already, the SAS internal browser and Edge 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 will not display.

SAS/IML Studio

SAS/IML Studio requires SAS/IML and SAS/STAT to run. SAS/IML Studio 15.1 requires SAS 9.4M6.

RAM and Disk Space

4 GB minimum, 8 GB recommended. For the installation, 1 GB of disk space is required.

Display Settings

SAS/IML Studio 15.1 requires at least 1024x768 screen resolution with 24-bit color. SAS recommends 1920x1080 resolution with 24-bit color.

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

htmSQL

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

MDDB Report Viewer Application

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

Xplore Sample Web Application

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

Design-Time Controls

Requires Base SAS and SAS/IntrNet Server. 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, SAS/CONNECT, and SAS/IntrNet Server. SAS/SHARE 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 requires a SAS/GRAPH license.

SAS/TOOLKIT

Products Included:

- Base SAS
- 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
- SAS/AF (required only for API usage)

Products Required for Run Mode:

- Base SAS software
- Other products, depending on the application (for example, SAS/ACCESS for access to DBMS tables, SAS/CONNECT for access to remote data, or SAS/AF to access the warehouse using method calls)

Printers:

- For printing graphics-based objects, a color or gray-scale printer is required.
- Certain non-graphic objects may require SAS/GRAPH to enable printing, depending on the object.

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