

# **System Requirements for SAS® 9.4 Foundation (64-Bit) for Microsoft Windows**



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### **System Requirements for SAS® 9.4 Foundation (64-Bit) for Microsoft Windows**

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## Overview

This document provides requirements for installing and running 64-bit SAS 9.4 Foundation on Microsoft Windows. The requirements in this document have been 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
- 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, <https://support.sas.com/documentation/installcenter>.

## Additional Documentation Resources

### Configuring Your I/O Subsystem

SAS recommends the white paper titled [Best Practices for Configuring your I/O Subsystem for SAS 9 Applications](#).

### 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 risks beyond potentially running SAS software that might no longer be receiving security and bug fixes. Your SAS 9.4 maintenance level might be able to run only against versions of third-party database technologies that are no longer supported by the third-party vendor. If your SAS software is under Standard Support but the third-party software has reached end of life, SAS might not be able to assist you or address issues because the vendor is no longer providing assistance.

In these cases, SAS might move a SAS product's support to 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 9.4 M3, 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.

### SAS Download Manager Requirements

SAS Download Manager is a deployment tool that enables you to download a SAS software order from secure SAS repositories. You should ensure that you are using the most recent version of SAS Download Manager that is available from the [SAS Downloads page](#) on the Support website.

If you see an error when attempting to download SAS software or hot fixes, you might need to provide server exclusions to allow SAS Download Manager to send data through a firewall. Your network administrator should make the following exclusions on the network firewall for the HTTPS protocol (TCP over Port 443):

- support.sas.com
- tlshq.esd.sas institute.net
- tlesd.sas.com
- tshf.sas.com
- tlbwp1.esd.sas institute.net
- tlbwp2.esd.sas institute.net

HTTPS is the default protocol used by SAS Download Manager. If you prefer to use HTTP, see [SAS KB0036237](#), "SAS Electronic Software Delivery might require server exclusions to pass through a firewall," for a list of required exclusions.

### 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.

## **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 might also be helpful: [The Top Gotchas When Moving to 64-Bit SAS for Windows](#).

## **Windows Software Updates**

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

To verify version compatibility for each maintenance release of SAS 9.4, see the [SAS 9.4 Operating System Compatibility](#) page.

Both 64-bit and 32-bit SAS are supported on the listed operating systems. For information about 32-bit SAS, see the separate [System Requirements for SAS 9.4 Foundation \(32-Bit\) for Microsoft Windows](#) document.

### Windows Server 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**

Compatible with SAS 9.4M9.

#### **Windows Server 2022**

Compatible with SAS 9.4M7 and later.

#### **Windows Server 2019**

Compatible with SAS 9.4M6 and later.

#### **Windows Server 2016**

Compatible with SAS 9.4M5 and later.

#### **Windows Server 2012 and 2012 R2**

- Compatible with SAS 9.4M0 through SAS 9.4M8
- Essentials Edition was also tested
- Foundation Edition was also tested
- Microsoft ended support for Windows Server 2012 on October 10, 2023

#### **Windows Server 2008 and 2008 R2**

- Compatible with SAS 9.4M0 through SAS 9.4M7
- Datacenter, Essentials, Foundation, and Standard versions were tested
- Microsoft ended support for Windows Server 2008 on January 14, 2020

### Windows Workstation Operating Systems

For each supported Microsoft Windows Workstation operating system, SAS tests with the following varieties:

- Education
- Enterprise
- Home
- Pro

**Windows 11**

Compatible with SAS 9.4M7 and later.

**Windows 10**

- Compatible with SAS 9.4M3 and later
- See the Microsoft statement [Windows 10 support ends on October 14, 2025](#)

**Windows 8 and 8.1**

- Compatible with SAS 9.4M0 through SAS 9.4M7
- Microsoft ended support for Windows 8 on January 10, 2023

**Windows 7**

- Compatible with SAS 9.4M0 through SAS 9.4M7
- Microsoft ended support for Windows 7 on January 14, 2020

**Education Analytical Suite (EAS) Support**

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

**Note:** *These products are not supported individually on Windows 10 or Windows 11.*

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

To verify version compatibility, see the [SAS 9.4 Operating System Compatibility](#) page.

**Web Browsers**

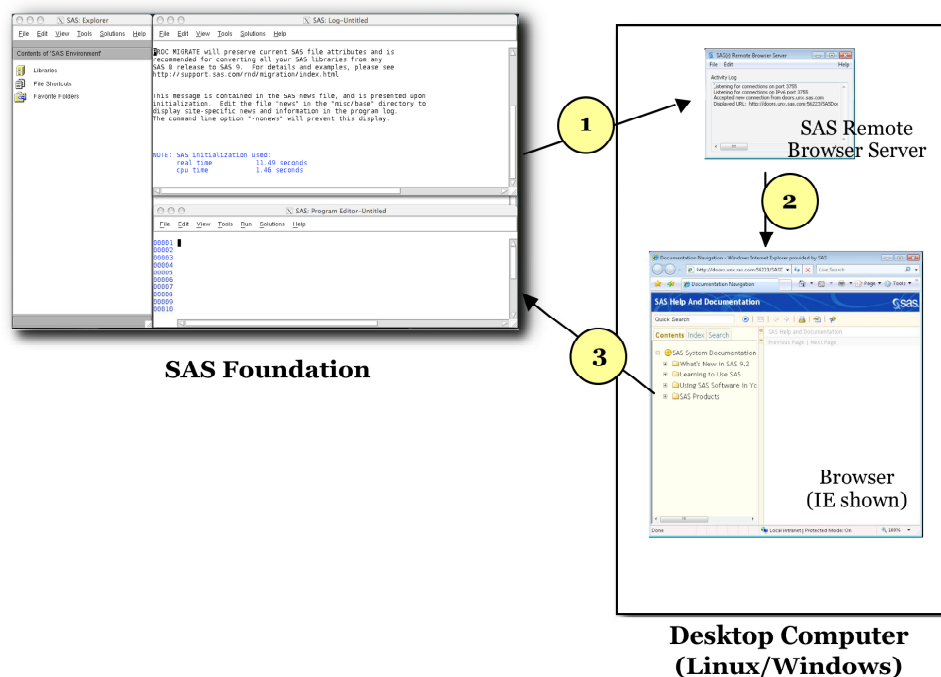
Both SAS 9.4 Foundation software and client applications support recent versions of popular web browsers to display SAS user interfaces. To run SAS clients, use a browser that is listed on the following [SAS Support for Web Browsers](#) page.

On client machines, install a recent version of your preferred web browser, such as Microsoft Edge, Google Chrome, or Mozilla Firefox, to support modern SAS user interfaces. Most SAS product user interfaces deploy HTML5 to support newer features. For example, SAS Visual Analytics uses HTML5. These products require recent browser versions.

## 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 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 (<https://support.sas.com/downloads/>). 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 Runtime Environments](#) page.

## Security Requirements

With SAS 9.4M8 and [SAS 9.4M9](#), 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.

Compare the list of SAS-supported TLS protocols to those supported by Microsoft Schannel SSP Protocols in TLS/SSL (Schannel SSP) and the list of SAS-supported cipher suites to those cipher suites included in TLS/SSL (Schannel SSP) supported by Microsoft.

For more information, see [Encryption in SAS 9.4](#).

## Hardware Requirements

The following recommendations are for installations of SAS 9.4 Foundation (64-bit) on Windows.

### Machines Supported

The following machines are supported:

- Intel processors with Intel 64 support
- AMD processors with AMD64 support

## System Configuration

The following are minimum resource levels for a deployment of SAS 9.4 Foundation (64-bit) for Microsoft Windows. 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

Examples are Windows 10 and Windows 11.

- 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.

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

## Server Systems

Examples are Windows Server 2019, Windows Server 2022, and Windows Server 2025.

- 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 – SAS strongly recommends the following 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 strongly 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. However, space requirements vary depending on the blocking factor and compression algorithms that are in use on the installation disk drive.

SAS 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](mailto: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
<b>Total</b>	<b>39.20</b>

\* 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 10
Korean	174.0	Page 10

## Asian Language Support

The following lists indicate 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

<b>Simplified Chinese Support</b>	<b>Disk Space (in MB)*</b>
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
<b>Total</b>	<b>58.8</b>

<b>Japanese Support</b>	<b>Disk Space (in MB)*</b>
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
<b>Total</b>	<b>97.3</b>

<b>Korean Support</b>	<b>Disk Space (in MB)*</b>
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
<b>Total</b>	<b>57</b>

## Specific Product Requirements

### Base SAS Software

#### Requirements for 64-Bit SPD Engine on Microsoft Windows

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 7, 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

### Support for Data Storage in Amazon S3

If you are integrating SAS®9 and SAS Viya, you can access data that is stored in Amazon Simple Storage Service (S3). You can use the `CASLIB` statement to connect the CAS server with an S3 instance. The `FILENAME` statement lets you connect with your S3 data source.

For the S3 procedure, `FILENAME S3`, a CAS S3 data source, and the CAS S3 action set, only AWS is supported. The `FILENAME S3` statement uses only the AWS S3 REST APIs. EC2 Instance Metadata Service 1 and 2 are supported. You can use the `FILENAME S3` or `PROC S3` statement to connect with your S3 or MinIO data source.

SAS provides S3 support only for Amazon S3. Third-party compatible providers that implement the public Amazon S3 API might work, but SAS has not validated these providers. As a result, SAS cannot provide direct technical support for other S3-compatible providers.

Before you can use the S3 procedure, an AWS key ID and secret are required. A security token is also required if you are using temporary credentials. For more information, see the [Amazon S3 documentation](#).

### SAS Grid Products

The term “SAS Grid” encompasses the following products:

- SAS Grid Manager
- SAS Grid Manager for Hadoop
- SAS Grid Manager for Platform
- Platform Suite for SAS, which includes components from IBM and components from SAS.

These products have unique system requirements and installation documentation, which can be found on the following web pages:

SAS Grid Manager products: [SAS Grid Manager documentation](#)

Platform Suite for SAS:

- Requirements and Administration: [Platform Suite for SAS documentation](#)
- Installation: [Installing and Configuring a SAS Grid Environment](#)



## **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

### **DBMS Operating Systems:**

- Red Hat Enterprise Linux 64-bit, version 7.1 or later (recommended)
- SUSE Linux Enterprise Server 64-bit, version 12 or later with the latest Service Pack

### **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 support functions that are required 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.*

Teradata has ended support for versions that precede Teradata 17.xx. For more information, see the [Teradata Products Support Lifecycle and Compatibility Matrix](#).

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 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 - 16.20 for Windows (64-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 (64-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 17.10 within Teradata 17, or Teradata 20.x or later within Teradata 20
- Teradata CLIV2 client libraries, TTU 17.20 or later within TTU 17, or TTU 20.xx or later within TTU 20 (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 for Microsoft Windows for x64](#).

#### **DBMS Products Required:**

- Teradata Database 17.10 within Teradata 17, or Teradata 20.x or later within Teradata 20
- Teradata CLIV2 client libraries, TTU 17.20 or later within TTU 17, or TTU 20.xx or later within TTU 20 (64-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.*

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 – 9.4M7**

#### **DBMS Products Required:**

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

The required DBMS operating system is Red Hat Enterprise Linux 64-bit, version 6.3 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.

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 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

### **DBMS Operating Systems:**

- AIX 64-bit, version 7.1 or later
- Red Hat Enterprise Linux 64-bit, version 6.7 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.

The following are the minimum Greenplum database requirements:

- 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 and later
- Greenplum Partner Connector version 1.2 and 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 9.4M7 – 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 having 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/STAT, and SAS/ACCESS Interface to Hadoop. It also requires SAS Enterprise Miner or SAS Model Manager.

SAS Scoring Accelerator also requires the SAS Embedded Process to be installed and configured on Hadoop. Full details are available in [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 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 – 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/STAT, SAS/ACCESS Interface to Oracle, and SAS Enterprise Miner.

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 release 11gR2 or later (64-bit libraries)

**Notes:** *Some additional configuration might be required to use the 12c, 18c, or later client. See the [Configuration Guide for SAS 9.4 Foundation \(64-Bit\) 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.*

### **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 or later

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

## SAS Scoring Accelerator for SAP HANA

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

### DBMS Operating Systems:

#### **For SAS 9.4M2 – 9.4M3**

- Red Hat Enterprise Linux 64-bit, version 6.6 or later
- SUSE Linux Enterprise Server 64-bit, version 11 or later with the latest service pack

#### **For SAS 9.4M4 – 9.4M5**

- Red Hat Enterprise Linux 64-bit, version 6.10 or later
- SUSE Linux Enterprise Server 64-bit, version 12 or later with the latest service pack

#### **For SAS 9.4M6 and Later**

- Red Hat Enterprise Linux 64-bit, version 7.2 or later
- SUSE Linux Enterprise Server 64-bit, version 12 or later with the latest service pack

**Note:** Refer to SAP Note 2235581 “SAP HANA: Supported Operating Systems” for more information regarding operating system versions that are supported for a specific SAP HANA release and revision level. This note is available at <https://launchpad.support.sap.com/#/notes/2235581>.

### DBMS Products Required:

#### **For SAS 9.4M2 – 9.4M3**

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

#### **For SAS 9.4M4 – 9.4M5**

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

#### **For SAS 9.4M6 and Later**

- SAP HANA 2.0 SPS 02 or SAP HANA 2.0 SPS 03 Server
- Client utilities for SAP HANA 2.0 SPS 02 or later

**Note:** In order to run SAS Scoring Accelerator for SAP HANA for SAS 9.4M6 on an SAP HANA 2.0 SPS04 server or later, you must access and apply the software updates for SAS Embedded Process. To access and apply these software updates, request a SAS 9.4M6 instance of SAS Embedded Process from your SAS account representative. If you need assistance in determining your SAS account representative, send an email to [contactcenter@sas.com](mailto:contactcenter@sas.com).

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

SAS also recommends installing the latest Service Packs 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 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.

### **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 Embedded Process support functions, SAS/ACCESS Interface to Teradata, 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 version 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
- Teradata CLIV2 client libraries, TTU 13.10 - 16.20 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 - 16.20 for Windows (64-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 (64-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 for Microsoft Windows for x64](#).

#### **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 for Microsoft Windows for x64](#).

## **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 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 – 9.4M7**

#### **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 – 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 64-bit ODBC driver.

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](#).

**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 or SAS 9.4M9. 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 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 SAS 9.4M5 – 9.4M7**

**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 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 – 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.

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 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.

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 – 9.4M6**

### **DBMS Products Required:**

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

### **For SAS 9.4M7 – 9.4M8**

### **DBMS Products Required:**

- MySQL Client version 5.7 or 8.0
- MySQL Server version 5.7 or later (including MySQL 8)

### **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 post-deployment setup for SAS/ACCESS Interface to MySQL, see the SAS/ACCESS chapter of the [Configuration Guide for SAS 9.4 Foundation for Windows for x64 Environments](#). 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, <https://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 – 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 that you select might 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 Foundation (64-bit) for Microsoft Windows requires the 64-bit version of the ODBC driver for the data source.

See the [Configuration Guide for SAS 9.4 Foundation for Microsoft Windows for x64](#) 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 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 might 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.

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](#).

**DBMS Products Required:**

- Oracle Database 11gR2 or later
- Oracle Client 11gR2 (64-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 for Microsoft Windows for x64](#) 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.*

### **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 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, .xlsb)
- 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)

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 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 uses the PI System Web API, which is HTTPS-based and RESTful. No PI System client software is required to be installed on the machine where SAS is running. However, the PI System Web API (PI Web API 2015-R2 or later) must be installed and activated on the host machine where the user connects.

SAS/ACCESS Interface to the PI System requires the OSIssoft 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.

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 Product 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 Salesforce**

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

SAS/ACCESS Interface to Salesforce requires a Salesforce user account that has API access enabled.

For more information, see the [Configuration Guide for SAS 9.4 Foundation for Microsoft Windows for x64](#).

**Product Required:** Salesforce API access, version 45.0 (Spring 2019) 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 ASE (Sybase) 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 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 16.0
- 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 Snowflake**

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

SAS/ACCESS Interface to Snowflake includes a required ODBC driver.

For instructions about how to configure SAS/ACCESS Interface to Snowflake, see the [Configuration Guide for SAS 9.4 Foundation for Microsoft Windows for x64](#).

## **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 Linux (64-bit libraries)

### **For SAS 9.4M3**

#### **DBMS Products Required:**

- Teradata Database version 14.10 or later
- Teradata CLIV2 client libraries, TTU 14.10 - 16.20 (64-bit libraries)

### **For SAS 9.4M4 – 9.4M6**

#### **DBMS Products Required:**

- Teradata Database version 15.10 or later
- Teradata CLIV2 client libraries, TTU 15.10 - 16.20 (64-bit libraries)

### **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 for UNIX Environments](#).

#### **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, 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 Micro Focus Technical Support.

#### **DBMS Products Required:**

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

### **For SAS 9.4M3 – 9.4M5**

#### **DBMS Products Required:**

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

### **For SAS 9.4M6 – 9.4M8**

#### **DBMS Products Required:**

- Vertica Analytic Database version 9.1 or later
- Vertica ODBC client version 9.1 or later

### **For SAS 9.4M9**

#### **DBMS Products Required:**

- Vertica Analytic Database version 10.1 or later
- Vertica ODBC client version 10.1 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/ACCESS Interface to Yellowbrick**

Base SAS is required for the installation of SAS/ACCESS Interface to Yellowbrick. It is supported with SAS 9.4M7 and later.

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

**DBMS Product Required:** Yellowbrick Database version 4.0.0-23452 or later

## **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 might be required, depending on the application.

### **Products Required for Run Mode:**

- Base SAS software
- SAS/GRAPH software (to display some graphics objects)

Other products might 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 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 might be required, depending on the application.

### **Products Required for Run Mode:**

- Base SAS software
- SAS/EIS software
- SAS/GRAPH software

Other products might 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 or SAS 9.4M9.

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 software.

## SAS/GIS

### Products Required for Build Mode:

- Base SAS software
- SAS/AF software
- SAS/GIS software
- SAS/GRAPH software

Other products might 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 might 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, or Google Chrome 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/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 can be installed independently. SAS/IntrNet Server software is installed on an existing SAS System and is included on SAS 9.4 installation 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.



## **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 might 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®.