System Requirements for SAS® 9.4 Foundation for AIX

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Overview

This document provides requirements for installing and running SAS 9.4 Foundation for IBM® AIX. 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 major requirements listed in this document are:

- Software Requirements
- Hardware Requirements
- Space Requirements
- Specific Product Requirements

Additional Resources

When you have verified that the requirements that are described in this guide have been met, check the *Configuration Guide for SAS 9.4 Foundation for UNIX Environments* for additional steps to prepare your environment for SAS 9.4 Foundation.

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.`

Support for Alternative Operating Systems

This document lists the operating systems deployed by SAS in testing the software on IBM AIX. Additional operating systems might also be supported. For information about variants of operating systems that are alternatives to the list that SAS identifies as officially supported, see SAS Support for Alternative Operating Systems.

Troubleshooting System Performance Problems

For a list of papers that are useful for troubleshooting system performance problems, see Tuning guidelines and best practices for your hardware infrastructure (SAS KB0036235).

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

Operating System

Starting with SAS 9.4M8, SAS 9.4 is supported on IBM AIX, release 7.2 with TL5 or later. Refer to Hardware Requirements on page 7 for information about supported chip architecture and machine types. To verify version compatibility, see the SAS 9.4 Supported Operating Systems page.

Previous maintenance releases of SAS 9.4 supported IBM AIX, release 7.1 with TL3. AIX 7.1 is not supported for SAS 9.4M8 or SAS 9.4M9.

SAS 9.4 is a 64-bit application and requires a 64-bit environment (hardware and operating system support) in order to execute.

In addition, for all versions of AIX, you must apply the runtime package. The xlC.rte 11.1.0.4 XL C/C++ Runtime or a later version is acceptable. To view the xlC runtime environments that are installed on your system, use the command `lslpp -l xlC\*`

The file systems where SAS is installed must have the `setuid` mount option enabled because `sasauth`, `sasperm`, and `elssrv` require this option at SAS run time.

In UNIX environments, the SAS BASE (V9) engine requires a POSIX-compliant file system. Consult the vendor for confirmation that the file system you are considering has been certified POSIX-compliant.

Runtime Libraries

The following libraries are required:

- The libfreetype.a library.

  SAS Java applications, such the SAS Deployment Wizard and SAS Deployment Manager, use the SAS Private Java Runtime Environment (JRE), which is based on IBM's Java distribution. The SAS Private JRE has a dependency on libfreetype.a, an AIX archive library that contains the shared library libfreetype.so.6. Some versions of IBM's Java distribution for AIX are lacking libfreetype.a.

  Obtain libfreetype.a by downloading and installing the freetype2 RPM from the following AIX downloads page: `https://www.ibm.com/support/pages/aix-toolbox-open-source-software-downloads-alpha`. Install it in `/opt/freeware/lib`.

- The IBM XL C++ runtime libraries (16.1.0 or later) for AIX. This requirement applies to SAS 9.4M6 and later. For more information, see `https://www.ibm.com/support/pages/ibm-xl-cc-runtime-aix-161`.

If you are not familiar with installing open-source software on your AIX system, see Get Started with the AIX Toolbox for Open Source Software for more information.

Operating System Tuning Guidelines

For information about tuning your AIX operating system for optimum performance of SAS 9.4, refer to *AIX 5L, AIX 6 and AIX 7 Tuning Guides for Deploying SAS Analytics* at `https://www.ibm.com/support/pages/aix-5l-aix-6-and-aix-7-tuning-guides-deploying-sas-analytics`.

Third-Party Software

Java Requirements

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

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.

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.

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.

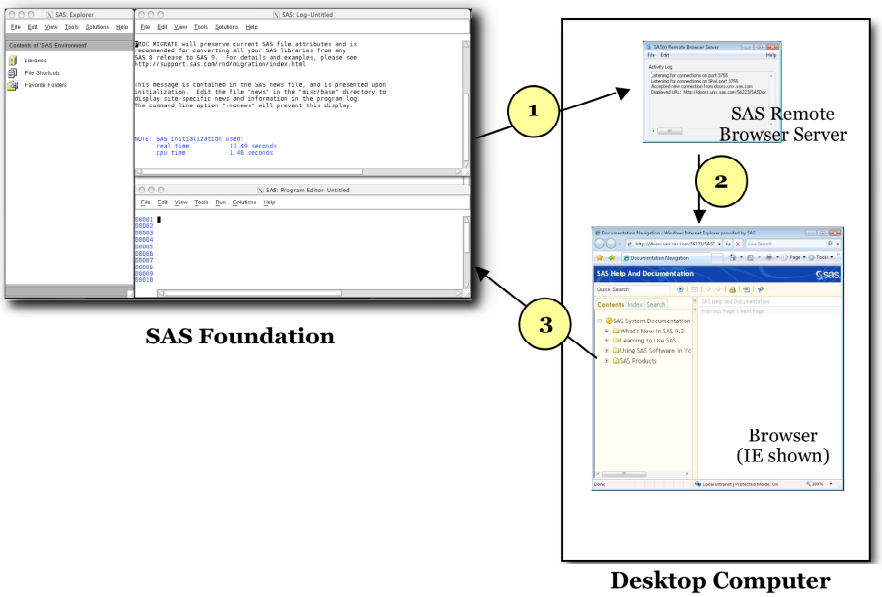
Most SAS product user interfaces deploy HMTL5 to support newer features. These products require recent browser versions.

Documentation for SAS 9.4 Foundation and solutions is available in SAS Help Center format, which can be viewed in multiple modern web browsers. SAS compiled Help (SAS Help) redirects to SAS Help Center automatically. SAS recommends that you access SAS 9.4 documentation and Help from a client machine that supports a recent version of a web browser. IBM AIX 7.2 does not support a web browser that is capable of displaying SAS Help.

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).



Starting with SAS 9.4M8, Remote Browsing runs on Windows 10, 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.

Hardware Requirements

Machines Supported

SAS supports AIX PowerVM Virtual I/O Server (VIOS) (the pSeries chip family).

IBM AIX 7.1 is not supported for SAS 9.4M9, but previous releases of SAS 9.4 can be installed on machines that support AIX release 7.1 or later for 64-bit Power CPUs. To verify version compatibility, see the SAS 9.4 Operating System Compatibility page.

Distribution Media

The following distribution methods are supported:

- Electronic Software Delivery
- DVD

System Configuration

The following are minimum resource levels for a deployment of SAS 9.4 Foundation on AIX 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

- A minimum of two 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.

Server 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 – 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 encourages you to obtain a hardware recommendation that is based on your estimated workload and number of users.*

Displays Supported

SAS 9.4 supports any X display server in conjunction with an ICCCM-compliant window manager.

Space Requirements

The binary files associated with SAS 9.4 Foundation require approximately 30 MB of disk space on the `/tmp` partition to complete the installation.

SAS strongly recommends consulting with a SAS Sizing Expert to obtain an official hardware sizing 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`.

Specific Product Requirements

Enabling Co-location of Multiple SAS/ACCESS Products on AIX

The installation of multiple SAS/ACCESS products on the same IBM AIX machine is supported, but additional configuration might be required. For more information, see the *Configuration Guide for SAS 9.4 Foundation for UNIX Environments*.

Language Support Requirement

The SAS Download Manager and SAS Depot Checker utilities do not support the **Choose Language** menu when running on AIX unless the `TrueType` directory is present.

Base SAS Software

Requirements for SPD Engine on AIX

- 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 9.4 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 the Compute Server 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 for the Compute Server uses only the AWS S3 REST APIs. EC2 Instance Metadata Service 1 and 2 are supported.

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.

For more information about support for Amazon S3, see S3 Data Source in *SAS Cloud Analytic Services: User's Guide*.

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 Operating Systems:

- Red Hat Enterprise Linux 64-bit, version 6.7 or later (8.10 or later for SAS 9.4M9)
- 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

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 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.

SAS In-Database Code Accelerator for Teradata also requires the SAS Embedded Process. 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.*

***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.

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 – 16.20 for AIX (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 AIX (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 AIX (64-bit libraries)

For SAS 9.4M6 and 9.4M7

DBMS Products Required:

- Teradata Database version 16.10 or later
- Teradata CLIv2 client libraries, TTU 16.10 – 16.20 for AIX (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 Linux (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 UNIX Environments*.

DBMS Products Required:

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

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 IBM Db2 server where you will be publishing scores. Contact an IBM/Db2 representative to obtain the 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 or later

For SAS 9.4M1 and Later

DBMS Products Required:

- IBM Db2 version 10.5 or later
- Client utilities for IBM Db2 version 10.5 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 (8.10 or later for use with SAS 9.4M9)
- 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 (GPCC) 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 and Later

DBMS Product Required: Greenplum Database version 5.7 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.*

The SAS Scoring Accelerator for Hadoop requires Base SAS, SAS/ACCESS Interface to Hadoop, and SAS/STAT. It also requires the 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 or later
- Client utilities for IBM Netezza version 7.0 or later

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. For example, if you have a Netezza Interface server release 7.0.4, you should use the ODBC client driver release 7.0.4 with SAS/ACCESS to Netezza.

SAS Scoring Accelerator for Oracle

The 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 (8.10 or later for use with SAS 9.4M9)
- Oracle Enterprise Linux version 6.7 or later (7.9 or later recommended)

DBMS Products Required:

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

Note: *Some additional configuration might be required to use the 12c, 18c, or later client. See the Configuration Guide for SAS 9.4 Foundation for UNIX Environments 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

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.

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 UNIX Environments 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 9.4M9

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 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 6.7 or later (7.9 or later recommended)
- 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 6.7 or later (7.9 or later recommended)
- 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 7.9 or later (8.10 or later for use with SAS 9.4M9)
- 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 and later 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 or later 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.*

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, 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, and SAS/STAT. It also requires SAS Embedded Process support functions.

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.

SAS Scoring Accelerator for Teradata also requires the SAS Embedded Process. 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.

***Notes**: 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 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.

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 13.10.02.01 or later
- Teradata CLIv2 client libraries, TTU 13.10 – 16.20 for AIX (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 AIX (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 AIX (64-bit libraries)

For SAS 9.4M6 and 9.4M7

DBMS Products Required:

- Teradata Database version 16.10 or later
- Teradata CLIv2 client libraries, TTU 16.10 – 16.20 for AIX (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 Linux (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 UNIX Environments*.

DBMS Products Required:

- Teradata Database version 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 UNIX Environments*.

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 (64-bit version) and the bulk loading clients. To receive the ODBC driver and bulk loading clients, 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 AIX (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 AIX (64-bit libraries)

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 AIX (64-bit libraries)

Refer to the *Configuration Guide for SAS 9.4 Foundation for UNIX Environments* for more information about where to install the ODBC driver and bulk loading clients and how to configure your SAS software 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, 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 version 10.5 or later

For SAS 9.4M7 – 9.4M8

DBMS Products Required:

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

For SAS 9.4M9

DBMS Products Required:

- IBM Db2 version 11.5 or later
- Client utilities for IBM Db2 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 for UNIX Environments*.

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 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 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 for UNIX Environments*.

SAS/ACCESS Interface to Impala

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

In addition, the ODBC Driver for Impala requires the unixODBC Driver Manager.

DBMS Products Required:

- Impala server version 1.2.3 or later
- ODBC Driver for Impala version 2.5.13 or later
- The unixODBC Driver Manager. Use the latest version.

For SAS 9.4M4 – 9.4M6

DBMS Products Required:

- Impala server version 2.6 or later
- ODBC Driver for Impala version 2.5.34 or later
- The latest version of the unixODBC Driver Manager

For SAS 9.4M7 – 9.4M8

DBMS Products Required:

- Impala server version 3.2.0 or later
- ODBC Driver for Impala version 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 Informix

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

SAS/ACCESS Interface to Informix uses an ODBC connection. The ODBC driver included with Informix Connect must be installed and configured prior to using SAS/ACCESS to Informix.

SAS/ACCESS Interface to Informix also requires the use of communication protocols such as TCP/IP to function properly.

DBMS Products Required:

- Informix Client SDK 350.UC9
- Informix Server version 11.5 or later

For SAS 9.4M3 – 9.4M8

DBMS Products Required:

- Informix Client SDK 4.10FC4
- Informix Server version 11.5 or later

For SAS 9.4M9

Bulk loading and bulk unloading are not supported on AIX with SAS 9.4M9. You can perform bulk operations using the Informix DB-Access utility, running on Red Hat Enterprise Linux 7.9 or later. (Red Hat Enterprise Linux 8.10 or later is supported for SAS 9.4M9 deployments.)

For more information about setup, see the *Configuration Guide for SAS 9.4 Foundation for UNIX Environments*.

DBMS Products Required:

- Informix Client SDK 4.10FC4 (64-bit only)
- Informix Server version 12.10 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 information about configuring SAS/ACCESS Interface to Microsoft SQL Server, see the *Configuration Guide for SAS 9.4 for UNIX Environments*.

DBMS Product Required: Microsoft SQL Server 2008 or later.

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.

SAS/ACCESS Interface to MySQL

Important: *Starting with SAS 9.4M8, SAS/ACCESS Interface to MySQL is not available on IBM AIX. In order to continue using SAS/ACCESS Interface to MySQL, you must either move your MySQL instance to another platform or do not upgrade Base SAS or SAS Foundation to SAS 9.4M8. Be sure to consult the corresponding system requirements for the new platform or contact your SAS representative for assistance.*

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 MySQL.

DBMS Products Required:

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

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 information about configuring SAS/ACCESS Interface to MySQL, see the *Configuration Guide for SAS 9.4 for UNIX Environments*.

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 appropriate 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 Interface server release 7.0.4, you should 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 Products Required: A compliant ODBC driver manager and ODBC driver (64-bit libraries).

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 to access the data.

You might have to use a text editor to edit the `odbc.ini` file in your home directory to configure data sources. Some ODBC driver vendors may allow a system administrator to maintain a centralized copy by setting an environment variable.

The ODBC drivers are ODBC API-compliant dynamic link libraries, referred to in UNIX as shared objects. You must include the full path to the dynamic link libraries in the OS load library environment variable (`LD_LIBRARY_PATH, LIBPATH`, or `SHLIB_PATH`) so that the ODBC drivers can be loaded dynamically at run time. For more information, consult your ODBC driver vendor.

SAS/ACCESS Interface to Oracle

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

SAS/ACCESS Interface to Oracle software can be installed on either a full Oracle RDBMS server node or on an Oracle client node.

To use the Bulk Load feature of this SAS product, the Oracle SQL*Loader data-loading utility must be 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

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.

***Note**: Some additional configuration might be required to use the 12c, 18c, or later client. See the Configuration Guide for SAS 9.4 Foundation for UNIX Environments 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.

For SAS 9.4M7 – 9.4M8

DBMS Products Required:

- Oracle Database 12.1 or later
- Oracle Client 12.1 or later

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 supports access to virtually any data source through ODBC support on Windows, as well as the following software formats:

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

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 SAS 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.

Starting with SAS 9.4M9, SAS/ACCESS Interface to the PI System requires the OSIsoft PI System client software, PI Asset Framework Client 2014 (PI AF SDK 2.6) or later.

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

For information about how to configure the PI System on the server, refer to the *Configuration Guide for SAS 9.4 Foundation for UNIX Environments*.

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 64-bit 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 – 9.4M5

DBMS Product 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 9.4M9

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 UNIX Environments*.

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 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 software with an appropriate ODBC driver 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 (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
- 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 SAS Note 67439 for instructions.

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.

DBMS Products Required:

- Teradata Database version 13.10 or later
- Teradata CLIv2 client libraries, TTU 13.10 – 16.20 for AIX (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 AIX (64-bit libraries)*

For SAS 9.4M4 – 9.4M5

DBMS Products Supported:

- Teradata Database version 15.10 or later
- Teradata CLIv2 client libraries, TTU 15.10 – 16.20 for AIX (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 AIX (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 Linux (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 UNIX Environments*.

DBMS Products Required:

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

For more information about using SAS/ACCESS Interface to Teradata, see the Teradata chapter in the *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 requires the Vertica ODBC Client Driver. To obtain the Vertica ODBC Client driver, contact your database administrator or Micro Focus Technical Support.

DBMS Products Required:

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

For SAS 9.4M3 – 9.4M5

DBMS Products Required:

- Vertica Analytic 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 UNIX Environments*.

SAS/ACCESS Interface to Yellowbrick

Base SAS is required for the installation of SAS/ACCESS Interface to Yellowbrick. It was new with SAS 9.4M7.

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

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

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

SAS/EIS

Products Required for Build Mode

- Base SAS
- SAS/AF
- SAS/EIS
- SAS/FSP
- SAS/GRAPH

Other products might be required, depending on the application.

Products Required for Run Mode

- Base SAS
- SAS/EIS
- SAS/GRAPH

Other products might be required, depending on the application.

Memory

- 96 MB required per concurrent user
- 128 MB recommended per concurrent user

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
- SAS/AF
- SAS/GIS
- SAS/GRAPH

Other products might be required, depending on the application.

Products Required for Run Mode

- Base SAS
- SAS/FSP
- SAS/GIS
- SAS/GRAPH

Other products might be required, depending on the application.

Printers

A color or gray-scale printer is required.

SAS/IntrNet

SAS/IntrNet consists of several components that can be installed independently. SAS/IntrNet Server software is installed on an existing SAS system and is included with 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.

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 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/Warehouse Administrator

Products Required for Build Mode

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

Products Required for Run Mode

- Base SAS
- 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 software to enable printing, depending on the object.

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