

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



Copyright Notice

The correct bibliographic citation for this manual is as follows: SAS Institute Inc. 2023. *System Requirements for SAS® 9.4 Foundation for Microsoft Windows for x64*, Cary, NC: SAS Institute Inc.

System Requirements for SAS® 9.4 Foundation for Microsoft Windows for x64 Copyright © 2013 - 2023, SAS Institute Inc., Cary, NC, USA

All rights reserved. Produced in the United States of America.

For a hard-copy book: No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without the prior written permission of the publisher, SAS Institute Inc.

For a web download or e-book: Your use of this publication shall be governed by the terms established by the vendor at the time you acquire this publication.

The scanning, uploading, and distribution of this book via the Internet or any other means without the permission of the publisher is illegal and punishable by law. Please purchase only authorized electronic editions and do not participate in or encourage electronic piracy of copyrighted materials. Your support of others' rights is appreciated.

U.S. Government Restricted Rights Notice: Use, duplication, or disclosure of this software and related documentation by the U.S. government is subject to the Agreement with SAS Institute and the restrictions set forth in FAR 52.227-19, Commercial Computer Software-Restricted Rights (June 1987).

SAS Institute Inc., SAS Campus Drive, Cary, North Carolina 27513.

January 2023

SAS® Publishing provides a complete selection of books and electronic products to help customers use SAS software to its fullest potential. For more information about our e-books, e-learning products, CDs, and hard-copy books, visit the SAS Publishing web site at **support.sas.com/bookstore** or call 1-800-727-3228.

SAS® and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries. ® indicates USA registration.

Other brand and product names are registered trademarks or trademarks of their respective companies.

Table of Contents

Overview	1
Additional Resources	1
Configuring Your I/O Subsystem	
Troubleshooting System Performance Problems	
• •	
Software Requirements	
Preparing for Installation	
Administrator Privileges	
Anti-virus and Firewall Software	2
Conversions of Format Catalogs	
Windows for x64 Environments	
Server Operating Systems	
Client Operating Systems	4
Web Browsers	
Remote Browsing	
Java Requirements	
Security Requirements	
Hardware Requirements	
Machines Supported	6
System Configuration	
Desktop Systems	
Monitors Supported	
Space Requirements	
DBCS Support	
National Language Support (NLS)	
Asian Language Support	
Specific Product Requirements	
Base SAS Software	
Requirements for SPD Engine on Microsoft Windows for x64	
SAS Analytics Accelerator for Teradata	
SAS High-Performance Forecasting	
SAS In-Database Code Accelerator for Greenplum	
SAS In-Database Code Accelerator for Hadoop	
SAS In-Database Code Accelerator for Teradata	
SAS Scoring Accelerator for Aster	
SAS Scoring Accelerator for DB2	
SAS Scoring Accelerator for Greenplum	
SAS Scoring Accelerator for Hadoop	
SAS Scoring Accelerator for Netezza	
SAS Scoring Accelerator for Oracle	16

SAS Scoring Accelerator for SAP HANA	16
SAS Scoring Accelerator for SPD Server	17
SAS Scoring Accelerator for Teradata	17
SAS/ACCESS Interface to Amazon Redshift	18
SAS/ACCESS Interface to Aster	19
SAS/ACCESS Interface to DB2	19
SAS/ACCESS Interface to Greenplum	20
SAS/ACCESS Interface to Hadoop	20
SAS/ACCESS Interface to HAWQ	21
SAS/ACCESS Interface to Impala	21
SAS/ACCESS Interface to JDBC	22
SAS/ACCESS Interface to Microsoft SQL Server	22
SAS/ACCESS Interface to MySQL	22
SAS/ACCESS Interface to Netezza	23
SAS/ACCESS Interface to ODBC	23
SAS/ACCESS Interface to OLE DB	24
SAS/ACCESS Interface to Oracle	24
SAS/ACCESS Interface to PC Files	25
SAS/ACCESS Interface to the PI System	25
SAS/ACCESS Interface to PostgreSQL	25
SAS/ACCESS Interface to Salesforce	26
SAS/ACCESS Interface to SAP ASE	26
SAS/ACCESS Interface to SAP HANA	26
SAS/ACCESS Interface to SAP IQ	27
SAS/ACCESS Interface to Snowflake	27
SAS/ACCESS Interface to Teradata	28
SAS/ACCESS Interface to Vertica	29
SAS/ACCESS Interface to Yellowbrick	29
SAS/AF	29
SAS/CONNECT	30
SAS/EIS	30
SAS/Genetics	30
SAS/GIS	30
SAS/GRAPH	31
SAS/IML Studio	
RAM and Disk Space	
SAS/IntrNet	
Java Tools and Applications	
SAS/OR	32
SAS/TOOLKIT	32
SAS/Warehouse Administrator	32

Overview

This document provides requirements for installing and running SAS 9.4 Foundation on Microsoft Windows for x64. The requirements in this document have been updated for SAS 9.4M8 (TS1M8).

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 Resources

Configuring Your I/O Subsystem

SAS recommends the white paper titled *Best Practices for Configuring your I/O Subsystem for SAS 9 Applications.* You can access it here:

https://support.sas.com/resources/papers/proceedings16/SAS6761-2016.pdf.

Troubleshooting System Performance Problems

For a list of papers that are useful for troubleshooting system performance problems, see https://support.sas.com/kb/42/197.html.

SAS Technical Support

For information about SAS Technical Support, visit https://support.sas.com/techsup/.

Software Requirements

Preparing for Installation

File System Requirements

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

Administrator Privileges

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

Anti-virus and Firewall Software

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

Conversions of Format Catalogs

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

https://blogs.sas.com/content/sasdummy/2012/05/01/64-bit-gotchas/

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

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

Windows for x64 Environments

For more information about the Microsoft Windows operating systems that are supported in SAS 9.4, refer to the Supported Operating Systems web page:

https://support.sas.com/resources/sysreq/hosts/pc/.

Note: Software distributed with the SAS release designation SAS 9.4M0 (9.4 TS1M0) does not support Windows 32-bit environments, but Windows 32-bit support is provided in SAS 9.4M1 (9.4 TS1M1) – SAS 9.4M8 (9.4 TS1M8). For more information, see the separate System Requirements for SAS 9.4 Foundation for Microsoft Windows for x32 document.

Server Operating Systems

Important:

With SAS 9.4M8, SAS 9.4 Foundation is ending support for some Windows operating systems. If you are running SAS on an operating system that is not listed here, you must either upgrade the operating system to a supported version, or do not upgrade to SAS 9.4M8.

Microsoft Windows Server 2012 Family

SAS 9.4 Foundation is supported on the following editions of the Windows Server 2012 family with SAS 9.4M0 and later:

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

SAS 9.4 Foundation is supported on the following editions of the Windows Server 2012 R2 family with SAS 9.4M0 and later:

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

Microsoft Windows Server 2016 Family

SAS 9.4 Foundation is supported on the following editions of the Windows Server 2016 family with SAS 9.4M5 (9.4 TS1M5) and later:

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

Microsoft Windows Server 2019 Family

SAS 9.4 Foundation is supported on the following editions of the Windows Server 2019 family with SAS 9.4M6 (9.4 TS1M6) and later:

- Microsoft Windows Server 2019 Datacenter Edition with Desktop Experience
- Microsoft Windows Server 2019 Standard Edition with Desktop Experience

Microsoft Windows Server 2022 Family

SAS 9.4 Foundation is supported on the following editions of the Windows Server 2022 family with SAS 9.4M7 (9.4 TS1M7) and later:

- Microsoft Windows Server 2022 Datacenter Edition with Desktop Experience
- Microsoft Windows Server 2022 Standard Edition with Desktop Experience

Client Operating Systems

Important:

With SAS 9.4M8, SAS 9.4 Foundation is ending support for some Windows operating systems. If you are running on an operating system that is not listed here, you must either upgrade the operating system to a supported version, or do not upgrade to SAS 9.4M8.

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

Windows 11 Education, Enterprise, Home, and Pro: Supported for client installations of all SAS 9.4 Foundation products.

Windows 10 and Windows 11: 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

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 page:

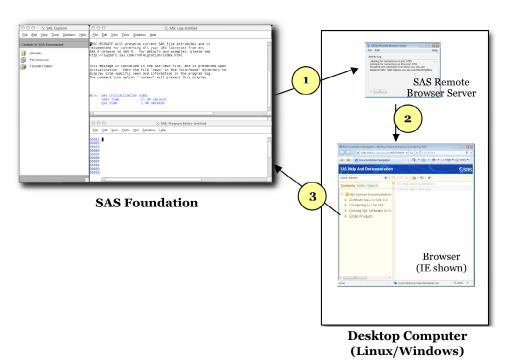
https://support.sas.com/en/documentation/third-party-software-reference/9-4/support-for-9-4-web-browsers.html.

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 HMTL5 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, 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 popup 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 web page, located at

https://support.sas.com/en/documentation/third-party-software-reference/9-4/support-for-java.html.

Security Requirements

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

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 Foundation on x64 editions of Windows.

Machines Supported

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

System Configuration

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

Desktop Systems

Examples are Windows 10 and Windows 11.

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

Server Systems

Examples are Windows Server 2016, Windows Server 2019, and Windows Server 2022.

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

Monitors Supported

SVGA (resolution of 800x600 or higher)

Space Requirements

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

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

DBCS Support

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

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

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

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

National Language Support (NLS)

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

Languages Supported	Disk Space (in MB)*	See Table
Chinese – traditional	3.0	below
Chinese – simplified	174.0	below
Japanese	262.0	Page 8
Korean	174.0	Page 9

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
SAS/CONNECT Simplified Chinese Support Files	0.9
SAS/EIS Simplified Chinese Support Files	1.9
SAS/GIS Simplified Chinese Support Files	1.8
SAS/IntrNet Simplified Chinese Support Files	1.8
SAS/SHARE Simplified Chinese Support Files	0.8
Total	58.8

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

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

Specific Product Requirements

Base SAS Software

Requirements for SPD Engine on Microsoft Windows for x64

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

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

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

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 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 Analytics Accelerator for Teradata

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

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

SAS has extended SAS/ACCESS and SAS In-Database Technologies support to selected cloud and database variants of supported data sources. For a list of the supported variants, see https://support.sas.com/en/documentation/third-party-software-reference/9-4/support-for-database.html.

DBMS Products Required:

- Teradata Database version 13.10 or later
- Teradata CLIv2 client libraries, Teradata Tools and Utilities (TTU) 13.10 16.10 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 16.10 for Windows (64-bit libraries)

For SAS 9.4M4 - 9.4M7

DBMS Products Required:

- Teradata Database version 15.10 or later
- Teradata CLIv2 client libraries, TTU 15.10 16.10 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 and later for Windows (64-bit libraries)

SAS High-Performance Forecasting

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

SAS In-Database Code Accelerator for Greenplum

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

DBMS Products Required:

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

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 and Later

DBMS Product Required: Greenplum Database version 5.7 or later

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

SAS In-Database Code Accelerator for Hadoop

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

For SAS 9.4M4

Hive 0.14 or later is required.

For SAS 9.4M7 and Later

Hive 1.1 or later is required.

For supported Hadoop distributions and versions, refer to the following web page: https://support.sas.com/en/documentation/third-party-software-reference/9-4/support-for-hadoop.html.

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 https://support.sas.com/en/documentation/third-party-software-reference/9-4/support-for-database.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.

SAS has extended SAS/ACCESS and SAS In-Database Technologies support to selected cloud and database variants of supported data sources. For a list of the supported variants, see https://support.sas.com/en/documentation/third-party-software-reference/9-4/support-for-database.html.

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)
- SAS Embedded Process support functions (sasepfunc-14.10-4 or later)

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)
- SAS Embedded Process support functions (sasepfunc-15.10-4 or later)

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)
- SAS Embedded Process support functions (sasepfunc-16.20-2)

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)
- SAS Embedded Process support functions latest version available

SAS Scoring Accelerator for Aster

Immortante Starting with SAS O AMR SAS Soon

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

For SAS 9.4M1 and Later

DBMS Products Required:

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

DBMS Operating Systems:

- AIX 64-bit, version 7.1 or later
- Red Hat Enterprise Linux 64-bit, version 6.7 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 9.4M6 and Later

DBMS Product Required: Greenplum Database version 5.7 or later

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

SAS Scoring Accelerator for Hadoop

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

For SAS 9.4M4

Hive 0.14 or later is required.

For SAS 9.4M7 and Later

Hive 1.1 or later is required.

For supported Hadoop distributions and versions, refer to the following web page: https://support.sas.com/en/documentation/third-party-software-reference/9-4/support-for-hadoop.html.

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 https://support.sas.com/en/documentation/third-party-software-reference/9-4/support-for-database.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. For example, if you have a Netezza server release 7.0.4, use the ODBC client driver release 7.0.4 with SAS/ACCESS Interface to Netezza.

SAS Scoring Accelerator for Oracle

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

SAS has extended SAS/ACCESS and SAS In-Database Technologies support to selected cloud and database variants of supported data sources. For a list of the supported variants, see https://support-for-database.html.

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 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 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 was new in SAS 9.4M2. It 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.

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 and Later

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

SAS Scoring Accelerator for Teradata

The SAS Scoring Accelerator for Teradata requires Base SAS, SAS Embedded Process support functions, SAS/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 a list of the supported variants, see https://support-for-database.html.

DBMS Products Required:

- Teradata Database version 13.10 or later
- Teradata CLIv2 client libraries, TTU 13.10 16.20 for Windows (64-bit libraries)
- SAS Embedded Process support functions

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)
- SAS Embedded Process support functions (sasepfunc-14.10 or later)

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)
- SAS Embedded Process support functions (sasepfunc-15.10-4 or later)

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)
- SAS Embedded Process support functions (sasepfunc-16.20-2)

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)
- SAS Embedded Process support functions, latest version available

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 and Later

DBMS Products Required:

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

DBMS Product Required: Greenplum Database version 6.0 or later.

SAS/ACCESS Interface to Hadoop

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

For SAS 9.4M4

Hive 0.14 or later is required.

For SAS 9.4M7 and Later

Hive 1.1 or later is required.

For supported Hadoop distributions and versions, refer to the following web page: https://support.sas.com/en/documentation/third-party-software-reference/9-4/support-for-hadoop.html.

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 https://support.sas.com/en/documentation/third-party-software-reference/9-4/support-for-database.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 - 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 and Later

DBMS Products Required:

- Impala server version 3.2.0 or later
- ODBC Driver for Impala release 2.6.9 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 a list of the supported variants, see https://support.sas.com/en/documentation/third-party-software-reference/9-4/support-for-database.html.

For SAS 9.4M3 and Later

DBMS Product Required: Microsoft SQL Server 2012 or later.

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

SAS/ACCESS Interface to MySQL

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

SAS has extended SAS/ACCESS and SAS In-Database Technologies support to selected cloud and database variants of supported data sources. For a list of the supported variants, see https://support.sas.com/en/documentation/third-party-software-reference/9-4/support-for-database.html.

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 and Later

DBMS Products Required:

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

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

See the *Configuration Guide for SAS 9.4 Foundation 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 a list of the supported variants, see https://support.sas.com/en/documentation/third-party-software-reference/9-4/support-for-database.html.

DBMS Products Required:

- Oracle Database 11gR2 or later
- Oracle Client 11gR2 (64-bit libraries) or later

For SAS 9.4M7 and Later

DBMS Products Required:

- Oracle Database 12.1 or later
- Oracle Client 12.1 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 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, .xlsm)
- JMP files (.jmp is in Base)
- Lotus files (.wk1, .wk3, and .wk4)
- Microsoft Access database files (.mdb or .accdb)
- Paradox (.db)
- SPSS files (.sav)
- Stata files (.dta)

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

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

SAS/ACCESS Interface to the PI System

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

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

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

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

SAS/ACCESS Interface to PostgreSQL

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

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

SAS has extended SAS/ACCESS and SAS In-Database Technologies support to selected cloud and database variants of supported data sources. For a list of the supported variants, see https://support.sas.com/en/documentation/third-party-software-reference/9-4/support-for-database.html.

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 and Later

DBMS Product Required: PostgreSQL Database version 9.5.14 or later.

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

https://www.enterprisedb.com/downloads/postgres-postgresql-downloads.

SAS/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 and Later

DBMS Products Required:

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

SAS/ACCESS Interface to SAP IQ

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

To obtain the 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 16.1
- SAP IQ Database version 16.0 or 16.1

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*.

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

SAS/ACCESS Interface to Teradata

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

SAS has extended SAS/ACCESS and SAS In-Database Technologies support to selected cloud and database variants of supported data sources. For a list of the supported variants, see https://support.sas.com/en/documentation/third-party-software-reference/9-4/support-for-database.html.

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.

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 - 9.4M6

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 9.4M7

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

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 and Later

DBMS Products Required:

- Vertica Analytic Database version 9.1 or later
- Vertica ODBC client version 9.1 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 new with the seventh maintenance release of SAS 9.4 (SAS 9.4M7).

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.

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®.