



# SAS<sup>®</sup> 9.4 Guide to Software Updates and Product Changes

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# About This Book

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## Audience

This document is for existing SAS customers who are upgrading an existing SAS 9.4 deployment. The initial release of SAS 9.4 TS1M0, Rev. 940\_13w26 was in July 2013. The purpose of this document is to notify customers about changes that they might see in SAS 9.4 and how those changes might affect their site. Specific information about migrating your metadata and SAS content is available in the *SAS Intelligence Platform: Migration Guide*.

This document is organized into the following parts:

- “Planning for a Software Update” helps you assess whether your site is ready for a software upgrade.

Here is some of the information that you want to review as you plan to update the software at your site:

- what products you currently have installed at your site
- how future software updates might impact your site
- what functionality has been deprecated or will be deprecated in the future
- new requirements for operating systems and third-party software
- “Installing SAS 9.4” provides links to the resources that you can use to install SAS 9.4.
- “Product Details and Requirements” can include the following types of information for each product that runs on SAS 9.4:
  - any steps that you might need to perform before you upgrade to a new release
  - any software changes that might result in different behavior from a previous release





# What's New in SAS 9.4 Guide to Software Updates

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## Overview

*SAS 9.4 Guide to Software Updates* is cumulative and is updated whenever there is an update of a SAS product. The following topics help you determine what changes were made after the initial release of SAS 9.4, which shipped in July 2013.

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## March 2024

SAS Enterprise Guide 8.4 was released and supports the SAS Viya 4 platform. The SAS Add-In 8.4 for Microsoft Office was released.

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## December 2023

SAS Fraud Management 6.2 is now available. If you currently have SAS Fraud Management installed, you cannot upgrade in place to the 6.2 release. For more information, see [Chapter 54, "SAS Fraud Management,"](#) on page 243.

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## June 2023

With the June 2023 hot fix, Telnet is deprecated and it is recommended to use SAS/CONNECT Spawner for client sign-ons. The -CLEARTEXT option has been deprecated and is no longer available. For more information, see [SAS Note 70114](#).

## March 2023

### ***Support for NCOA, CASS, SERP, and Geocode Data Packs Ends July 2023***

Starting in July 31, 2023, SAS no longer supports:

- National Change of Address (NCOA)
- Coding Accuracy Support System (CASS)
- Software Evaluation and Recognition System (SERP)
- Geocode (except for Loqate geocode data)

Users must migrate to the Loqate Data Pack prior to July 31, 2023 or there is a system error. See the *DataFlux Data Management Studio and Server 2.9: Migration Guide for Data Packs*.

For more information, see the product documentation which is available from the support page for [DataFlux Data Management Server](#).

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## January 2023 (SAS 9.4, Rev. 940\_23w05)

### ***SAS 9.4M8 Is Released***

These products are new or updated in SAS 9.4M8:

- Base 9.4M8. For more information, see “[Base 9.4M8](#)” on page 106.
- SAS Business Data Network 3.4. For more information, see [Chapter 18, “SAS Business Data Network,”](#) on page 131.
- SAS Data Remediation 2.5. For more information, see [Chapter 34, “SAS Data Remediation,”](#) on page 187.
- SAS Enterprise Miner 15.3. For more information, see [Chapter 43, “SAS Enterprise Miner,”](#) on page 215.
- SAS/ETS 15.3. For more information, see [Chapter 46, “SAS/ETS,”](#) on page 227.
- SAS Environment Manager 2.7. For more information, see [Chapter 44, “SAS Environment Manager,”](#) on page 219.
- SAS Factory Miner 15.3. For more information, see [Chapter 49, “SAS Factory Miner,”](#) on page 233.
- SAS Forecast Server 15.3. For more information, see [Chapter 53, “SAS Forecast Server,”](#) on page 241.
- SAS High-Performance Risk 4.3. For more information, see [Chapter 59, “SAS High-Performance Risk,”](#) on page 259.

- SAS/IML 15.3. For more information, see [Chapter 60, “SAS/IML,”](#) on page 261.
- SAS Infrastructure for Risk Management 3.7.
- SAS/IntrNet 9.4M8. For more information, see [Chapter 68, “SAS/IntrNet,”](#) on page 297.
- SAS Lineage 3.4. For more information, see [Chapter 71, “SAS Lineage,”](#) on page 303.
- SAS Model Implementation Platform 3.3. For more information, see [Chapter 79, “SAS Model Implementation Platform,”](#) on page 327.
- SAS Risk Dimensions 6.14. For more information, see [Chapter 89, “SAS Risk Dimensions,”](#) on page 357.
- SAS/OR 15.3. For more information, see [Chapter 84, “SAS/OR,”](#) on page 341.
- SAS/QC 15.3. For more information, see [Chapter 85, “SAS/QC,”](#) on page 345.
- SAS/SECURE. For more information, see [Chapter 91, “SAS/SECURE,”](#) on page 361.
- SAS/STAT 15.3. For more information, see [Chapter 94, “SAS/STAT,”](#) on page 369.
- SAS Text Miner 15.3. For more information, see [Chapter 98, “SAS Text Miner,”](#) on page 385.
- SAS Visual Analytics 7.52. For more information, see [Chapter 99, “SAS Visual Analytics,”](#) on page 389.

## **Maintenance Releases**

These products shipped a maintenance release in SAS 9.4M8:

- SAS Business Rules Manager 3.3M2. For more information, see [Chapter 19, “SAS Business Rules Manager,”](#) on page 135.
- SAS Data Integration Studio 4.906. For more information, see [Chapter 30, “SAS Data Integration Studio,”](#) on page 177.
- SAS Data Quality Server 9.4M8. For more information, see [Chapter 33, “SAS Data Quality Server,”](#) on page 185.
- SAS Decision Manager 3.3M2. For more information, see [Chapter 35, “SAS Decision Manager,”](#) on page 189.
- SAS/GRAPH 9.4M8. For more information, see [Chapter 56, “SAS/GRAPH,”](#) on page 247.
- SAS Grid Manager 9.4M8. For more information, see [Chapter 57, “SAS Grid Manager,”](#) on page 251.
- SAS In-Database Technologies 9.4M8. For more information, see [Chapter 63, “SAS In-Database Technologies,”](#) on page 271.
- SAS Information Map Studio 9.4M8. For more information, see [Chapter 64, “SAS Information Map Studio,”](#) on page 275.
- SAS Integration Technologies 9.4M8. For more information, see [Chapter 66, “SAS Integration Technologies,”](#) on page 281.
- SAS Intelligence Platform 9.4M8. For more information, see [Chapter 67, “SAS Intelligence Platform,”](#) on page 285.

- SAS Micro Analytic Service 2.5M4. For more information, see [Chapter 78, “SAS Micro Analytic Service,” on page 325](#).
- Note:* SAS Micro Analytic Service 2.5M4 is not supported on Solaris.
- SAS Model Manager 14.3M2. For more information, see [Chapter 80, “SAS Model Manager,” on page 329](#).
  - SAS OLAP Server 9.4M8. For more information, see [Chapter 82, “SAS OLAP Server,” on page 337](#).
  - SAS/SHARE 9.4M8. For more information, see [Chapter 92, “SAS/SHARE,” on page 365](#).
  - SAS Web Report Studio 9.4M8. For more information, see [Chapter 103, “SAS Web Report Studio,” on page 415](#).

### **SAS Customer Intelligence 6.6 Products Are Not Available on SAS 9.4M8 or Later**

These SAS Customer Intelligence 6.6 products on SAS 9.4M7 are the last releases:

- SAS Campaign Management
- SAS Marketing Automation
- SAS Marketing Optimization
- SAS Real-Time Decision Manager

If you order SAS 9.4M8 or later and your site has licensed these SAS Customer Intelligence 6.6 products or earlier, these products will not be included in that order and will no longer function after upgrading to SAS 9.4M8. If you plan to upgrade or migrate to SAS 9.M8 or later, we recommend that you instead consider SAS Customer Intelligence 360 and SAS Intelligent Decisioning for your business needs. Contact your SAS representative for more information.

For additional information if you are upgrading to SAS 9.4M8, see [“Support for SAS Customer Intelligence” on page 161](#).

### **Retired Products and Features**

Starting with SAS 9.4M8, these products and features are retired:

- DataFlux Authentication Server
- SAS AppDev Studio
- SAS BI Portal
- SAS BI Portlets
- SAS Clinical Standards Toolkit
- SAS Data Loader for Hadoop Spark Engine
- SAS Decision Services
- SAS Enterprise GRC
- SAS Episode Analytics
- SAS/GRAPH ActiveX Control
- SAS/GRAPH Java Applets for Web Servers

- SAS Genetics
- SAS Information Delivery Portal
- SAS MDM, which includes SAS Task Manager
- SAS ODS Graphics Designer
- SAS ODS Graphics Editor
- SAS OpRisk VaR
- SAS Promotion Optimization
- SAS Risk and Finance Workbench
- SAS Risk Dimensions Java Client
- SAS/Session
- SAS Underwriting Risk Management for Life Insurance
- SAS Underwriting Risk Management for P&C Insurance
- SAS Web Parts for Microsoft SharePoint
- SAS Web Report Viewer

If you order SAS 9.4M8, these products and features are not included in that order. A best practice is to unconfigure retired SAS products and features before you upgrade and to uninstall them after you upgrade. For more information, see [“Unconfiguring and Uninstalling Retired Products”](#) on page 59.

### ***Changes in Migration***

The SAS 9.4 M8 Migration Utility requires JRE 11. The SAS 9.4 M8 Migration Utility will not continue if Java 11 is not provided. For more information, see [“SAS Migration Utility Requirements”](#) in *SAS Intelligence Platform: Migration Guide*.

### ***JMP Genomics***

Starting with SAS 9.4M8, JMP Genomics is not available from SAS. If you have an existing installation of JMP Genomics in your environment and plan to upgrade to JMP Pro 17, contact JMP Technical Support for assistance.

### ***Support in UNIX and Windows Environments***

For UNIX environments, the HP-UX platform is no longer supported.

In UNIX and Windows environments, the Syncsort utility is no longer supported by the SORT procedure.

### ***Support in SAS/ACCESS***

These SAS/ACCESS interfaces are no longer supported.

- SAS/ACCESS Interface to ADABAS
- SAS/ACCESS Interface to Aster
- SAS/ACCESS Interface to HAWQ
- SAS/ACCESS Interface to MySQL on the AIX platform

- SAS/ACCESS Interface to Oracle on the z/OS platform
- SAS/ACCESS Interface to Teradata on the z/OS platform

The Microsoft ACE driver is a prerequisite for SAS/ACCESS Interface to PC Files and needs to be installed by the user.

For more information, see [Chapter 13, “SAS/ACCESS,” on page 109](#).

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## Updates to Autocall Macro, mdumap.sas

An autocall macro, mdumap.sas, was changed to no longer extract the password from the metadata server. This autocall macro is used by mduestr.sas, also an autocall macro.

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## December 2020 (SAS 9.4, Rev. 940\_20w39)

A hotfix is available for SAS Web Application Server. You must apply this hotfix when performing an upgrade-in-place to SAS 9.4M7 and the version of SAS Web Application Server in your current deployment is newer than the version of SAS Web Application Server at SAS 9.4M7. For more information, see [“Hotfix for SAS Web Application Server for SAS 9.4M7” on page 45](#).

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## September 2020 (SAS 9.4, Rev. 940\_20w39)

Starting in SAS 9.4M7, these products are retired:

- SAS Customer Link Analytics
- SAS Contextual Analytics In-Database Scoring for Hadoop
- SAS Financial Crimes Monitor
- SAS Master Data Management Advanced and Standard
- SAS Master Data Management Quality Advanced Server and Standard Server
- SAS Risk Management for Banking
- SAS Social Network Analysis Server
- SAS Strategy Management
- SAS Visual Process Orchestration
- SAS Web Studio Server

To determine the retired products in your deployment, use the SAS System Evaluation Tool. It is recommended that you unconfigure any retired products *before* you upgrade. However, starting in the September release, you can unconfigure most retired products by using the SAS Remove Configuration task in SAS Deployment Manager *after* you upgrade. For more information, see [“Unconfiguring and Uninstalling Retired Products” on page 59](#).

The SAS Data Management products have additional steps. For more information about how to unconfigure and uninstall these products, see these topics:

- [“SAS Data Management Console” on page 172](#)
- [“DataFlux Web Studio and Server” on page 175](#)
- [Chapter 100, “SAS Visual Process Orchestration,” on page 403](#)

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## August 2020 (SAS 9.4, Rev. 940\_20w34)

SAS shipped SAS 9.4M7.

- Starting in SAS 9.4M7, many hot fixes are included with your order. (In previous releases, only a subset of hot fixes were included.) For more information, see [“Applying Hot Fixes” on page 62](#).
- Starting in SAS 9.4M7, the Security Update is reapplied when you apply a hot fix. For more information, see [“Applying Hot Fixes” on page 62](#).
- Starting in SAS 9.4M7, SAS Software Depots should contain orders only from the same maintenance release. For example, you should have separate depots for 9.4M6 and 9.4M7. For more information, see [“Creating SAS Software Depots” in SAS Intelligence Platform: Installation and Configuration Guide](#).
- To avoid running out of database connections during an upgrade-in-place, set the `max_connections` and `max_prepared_transactions` properties to `1024` in the `postgresql.conf` file. You can return to the original values after the upgrade-in-place is complete. Each edit of the `postgresql.conf` file requires a restart of the Web Infrastructure Platform Data Server to take effect.

For SAS 9.4M7, you need to upgrade to PostgreSQL 12.

For more information, see [Chapter 10, “Upgrading PostgreSQL,” on page 65](#).

*Note:* If your deployment includes SAS Business Data Network 3.3, there are additional steps to perform after upgrading to PostgreSQL 12.

- To address several time-out issues for GemFire, `gemfire.member-timeout` is set to `600000`.
- The SAS Deployment Wizard verifies that the name of the host machine matches the host name in the original configuration. If these names do not match, the configuration process stops. For more information, see [Step 12 on page 57](#).
- If you encounter an error in the configuration process, you can suspend the update until you resolve the error. When you resume the configuration process in SAS Deployment Manager, you have the option to resume at your current step. This feature applies to all update configuration steps except the Apply Update step.

These products shipped a new release:

- SAS Add-In 8.3 for Microsoft Office. For more information, see [Chapter 14, “SAS Add-In for Microsoft Office,” on page 117](#).
- SAS BI Dashboard 4.41. For more information, see [Chapter 16, “SAS BI Dashboard,” on page 125](#).
- SAS Data Integration Studio 4.905. For more information, see [Chapter 30, “SAS Data Integration Studio,” on page 177](#).

- SAS Enterprise Guide 8.3. For more information, see [Chapter 42, “SAS Enterprise Guide,”](#) on page 209.
- SAS Enterprise Miner 15.2. For more information, see [Chapter 43, “SAS Enterprise Miner,”](#) on page 215.
- SAS Forecast Server 15.2. For more information, see [Chapter 53, “SAS Forecast Server,”](#) on page 241.
- SAS/IML 15.2
- SAS Studio 3.81. For more information, see [Chapter 96, “SAS Studio,”](#) on page 377.
- SAS Text Miner 15.2. For more information, see [Chapter 98, “SAS Text Miner,”](#) on page 385.

These products shipped a maintenance release:

- Base SAS 9.4M7. For more information, see [Chapter 12, “Base SAS,”](#) on page 95.
- SAS/ACCESS 9.4M7. For more information, see [Chapter 13, “SAS/ACCESS,”](#) on page 109.
- SAS Business Rules Manager 3.3M1. For more information, see [Chapter 19, “SAS Business Rules Manager,”](#) on page 135.
- SAS Decision Manager 3.3M1. For more information, see [Chapter 35, “SAS Decision Manager,”](#) on page 189.
- SAS Decision Services 6.4M2. For more information, see [Chapter 36, “SAS Decision Services,”](#) on page 193.
- SAS/GRAPH. The SAS/GRAPH Java applets are deprecated. Existing programs that use these items still work. However, these items are no longer supported, and they might be removed in a future release. For more information, see [Chapter 56, “SAS/GRAPH,”](#) on page 247.
- SAS Grid Manager 9.4M7. For more information, see [Chapter 57, “SAS Grid Manager,”](#) on page 251.
- SAS In-Database Technologies 9.4M7.
- SAS Intelligence Platform 9.4M7
- SAS/IntrNet 9.4M7
- SAS Micro Analytic Services 2.5M3. For more information, see [Chapter 78, “SAS Micro Analytic Service,”](#) on page 325.
- SAS Model Manager 14.3M1. For more information, see [Chapter 80, “SAS Model Manager,”](#) on page 329.
- SAS/SHARE 9.4M7.

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## June 2020 (SAS 9.4, Rev. 940\_20w26)

In SAS 9 Content Assessment, the SAS 9 System Evaluation tool includes new checks and improved reporting. This tool analyzes your SAS 9 system configuration for possible issues that could adversely affect upgrading from one release of SAS 9 to another SAS 9 release. You should run this tool when preparing for a software update. For more information, see [Chapter 5, “SAS Content Assessment,”](#) on page 31.



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## May 2020 (SAS 9.4, Rev. 940\_20w21)

The SAS 9 System Evaluation tool in SAS 9 Content Assessment is now available. This tool analyzes your SAS 9 system configuration for possible issues that could adversely affect upgrading from one release of SAS 9 to another SAS 9 release. You should run this tool when preparing for a software update. For more information, see [Chapter 5, “SAS Content Assessment,”](#) on page 31.

These SAS 9.4 products shipped a new release:

- SAS Customer Intelligence 6.6. For more information, see [Chapter 27, “SAS Customer Intelligence,”](#) on page 159.
- SAS Marketing Automation 6.6. For more information, see [Chapter 73, “SAS Marketing Automation,”](#) on page 309.
- SAS Marketing Optimization 6.6. For more information, see [Chapter 75, “SAS Marketing Optimization,”](#) on page 315.
- SAS Real-Time Decision Manager 6.6. For more information, see [Chapter 87, “SAS Real-Time Decision Manager,”](#) on page 351.

SAS Digital Marketing is retired. For more information, see [“SAS 9.4M6 Retired Product: SAS Digital Marketing”](#) on page 196.

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## April 2020 (SAS 9.4, Rev. 940\_20w18)

SAS IT Resource Management 3.11 shipped. For more information, see [Chapter 70, “SAS IT Resource Management,”](#) on page 301.

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## February 2020 (SAS 9.4, Rev. 940\_20w08)

SAS Financial Crimes Monitor 6.3 shipped. For more information, see [Chapter 47, “SAS Financial Crimes Monitor,”](#) on page 229.

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## November 2019 (SAS 9.4, Rev. 940\_19w47)

These SAS 9.4 products shipped a new release:

- SAS Add-In 8.2 for Microsoft Office. For more information, see [Chapter 14, “SAS Add-In for Microsoft Office,”](#) on page 117.
- SAS Enterprise Guide 8.2. For more information, see [Chapter 42, “SAS Enterprise Guide,”](#) on page 209.

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## June 2019 (SAS 9.4, Rev. 940\_19w25)

These SAS 9.4 products shipped a new release:

- SAS Add-In 8.1 for Microsoft Office. For more information, see [Chapter 14, “SAS Add-In for Microsoft Office,”](#) on page 117.
- SAS Business Rules Manager 3.3. For more information, see [Chapter 19, “SAS Business Rules Manager,”](#) on page 135.
- SAS Cost and Profitability Management 8.4. For more information, see [Chapter 23, “SAS Cost and Profitability Management,”](#) on page 149.
- SAS Data Remediation 2.4. For more information, see [Chapter 34, “SAS Data Remediation,”](#) on page 187.
- SAS Decision Manager 3.3. For more information, see [Chapter 35, “SAS Decision Manager,”](#) on page 189.
- SAS Enterprise Guide 8.1. For more information, see [Chapter 42, “SAS Enterprise Guide,”](#) on page 209.
- SAS Financial Management 5.6. For more information, see [Chapter 48, “SAS Financial Management,”](#) on page 231.
- SAS High-Performance Risk 4.2. For more information, see [Chapter 59, “SAS High-Performance Risk,”](#) on page 259.
- SAS IT Resource Management 3.10. For more information, see [Chapter 70, “SAS IT Resource Management,”](#) on page 301.
- SAS Lineage 3.3. For more information, see [Chapter 71, “SAS Lineage,”](#) on page 303.
- SAS Model Implementation Platform 3.2. For more information, see [Chapter 79, “SAS Model Implementation Platform,”](#) on page 327.
- SAS Model Manager 14.3. For more information, see [Chapter 80, “SAS Model Manager,”](#) on page 329.
- SAS Risk Dimensions 6.12. For more information, see [Chapter 89, “SAS Risk Dimensions,”](#) on page 357.
- SAS Task Manager 2.4. For more information, see [Chapter 97, “SAS Task Manager,”](#) on page 383.

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## May 2019 (SAS 9.4, Rev. 940\_19w21)

The SAS 9.4M6 updates in this release are available only in orders placed after the May 2019 update. To receive these product updates, contact your SAS representative about placing an order. After you receive the new order, you can perform an upgrade-in-place for an existing environment.

These SAS 9.4 products shipped a new release:

- SAS Environment Manager 2.6. For more information, see [Chapter 44, “SAS Environment Manager,”](#) on page 219.
- SAS Visual Analytics 7.5. For more information, see [Chapter 99, “SAS Visual Analytics,”](#) on page 389.

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## November 2018 (SAS 9.4, Rev. 940\_18w47)

These products shipped a new release:

- SAS Contextual Analysis 15.1. For more information, see [Chapter 22, “SAS Contextual Analysis,”](#) on page 145.
- SAS Enterprise Miner 15.1. For more information, see [Chapter 43, “SAS Enterprise Miner,”](#) on page 215.
- SAS/ETS 15.1. For more information, see [Chapter 46, “SAS/ETS,”](#) on page 227.
- SAS Forecast Server 15.1. For more information, see [Chapter 53, “SAS Forecast Server,”](#) on page 241.
- SAS/IML 15.1. For more information, see [Chapter 60, “SAS/IML,”](#) on page 261.
- SAS/OR 15.1. For more information, see [Chapter 84, “SAS/OR,”](#) on page 341.
- SAS/QC 15.1. For more information, see [Chapter 85, “SAS/QC,”](#) on page 345.
- SAS/STAT 15.1. For more information, see [Chapter 94, “SAS/STAT,”](#) on page 369.
- SAS Studio 3.8. For more information, see [Chapter 96, “SAS Studio,”](#) on page 377.
- SAS Text Miner 15.1. For more information, see [Chapter 98, “SAS Text Miner,”](#) on page 385.

These products shipped as part of SAS 9.4M6:

- Base SAS. For more information, see [Chapter 12, “Base SAS,”](#) on page 95.
- SAS/ACCESS 9.4M6 software. For more information, see [Chapter 13, “SAS/ACCESS,”](#) on page 109.
- SAS Data Quality Accelerator for Teradata. For more information, see [Chapter 32, “SAS Data Quality Accelerator for Teradata,”](#) on page 183.
- SAS Data Quality Server 9.4M6. For more information, see [Chapter 33, “SAS Data Quality Server,”](#) on page 185.
- SAS/GRAPH 9.4M6. For more information, see [Chapter 56, “SAS/GRAPH,”](#) on page 247.
- SAS In-Database Technology 9.4M6. For more information, see [Chapter 63, “SAS In-Database Technologies,”](#) on page 271.
- SAS Intelligence Platform 9.4M6. For more information, see [Chapter 67, “SAS Intelligence Platform,”](#) on page 285.
- SAS OLAP Server 9.4M6. For more information, see [Chapter 82, “SAS OLAP Server,”](#) on page 337.
- SAS/SHARE 9.4M6

These products shipped a maintenance release.

- SAS BI Dashboard 4.4M6. For more information, see [Chapter 16, “SAS BI Dashboard,”](#) on page 125.
- SAS BI Portal 4.4M6. For more information, see [Chapter 17, “SAS BI Portal,”](#) on page 129.
- SAS Business Rules Manager 3.2M1. For more information, see [Chapter 19, “SAS Business Rules Manager,”](#) on page 135.
- SAS Decision Manager 3.2M1. For more information, see [Chapter 35, “SAS Decision Manager,”](#) on page 189.
- SAS Information Map Studio 4.4M6. For more information, see [Chapter 64, “SAS Information Map Studio,”](#) on page 275.
- SAS Model Manager 14.2M1. For more information, see [Chapter 80, “SAS Model Manager,”](#) on page 329.
- SAS Web Report Studio 4.4M6. For more information, see [Chapter 103, “SAS Web Report Studio,”](#) on page 415.

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## July 2018 (SAS 9.4, Rev. 940\_18w30)

These products shipped a new release:

- SAS Add-In 8 for Microsoft Office. For more information, see [Chapter 14, “SAS Add-In for Microsoft Office,”](#) on page 117.

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## February 2018 (SAS 9.4, Rev. 940\_18w08)

These products shipped a new release:

- SAS Energy Forecasting 4.1. For more information, see [Chapter 39, “SAS Energy Forecasting,”](#) on page 201.

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## December 2017 (SAS 9.4, Rev. 940\_17w47)

SAS shipped the second release of SAS 9.4M5. This release provides greater integration with SAS Viya. This release includes several new and updated CAS-enabled procedures, new packages for accessing SAS Viya procedures, additional options for managing files in SAS Viya, and enhancements to DS2 actions and supported data types, and functions. SAS Studio 3.71 includes new tasks that support text analysis and forecasting in SAS Viya.

If you installed the September release of SAS 9.4M5, you must order and install the December 2017 release of SAS 9.4M5 to obtain the new functionality. If you are upgrading to SAS 9.4M5 for the first time, you will receive the December release, which contains all of the SAS 9.4M5 functionality.

These products shipped a new release:

- Base SAS. For more information, see [Chapter 12, “Base SAS,”](#) on page 95.
- SAS In-Database Technologies. For more information, see [Chapter 63, “SAS In-Database Technologies,”](#) on page 271.
- SAS Model Risk Management 7.3. For more information, see [Chapter 81, “SAS Model Risk Management,”](#) on page 335.
- SAS Risk and Finance Workbench 3.1. For more information, see [Chapter 88, “SAS Risk and Finance Workbench,”](#) on page 355.
- SAS Studio 3.7.1. For more information, see [Chapter 96, “SAS Studio,”](#) on page 377.

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## September 2017 (SAS 9.4, Rev. 940\_17w38)

These products shipped a new release:

- SAS Add-In for Microsoft Office 7.15. For more information, see [Chapter 14, “SAS Add-In for Microsoft Office,”](#) on page 117.
- SAS Contextual Analysis 14.3. For more information, see [Chapter 22, “SAS Contextual Analysis,”](#) on page 145.
- SAS Data Integration Studio 4.903. For more information, see [Chapter 30, “SAS Data Integration Studio,”](#) on page 177.
- SAS Enterprise Guide 7.15. For more information, see [Chapter 42, “SAS Enterprise Guide,”](#) on page 209.
- SAS Enterprise Miner 14.3. For more information, see [Chapter 43, “SAS Enterprise Miner,”](#) on page 215.
- SAS/ETS 14.3. For more information, see [Chapter 46, “SAS/ETS,”](#) on page 227.
- SAS High-Performance Analytics Infrastructure 3.7. For more information, see [Chapter 58, “SAS High-Performance Analytics Infrastructure,”](#) on page 255.
- SAS High-Performance Risk 3.9. For more information, see [Chapter 59, “SAS High-Performance Risk,”](#) on page 259.
- SAS/IML 14.3. For more information, see [Chapter 60, “SAS/IML,”](#) on page 261.
- SAS Infrastructure for Risk Management. For more information, see [Chapter 62, “SAS Infrastructure for Risk Management,”](#) on page 269.
- SAS/OR 14.3. For more information, see [Chapter 84, “SAS/OR,”](#) on page 341.
- SAS/QC 14.3. For more information, see [Chapter 85, “SAS/QC,”](#) on page 345.
- SAS Risk Dimensions 6.9. For more information, see [Chapter 89, “SAS Risk Dimensions,”](#) on page 357.
- SAS/STAT 14.3. For more information, see [Chapter 94, “SAS/STAT,”](#) on page 369.
- SAS Studio 3.7. For more information, see [Chapter 96, “SAS Studio,”](#) on page 377.
- SAS Text Miner 14.3. For more information, see [Chapter 98, “SAS Text Miner,”](#) on page 385.

These products shipped as part of SAS 9.4M5

- Base SAS. For more information, see [Chapter 12, “Base SAS,”](#) on page 95.

- SAS/ACCESS 9.4M5. For more information, see [Chapter 13, “SAS/ACCESS,”](#) on page 109.
- SAS/CONNECT 9.4M5. For more information, see [Chapter 21, “SAS/CONNECT,”](#) on page 141.
- SAS Data Quality Server 9.4M5. For more information, see [Chapter 33, “SAS Data Quality Server,”](#) on page 185.
- SAS/GRAPH 9.4M5. For more information, see [Chapter 56, “SAS/GRAPH,”](#) on page 247.
- SAS In-Database Products. For more information, see [Chapter 63, “SAS In-Database Technologies,”](#) on page 271.
- SAS Integration Technologies 9.4M5. For more information, see [Chapter 66, “SAS Integration Technologies,”](#) on page 281.
- SAS/IntrNet 9.4M5. For more information, see [Chapter 68, “SAS/IntrNet,”](#) on page 297.
- SAS 9.4M5 OLAP Server. For more information, see [Chapter 82, “SAS OLAP Server,”](#) on page 337.
- SAS/SECURE 9.4M5. For more information, see [Chapter 91, “SAS/SECURE,”](#) on page 361.
- SAS/SHARE 9.4M5. For more information, see [Chapter 56, “SAS/GRAPH,”](#) on page 247.

SAS Cost and Profitability 8.1M7 shipped. For more information, see [Chapter 23, “SAS Cost and Profitability Management,”](#) on page 149.

Starting with SAS 9.4M5, SAS Marketing Operations Management is a retired product. If you order SAS 9.4M8, SAS Marketing Operations Management is not included in that order. 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”](#) on page 59.

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## **July 2017 (SAS 9.4, Rev. 940\_17w29)**

SAS Quality Analytics Suite 6.2 shipped a maintenance release. For more information, see [Chapter 86, “SAS Quality Analytic Suite,”](#) on page 349.

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## **June 2017 (SAS 9.4, Rev. 940\_17w25)**

These products shipped a new release:

- SAS High-Performance Risk 3.8. For more information, see [Chapter 59, “SAS High-Performance Risk,”](#) on page 259.
- SAS Model Implementation Platform 2.4. For more information, see [Chapter 79, “SAS Model Implementation Platform,”](#) on page 327.
- SAS Risk Dimensions 6.8. For more information, see [Chapter 89, “SAS Risk Dimensions,”](#) on page 357.

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## April 2017 (SAS 9.4, Rev. 940\_17w16)

These products shipped a new release:

- SAS Add-In for Microsoft Office 7.14. For more information, see [Chapter 14, “SAS Add-In for Microsoft Office,”](#) on page 117.
- SAS Business Data Network 3.2. For more information, see [Chapter 18, “SAS Business Data Network,”](#) on page 131.
- SAS Data Remediation 2.3. For more information, see [Chapter 34, “SAS Data Remediation,”](#) on page 187.
- SAS Lineage 3.2. For more information, see [Chapter 71, “SAS Lineage,”](#) on page 303.
- SAS MDM 4.3. For more information, see [Chapter 77, “SAS MDM \(Master Data Management\),”](#) on page 321.
- SAS Visual Analytics 7.4. For more information, see [Chapter 99, “SAS Visual Analytics,”](#) on page 389.

These products shipped a maintenance release:

- SAS Cost and Profitability Management 8.1M6. For more information, see [Chapter 23, “SAS Cost and Profitability Management,”](#) on page 149.
- SAS Energy Forecasting 3.2M1. For more information, see [Chapter 39, “SAS Energy Forecasting,”](#) on page 201.
- SAS Forecast Analyst Workbench 5.3M1. For more information, see [Chapter 52, “SAS Forecast Analyst Workbench,”](#) on page 239.
- SAS Inventory Optimization Workbench 5.3M1. For more information, see [Chapter 69, “SAS Inventory Optimization,”](#) on page 299.

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## February 2017 (SAS 9.4, Rev. 940\_17w08)

SAS IT Resource Management 3.8 shipped. For more information, see [Chapter 70, “SAS IT Resource Management,”](#) on page 301.

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## November 2016 (SAS 9.4, Rev. 940\_16w48)

These products shipped a new release:

- SAS Add-In for Microsoft Office 7.13. For more information, see [Chapter 14, “SAS Add-In for Microsoft Office,”](#) on page 117.
- SAS Business Rules Manager 3.2. For more information, see [Chapter 19, “SAS Business Rules Manager,”](#) on page 135.

- SAS Contextual Analysis 14.2. For more information, see [Chapter 22, “SAS Contextual Analysis,”](#) on page 145.
- SAS Data Integration Studio 4.902. For more information, see [Chapter 30, “SAS Data Integration Studio,”](#) on page 177.
- SAS Data Loader 3.1. For more information, see [Chapter 31, “SAS Data Loader,”](#) on page 181.
- SAS Data Quality Accelerator 9.4 for Teradata. For more information, see [Chapter 32, “SAS Data Quality Accelerator for Teradata,”](#) on page 183.
- SAS Decision Manager 3.2. For more information, see [Chapter 35, “SAS Decision Manager,”](#) on page 189.
- SAS Enterprise Guide 7.13. For more information, see [Chapter 42, “SAS Enterprise Guide,”](#) on page 209.
- SAS Enterprise Miner 14.2. For more information, see [Chapter 43, “SAS Enterprise Miner,”](#) on page 215.
- SAS/ETS 14.2. For more information, see [Chapter 46, “SAS/ETS,”](#) on page 227.
- SAS Factory Miner 14.2. For more information, see [Chapter 49, “SAS Factory Miner,”](#) on page 233.
- SAS Firmwide Risk for Solvency II 3.3. For more information, see [Chapter 51, “SAS Firmwide Risk for Solvency II,”](#) on page 237.
- SAS Forecast Server 14.2. For more information, see [Chapter 53, “SAS Forecast Server,”](#) on page 241.
- SAS High-Performance Analytics Infrastructure 3.5. For more information, see [Chapter 58, “SAS High-Performance Analytics Infrastructure,”](#) on page 255.
- SAS High-Performance Risk 3.7. For more information, see [Chapter 59, “SAS High-Performance Risk,”](#) on page 259.
- SAS/IML 14.2. For more information, see [Chapter 60, “SAS/IML,”](#) on page 261.
- SAS Micro Analytic Services 2.2. For more information, see [Chapter 78, “SAS Micro Analytic Service,”](#) on page 325.
- SAS Model Implementation Platform 2.3. For more information, see [Chapter 79, “SAS Model Implementation Platform,”](#) on page 327.
- SAS Model Manager 14.2. For more information, see [Chapter 80, “SAS Model Manager,”](#) on page 329.
- SAS Model Risk Management 7.2. For more information, see [Chapter 81, “SAS Model Risk Management,”](#) on page 335.
- SAS/OR 14.2. For more information, see [Chapter 84, “SAS/OR,”](#) on page 341.
- SAS Quality Analytic Suite 6.2. For more information, see [Chapter 86, “SAS Quality Analytic Suite,”](#) on page 349.
- SAS/QC 14.2. For more information, see [Chapter 85, “SAS/QC,”](#) on page 345.
- SAS Risk and Finance Workbench 2.3. For more information, see [Chapter 88, “SAS Risk and Finance Workbench,”](#) on page 355.
- SAS Risk Dimensions 6.7. For more information, see [Chapter 89, “SAS Risk Dimensions,”](#) on page 357.
- SAS/STAT 14.2. For more information, see [Chapter 94, “SAS/STAT,”](#) on page 369.
- SAS Studio 3.6. For more information, see [Chapter 96, “SAS Studio,”](#) on page 377.



- SAS Text Miner 14.2. For more information, see [Chapter 98, “SAS Text Miner,”](#) on page 385.

These products have been updated for SAS 9.4M4:

- Base SAS. For more information, see [Chapter 12, “Base SAS,”](#) on page 95.
- SAS/ACCESS software. For more information, see [Chapter 13, “SAS/ACCESS,”](#) on page 109.
- SAS/CONNECT. For more information, see [Chapter 21, “SAS/CONNECT,”](#) on page 141.
- SAS Data Quality Server. For more information, see [Chapter 33, “SAS Data Quality Server,”](#) on page 185.
- SAS In-Database Technologies. For more information, see [Chapter 63, “SAS In-Database Technologies,”](#) on page 271.
- SAS Environment Manager 2.5M1. For more information, see [Chapter 44, “SAS Environment Manager,”](#) on page 219.
- SAS/GRAPH. For more information, see [Chapter 56, “SAS/GRAPH,”](#) on page 247.
- SAS Grid Manager. For more information, see [Chapter 57, “SAS Grid Manager,”](#) on page 251.
- SAS Integration Technologies. For more information, see [Chapter 66, “SAS Integration Technologies,”](#) on page 281.
- SAS Intelligence Platform. For more information, see [Chapter 67, “SAS Intelligence Platform,”](#) on page 285.
- SAS/IntrNet. For more information, see [Chapter 68, “SAS/IntrNet,”](#) on page 297.
- SAS Management Console. For more information, see [Chapter 72, “SAS Management Console,”](#) on page 305.
- SAS OLAP Server. For more information, see [Chapter 82, “SAS OLAP Server,”](#) on page 337.
- SAS/SECURE. For more information, see [Chapter 91, “SAS/SECURE,”](#) on page 361.

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## July 2016 (SAS 9.4, Rev. 940\_16w30)

These products shipped a new release:

- SAS Anti-Money Laundering 7.1. For more information, see [Chapter 15, “SAS Anti-Money Laundering,”](#) on page 123.
- SAS Model Risk Management 7.1. For more information, see [Chapter 81, “SAS Model Risk Management,”](#) on page 335.
- SAS Risk Management for Banking 3.4. For more information, see [Chapter 90, “SAS Risk Management for Banking,”](#) on page 359.

## June 2016 (SAS 9.4, Rev. 940\_16w26)

These products shipped a new release:

- SAS Customer Link Analytics 6.5. For more information, see [Chapter 28, “SAS Customer Link Analytics,”](#) on page 165.
- SAS Decision Services 6.5. For more information, see [Chapter 36, “SAS Decision Services,”](#) on page 193.
- SAS Digital Marketing 6.5. For more information, see [Chapter 37, “SAS Digital Marketing,”](#) on page 195.
- SAS Marketing Automation 6.5. For more information, see [Chapter 73, “SAS Marketing Automation,”](#) on page 309.
- SAS Marketing Optimization 6.5. For more information, see [Chapter 75, “SAS Marketing Optimization,”](#) on page 315.
- SAS Real-Time Decision Manager 6.5. For more information, see [Chapter 87, “SAS Real-Time Decision Manager,”](#) on page 351.

SAS Social Network Analysis Server 6.2M3 is now available. For more information, see [Chapter 93, “SAS Social Network Analysis Server,”](#) on page 367.

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## May 2016 (SAS 9.4, Rev. 940\_16w22)

These products shipped a new release:

- SAS Forecast Analyst Workbench 5.3. For more information, see [Chapter 52, “SAS Forecast Analyst Workbench,”](#) on page 239.
- SAS Fraud Management 4.3. For more information, see [Chapter 54, “SAS Fraud Management,”](#) on page 243.
- SAS Inventory Optimization Workbench 5.3. For more information, see [Chapter 69, “SAS Inventory Optimization,”](#) on page 299.

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## April 2016 (SAS 9.4, Rev. 940\_16w17)

These products shipped a new release:

- SAS Firmwide Risk for Solvency II 3.2. For more information, see [Chapter 51, “SAS Firmwide Risk for Solvency II,”](#) on page 237.
- SAS High-Performance Risk 3.6. For more information, see [Chapter 59, “SAS High-Performance Risk,”](#) on page 259.
- SAS Risk Dimensions 6.6. For more information, see [Chapter 89, “SAS Risk Dimensions,”](#) on page 357.

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## March 2016 (SAS 9.4, Rev. 940\_16w13)

SAS Micro Analytic Services 1.3 is now available. For more information, see [Chapter 78, “SAS Micro Analytic Service,”](#) on page 325.

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## February 2016 (SAS 9.4, Rev. 940\_16w08)

These products shipped a new release:

- SAS Add-In 7.12 for Microsoft Office. For more information, see [Chapter 14, “SAS Add-In for Microsoft Office,”](#) on page 117.
- SAS Enterprise Guide 7.12. For more information, see [Chapter 42, “SAS Enterprise Guide,”](#) on page 209.
- SAS Episode Analytics 3.1. For more information, see [Chapter 45, “SAS Episode Analytics,”](#) on page 225.
- SAS IT Resource Management 3.7. For more information, see [Chapter 70, “SAS IT Resource Management,”](#) on page 301.
- SAS Studio 3.5. For more information, see [Chapter 96, “SAS Studio,”](#) on page 377.

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## January 2016 (SAS 9.4, Rev. 940\_16w04)

These products shipped a new release:

- “[DataFlux Data Management Server 2.7](#)” on page 171
- “[DataFlux Secure 2.7](#)” on page 174

These products shipped a maintenance release:

- DataFlux Authentication Server 4.1M1. For more information, see “[DataFlux Authentication Server](#)” on page 170.
- SAS Anti-Money Laundering 6.3M1. For more information, see [Chapter 15, “SAS Anti-Money Laundering,”](#) on page 123.
- SAS Customer Due Diligence 6.3M1. For more information, see [Chapter 26, “SAS Customer Due Diligence,”](#) on page 157.

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## November 2015 (SAS 9.4, Rev. 940\_15w47)

These products shipped a maintenance release:

- SAS Contextual Analysis 14.1M1. For more information, see [Chapter 22, “SAS Contextual Analysis,”](#) on page 145.
- SAS Fraud Management 4.2M1. For more information, see [Chapter 54, “SAS Fraud Management,”](#) on page 243.

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## October 2015 (SAS 9.4, Rev. 940\_15w42)

These products shipped a new release:

- SAS High-Performance Risk 3.5. For more information, see [Chapter 59, “SAS High-Performance Risk,”](#) on page 259.
- SAS Risk Dimensions 6.5. For more information, see [Chapter 89, “SAS Risk Dimensions,”](#) on page 357.

These products shipped a maintenance release:

- SAS Enterprise Case Management 6.3M1. For more information, see [Chapter 40, “SAS Enterprise Case Management,”](#) on page 203.
- SAS Social Network Analysis Server 6.2M2. For more information, see [Chapter 93, “SAS Social Network Analysis Server,”](#) on page 367.

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## August 2015 (SAS 9.4, Rev. 940\_15w33)

SAS Visual Analytics 7.3 is now available. For more information, see [Chapter 99, “SAS Visual Analytics,”](#) on page 389.

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## July 2015 (SAS 9.4, Rev. 940\_15w29)

These products shipped a new release:

- SAS Business Rules Manager 3.1. For more information, see [Chapter 19, “SAS Business Rules Manager,”](#) on page 135.
- SAS Contextual Analysis 14.1. For more information, see [Chapter 22, “SAS Contextual Analysis,”](#) on page 145.
- SAS Decision Manager 3.1. For more information, see [Chapter 35, “SAS Decision Manager,”](#) on page 189.

- SAS Data Integration Studio 4.901. For more information, see [Chapter 30, “SAS Data Integration Studio,”](#) on page 177.
- SAS Enterprise Miner 14.1. For more information, see [Chapter 43, “SAS Enterprise Miner,”](#) on page 215.
- SAS Environment Manager 2.5. For more information, see [Chapter 44, “SAS Environment Manager,”](#) on page 219.
- SAS/ETS 14.1. For more information, see [Chapter 46, “SAS/ETS,”](#) on page 227.
- SAS Forecast Server 14.1. For more information, see [Chapter 53, “SAS Forecast Server,”](#) on page 241.
- SAS Fraud Management 4.2. For more information, see [Chapter 54, “SAS Fraud Management,”](#) on page 243.
- SAS/IML 14.1. For more information, see [Chapter 60, “SAS/IML,”](#) on page 261.
- SAS Model Manager 14.1. For more information, see [Chapter 80, “SAS Model Manager,”](#) on page 329.
- SAS/OR 14.1. For more information, see [Chapter 84, “SAS/OR,”](#) on page 341.
- SAS/QC 14.1. For more information, see [Chapter 85, “SAS/QC,”](#) on page 345.
- SAS/STAT 14.1. For more information, see [Chapter 94, “SAS/STAT,”](#) on page 369.
- SAS Studio 3.4. For more information, see [Chapter 96, “SAS Studio,”](#) on page 377.
- SAS Text Miner 14.1. For more information, see [Chapter 98, “SAS Text Miner,”](#) on page 385.

These products were updated as part of SAS 9.4M3:

- Base SAS. For more information, see [Chapter 12, “Base SAS,”](#) on page 95.
- SAS/ACCESS software. For more information, see [Chapter 13, “SAS/ACCESS,”](#) on page 109.
- SAS/CONNECT. For more information, see [Chapter 21, “SAS/CONNECT,”](#) on page 141.
- SAS Data Quality Server. For more information, see [Chapter 33, “SAS Data Quality Server,”](#) on page 185.
- SAS In-Database Technologies. For more information, see [Chapter 63, “SAS In-Database Technologies,”](#) on page 271.
- SAS/GRAPH. For more information, see [Chapter 56, “SAS/GRAPH,”](#) on page 247.
- SAS Grid Manager. For more information, see [Chapter 57, “SAS Grid Manager,”](#) on page 251.
- SAS Integration Technologies. For more information, see [Chapter 66, “SAS Integration Technologies,”](#) on page 281.
- SAS Intelligence Platform. For more information, see [Chapter 67, “SAS Intelligence Platform,”](#) on page 285.
- SAS/IntrNet. For more information, see [Chapter 68, “SAS/IntrNet,”](#) on page 297.
- SAS Management Console. For more information, see [Chapter 72, “SAS Management Console,”](#) on page 305.
- SAS OLAP Server. For more information, see [Chapter 82, “SAS OLAP Server,”](#) on page 337.

- SAS/SECURE. For more information, see [Chapter 91, “SAS/SECURE,”](#) on page 361.

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## May 2015 (SAS 9.4, Rev. 940\_15w20)

These products shipped a new release:

- SAS Credit Scoring for Banking 5.4. For more information, see [Chapter 25, “SAS Credit Scoring for Banking,”](#) on page 155.
- SAS High-Performance Risk 3.4. For more information, see [Chapter 59, “SAS High-Performance Risk,”](#) on page 259.
- SAS IT Resource Management 3.6. For more information, see [Chapter 70, “SAS IT Resource Management,”](#) on page 301.
- SAS Marketing Operations Management 6.4. For more information, see [Chapter 74, “SAS Marketing Operations Management,”](#) on page 313.
- SAS Risk Dimensions 6.4. For more information, see [Chapter 89, “SAS Risk Dimensions,”](#) on page 357.
- SAS Risk Management for Banking 3.3. For more information, see [Chapter 90, “SAS Risk Management for Banking,”](#) on page 359.
- SAS Visual Analytics 7.2. For more information, see [“SAS Visual Analytics 7.2”](#) on page 396.

These products shipped a maintenance release:

- SAS Forecast Analyst Workbench 5.2M2. For more information, see [Chapter 52, “SAS Forecast Analyst Workbench,”](#) on page 239.
- SAS Inventory Optimization 5.2M2. For more information, see [Chapter 69, “SAS Inventory Optimization,”](#) on page 299.
- SAS OpRisk VaR 6.1M2. For more information, see [Chapter 83, “SAS OpRisk VaR,”](#) on page 339.

These products were also updated:

- SAS Add-In 7.11 for Microsoft Office. For more information, see [Chapter 14, “SAS Add-In for Microsoft Office,”](#) on page 117.
- SAS Enterprise Guide 7.11. For more information, see [Chapter 42, “SAS Enterprise Guide,”](#) on page 209.

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## March 2015 (SAS 9.4, Rev. 940\_15w12)

These products shipped a new release:

- SAS Data Remediation 2.2. For more information, see [Chapter 34, “SAS Data Remediation,”](#) on page 187.
- SAS Digital Marketing 6.4. For more information, see [Chapter 37, “SAS Digital Marketing,”](#) on page 195.

- SAS Marketing Automation 6.4. For more information, see [Chapter 73, “SAS Marketing Automation,”](#) on page 309.
- SAS Marketing Optimization 6.4. For more information, see [Chapter 75, “SAS Marketing Optimization,”](#) on page 315.
- SAS MDM 4.2. For more information, see [Chapter 77, “SAS MDM \(Master Data Management\),”](#) on page 321.
- SAS Real-Time Decision Manager 6.4. For more information, see [Chapter 87, “SAS Real-Time Decision Manager,”](#) on page 351.
- SAS Task Manager 2.2. For more information, see [Chapter 97, “SAS Task Manager,”](#) on page 383.
- SAS Visual Process Orchestration 2.2. For more information, see [Chapter 100, “SAS Visual Process Orchestration,”](#) on page 403.

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## February 2015 (SAS 9.4, Rev. 940\_15w08)

These products shipped a new release:

- SAS Customer Link Analytics 5.6. For more information, see [Chapter 28, “SAS Customer Link Analytics,”](#) on page 165.
- SAS Episode Analytics 2.2. For more information, see [Chapter 45, “SAS Episode Analytics,”](#) on page 225.
- SAS Studio 3.3. For more information, see [Chapter 96, “SAS Studio,”](#) on page 377.

Several SAS solutions or products are now shipped with SAS Visual Analytics components. For some of these solutions, you can delay the deployment of the SAS Visual Analytics components. To address this issue, the documentation now includes an [“Adding SAS Visual Analytics to Your Deployment”](#) on page 93 topic.

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## January 2015 (SAS 9.4, Rev. 940\_15w04)

These products shipped a new release:

- SAS Anti-Money Laundering 6.3. For more information, see [Chapter 15, “SAS Anti-Money Laundering,”](#) on page 123.
- SAS Customer Due Diligence 6.3. For more information, see [Chapter 26, “SAS Customer Due Diligence,”](#) on page 157.
- SAS Enterprise Case Management 6.3. For more information, see [Chapter 40, “SAS Enterprise Case Management,”](#) on page 203.
- SAS Financial Management 5.5. For more information, see [Chapter 48, “SAS Financial Management,”](#) on page 231.
- SAS Visual Scenario Designer 6.3. For more information, see [Chapter 101, “SAS Visual Scenario Designer,”](#) on page 407.

SAS Social Network Analysis Server 6.2M1 is now available. For more information, see [Chapter 93, “SAS Social Network Analysis Server,”](#) on page 367.

## November 2014 (SAS 9.4, Rev. 940\_14w47)

These products are new:

- SAS Business Data Network 3.1. For more information, see [Chapter 18, “SAS Business Data Network,”](#) on page 131.
- SAS Lineage 3.1. For more information, see [Chapter 71, “SAS Lineage,”](#) on page 303.

These products shipped a new release:

- DataFlux Data Management Studio 2.6. For more information, see [“DataFlux Data Management Studio 2.6”](#) on page 173.
- DataFlux Web Studio 2.5. For more information, see [“DataFlux Web Studio and Server”](#) on page 175.
- SAS High-Performance Risk 3.3. For more information, see [Chapter 59, “SAS High-Performance Risk,”](#) on page 259.

Here are the documentation enhancements for this release:

- Some SAS solution software orders include SAS Visual Analytics Administration and Reporting. For more information about this component, see [“SAS Visual Analytics Administration and Reporting”](#) on page 394.
- Information about how to update a deployment with a clustered metadata server. For more information, see [“Clustered Metadata Servers”](#) on page 291.

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## October 2014 (SAS 9.4, Rev. 940\_14w41)

These products shipped a new release:

- SAS Add-In 7.1 for Microsoft Office. For more information, see [Chapter 14, “SAS Add-In for Microsoft Office,”](#) on page 117.
- SAS Enterprise GRC 6.1. For more information, see [Chapter 41, “SAS Enterprise GRC,”](#) on page 207.
- SAS Enterprise Guide 7.1. For more information, see [Chapter 42, “SAS Enterprise Guide,”](#) on page 209.
- SAS Environment Manager 2.4. For more information, see [Chapter 44, “SAS Environment Manager,”](#) on page 219.
- SAS Visual Analytics 7.1. For more information, see [Chapter 99, “SAS Visual Analytics,”](#) on page 389.

SAS Web Parts 6.1 for Microsoft SharePoint shipped a second maintenance release (6.12). For more information, see [Chapter 102, “SAS Web Parts for Microsoft SharePoint,”](#) on page 411.



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## September 2014 (SAS 9.4, Rev. 940\_14w36)

SAS IT Resource Management 3.5 is now available. For more information, see [Chapter 70, “SAS IT Resource Management,”](#) on page 301.

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## August 2014 (SAS 9.4, Rev. 940\_14w32)

These products shipped a new release:

- SAS Business Rules Manager 2.2. For more information, see [Chapter 19, “SAS Business Rules Manager,”](#) on page 135.
- SAS Data Integration Studio 4.9. For more information, see [Chapter 30, “SAS Data Integration Studio,”](#) on page 177.
- SAS Decision Rules Manager 2.2. For more information, see [Chapter 35, “SAS Decision Manager,”](#) on page 189.
- SAS Enterprise Miner 13.2. For more information, see [Chapter 43, “SAS Enterprise Miner,”](#) on page 215.
- SAS Environment Manager 2.3. For more information, see [Chapter 44, “SAS Environment Manager,”](#) on page 219.
- SAS/ETS 13.2. For more information, see [Chapter 46, “SAS/ETS,”](#) on page 227.
- SAS/IML 13.2. For more information, see [Chapter 60, “SAS/IML,”](#) on page 261.
- SAS Model Manager 13.1. For more information, see [Chapter 80, “SAS Model Manager,”](#) on page 329.
- SAS/OR 13.2. [Chapter 84, “SAS/OR,”](#) on page 341.
- SAS/QC 13.2. [Chapter 85, “SAS/QC,”](#) on page 345.
- SAS/STAT 13.2. [Chapter 94, “SAS/STAT,”](#) on page 369.
- SAS Studio 3.2. For more information, see [Chapter 96, “SAS Studio,”](#) on page 377.
- SAS Text Miner 13.2. For more information, see [Chapter 98, “SAS Text Miner,”](#) on page 385.

These products were updated as part of SAS 9.4M2:

- Base SAS 9.4M2. For more information, see [Chapter 12, “Base SAS,”](#) on page 95.
- SAS/ACCESS 9.4M2 Interface to Hadoop, SAS/ACCESS 9.4M2 Interface to Oracle, SAS/ACCESS 9.4M2 Interface to PC Files. For more information, see [Chapter 13, “SAS/ACCESS,”](#) on page 109.
- SAS/CONNECT 9.4M2. For more information, see [Chapter 21, “SAS/CONNECT,”](#) on page 141.
- SAS 9.4M2 In-Database Technologies. For more information, see [Chapter 63, “SAS In-Database Technologies,”](#) on page 271.
- SAS 9.4M2 Integration Technologies. For more information, see [Chapter 66, “SAS Integration Technologies,”](#) on page 281.

- SAS 9.4M2 Intelligence Platform. For more information, see [Chapter 67, “SAS Intelligence Platform,”](#) on page 285.
- SAS/IntrNet 9.4M2. For more information, see [Chapter 68, “SAS/IntrNet,”](#) on page 297.
- SAS Management Console 9.4M2. For more information, see [Chapter 72, “SAS Management Console,”](#) on page 305.
- SAS OLAP Server 9.4M2. For more information, see [Chapter 82, “SAS OLAP Server,”](#) on page 337.
- SAS/SECURE 9.4M2. For more information, see [Chapter 91, “SAS/SECURE,”](#) on page 361.

These products shipped a maintenance release:

- SAS BI Dashboard 4.4M2. For more information, see [Chapter 16, “SAS BI Dashboard,”](#) on page 125.
- SAS Information Delivery Portal 4.4M2. For more information, see [Chapter 61, “SAS Information Delivery Portal,”](#) on page 265.
- SAS Information Map Studio 4.4M2. For more information, see [Chapter 64, “SAS Information Map Studio,”](#) on page 275.
- SAS Web Report Studio 4.4M2. For more information, see [Chapter 103, “SAS Web Report Studio,”](#) on page 415.

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## **June 2014 (SAS 9.4, Rev. 940\_14w23)**

These products shipped a new release:

- SAS Fraud Management 4.1. For more information, see [Chapter 54, “SAS Fraud Management,”](#) on page 243.
- SAS OpRisk VaR 6.1. For more information, see [Chapter 83, “SAS OpRisk VaR,”](#) on page 339.

SAS High-Performance Risk 3.1M1 is available. For more information, see [Chapter 59, “SAS High-Performance Risk,”](#) on page 259.

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## **May 2014 (SAS 9.4, Rev. 940\_14w19)**

These products shipped a new release:

- DataFlux Authentication Server 4.1 and DataFlux Secure 2.5. For more information, see [Chapter 29, “SAS and DataFlux,”](#) on page 167.
- SAS Customer Intelligence 6.3, which includes these products:
  - SAS Digital Marketing 6.3
  - SAS Marketing Automation 6.3
  - SAS Marketing Optimization 6.3
  - SAS Real-Time Decision Manager 6.3

For more information, see [Chapter 27, “SAS Customer Intelligence,”](#) on page 159.

- SAS Decision Services 6.3 is a new release. For more information, see [Chapter 36, “SAS Decision Services,”](#) on page 193.
- SAS Federation Server 4.1. For more information, see [Chapter 29, “SAS and DataFlux,”](#) on page 167.

SAS Studio 3.1M1 is now available. For more information, see [Chapter 96, “SAS Studio,”](#) on page 377.

The documentation is enhanced to include this information:

- Several SAS Data Surveyor products are no longer supported. For more information, see [“Deprecated Functionality in SAS 9.4”](#) on page 27.
- The Deployment and Backup Recovery tool enables you to specify a central, network-accessible vault location. For more information, see [“Deployment Backup”](#) on page 290.

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## April 2014 (SAS 9.4, Rev. 940\_14w14)

These products shipped a new release:

- SAS Anti-Money Laundering 6.2. For more information, see [Chapter 15, “SAS Anti-Money Laundering,”](#) on page 123.
- SAS Data Quality Accelerator 2.5 for Teradata. For more information, see [Chapter 32, “SAS Data Quality Accelerator for Teradata,”](#) on page 183.

These products shipped a maintenance release:

- SAS Data Remediation 2.1M1. For more information, see [Chapter 34, “SAS Data Remediation,”](#) on page 187.
- SAS MDM 4.1M1. For more information, see [Chapter 77, “SAS MDM \(Master Data Management\),”](#) on page 321.
- SAS Task Manager 2.1M1. For more information, see [Chapter 97, “SAS Task Manager,”](#) on page 383.

Documentation enhancements include the addition of a DataFlux Data Management Server 2.5 topic. For more information, see [“DataFlux Data Management Server 2.5”](#) on page 171.

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## March 2014 (SAS 9.4, Rev. 940\_14w11)

SAS Studio 3.1 is a new product. For more information, see [Chapter 96, “SAS Studio,”](#) on page 377.

SAS Visual Analytics 6.4 is a new product release. For more information, see [Chapter 99, “SAS Visual Analytics,”](#) on page 389.

Here are the documentation updates for this release:

- In SAS 9.4, the SAS Data Management Standard 2.41 offering replaces the SAS Enterprise Data Integration Server offering. For more information, see [“Migrating SAS Enterprise Data Integration Server to SAS 9.4”](#) on page 169.
- When you order SAS Enterprise Miner 13.1, you also conditionally license SAS/IML, which is required for some functionality in SAS Enterprise Miner. For more information, see [“SAS Enterprise Miner 13.1 and Later Releases”](#) on page 217.
- An exception for clustering of the middle-tier servers was added to the content for the SAS Intelligence Platform. For more information, see [“Exceptions to the Middle-Tier Clustering Support”](#) on page 287.

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## **December 2013 (SAS 9.4, Rev. 940\_13w51)**

These products shipped a new release.

- SAS Data Integration Studio 4.7M1 and 4.8. For more information, see [Chapter 30, “SAS Data Integration Studio,”](#) on page 177.
- SAS Document Conversion Server 13.1. For more information, see [Chapter 38, “SAS Document Conversion Server,”](#) on page 197.
- SAS Enterprise Miner 13.1. For more information, see [Chapter 43, “SAS Enterprise Miner,”](#) on page 215.
- SAS Environment Manager 2.1 (SAS 9.4M1). For more information, see [Chapter 44, “SAS Environment Manager,”](#) on page 219.
- SAS/ETS 13.1. For more information, see [Chapter 46, “SAS/ETS,”](#) on page 227.
- SAS Financial Management 5.4. For more information, see [Chapter 48, “SAS Financial Management,”](#) on page 231.
- SAS Forecast Server 13.1. For more information, see [Chapter 53, “SAS Forecast Server,”](#) on page 241.
- SAS High-Performance Risk 3.2. For more information, see [Chapter 59, “SAS High-Performance Risk,”](#) on page 259.
- SAS/IML 13.1. For more information, see [Chapter 60, “SAS/IML,”](#) on page 261.
- SAS IT Resource Management 3.4. For more information, see [Chapter 70, “SAS IT Resource Management,”](#) on page 301.
- SAS/OR 13.1. [Chapter 84, “SAS/OR,”](#) on page 341.
- SAS/QC 13.1. [Chapter 85, “SAS/QC,”](#) on page 345.
- SAS/STAT 13.1. [Chapter 94, “SAS/STAT,”](#) on page 369.
- SAS Text Miner 13.1. For more information, see [Chapter 97, “SAS Task Manager,”](#) on page 383.
- SAS Visual Analytics 6.3. For more information, see [Chapter 99, “SAS Visual Analytics,”](#) on page 389.
- SAS Web Parts 6.11 for Microsoft SharePoint. For more information, see [Chapter 102, “SAS Web Parts for Microsoft SharePoint,”](#) on page 411.

These products are updated as part of SAS 9.4M1.

- [Chapter 13, “SAS/ACCESS,”](#) on page 109

- [Chapter 21, “SAS/CONNECT,”](#) on page 141
- [Chapter 56, “SAS/GRAPH,”](#) on page 247
- [Chapter 63, “SAS In-Database Technologies,”](#) on page 271
- [Chapter 66, “SAS Integration Technologies,”](#) on page 281
- [Chapter 67, “SAS Intelligence Platform,”](#) on page 285
- [Chapter 82, “SAS OLAP Server,”](#) on page 337

These products also shipped a maintenance release.

- SAS Add-In for Microsoft Office 6.1M1 is now available. For more information, see [Chapter 14, “SAS Add-In for Microsoft Office,”](#) on page 117.
- SAS Enterprise Guide 6.1M1 is now available. For more information, see [Chapter 42, “SAS Enterprise Guide,”](#) on page 209.

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## November 2013 (SAS 9.4, Rev. 940\_13w45)

A chapter was added for the new release of SAS Anti-Money Laundering 6.1. For more information, see [Chapter 15, “SAS Anti-Money Laundering,”](#) on page 123.

The DataFlux chapter has been updated to reflect that SAS has now fully integrated the DataFlux suite of data quality, data integration, data governance, and master data management solutions. For more information, see [Chapter 29, “SAS and DataFlux,”](#) on page 167.

In addition, the documentation was enhanced in these ways:

- a new chapter that explains how to undeploy SAS web applications. For more information, see [Chapter 8, “Undeploying SAS Web Applications,”](#) on page 45.
- a new chapter for the SAS High-Performance Analytics Infrastructure. For more information, see [Chapter 58, “SAS High-Performance Analytics Infrastructure,”](#) on page 255.



## **Part 1**

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# Introduction to Updating SAS Software at Your Site

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## Chapter 1

# Understanding the Process for Software Updates

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## Common Terminology for Software Updates

These terms are used throughout this document and are defined here so that you can understand how these terms are used in conjunction with SAS products.

*Software update* is a general term for any modification that is provided by the vendor for existing software.

- *Upgrades*, also known as “new releases,” introduce new functionality and have a new release number.
- *Maintenance releases* are applied to the installed software at your site. A maintenance release is a collection of updates to SAS products or components that corrects customer-reported issues and adapts a product to a changed environment. A maintenance release can also include new software functionality.

Maintenance releases are cumulative. For example, the third maintenance release (M3) contains all of the new features and enhancements for the first (M1), second (M2), and third (M3) maintenance releases. If you choose not to install a maintenance release, you automatically receive all of the content in that maintenance release when you next upgrade your version of SAS or SAS product. For example, if you decide not to install the second maintenance release, when you install the third maintenance release or a SAS product that runs on the third maintenance release, you get the software updates from the second and third maintenance releases.

There are two types of maintenance releases:

- *SAS maintenance release* is a maintenance release for SAS Foundation. This type of maintenance release includes software changes for multiple SAS products, such as Base SAS and SAS/GRAPH.
- *product-specific maintenance release* is a maintenance release for a specific product, such as the first maintenance release for SAS Forecast Server (or SAS Forecast Server 14.1M1). This type of maintenance release includes software changes for a single SAS product.
- *Hot fixes* are as-needed updates that are generally included in each maintenance release, but hot fixes can also be made available after the maintenance release has shipped. To verify that you have the latest hot fixes for the products at your site, see [Technical Support Hot Fixes](#).
- *SAS Security Updates* are updates (hot fixes, SAS Security Updates download pages, and in some cases SAS releases) for releases of SAS that are under Standard Support. SAS Security Updates are included in each maintenance release. SAS Security Updates are also made available on a regular (quarterly) basis. See the latest bulletins and updates at [SAS Product Security](#). Locate the entry for your SAS release.

---

## Policy Statement for Maintenance Releases and Product Releases

SAS has the following policy for maintenance releases and product releases:

- When you install a software update, you receive the maintenance release or product release that was available when you placed your order. If a new maintenance release or product release is available, you need to place a new order to get those software updates.
- SAS creates custom maintenance packages based on the software that is licensed at your site. You do not select the products to update.
- Because of the dependencies between SAS products, you cannot perform these tasks:
  - You cannot partially install a maintenance release or update a single product. The SAS deployment tools determine which SAS products to update. You must upgrade all of the SAS software in a specific deployment whether that deployment is on one machine or multiple machines.
  - You cannot uninstall a maintenance release.
- Maintenance releases are cumulative. For example, the third maintenance release contains all of the new features and enhancements from the first, second, and third maintenance releases.
- Maintenance releases update the SAS software that is currently deployed at your site.
- Before installing a maintenance release, back up your current SAS deployment.

*Note:* In general, SAS maintenance releases do not include any updates to JMP products. For more information, see [JMP Software Updates](#). Beginning with SAS 9.3, the JMP Clinical, JMP Genomics, and SAS Visual Data Discovery (for the desktop) products are installed and maintained with SAS installers. These products no longer use a separate JMP installer.

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## The General Process for Software Updates

Whether you are upgrading to a new product release, applying a SAS (Foundation) maintenance release, or applying a product-specific maintenance release, the general process for updating the software at your site is the same.

### ***Step 1: Learn about the Availability of a New Release***

Learn about the availability of new product releases or maintenance releases from your SAS account representative, from the SAS website, or from this document.

### ***Step 2: Run the SAS System Evaluation Tool***

Run the SAS 9 System Evaluation tool that is available from SAS 9 Content Assessment. This tool analyzes your SAS 9 system configuration for possible issues that could adversely affect upgrading from one SAS 9 release to another SAS 9 release. The SAS 9 System Evaluation tool also lists any retired products and identifies whether the latest SAS Security Update is installed.

For more information, see [Chapter 5, “SAS Content Assessment,”](#) on page 31.

### ***Step 3: Run a Deployment Registry Report***

Run a deployment registry report to determine what products you currently have installed at your site. For more information, see [“How to Run the Deployment Registry Report”](#) on page 11.

### ***Step 4: Assess the Impact of Upgrading the Software at Your Site***

After running the deployment registry report, you know the release numbers for the products at your site. Compare these release numbers to the release numbers of the products in this document. A difference in release numbers helps you identify what products at your site have updates.

By reviewing the product-specific information in this document, you can determine how upgrading your software could affect your site. For example, you learn about any new features that are available and how those features might affect your existing SAS content. You also learn any post-configuration steps that you need to complete before you start using the product.

### ***Step 5: Request a New Product Release or Maintenance Release***

Contact your SAS account representative to request a new product release or maintenance release. To request a maintenance release, the SAS Installation Representative at your site can also use the self-service application that is available from the [Maintenance Release Announcement](#).

### **Step 6: Review Your Software Order**

After you request a maintenance release, a product upgrade, or a new SAS product, you receive a Software Order Email (SOE), which lists the product bundle that you ordered and the software revision number (for example, SAS 9.4, Rev. 940\_20w39).

After you download your order to an existing SAS Software Depot, you can use the SAS Order Information (SOI) file to determine what software was in your order and when the order was placed. The SOI is in your SAS Software Depot at `install_doc/order-number/soi.html`.

In the Software Order Email and SAS Order Information file, any new products are indicated by an asterisk.

### **Step 7: Prepare Your Site for the Software Updates**

These preparations include downloading the order to a SAS 9.4 Software Depot, creating backups, determining how long the upgrade takes, and notifying users about the scheduled update. You also perform any pre-installation steps for the products at your site. You determined these pre-installation steps when you assessed the impact of the software update at your site.

Starting in SAS 9.4 M7 (August 2020), SAS Software Depots should contain orders only from the same maintenance release. For example, you should have separate depots for 9.4M6 and 9.4M7. For more information, see [“Creating SAS Software Depots” in SAS Intelligence Platform: Installation and Configuration Guide](#).

### **Step 8: Install and Configure Any Software Updates**

When you run the SAS Deployment Wizard, SAS automatically detects any files on your system that are older than the files in your order. If there are software updates to be installed for products already in your deployment, the SAS Deployment Wizard goes into Update mode. If no software updates need to be installed, the SAS Deployment Wizard does not go into Update mode, and you can exit the SAS Deployment Wizard.

An updated software order might include new licensed products or new components that are part of the maintenance release. Adding these products or components requires that you run the SAS Deployment Wizard a second time. For more information, see [“Adding a New Product” on page 61](#).

### **Step 9: Complete Any Post-Configuration Steps for the Products at Your Site**

After you install a maintenance release or upgrade to a new product release, you could see an UpdateInstructions.html file. This file contains configuration steps that you must manually complete. The latest version of the UpdateInstructions.html file is available from the `SAS-configuration-directory/Levn/Documents` directory.

You determine these post-configuration steps when you assess the impact of the software update at your site. To determine the post-configuration steps, see the “Product Details and Requirements” section.

## Part 2

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# Planning for a Software Update

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## Chapter 2

# Determining the Product Release Numbers for Products at Your Site

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## Understanding Product Release Numbers

### *Understanding Technical Support Numbers*

Each release of SAS has a unique Technical Support level (TSLEVEL). The format of a Technical Support level is **TSxMy**. For example, the Technical Support level for SAS 9.4 is TS1M0. In documentation or on SAS websites, you might see SAS 9.4 (TS1M0). After you apply SAS 9.4M1, the Technical Support level is TS1M1.

To determine the Technical Support level for the SAS release that you are running at your site:

1. Start SAS.
  - On Windows, double-click the **sas.exe** file in your SAS installation directory. An example of the SAS installation directory is **C:\Program Files\SASHome\SASFoundation\9.4**. You can also start SAS from the **Start** menu. For example, select **Start** ⇒ **Programs** ⇒ **SAS** ⇒ **SAS 9.4 (English)**.
  - On UNIX, enter **./sas -nodms** at a command prompt. To exit, type **endsas;**.
  - On z/OS, enter **sas o(nodms)**. To exit, type **endsas;**. You can also invoke SAS in a batch job. Look for the Technical Support level in the SASLOG DD output stream.
2. In Windows and UNIX environments, review the information at the top of the log when SAS starts.

```
Log - (Untitled)
NOTE: Copyright (c) 2002-2012 by SAS Institute Inc., Cary, NC, USA.
NOTE: SAS (r) Proprietary Software 9.4 (TS1M0)
```

To view this information in the SAS Display Manager, select **Help** ⇒ **About SAS 9**.

*Note:* If you are working in a z/OS environment, look for the 9.4 (TS1Mx) string in the output.

### **Product-Specific Release Numbers for Other SAS Products**

SAS products use product-specific release numbers. To determine what products are running at your site, generate a deployment registry report. For more information, see [“How to Run the Deployment Registry Report” on page 11](#).

The following table shows examples of some product release numbers for products that shipped in SAS 9.4:

<b>Product Name</b>	<b>Release Number</b>
Base SAS	9.4
SAS Add-In for Microsoft Office	7.1
SAS Enterprise Miner	14.1
SAS Management Console	9.4
SAS Visual Analytics	7.3

### **Understanding Maintenance Release Numbers**

After you install a maintenance release, the product release number for updated products changes to include maintenance-specific identification, such as M1. This maintenance number is incremented by one for each maintenance release of that product. However, a maintenance release (such as SAS 9.4M1) might not contain updates for all SAS products. Therefore, maintenance numbers can differ across SAS products. To determine the maintenance numbers for products at your site, generate a deployment registry report. For more information, see [“How to Run the Deployment Registry Report” on page 11](#).

<b>Product Name</b>	<b>Release Number</b>
Base SAS	9.4M1
SAS Add-In for Microsoft Office	6.1M1
SAS Enterprise Guide	6.1M1
SAS/GRAPH	9.4M1

As this table shows, all products currently have a maintenance release number of M1.

Suppose Base SAS shipped a second maintenance release. Then the maintenance release number for Base SAS would be M2. Then, the maintenance release numbers are different because there have been two maintenance releases for Base SAS.



If the other products in the table are not updated in SAS 9.4M2, their maintenance release number stays M1.

For more information about product numbers, see [SAS Provides New Product-Specific Release Numbers](#).

---

## How to Run the Deployment Registry Report

Before upgrading your SAS products, you need the product release numbers for all SAS products at your site. To determine these product release numbers for each machine in your SAS deployment, generate a deployment registry report and save it for future reference. For more information about how to generate this report, see SAS Note 35968 at <http://support.sas.com/kb/35/968.html>.

*Note:* If you did not generate a deployment registry report before you upgraded the software at your site, you can determine your product release number for each SAS product at your site by reviewing the Deployment Summary that is generated by the SAS Deployment Wizard (when you upgrade your software).

---

## Understanding the Contents of the Deployment Registry Report

The deployment registry report lists all of the SAS 9.4 products that are installed in the same SAS installation directory (**SAS Home**).

*Note:* The deployment registry report lists all of the installed products. However, these products might not be configured at your site.

For example, if your deployment includes an installation of SAS Visual Analytics Designer, the deployment registry report could include the following entry:

```
Host: lax
Product Code: bidesignmid
Version: 7.2
Display Name: SAS Visual Analytics Designer
Display Version: 7.2
```

The **Display Version** field shows that SAS Visual Analytics Designer 7.2 is installed at your site.



## Chapter 3

# Reviewing Current and Future Software Updates

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## The Importance of Understanding Current and Future Software Updates

Before installing a software update, you might want to know about future product updates or plans to deprecate functionality. Learning this information early in your planning process enables you to determine the following information:

- when to place your software order. For example, suppose you are running SAS Enterprise Guide and SAS Enterprise Miner at your site. A new release of SAS Enterprise Guide might be available in June, but the new release of SAS Enterprise Miner is not available until August. To minimize your downtime and go through the installation process only once, you decide to place your order in August when you can get both new products.

For help with determining when to place a software order, contact your SAS account representative.

- how plans to deprecate functionality could affect your site. For more information, see [“Deprecated Functionality in SAS 9.4”](#) on page 27.
- 

## Current Product Releases

### *Product Releases by Release Date*

Use this table to determine when a product release initially shipped. For a list of the products in your order, see the `install_doc/order-number/ordersummary.html` file in your SAS Software Depot. If you are installing SAS from

a set of DVDs, the ordersummary.html file is available on SAS Software Disc 1 in the `install_doc\order-number` directory.

You can also use the Software Order E-mail or Software Order Information to determine the revision number for the software in your order.

*Note:* The table is not a comprehensive list of all the products that shipped at a specific time. For more information about a specific product, contact your SAS account representative.

Release Date (Revision Number)	Products
July 2013 (SAS 9.4, Rev. 940_13w26)	Base SAS 9.4 DataFlux Authentication Server 3.2 SAS/ACCESS 9.4 Interface to Aster SAS/ACCESS 9.4 Interface to DB2 SAS/ACCESS 9.4 Interface to Greenplum SAS/ACCESS 9.4 Interface to Hadoop SAS/ACCESS 9.4 Interface to Netezza SAS/ACCESS 9.4 Interface to Oracle SAS/ACCESS 9.4 Interface to PC Files SAS/ACCESS 9.4 Interface to Postgres SAS/ACCESS 9.4 Interface to Teradata SAS/ACCESS 9.4 Interface to Vertica SAS Add-In 6.1 for Microsoft Office SAS/AF 9.4 SAS AppDev Studio 4.4 SAS/ASSIST 9.4 SAS/CONNECT 9.4 SAS Data Integration Studio 4.7 SAS Data Surveyor for SAP SAS 9.4 Data Quality Server SAS Enterprise Guide 6.1 SAS Environment Manager 2.1 SAS Enterprise Miner 12.3 SAS Federation Server 3.2 SAS Forecast Server 12.3 SAS Forecasting for Desktop 12.3 SAS/GIS 9.4

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Release Date (Revision Number)	Products
July 2013 (SAS 9.4, Rev. 940_13w26) (cont.)	SAS/GRAPH 9.4 SAS Grid Manager 9.4 SAS High-Performance Computing Management Console 2.1 SAS High-Performance Risk 3.1 SAS/IML 12.3 SAS 9.4 In-Database Code Accelerator for Teradata and Greenplum SAS Information Map Studio 4.4 SAS 9.4 Integration Technologies SAS/IntrNet 9.4 SAS Inventory Optimization 2.3 SAS LASR Analytic Server 2.1 SAS Management Console 9.4 SAS Model Manager 12.3 SAS 9.4 OLAP Server SAS/QC 12.3 SAS Risk Dimensions 6.1 SAS Scalable Performance Data Server 4.8 SAS Scoring Accelerator for Netezza and Oracle SAS/SECURE 9.4 SAS Text Miner 12.3 SAS Theme Designer 4.1 for Flex SAS Visual Analytics 6.2 SAS Web Parts 6.1 for Microsoft SharePoint SAS Web Report Studio 4.4
July 2013 (SAS 9.4, Rev. 940_13w30)	SAS Decision Manager 2.1 SAS 9.4 In-Database Products
September 2013 (SAS 9.4, Rev. 940_13w36)	SAS Data Quality Accelerator for Teradata 2.4

<b>Release Date (Revision Number)</b>	<b>Products</b>
October 2013 (SAS 9.4, Rev. 940_13w40)	DataFlux Authentication Server 3.2 DataFlux Data Management Server 2.5 DataFlux Data Management Studio 2.5 DataFlux Secure 2.5 SAS Contextual Analysis 12.3 SAS Data Management Console SAS Data Quality Accelerator for Teradata 2.4 SAS Data Remediation 2.1 SAS Job Monitor 2.1 SAS MDM 4.1 SAS Visual Process Orchestration 2.1
November 2013 (SAS 9.4, Rev. 940_13w45)	SAS Anti-Money Laundering 6.1 SAS Customer Due Diligence 6.1 SAS Peer Group Analysis 6.1 SAS Quality Knowledge Base for Contact Information 22

Release Date (Revision Number)	Products
December 2013 (SAS 9.4, Rev. 940_13w51)	<ul style="list-style-type: none"> <li>Base SAS 9.4M1</li> <li>SAS/ACCESS 9.4M1 Interface to PC Files</li> <li>SAS Add-In 6.1M1 for Microsoft Office</li> <li>SAS/CONNECT 9.4M1</li> <li>SAS Data Integration Studio 4.8</li> <li>SAS Enterprise Guide 6.1M1</li> <li>SAS Enterprise Miner 13.1</li> <li>SAS/ETS 13.1</li> <li>SAS Financial Management 5.4</li> <li>SAS Forecast Server 13.1</li> <li>SAS High-Performance Computing Management Console 2.4</li> <li>SAS High-Performance Risk 3.2</li> <li>SAS/IML 13.1</li> <li>SAS 9.4 In-Database Products</li> <li>SAS 9.4M1 Integration Technologies</li> <li>SAS 9.4M1 Intelligence Platform</li> <li>SAS LASR Analytic Server 2.2</li> <li>SAS 9.4M1 OLAP Server</li> <li>SAS/OR 13.1</li> <li>SAS/QC 13.1</li> <li>SAS/STAT 13.1</li> <li>SAS Theme Designer 4.2 for Flex</li> <li>SAS Text Miner 13.1</li> <li>SAS Visual Analytics 6.3</li> <li>SAS Web Parts 6.11 for Microsoft SharePoint</li> </ul>
March 2014 (SAS 9.4, Rev. 940_14w11)	<ul style="list-style-type: none"> <li>SAS Strategy Management 5.6</li> <li>SAS Studio 3.1</li> <li>SAS Visual Analytics 6.4</li> </ul>
April 2014 (SAS 9.4, Rev. 940_14w14)	<ul style="list-style-type: none"> <li>SAS Anti-Money Laundering 6.2</li> <li>SAS Data Quality Accelerator 2.5 for Teradata</li> <li>SAS Data Remediation 2.1M1</li> <li>SAS MDM 4.1M1</li> <li>SAS Task Manager 2.1M1</li> </ul>

Release Date (Revision Number)	Products
May 2014 (SAS 9.4, Rev. 940_14w19)	SAS Customer Intelligence 6.3 SAS Decision Services 6.3 SAS Digital Marketing 6.3 SAS Marketing Automation 6.3 SAS Marketing Optimization 6.3 SAS Real-Time Decision Manager 6.3
June 2014 (SAS 9.4, Rev. 940_14w23)	SAS Fraud Management 4.1 SAS High-Performance Risk SAS Quality Knowledge Base for Contact Information 23
August 2014 (SAS 9.4, Rev. 940_14w32)	Base SAS 9.4M2 SAS/ACCESS 9.4M2 Interface to Hadoop SAS/ACCESS 9.4M2 Interface to Oracle SAS/ACCESS 9.4M2 Interface to PC Files SAS BI Dashboard 4.4M2 SAS/CONNECT 9.4M2 SAS Data Integration Studio 4.9 SAS Enterprise Miner 13.2 SAS Environment Manager 2.3 SAS/ETS 13.2 SAS Forecast Server 13.2 SAS/IML 13.2 SAS 9.4M2 In-Database Technologies SAS Information Delivery Portal 4.4M2 SAS Information Map Studio 4.4M2 SAS/InterNet 9.4M2 SAS 9.4M2 Integration Technologies SAS 9.4M2 Intelligence Platform SAS Management Console 9.4M2 SAS Model Manager 13.1 SAS 9.4M2 OLAP Server SAS/OR 13.2 SAS/QC 13.2 SAS/SECURE 9.4M2 SAS/STAT 13.2 SAS Studio 3.2 SAS Text Miner 13.2 SAS Web Report Studio 4.4M2



<b>Release Date (Revision Number)</b>	<b>Products</b>
September 2014 (SAS 9.4, Rev. 940_14w36)	SAS IT Resource Management 3.5
October 2014 (SAS 9.4, Rev. 940_14w41)	SAS Add-In 7.1 for Microsoft Office SAS Enterprise GRC 6.1 SAS Enterprise Guide 7.1 SAS Environment Manager 2.4 SAS Visual Analytics 7.1 SAS Web Parts 6.12 for Microsoft SharePoint
November 2014 (SAS 9.4, Rev. 940_14w47)	DataFlux Data Management Studio 2.6 DataFlux Web Studio 2.5 SAS Business Data Network 3.1 SAS High-Performance Risk 3.3 SAS Lineage 3.1
January 2015 (SAS 9.4, Rev. 940_15w04)	SAS Anti-Money Laundering 6.3 SAS Customer Due Diligence 6.3 SAS Enterprise Case Management 6.3 SAS Financial Management 5.5 SAS Social Network Analysis Server 6.1 SAS Visual Scenario Designer 6.3
February 2015 (SAS, Rev. 940_15w08)	SAS Asset Performance Analytics 6.1 SAS Customer Link Analytics 5.6 SAS Episode Analytics 2.2 SAS Studio 3.3
March 2015 (SAS 9.4, Rev. 940_15w12)	SAS Customer Intelligence 6.4 SAS Data Remediation 2.2 SAS Digital Marketing 6.4 SAS Marketing Automation 6.4 SAS Marketing Optimization 6.4 SAS MDM 4.2 SAS Real-Time Decision Manager 6.4 SAS Task Manager 2.2 SAS Visual Process Orchestration 2.2

Release Date (Revision Number)	Products
May 2015 (SAS 9.4, Rev. 940_15w20)	SAS Add-In 7.11 for Microsoft Office SAS Credit Scoring for Banking 5.4 SAS Enterprise Guide 7.11 SAS Event Stream Processing 3.1 SAS Forecast Analyst Workbench 5.2M2 SAS Fraud Management 4.2 SAS High-Performance Risk 3.4 SAS Inventory Optimization 5.2M2 SAS IT Resource Management 3.6 SAS Marketing Operations Management 6.4 SAS OpRisk VaR 6.1 SAS Risk Dimensions 6.4
July 2015 (SAS 9.4, Rev. 940_15w29)	SAS/ACCESS software 9.4M3 SAS Business Rules Manager 3.1 SAS/CONNECT 9.4M3 SAS Contextual Analysis 14.1 SAS Data Integration Studio 4.901 SAS Data Quality Server 9.4M3 SAS Decision Manager 3.1 SAS Enterprise Miner 14.1 SAS Environment Manager 2.5 SAS/ETS 14.1 SAS Forecast Server 14.1 SAS/GRAPH 9.4M3 SAS Grid Manager 9.4M3 SAS/IML 14.1 SAS In-Database Technologies 9.4M3 SAS Integration Technologies 9.4M3 SAS Intelligence Platform 9.4M3 SAS/IntrNet 9.4M3 SAS Management Console 9.4M3 SAS Model Manager 14.1 SAS/OR 14.1 SAS/QC 14.1 SAS/STAT 14.1 SAS Studio 3.4 SAS Text Miner 14.1
August 2015 (SAS 9.4, Rev. 940_15w33)	SAS Merchandise Intelligence 5.4 SAS Visual Analytics 7.3

Release Date (Revision Number)	Products
October 2015 (SAS 9.4, Rev. 940_15w42)	SAS Anti-Money Laundering 6.3M1 SAS Customer Due Diligence 6.3M1 SAS Enterprise Case Management 6.3M1 SAS High-Performance Risk 3.5 SAS Infrastructure for Risk Management 3.1 SAS Risk Dimensions 6.5 SAS Social Network Analysis Server 6.2M2
November 2015 (SAS 9.4, Rev. 940_15w47)	SAS Contextual Analysis 14.1M1 SAS Event Stream Processing 3.2 SAS Fraud Management 4.2M1
January 2016 (SAS 9.4, Rev. 940_16w04)	DataFlux Authentication Server 4.1 DataFlux Data Management Server 2.7 DataFlux Secure 2.7 SAS Anti-Money Laundering 6.3 SAS Customer Due Diligence 6.3
February 2016 (SAS 9.4, Rev. 940_16w08)	SAS Add-In 7.12 for Microsoft Office SAS Enterprise Guide 7.12 SAS Episode Analytics 3.1 SAS IT Resource Management 3.7 SAS Studio 3.5
March 2016 (SAS 9.4, Rev. 940_16w13)	SAS Micro Analytic Services 1.3
April 2016 (SAS 9.4, Rev. 940_16w17)	SAS Firmwide Risk for Solvency II 3.2 SAS High-Performance Risk 3.6 SAS Risk Dimensions 6.6
May 2016 (SAS 9.4, Rev. 940_16w22)	SAS Forecast Analyst Workbench 5.3 SAS Fraud Management 4.3 SAS Inventory Optimization Workbench 5.3
June 2016 (SAS 9.4, Rev. 940_16w26)	SAS Customer Intelligence 6.5 SAS Customer Link Analytics 6.5 SAS Decision Services 6.5 SAS Digital Marketing 6.5 SAS Marketing Automation 6.5 SAS Marketing Optimization 6.5 SAS Real-Time Decision Manager 6.5 SAS Social Network Analysis Server 6.2M3

Release Date (Revision Number)	Products
July 2016 (SAS 9.4, Rev. 940_16w30)	SAS Anti-Money Laundering 7.1 SAS Model Risk Management 7.1 SAS Risk Management for Banking 3.4
August 2016 (SAS 9.4, Rev. 940_16w33)	SAS Event Stream Processing 4.1
November 2016 (SAS 9.4, Rev. 940_16w48)	Base SAS 9.4M4 SAS/ACCESS software 9.4M4 SAS Add-In 7.13 for Microsoft Office SAS Business Rules Manager 3.2 SAS/CONNECT 9.4M4 SAS Contextual Analysis 14.2 SAS In-Database Technologies 9.4M4 SAS Data Integration Studio 4.902 SAS Data Loader 3.1 for Hadoop SAS Data Quality Accelerator 9.4 for Teradata SAS Data Quality Server 9.4M4 SAS Decision Manager 3.2 SAS Enterprise Guide 7.13

Release Date (Revision Number)	Products
November 2016 (SAS 9.4, Rev. 940_16w48) (cont.)	SAS Enterprise Miner 14.2 SAS Environment Manager 2.5M1 SAS/ETS 14.2 SAS Factory Miner 14.2 SAS Firmwide Risk for Solvency II 3.3 SAS Forecast Server 14.2 SAS/GRAPH 9.4M4 SAS Grid Manager 9.4M4 SAS High-Performance Risk 3.7 SAS/IML 14.2 SAS Integration Technologies 9.4M4 SAS Intelligence Platform 9.4M4 SAS/IntrNet 9.4M4 SAS Management Console SAS Model Manager 14.2 SAS Model Risk Management 7.2 SAS/OR 14.2 SAS/QC 14.2 SAS Risk Dimensions 6.7 SAS/STAT 14.2 SAS Studio 3.6 SAS Text Miner 14.2
February 2017 (SAS 9.4, Rev. 940_17w08)	SAS IT Resource Management 3.8
April 2017 (SAS 9.4, Rev. 940_17w16)	SAS Add-In for Microsoft Office 7.14 SAS Business Data Network 3.2 SAS Cost and Profitability Management 8.1M6 SAS Data Remediation 2.3 SAS Energy Forecasting 3.2M1 SAS Forecast Analyst Workbench 5.3M1 SAS Inventory Optimization Workbench 5.3M1 SAS Lineage 3.2 SAS MDM 4.3 SAS Visual Analytics 7.4
May 2017 (SAS 9.4, Rev. 940_17w21)	SAS Event Stream Processing 4.3 SAS Infrastructure for Risk Management 3.3

Release Date (Revision Number)	Products
June 2017 (SAS 9.4, Rev. 940_17w25)	SAS High-Performance Risk 3.8 SAS Model Implementation 2.4 SAS Risk Dimensions 6.8
July 2017 (SAS 9.4, Rev. 940_17w29)	SAS Merchandise Intelligence 5.41 SAS Pack Optimization 3.41 SAS Revenue Optimization 5.4 SAS Size Optimization 3.41 SAS Quality Analytics Suite 6.2M1
September 2017 (SAS 9.4, Rev. 940_17w38)	Base SAS 9.4M5 SAS/ACCESS 9.4M5 SAS Add-In 7.15 for Microsoft Office SAS/CONNECT 9.4M5 SAS Contextual Analysis 14.3 SAS Cost and Profitability Management 8.1M7 SAS Data Integration Studio 4.903 SAS Enterprise Guide 7.15 SAS Enterprise Miner 14.3 SAS/ETS 14.3 SAS Forecast Server 14.3 SAS/GRAPH 9.4M5 SAS High-Performance Analytics Infrastructure 3.7 SAS High-Performance Risk 3.9 SAS/IML 14.3 SAS Infrastructure for Risk Management 3.4 SAS/IntrNet 9.4M5 SAS 9.4M5 Integration Technologies SAS 9.4M5 In-Database Products SAS 9.4M5 OLAP Server SAS/OR 14.3 SAS/QC 14.3 SAS Risk Dimensions 6.9 SAS Scalable Performance Server 5.4 SAS/STAT 14.3 SAS Studio 3.7 SAS Text Miner 14.3

Release Date (Revision Number)	Products
December 2017 (SAS 9.4, Rev. 940_17w47)	Base SAS SAS Event Stream Manager 5.1 SAS Event Stream Processing 5.1 SAS In-Database Technologies SAS Model Risk Management 7.3 SAS Risk and Finance Workbench 3.1 SAS Studio 3.71
February 2018 (SAS 9.4, Rev. 940_18w08)	SAS Energy Forecasting 4.1 SAS Visual Investigator 10.3.1
July 2018 (SAS 9.4, Rev. 940_18w30)	SAS Add-In 8 for Microsoft Office SAS Visual Investigator 10.4
November 2018 (SAS 9.4, Rev. 940_18w47)	Base SAS SAS/ACCESS 9.4M6 SAS BI Dashboard 4.4M6 SAS BI Portal 4.4M6 SAS Business Rules Mnaager 3.2M1 SAS Contextual Analysis 15.1 SAS Data Quality Accelerator for Teradata SAS Data Quality Server 9.4M6 SAS Decision Manager 3.2M1 SAS Enterprise Miner 15.1 SAS/ETS 15.1 SAS Forecast Server 15.1 SAS/GRAPH 9.4M6 SAS In-Database Technology 9.4M6 SAS Information Map Studio 4.4M6 SAS/IML 15.1 SAS Intelligence Platform 9.4M6 SAS Model Manager 14.2M1 SAS OLAP Server 9.4M6 SAS/OR 15.1 SAS/QC 15.1 SAS/STAT 15.1 SAS Studio 3.8 SAS Text Miner 15.1 SAS Visual Investigator 10.5 SAS Web Report Studio 4.4M6

Release Date (Revision Number)	Products
May 2019 (SAS 9.4, Rev. 940_19w21)	SAS Environment Manager 2.6 SAS Event Manager 6.1 SAS Event Stream Processing 6.1 SAS Visual Analytics 7.5
June 2019 (SAS 9.4, Rev. 940_19w25)	SAS Add-In 8.1 for Microsoft Office SAS Business Rules Manager 3.3 SAS Cost and Profitability Management 8.4 SAS Data Remediation 2.4 SAS Decision Manager 3.3 SAS Enterprise Guide 8.1 SAS Financial Management 5.6 SAS High-Performance Risk 4.2 SAS IT Resource Management 3.10 SAS Lineage 3.3 SAS Model Implementation Platform 3.2 SAS Model Manager 14.3 SAS Risk Dimensions 6.12 SAS Task Manager 2.4
November 2019 (SAS 9.4, Rev. 940_19w47)	SAS Add-In 8.2 for Microsoft Office SAS Enterprise Guide 8.2
May 2020 (SAS 9.4, Rev. 940_20w21)	SAS Customer Intelligence 6.6 SAS Marketing Automation 6.6 SAS Marketing Optimization 6.6 SAS Real-Time Decision Manager 6.6
August 2020 (SAS 9.4, Rev. 940_20w34)	SAS 9.4M7
January 2023 (SAS 9.4, Rev. 940_23w05)	SAS 9.4M8

### Learning More about Each Product Release

The *SAS Guide to Software Updates and Product Changes* book explains how software updates for SAS 9.4 can affect an existing SAS deployment. Use this documentation in conjunction with the following SAS websites and documents:

- The “Issues Addressed” website is compiled by SAS Technical Support and lists the specific problems that were fixed in SAS 9.4. Customers who want to review a summary of all the issues that were addressed in a SAS product can review this website.
- *What’s New in SAS 9.4* provides a high-level overview of the new features and enhancements to products that are available in SAS 9.4.



- SAS 9.4 product-specific documents, such as a product's Help or user's guide, provide detailed information about how to use the new features and enhancements.

To access these documents, see the [Maintenance Release Announcement for SAS 9.4](#).

---

## Deprecated Functionality in SAS 9.4

- Beginning with SAS 9.4, no third-party web application server is required. Web application servers (such as Oracle WebLogic, IBM WebSphere, and JBoss) are no longer supported. Instead, the SAS 9.4 middle-tier software includes SAS Web Application Server and SAS Web Server for use as an HTTP server.
- SAS Remote Services are not used by SAS 9.4. Although SAS Remote Services are still available to support custom applications, SAS Remote Services are not started by default.  
*Note:* Starting in SAS 9.4M8, SAS Remote Services are not supported.
- The embedded database is now SAS Web Infrastructure Platform Data Server. SAS Table Server from SAS 9.2 and SAS Framework Data Server from SAS 9.3 are no longer supported.
- Beginning with SAS 9.4, these SAS Data Surveyor products are no longer supported:
  - SAS Data Surveyor for Siebel
  - SAS Data Surveyor for Salesforce.com
  - SAS Data Surveyor for Oracle Applications
  - SAS Data Surveyor for Clickstream Data
- SAS/LAB and SAS/INSIGHT are not supported in SAS 9.4.
- Beginning with SAS 9.4M2, Teradata is no longer a supported database for the SAS Web Infrastructure Platform.



## Chapter 4

# Updating Operating Environments and Third-Party Software

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## Support for Operating Environments

To determine the level of support for each operating environment (for example, which editions of Linux are supported), see [Supported Operating Systems](#). These pages list any new support for operating environments as well as the operating environments that are no longer supported. If your operating environment is not supported, you cannot perform an upgrade-in-place.

Starting with SAS 9.4M8:

- HP-UX Itanium is no longer supported.
- The SAS Migration Utility for SAS 9.4M8 requires Java 11.

If the operating system of your pre- SAS 9.4M8 environment does not support Java 11 and you want to use the SAS Migration Utility to migrate to SAS 9.4M8, then you must first migrate your pre-SAS 9.4M8 to a machine running an operating system in the same family as the pre-SAS 9.4M8 system that supports Java11. This migration requires the use of the SAS Migration Utility that corresponds to the pre-SAS 9.4M8 system.

After doing this, you can then use the SAS 9.4M8 SAS Migration Utility to perform the migration to SAS 9.4M8.

Starting with SAS 9.4M7, the SAS Web Server cannot be configured on SUSE Linux Enterprise Server 11. For more information, see [Installation Note 66493: The SAS® Web Server is not supported on SUSE Linux 11 starting with SAS® 9.4M7](#).

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## Additional Support for Third-Party Software

When you initially installed your third-party software, these products met the minimum requirements that are documented on the [Third-Party Software Requirements for Use with SAS Software and Applications](#) website.

However, third-party vendors sometimes release updates to address defects and security issues. Before installing SAS 9.4, verify that your site is using the required versions of third-party software. SAS 9.4 delivers some software components that are based on commercially available third-party software. For example, SAS Web Application Server is based on Apache Tomcat. When you apply upgrades and patches, do not upgrade or patch any software components that are delivered with SAS. SAS maintains this third-party software, so you are always running the correct version.

SAS Security Updates are frequently delivered to update SAS third-party software components. See the latest bulletins and updates at [SAS Product Security](#). Locate the entry for your SAS release (for example, SAS Security Update for SAS 9.4M8 (TS1M8)).

SAS also delivers the Java 8 JRE software as part of a SAS 9.4 server deployment. This software is the baseline for SAS products that run on SAS 9.4. SAS also delivers updates for the JRE. These updates can be applied without updating other SAS software. For more information, see the SAS 9.4 section of [SAS Third-Party Software Requirements](#).

## Chapter 5

# SAS Content Assessment

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## Using the SAS®System Evaluation Tool in SAS 9 Content Assessment

SAS 9 Content Assessment is a collection of applications that is designed to examine characteristics of your SAS®9 system. Each application examines your SAS 9 system for relevant information, gathers key details, and produces results from each part of the assessment.

One of the applications in SAS 9 Content Assessment is the SAS 9 System Evaluation tool. This tool analyzes your SAS 9 system configuration for possible issues that could adversely affect upgrading from one release of SAS 9 to another SAS 9 release. The SAS 9 System Evaluation tool also lists any retired products and reports on whether the latest security updates are installed. See the latest bulletins and updates at [SAS Product Security](#). You should run this tool when preparing for a software update.

SAS 9 System Evaluation must be run by the Installer user or a user capable of reading all files in the specified configuration directory. The SAS 9 System Evaluation tool needs to be run on each configured tier of your deployment.

The documentation for SAS 9 Content Assessment is included as part of the application in the `doc` folder and contains all requirements and detailed instructions for using each application.

To get basic help for the SAS System Evaluation tool, use `systemEvaluation --help`.

---

## Installing SAS 9 Content Assessment

Determine the operating system of your SAS 9 installation. Download SAS 9 Content Assessment for that operating system at <https://support.sas.com/downloads/package.htm?pid=2465>. The SAS 9 Content Assessment download is self-contained and includes full documentation.



## Part 3

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# Preparing Your Site for a Software Update

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## Chapter 6

# Assessing the Effect on Products at Your Site

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## Review the List of Products at Your Site

Before you apply a software update to your site, review the list of products that will be updated on a machine. From the SAS Deployment Wizard, generate a list of the product updates that SAS will apply to the current machine. This list of product updates could vary for each machine at your site, so it is important that you generate this list on every machine that runs SAS 9.4.

*Note:* If no product updates are required for a machine, then you will not see a list of product updates, and your installation of the product upgrade or maintenance release is complete on that machine.

To view SAS products that will be updated on a machine:

1. From your SAS Software Depot, run the SAS Deployment Wizard using your new order.

*Note:* In a Windows environment, you must be an administrator to run the SAS Deployment Wizard, but you do not have to use the same user ID that you used to install SAS 9.4. In UNIX environments, you must use the same user ID that you used to install SAS 9.4. For both operating environments, the `SDW_YYYY-mm-dd-hh.mm.ss.log` file lists the ID for the current user.

From the highest-level directory in your SAS Software Depot, start the SAS Deployment Wizard by using the command for your operating environment.

**Table 6.1** How to Start the SAS Deployment Wizard

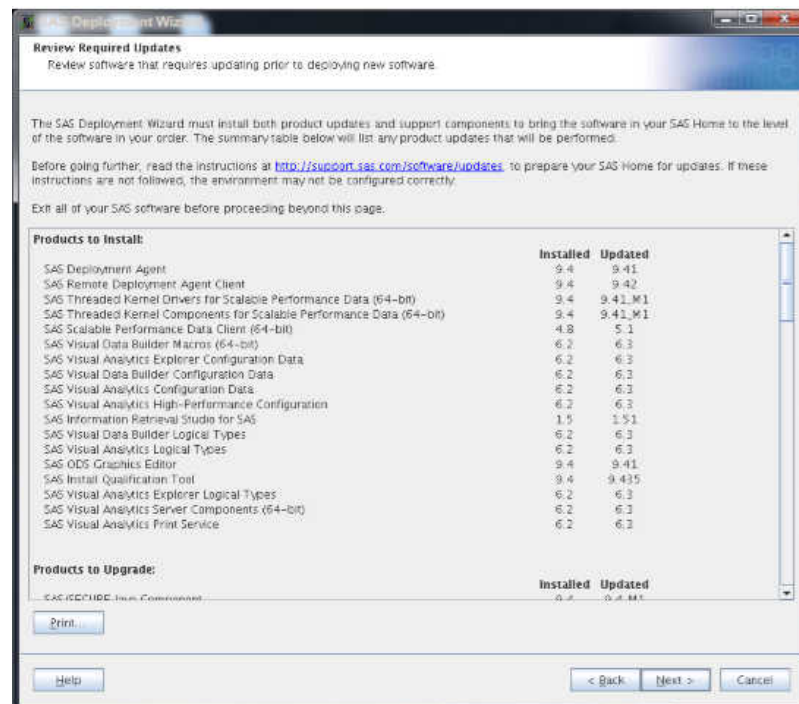
Operating System	Start-up Commands for the SAS Deployment Wizard
Windows	<p><b>setup.exe –record</b></p> <p><i>Note:</i> If you are running Windows 7 or Windows Server 2008, you might have to right-click on the setup.exe file and select <b>Run as administrator</b>.</p>
UNIX	<b>setup.sh –record</b>

Operating System	Start-up Commands for the SAS Deployment Wizard
z/OS	<b>setup.rexx -record</b>  To use a temporary directory other than <code>/tmp</code> , specify <code>--templocation new-temp-dir</code> .

**TIP** Starting in SAS 9.4M2, a recorded response file is created automatically, so you do not need to specify the `-record` option.

- In the Review Required Updates step, click **Print** to print the list of required updates for the current machine. (Alternatively, you can copy and paste this content into another document, such as an e-mail.) Review the list of products in the Update Summary section.

*Note:* If no product updates are required, then the list of required updates does not appear, and you can exit the SAS Deployment Wizard.



- Because you are not installing any software at this time, click **Cancel** to exit the SAS Deployment Wizard.

After reviewing the contents of the list of required updates and assessing the effect on products at your site, you can install these product updates by restarting the SAS Deployment Wizard.

*Note:* When you exit the SAS Deployment Wizard, the list of product updates is not saved. When you install the software, a Deployment Summary for the installation (which contains this list of product updates) is saved to the `SAS-installation-directory/InstallMisc/InstallLogs` directory.

---

## Review the Product Details and Requirements

After obtaining the list of products that will be updated, review the product information in Part 5 “Product Details and Requirements.”

Reviewing these product topics now will enable you to perform the following tasks:

- prepare for any feature changes that will affect your site
- identify any pre-installation or post-configuration steps that need to be performed for the products that you have installed at your site
- plan for additional time to complete any product-specific steps for each updated product

If no topic is listed for a product, then no product-specific steps are required for that product.



## Chapter 7

# Using Backups and Restoring Customizations

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## Estimating Disk Space Requirements

When you apply a SAS maintenance release, these four areas might require additional disk space:

- SAS Software Depot
- SAS installation directories
- SAS configuration directories
- space for the deployed SAS web applications

*Note:* For more information, see [“Undeploying the SAS Web Applications”](#) on page 47.

The specific size increase depends on how SAS is deployed at your site.

Some of this increase in disk space is temporary because you can remove some files after applying a maintenance release. For more information, see [“General Information about Creating and Removing Backup Files”](#) on page 40.

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## Understanding the Deployment Backup and Recovery Tool

### General Information about Creating and Removing Backup Files

Before you update an existing SAS deployment, you must stop all SAS servers. Perform a full operating system backup by using operating system commands or third-party tools.

**CAUTION:**

**When restoring backups that were created with operating system commands or third-party tools, you must preserve the original datetime stamps on the files.**

You should also create a backup of your SAS content. Follow the steps in [Technical Paper: SAS 9.4 Upgrade in Place: System-Level Backup and Recovery Best Practice](#) to back up these components:

- the metadata server, including all registered metadata repositories, the repository manager, and the server's configuration directory
- the SAS Content Server repository
- the databases that are managed by the SAS Web Infrastructure Platform Data Server
- additional directories under **SAS-configuration-directory/Levn** as specified by the administrator

**CAUTION:**

**You cannot combine orders from different SAS releases (for example, SAS 9.3 and SAS 9.4) in the same software depot.** When you initially install SAS 9.4, you are required to create a new software depot.

If you need more disk space, after the maintenance release has been installed, use the SAS Update File Cleanup Utility to remove the backups that SAS created in the **SASHome** directory. This utility must be run under the user ID that was used to install SAS. For more information about this utility, see *SAS Deployment Wizard and SAS Deployment Manager 9.4: User's Guide*.

If you are upgrading from SAS 9.4M2 or earlier to SAS 9.4M3 or later, additional backup folders are created for the web application server. For example, a backup folder might be in the **SAS-configuration-directory/Levn/Web/WebAppServer** directory. This backup folder can be quite large. The entire contents of the **SAS-configuration-directory/Levn/Web/WebAppServer** directory are moved to this backup directory before the software upgrade. A timestamp is appended to the backup directory (for example, SASServer1\_1.2015-06-16-15.57.35). Consult this folder if you need to reapply any customizations after updating your software. After the customizations have been reapplied and validated, you can delete these backup directories.

*Note:* These backup folders for the web application server are not created if you are upgrading from SAS 9.4M3 to SAS 9.4M4.

*Note:* Starting in SAS 9.4M7, old web applications in the backup folders are removed to save space and improve the performance for many configuration tasks.

## Steps to Complete When Upgrading to SAS 9.4 or SAS 9.4M1

If the Deployment Backup and Recovery tool is configured on multiple machines in your SAS 9.4 deployment, complete these steps to upgrade your SAS software to SAS 9.4 or SAS 9.4M1:

1. Unconfigure the Deployment Backup and Recovery tool on the main machine for the middle tier.
2. In SAS Management Console, open the Configuration Manager. In the SAS Application Infrastructure section, verify that the SAS Deployment Backup and Recovery tool is not listed.
3. Configure the Deployment Backup and Recovery tool only on the main machine for the middle tier.
4. Follow the instructions for upgrading your software. For more information, see [“Install and Configure a Software Update” on page 53](#).

On the other machines where the Deployment Backup and Recovery tool is deployed, complete these steps:

1. To disable the software update:
  - a. Follow the instructions for upgrading your software. For more information, see [“Install and Configure a Software Update” on page 53](#). Complete the install directory update.
  - b. In the `SASHome-directory/SASDeploymentManager/9.4/product_data/svrbakupevm_94110_cd388_prt_xx_sp0_1/configure/svrbakupevm_default.properties` files, change all of the configuration script targets to `false`. (Setting these targets to `false` ensures that none of these targets are run on this machine.)
  - c. To clean the environment, delete these files:
    - the WAR files in the configuration directory for the SAS server. For example, delete `SAS-configuration-directory/Levn/Web/WebAppServer/SASServer_n/sas_webapps/sas.svcs.admin.backup.war`.
    - `SAS-configuration-directory/Levn/Web/WebAppServer/SASServer_n/conf/Catalina/localhost/SASDeploymentBackup.xml`.
    - `SAS-configuration-directory/Levn/Web/WebAppServer/SASServer_n/sas_webapps/sas.svcs.admin.backup.war`.
2. After you update your software on all hosts, open the `sas.conf` file. Verify that the URL in the `ProxyPass` entry for `SASDeploymentBackup` contains the host name of the main machine for the middle tier.

## Steps to Complete When Upgrading to SAS 9.4M2 or Later

If you are applying SAS 9.4M2 or later, the configuration script automatically configures the Deployment Backup and Recovery tool.

After you update your software, complete these steps:

1. Verify that the URL in the **ProxyPass** entry for **SASDeploymentBackup** contains the host name of the main machine for the middle tier.
2. Restart the SAS Web Server.

### Upgrading from 9.4M1 to 9.4M3 or Later

If you are upgrading from 9.4M1 to 9.4M3 (or later), the `$levconfig/Web/SASEnvironmentManager/agent-5.0.0-EE` folder that was created for SAS 9.4M1 Environment Manager is renamed `$levconfig/Web/SASEnvironmentManager/agent-backup_yyyy-mm-dd-h-mm-ss`. The `agent-backup_yyyy-mm-dd-h-mm-ss` file is large, so you might choose to move this backup folder to another machine or a different network drive.

You might have manually changed the content in the `agent-5.0.0-EE` folder. During the upgrade to SAS 9.4M3, a new folder is created: `$levconfig/Web/SASEnvironmentManager/agent-5.8.0-EE`. The new `agent-5.8.0-EE` folder does not automatically include any manual changes. After your software update, review the contents of the `agent-backup_yyyy-mm-dd-h-mm-ss` file to re-create any manual customizations. If you did not manually change the contents in the `agent-5.0.0-EE` folder or if you have already made any necessary changes in the `agent-5.8.0-EE` folder, you can delete the backup folder.

### Upgrading from a Previous Release of SAS 9.4 to SAS 9.4M8: Cleaning Up Old Backup History

If you are upgrading from a previous release of SAS 9.4 to SAS 9.4M8, complete these steps before you run the Deployment Backup and Recovery Tool to ensure that you are cleaning up your old backup history.

1. Delete the backup folder on each tier. The path for the backup directory on each tier is `SAS-configuration-directory/Lev1/Backup`.
2. Delete all the files that are present in the shared vault directory.
3. Delete all the files that are present in the temporary directory `SAS-configuration-directory/Lev1/Web/WebAppServer/SASServer1_N/temp/SASDeploymentBackup_APPHOME`.

If SASServer1 is clustered, then complete this step for all SASServer1\_N instances.

---

## Working with CA Certificates for TLS and HTTPS Security

SAS uses CA certificates to verify the communication process when you use HTTPS protocols or Transport Layer Security (TLS). In SAS 9.4M3, the SAS Deployment Wizard automates the process of updating the TLS certificates in UNIX and z/OS environments and for Java applications on Windows and UNIX. SAS provides a default CA certificate bundle. The installation also includes the files that are used as the trusted list of certificates.



For SAS 9.4 deployments that were created before SAS 9.4M3, you had to manually set the SSLCALISTLOC option in the configuration file to point to your CA certificates. When you updated your software after the initial deployment, any configuration files were overwritten, and you had to manually add the SSLCALISTLOC option again.

When you update your software, the SAS Deployment Wizard looks through all configuration files for any manual additions of the SSLCALISTLOC option. To prevent any interference with the new trusted CA bundle, all manual additions of the SSLCALISTLOC option are commented out in the configuration file. After you finish the software update, your SAS software uses the new trusted CA bundle that shipped with the software update.

If you need to use any additional self-signed or site-signed CA certificates, you must add these certificates to the new trusted CA bundle. You can add certificates to the trusted CA bundle by using the Add Certificate task in the SAS Deployment Manager. Adding CA certificates should be repeated for each machine in the deployment.

*Note:* You need to add your certificates only the first time you upgrade to SAS 9.4M3. In subsequent upgrades, you do not need to use the SAS Deployment Manager to add these certificates unless you have new or updated certificates. Any new or updated certificates need to be added to the trusted CA bundle.

*Note:* Starting in SAS 9.4M3, manually adding any self-signed or site-signed CA certificates to the `cacerts` file is no longer supported.

## Effect on Customizations

### ***Customizations to EAR and WAR Files***

If you did not manually configure your SAS Web Application Servers, SAS rebuilds the enterprise archive (EAR) files and redeploys the web applications archive (WAR) files for all web applications at your site. (Examples of web applications include SAS Web Report Studio and the SAS Information Delivery Portal.)

Therefore, customizations that you made to the applications after initial deployment can be lost if you do not make a copy of the changed files. Here are some common customizations:

- configuring web authentication
- configuring a custom HTTP time-out value
- creating custom content such as a portlet for the SAS Information Delivery Portal
- creating custom themes

### ***Customizations to `_usermods` Configuration Files***

SAS provides configuration files for the SAS Metadata Server, SAS Application Servers, and SAS/SHARE Servers. You can use these files to create site-specific customizations to the server's start-up options and the `autoexec.sas` file. Any configuration file that you can modify contains `_usermods` in its name. Any modifications to these files are kept when you apply a maintenance release or upgrade to a new product.

For more information, see “[Reference: Configuration Files for SAS Servers](#)” in *SAS Intelligence Platform: System Administration Guide*.

### **Record the Value of the Scheduling Services Cache Locator Port**

If you originally migrated from SAS 9.3 to SAS 9.4, you might be prompted for the Scheduling Services Cache Locator port when you apply your software update. The SAS Deployment Wizard displays the default value, even if you configured a different value for the port. If you see this prompt, you need to specify the same value that was used in the initial SAS 9.4 deployment.

Before updating your software, record the current port value. In UNIX and Windows environments, this port value is in the *SAS-configuration-directory/Levn/Web/gemfire/instances* directory. For example, if the port number is 41448, you should see this directory: *SAS-configuration-directory/Levn/Web/gemfire/instances/Ins\_41448*.

You can also find this port value in these ways:

- In UNIX environments, see the value of the LOCATOR\_PORT= option in the *SAS-configuration-directory/Levn/Web/gemfire/instances/gemfire-locator.sh* script.
- In Windows environments, see the value of the set.INSTANCE\_PORT= option in the *SAS-configuration-directory\Levn\Web\gemfire\instances\wrapper.conf* file.

### **TLS Settings in the SAS Environment File**

After you perform an update in place, you might need to restore the TLS settings in the SAS Environment file. For more information, see “[Configure the SAS Environment File](#)” in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

### **Record Any Additional Customizations at Your Site**

After your initial installation of SAS, you might make additional customizations (such as modify port numbers or add web servers) at your site. Before you upgrade to a new product release or apply a maintenance release, note any customizations that you made so that you can restore these customizations after your software update. For some web applications, customizations can be found in the *Levconfig\Web\Application\application-name\customer* directory. For more information, see “[Use Configuration Manager](#)” in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

*Chapter 8*

# Undeploying SAS Web Applications

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## About the SAS Web Application Server

The middle tier of the SAS 9.4 Intelligence Platform includes a SAS Web Application Server and a SAS Web Server for use as an HTTP server. Both of these components can be installed and configured automatically with the SAS Deployment Wizard when you install the middle tier. The middle tier of the Intelligence Platform software is supported on all 9.4 platforms except for z/OS.

For more installation and configuration information, see [SAS 9.4 Support for Web Application Servers and HTTP Servers](#).

---

## Hotfix for SAS Web Application Server for SAS 9.4M7

Starting in December 2020, a hotfix is available for SAS Web Application Server. This hotfix updates the version of SAS Web Application Server from 3.2.22 to 3.2.25 (or later).

You must apply this hotfix when both of these conditions are met:

- You are performing an upgrade-in-place to SAS 9.4M7.

- In your deployment, the version number of SAS Web Application Server in the your .version file is higher than the version number for SAS Web Application Server after you upgrade to SAS 9.4M7.

To determine the version of SAS Web Application Server in your deployment, see the `SAS-config/Lev1/Web/WebAppServer/SASServer1_1/.version` file.

To download the hot fix, see <https://tshf.sas.com/techsup/download/hotfix/HF2/19U.html>.

---

## About Undeploying the SAS Web Applications

*Note:* Starting with the January 2014 release (SAS 9.4, TS1M1, Rev. 940\_14w04), SAS includes a web application server. As a result, if your order is from January 2014 or later, undeploying the SAS web applications before updating your software is optional. To determine the revision number for your order, see your Software Order Email or your SAS Order Information.

*Note:* The steps for updating a cluster node are different than for a primary middle tier node. For more information, see “Perform an Update in Place” in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

Starting in SAS 9.4M7 (August 2020), the default assignment for the SAS Web Application Server is multiple managed servers. For example, when you deploy SAS Enterprise BI using the SAS Deployment Wizard, you select **Typical**. Three server instances are created instead of one. The number of server instances does not change when you perform an update in place.

When you update the software at your site, SAS automatically performs these tasks:

- rebuilds all SAS web applications
- redeploys all SAS web applications
- restarts your web application servers

Before updating your software, you might want to undeploy the SAS web applications if the update includes a new or renamed web application and the existing web application is no longer supported. If you undeploy the SAS web applications, you need to do so only on the tier where the software is being updated. If the SAS Deployment Wizard does not go into Update mode, no software updates are required and you do not need to undeploy your SAS web applications on that tier.

---

## Effect on Any Modifications to Your Web Server Files

When SAS rebuilds and redeploys the SAS web applications on your web server, any modifications that you specified for your web server (such as a reverse proxy setup) might be overwritten. After updating the SAS software at your site, review the files for your web server to determine whether you need to restore these modifications.

Starting in SAS 9.4M7, several user customizations (such as `maxHttpHeaderSize` and `maxPoolSize` in `server.xml` and `cacheMaxSize` for the SAS Web Application Server) are preserved.

---

## About Manual TLS Configuration Changes

Starting with SAS 9.4M4, you do not have to revert these manual changes before updating SAS software or applying a maintenance release, if you followed the steps in *SAS Intelligence Platform: Middle-Tier Administration Guide*:

- HTTPS for SAS Web Server
- HTTPS for SAS Web Application Server
- Middle tier to use an existing customer reverse proxy

However, in certain circumstances, there might be required additional steps to complete.

If you are upgrading to a previous release of SAS 9.4 (such as SAS 9.4M3), any manual changes must be reverted to the original non-TLS values before applying a maintenance release or upgrading any software. These manual changes to the TLS configuration can be reapplied to the upgraded system.

To determine the specific steps for your site, see the “Middle-Tier Security” chapter in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

---

## Undeploying the SAS Web Applications

### *Determining the Amount of Disk Space Needed*

**CAUTION:**

**Updating the middle tier can consume a lot of disk space.**

When you undeploy your SAS web applications, a backup directory is created for each instance of the SAS Web Application Server. Your existing WAR files are saved in this backup directory.

When you upgrade your software and the SAS web applications are redeployed, a new set of WAR files is delivered. Before updating the middle tier, verify that you have enough disk space for the backups and the new WAR files. A good estimate is approximately double the current disk space for your existing SAS web applications.

After your users successfully log on to the web applications and verify that everything is working properly, you can delete these backup files.

### *Undeploying All Applications for a Managed Server*

To undeploy all applications for a managed server, use the script for your operating environment:

- Windows: `SAS-configuration-directory\Levn\Web\Scripts\nAppServer\appsrvconfig.cmd undeploy application all server SASServern`
- UNIX and Linux: `SAS-configuration-directory/Levn/Web/Scripts/AppServer/appsrvconfig.sh undeploy application all server SASServern`

## Undeploy a Single Application

To undeploy a single application, use the script for your operating environment:

- Windows: `SAS-configuration-directory\Levn\Web\Scripts\AppServer\appsrvconfig.cmd undeploy application application -name server SASServern`
- UNIX and Linux: `SAS-configuration-directory/Levn/Web/Scripts/AppServer/appsrvconfig.sh undeploy application application -name server SASServern`

To determine the value for *application-name*, see the `application.nn.name` property in the `SAS-configuration-directory/Levn/Web/Scripts/AppServer/props/appserver.properties` file.

---

## Troubleshooting Tips

If you are using an external database for your SharedServices database, the SAS Web Application Servers might fail to start during an upgrade in place. You might see errors like these in the server.log:

```
javax.naming.NamingException: Error creating instance of:
com.atomikos.jdbc.AtomikosDataSourceBean

...

Caused by: com.atomikos.beans.PropertyException: no writeable property 'url' in
class 'org.postgresql.xa.PGXADDataSource'
```

You might need to reconfigure new JDBC jars for your SAS Web Application Server data source.

1. Check the version of the `postgresql.jar` for each SAS Web Application Server at `sas-config-directory/Levn/Web/WebAppServer/SASServer*<reference each instance>/lib`
2. If the version is different than the version of `postgresql.jar` at `SAS-home-directory/WEBAPP/SASWebInfrastructureDataBaseJDBCDrivers/9.4/Driver/posgresql.jar`, replace the version in your configuration directory with the version in SASHome.
3. Click **Retry** on the error window.

## Part 4

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# Installing Your Software Order

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## Chapter 9

# Installing SAS 9.4

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## About the Installation Process

You install software updates by using the SAS Deployment Wizard. If any product updates are required, then the SAS Deployment Wizard goes into Update mode and installs those product updates on that machine. Updates that are installed apply only to the software that is already installed at your site. No new software is installed during this process. If you have a planned deployment and your SAS Home directory contains one or more configuration directories, then after installation and deployment is complete, SAS Deployment Manager opens so that you can configure your environment.

If a machine does not require any product upgrades, then the SAS Deployment Wizard does not go into Update mode, and the installation of the software update is complete for that machine. Simply click **Cancel** to exit the SAS Deployment Wizard.

If you are installing SAS 9.4 for the first time, see *SAS Intelligence Platform: Installation and Configuration Guide* to determine the steps for installing and configuring SAS 9.4 at your site.

For migration information, see *SAS Intelligence Platform: Migration Guide*.

For specific product documentation, see <http://support.sas.com/documentation>.

*Note:* You must upgrade using the same language and locale from the original deployment.

---

## Create Restore Points for Multiple Machine Deployments

Many SAS deployments include several (real or virtual) machines. Each machine is running one or more tiers of the SAS infrastructure. Each SAS tier is updated separately. In addition to backing up your full deployment before starting the update process, SAS recommends that you create backups at these key points during the upgrade process.

1. After you update the SAS Metadata Server tier:

Use the Metadata Server backup functionality in SAS Management Console to create this backup. Name this backup **Successful Metadata Server Tier UIP**.

2. After you update the compute tier:

- a. Again, use the Metadata Server backup functionality in SAS Management Console. Name this backup **Successful Compute Tier UIP**.

- b. Use the `pg_dumpall` command to create a backup of the WIP Data Server. Here is an example of the `pg_dumpall` command:

```
pg_dumpall -c -h localhost -U dbmsowner -p 9432 -f location/db.out
```

- In Windows environments, here is an example of how you would use the `pg_dumpall` command:

```
set SASHOME=C:\Program Files\SASHome
set POSTGRES_HOME=%SASHOME%\SASWebInfrastructurePlatformDataServer\9.4
set PATH=%POSTGRES_HOME%\bin;%PATH%
set LD_LIBRARY_PATH=%POSTGRES_HOME%\lib;%LD_LIBRARY_PATH%
set LIBPATH=%POSTGRES_HOME%\lib;%LIBPATH%
/* By setting an environment variable with the Postgres password, you do not */
/* have to answer all the password prompts. */
set PGPASSWORD=<password>
```

```
%POSTGRES_HOME%\bin\pg_dumpall -c -h localhost -U dbmsowner -p 9432
-f location\db.out
```

If the database gets corrupted during the Postgres upgrade process, use this command to restore the database:

```
%POSTGRES_HOME%\bin\psql -d postgres -U dbmsowner -p 9432 -f C:\db.out
--output=db.restore.output --log-file=db.restore.log > db.restore.screen.output 2>&1
```

- In UNIX environments, here is how you would use the `pg_dumpall` command:

```
export POSTGRES_HOME=SASHOME/SASWebInfrastructurePlatformDataServer/9.4
export PATH=${POSTGRES_HOME}/bin:$PATH
```

```
export LD_LIBRARY_PATH=${POSTGRES_HOME}/lib:$LD_LIBRARY_PATH
export LIBPATH=${POSTGRES_HOME}/lib:$LIBPATH
/* By setting an environment variable with the Postgres password, you do not */
/* have to answer all the password prompts. */
export PGPASSWORD=<password>
pg_dumpall -c -h localhost -U dbmsowner -p 9432 -f ~/wipdp.out
```

If the database gets corrupted during the Postgres upgrade process, use this command to restore the database:

```
${POSTGRES_HOME}\bin\psql -d postgres -U dbmsowner -p 9432 -f /install/cfgsas94/wipdp
--output=wipdb.restore.output --log-file=wipdb.restore.log > wipdb.restore.screen.out
```

When the restoration is complete, you have these output files:

- The log file is created from the `--log-file` option.
- The output file is created from the `--output` option. This file contains the query results.
- Any output going to stdout is piped to a .output file, for example `db.restore.screen.output` or `wipdb.restore.screen.output`.

If the restore ran properly, the stdout output appears similar to the following:

```
psql:/install/cfgsas94/wipdp.out:29: ERROR: current user cannot be dropped
psql:/install/cfgsas94/wipdp.out:46: ERROR: role "dbmsowner" already exists
You are now connected to database "template1" as user "dbmsowner".
You are now connected to database "template1" as user "dbmsowner".
You are now connected to database "EVManager" as user "dbmsowner".
You are now connected to database "SharedServices" as user "dbmsowner".
You are now connected to database "postgres" as user "dbmsowner".
You are now connected to database "themecontent" as user "dbmsowner".
You are now connected to database "themes" as user "dbmsowner".
You are now connected to database "transportsvcs_db" as user "dbmsowner".
```

*Note:* You can ignore the two psql errors. These errors are generated because the dbmsowner role already exists.

For more information about backups, see [Technical Paper: SAS 9.4 Upgrade in Place: System-Level Backup and Recovery Best Practice](#).

---

## Install and Configure a Software Update

To install a software update for SAS 9.4:

1. Stop all LASR Analytic Servers by using the SAS Visual Analytics Administrator. For more information, see *SAS Visual Analytics: Administration Guide*.
2. Terminate all active SAS sessions, daemons, spawners, and servers. It is important to stop the SAS servers in the inverse order that they were started. For more information, see “Overview of Server Operation” in *SAS Intelligence Platform: System Administration Guide*.

*Note:* In AIX operating environments, after you stop all the servers and processes, you must clear the AIX file cache to avoid any locked files when you apply the maintenance release. To clear this cache, run the `/usr/sbin/slibclean` command by using the root user ID.

3. Verify that all machines where you are installing the software update are installed with SAS 9.4 software.

*Note:* In a Windows environment, you must be an administrator to run the SAS Deployment Wizard. You do not have to use the same user ID that you used to install SAS 9.4. In UNIX environments, you must use the same user ID that you used to install SAS 9.4. If you are deploying SAS on a multiple-machine, distributed system, you must install software on your computer in a particular order. For more information, see “Installation Order Rules for Multiple Machine Deployments” in *SAS Intelligence Platform: Installation and Configuration Guide*.

4. For each machine in your deployment, start the SAS Deployment Wizard from the highest-level directory in your SAS Software Depot. You can start the SAS Deployment Wizard in the following ways:

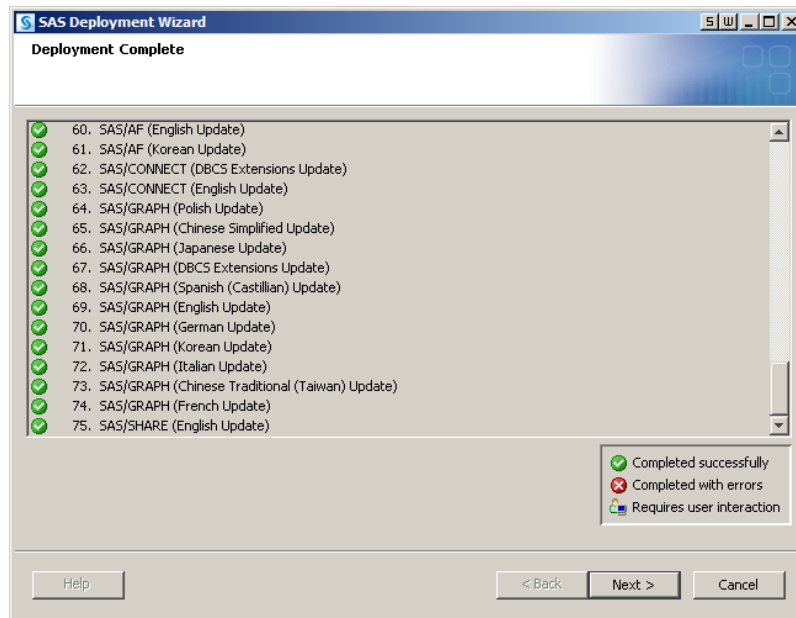
**Table 9.1** How to Start the SAS Deployment Wizard

Operating System	How to Start the SAS Deployment Wizard
Windows	<p>Double-click <b>setup.exe</b> in the highest-level directory in your SAS Software Depot.</p> <p><i>Note:</i> If you are running Windows 7 or Windows Server 2008, you might have to right-click the <b>setup.exe</b> file and select <b>Run as administrator</b>.</p>
UNIX	<p>Execute <b>setup.sh</b> from the highest-level directory in your SAS Software Depot.</p>
z/OS	<p>For basic deployments, type <b>setup.rexx</b> to run the SAS Deployment Wizard.</p> <p>For planned deployments:</p> <ul style="list-style-type: none"> <li>• The first invocation of the SAS Deployment Wizard is to install the metadata server as a 64-bit application: <b>setup.rexx -z64</b></li> <li>• The second invocation of the SAS Deployment Wizard is to install the remainder of your SAS 9.4 order as a 31-bit application: <b>setup.rexx</b></li> </ul> <p>To use a temporary directory other than <b>/tmp</b>, specify <b>-templocation new-temp-dir</b>.</p> <p><i>Note:</i> If you install SAS using the <b>-nojobsubmit</b> option, the process for applying a software update differs from the process that is described in this document. For more information, see <a href="#">Documentation for a SAS 9.4 installation in z/OS operating environment</a> at support.sas.com.</p>

5. Select your order and the location of the **SASHome** directory. The SAS Deployment Wizard goes into Update mode and installs any product updates on that machine.

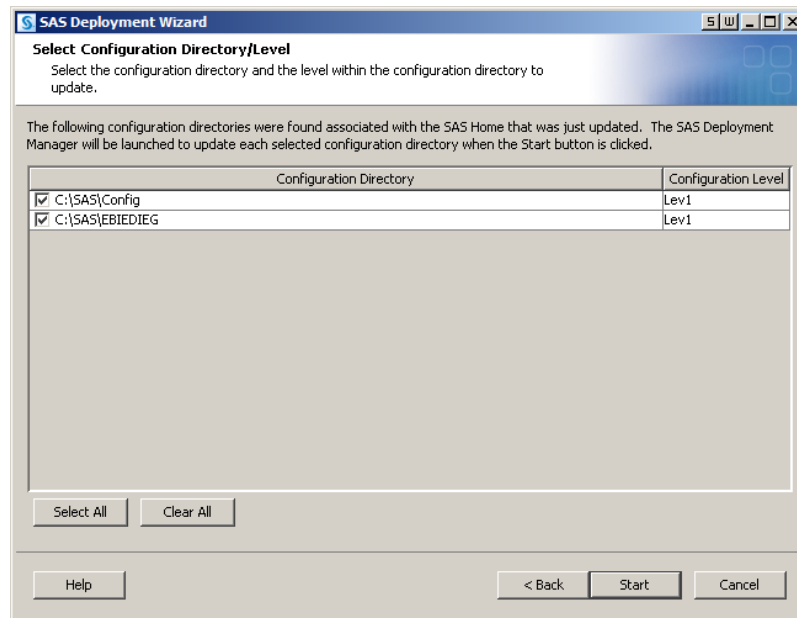
*Note:* If a machine does not require any product updates, the SAS Deployment Wizard does not go into Update mode and the installation of the maintenance release on that machine is complete. Click **Cancel** to exit the SAS Deployment Wizard.

6. After the deployment is complete, click **Next** in the SAS Deployment Wizard.



*Note:* If you have a basic deployment, your software update is complete, and you can ignore the remaining steps. If you have a planned deployment, continue with step 7.

7. Add or verify your CA or site-signed certificates. The process for adding certificates depends on the maintenance release of SAS 9.4. SAS recommends upgrading to the latest release of SAS 9.4 as soon as possible.
  - Starting in SAS 9.4M3, a default CA certificate bundle is shipped with SAS. Any added certificates are included in the Trusted CA bundle after the update. You add additional certificates by using SAS Deployment Manager. For more information, see [“Working with CA Certificates for TLS and HTTPS Security” on page 42](#).
  - If you are upgrading to SAS 9.4M1 or SAS 9.4M2, the SAS Deployment Wizard prompts you for the certificates that you want to add to the Trusted CA bundle. For more information, see “How to Implement Certificates” in *SAS Intelligence Platform: Security Administration Guide*.
8. For SAS 9.4M6 (July 2020, Rev. 9.4\_20w30) customers who upgraded to PostgreSQL and are now upgrading to SAS 9.4M7, see [“Possible Additional Step for SAS 9.4M6 \(July 2020, Rev. 9.4\\_20w30\) Users” on page 72](#). These customers do not complete the remainder of these steps.
9. In the Select Configuration Directory/Level step of the SAS Deployment Wizard, select the configuration directories that you want to update, and then click **Start**. SAS Deployment Manager opens to guide you through the configuration steps.



*Note:* If you click **Cancel**, you have installed but not configured the software updates. You must configure the updated SAS products before you can run them. To complete these configuration steps at a later time, see “[Configure Updated or Upgraded SAS Products](#)” in *SAS Intelligence Platform: Installation and Configuration Guide*.

10. If necessary, restart the SAS Metadata Server. In Windows and UNIX environments, the SAS Metadata Server restarts automatically.
  - In Windows environments, the following message appears in SAS Deployment Manager if the SAS Metadata Server is not running: A SAS Metadata Server is not currently running on the Port.  
  
To continue the configuration steps, restart the SAS Metadata Server manually. For more information, see “[Using SAS Management Console to Operate SAS Servers](#)” in *SAS Intelligence Platform: System Administration Guide*.
  - To restart the SAS Metadata Server manually in UNIX environments:
    1. At a UNIX prompt, navigate to the directory where the SAS Metadata Server is configured.
    2. Type `./MetadataServer.sh start`.
11. On the Specify Connection Information page of SAS Deployment Manager, verify that the name of the host machine matches the host name in the original configuration. Only one local machine can be specified per configuration. The local host name must match what was provided by the operating system for this host.

*Note:* When you click **Next**, SAS Deployment Manager verifies that the host name matches the originally configured host name. If these values do not match, you receive an error message and the configuration process stops. If you are certain that the update is being installed on the correct host, a misconfiguration might have occurred. Contact SAS Technical Support for assistance. However, if the local host name and the originally configured host name are functionally equivalent (for example, one is an alias), exit SAS Deployment Manager. Then invoke SAS Deployment Manager again using the `-confighostname` option. For more information about this option, see *SAS Deployment Wizard and SAS Deployment Manager User's Guide*.

12. Use SAS Deployment Manager to update the configuration of your environment. The pages that appear depend on your deployment. You must complete each page. When prompted for passwords for database IDs, you must use the same passwords that you used to install SAS 9.4. For more information, see “Password Policy” in *SAS Intelligence Platform: Middle-Tier Administration Guide*.
- Starting in SAS 9.4M7 (August 2020), if you encounter an error in the configuration process, you can suspend the update until you resolve the error. When you resume the configuration process in SAS Deployment Manager, you can resume at your current step. This option applies to all update configuration steps except the Apply Update step.
  - Starting in June 2019, tdadm is a new internal account. If you are upgrading from a release prior to June 2019, you are prompted for the user ID and password for the database that is used with SAS Application Themes. You are not prompted for this tdadm password when updating from a June 2019 or later release.
  - On the SAS Web Infrastructure Database JDBC Properties page, SAS Deployment Manager prompts you for the password for the JDBC connection for the Web Infrastructure Platform. You must specify the password for the JDBC connection. For more information about how alternative databases are configured, see “Configuring an Alternative Database for SAS Web Infrastructure Platform Services” at <http://support.sas.com/resources/thirdpartysupport/v94/appservers/SharedServicesAlternativeDatabase.pdf>.

When you update your configuration, SAS automatically starts most of your SAS servers, configures your web application servers, and rebuilds and redeploys your SAS web applications. Before proceeding, run the `sas.servers status` command to verify that all servers are running.

When the configuration is complete, the Deployment Summary opens. You need this information later to determine whether there are additional post-configuration steps for any of your products.

*Note:* The Deployment Summary for the installation is automatically saved. If the Deployment Summary does not open automatically or if you need it later, you can open it from your SAS installation directory.

13. Complete any necessary configuration steps for your web application server.

On the Validate SAS Web Server and SAS Web Application Server Configuration page, click **Next** to determine whether the SSL encryption was configured manually. If you have manual configuration changes, an error message appears.

When you upgrade to SAS 9.4M4, any manual changes to the TLS configuration are preserved. If you are upgrading to a previous release of SAS 9.4 (such as SAS 9.4M2), any manual changes must be reverted to the original non-TLS values before applying a maintenance release or upgrading any software. These manual changes to the TLS configuration can be reapplied to the upgraded system. For more information, see *SAS Intelligence Platform: Middle-Tier Administration Guide*

*Note:* The Validate SAS Web Server and SAS Web Application Server Configuration page in SAS Deployment Wizard is available only if you are upgrading from SAS 9.4, SAS 9.4M1, or SAS 9.4M2 to SAS 9.4M4. If you are upgrading from SAS 9.4M3, this page is not displayed because no manual steps are required when upgrading from SAS 9.4M3 to SAS 9.4M4.

14. Review the list of products in the Update Summary section of the Deployment Summary. For each product that was updated, determine whether there are additional configuration steps to complete.

15. After upgrading all the middle-tier machines, restart all SAS Web Application Servers on all middle-tier machines in your deployment.
16. After the upgrade is complete, clear the cache in your web browser.
17. If an UpdateInstructions.html file is created, review its contents and complete any manual configuration steps.

The UpdateInstructions.html file might automatically open in web browser when SAS Deployment Manager configurations are complete. If this file does not appear, look in the *SAS-configuration-directory/Documents* directory for this file. Look for the UpdateInstructions.html file on every machine that was updated.

18. To validate the changes to your web application servers and SAS web applications, review the validation sections in your Instructions.html file.

---

## Regenerate Deployment Agent Credentials

When performing an upgrade-in-place, you need to regenerate your deployment agent credentials when either of these conditions is met:

- Your initial deployment was from SAS 9.4 (TS1M0)–SAS 9.4M5 (TS1M5), and you are upgrading to a SAS 9.4 release prior to October 2023. Starting in October 2023, the SAS Deployment Wizard prompts you to configure the Deployment Agent credentials during the upgrade-in-place.
- In your original deployment of the SAS 9.4 release, you manually generated your deployment agent credentials and you used a version of Java prior to Java 8.

For instructions on how to regenerate the deployment agent credentials, see the "Configure SAS Deployment Agent Communication Options" topic in [SAS Deployment Wizard and SAS Deployment Manager 9.4: User's Guide](#).

*Important:* You must regenerate your deployment agent credentials **after you complete the installation steps of the upgrade but before you perform the update configuration steps.**

Here is an overview of the process:

1. Open the SAS Deployment Wizard in Update Mode to upgrade SASHome.
2. After the upgrade to SASHome is complete, deselect the check box that starts the update configuration steps. Click **Next** to stop the SAS Deployment Wizard.
3. Run the SAS Deployment Manager to generate or download your credentials.
4. In the SAS Deployment Manager, run the Update Existing Configuration step to complete the configuration update.
5. Repeat steps 1–4 on each tier in the deployment.



---

## Unconfiguring and Uninstalling Retired Products

### **What Is a Retired Product?**

A retired product is a product that cannot be ordered on the latest release of SAS beginning on a specified date. That product is still available on prior releases of SAS and supported in accordance with the [SAS Technical Support policy](#).

During an update in place, a retired product is not updated. It is recommended that you unconfigure retired products prior to an update in place and uninstall after the update in place is complete.

### **Before You Upgrade: Remove the Configuration for Retired Products**

1. Create a backup of your SAS System. See [Best Practices for Backup and Restore](#) in *SAS 9.4: System Administration*.
2. Run the SAS 9 System Evaluation tool to identify any configured products that are retired in your deployment. For more information, see “[Using the SAS®System Evaluation Tool in SAS 9 Content Assessment](#)” on page 31.
3. To remove the configuration for any retired product, use the Remove Existing Configuration task in SAS Deployment Manager. For more information, see “[Remove a Configuration](#)” in *SAS Intelligence Platform: Installation and Configuration Guide*.

*Note:* If you are upgrading to the September 2020 release of SAS 9.4M7 (or later) and you did not unconfigure your retired products before the upgrade, review the UpdateInstructions.html file on each tier. This file lists the configured products that should be unconfigured. Then use the Remove Existing Configuration task in SAS Deployment Manager to remove most products’ configurations after the upgrade.

### **After You Upgrade: Uninstalling Retired Products**

#### **September 2020 Release of SAS 9.4M7 (or Later)**

*Important:* It is critical that you remove the configuration for a retired product *before* uninstalling a retired product. After you uninstall a retired product, it is no longer possible to remove that product’s configuration.

Uninstall all earlier versions of SAS software from SASHOME after completing the upgrade. This removes product content such as outdated versions of jars and files that are no longer needed but could still constitute a security vulnerability.

1. After you unconfigure and upgrade, run SAS Deployment Manager and select **Uninstall SAS software**.
2. On the **Select SAS Products to Uninstall** pane, select the **Earlier SAS software versions** option.
3. Click **Select All**.
4. Click **Next** and follow the remainder of the prompts.

For more information about uninstalling SAS software, see *SAS Deployment Wizard and SAS Deployment Manager 9.4: User's Guide*.

### **August 2020 Release of SAS 9.4M7**

If you are upgrading to the August release of SAS 9.4M7, see [Problem Note 66664: SAS Deployment Manager does not list all retired products to uninstall after upgrading to SAS 9.4M7](#).

### **Additional Steps for SAS Data Management Products in SAS 9.4M7**

As of the August 2020 release of SAS 9.4M7, these SAS Data Management products are retired:

- SAS Master Data Management Advanced and Standard
- SAS Master Data Management Quality Advanced Server and Standard Server
- SAS Visual Process Orchestration
- SAS Web Studio Server

For information about how to unconfigure and uninstall these retired products, see these topics:

- [“SAS Data Management Console” on page 172](#)
- [“Support for SAS Visual Process Orchestration” on page 404](#)
- [“Support for DataFlux Web Studio and Server” on page 175](#)

### **How to Uninstall Retired Products in SAS 9.4M6**

If you are upgrading to SAS 9.4M6, you must run the CleanEndDatedProducts utility to remove any retired products. After deployment is complete, run the following script:

- Windows environments: `<SASHOME>\InstallMisc\utilities\CleanEndDatedProducts\run_uninstall.bat`
- UNIX or z/OS environments: `<SASHOME>/InstallMisc/utilities/CleanEndDatedProducts/run_uninstall.sh`

*Note:* Run this script using the same user ID that you used to install and configure the SAS software. You can run this script on each tier of a multi-tier deployment.

You can view the log from these locations:

- Windows environments: `C:\Users\installerID\AppData\Local\SAS\SASDeploymentWizard\SDM_date-time.log`
- UNIX environments: `~/.SASAppData/SASDeploymentWizard/SDM_date-time.log`

If there were no products to remove, the log includes this warning, which you can ignore.

```
SEVERE: Deployment is incomplete due to failures noted above.
May 23, 2019 2:53:08 PM com.sas.ssn.Kit exitKit
INFO: Exit Code = -1
```

---

## Updating Your SAS License

After you upgrade to a new release, you might receive an email stating that your SAS license has expired.

To update your SAS license, complete the steps for your operating environment:

- [Software License Renewal Instructions—SAS 9.4 for Microsoft Windows for x64 Planned Deployment](#)
- [Software License Renewal Instructions—SAS 9.4 for UNIX Environments Planned Deployment](#)
- [Software License Renewal Instructions—SAS 9.4 for z/OS Environments Planned Deployment](#)

---

## Adding a New Product

Your software order might include products that you are adding to your current deployment. Before you install any new products, you must apply any software updates. If any updates are detected, the SAS Deployment Wizard automatically goes into Update mode the first time that you start the wizard.

*Note:* If you are prompted for the SAS installation data file (SID file), select the one for the order that contains the new products. However, the new products are not installed as part of the updates.

After you apply these updates, you must restart the SAS Deployment Wizard to install any new products on each tier. In the SAS Deployment Wizard (which you will use to install the new products), verify that the SAS installation data file (SID file) you select is for the order that contains the new products. You might need to click **Browse** to select the correct SID file. Then you will need to configure each tier. For more information, see “Adding SAS Products” in *SAS Intelligence Platform: Installation and Configuration Guide*.

If you are adding a SAS solution to an existing SAS 9.4 deployment (or if you need to renew your software license for a SAS solution), use the SAS Deployment Manager to update the SID file in the metadata. Verify that the SID file you select is for the order that contains the new products. You might need to click **Browse** to select the correct SID file. For more information, see the “Software License Renewal Instructions” for your operating environment.

- [Software License Renewal Instructions—SAS 9.4 for Microsoft Windows for x64 Planned Deployment](#)
- [Software License Renewal Instructions—SAS 9.4 for UNIX Environments Planned Deployment](#)
- [Software License Renewal Instructions—SAS 9.4 for z/OS Environments Planned Deployment](#)

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## Applying Hot Fixes

### *Hot Fixes and Your Deployment*

Hot fixes that are available when you download your order are automatically included with your order in your SAS Software Depot.

Because there can be a time lapse between when you download your order and deploy it, you should check for additional hot fixes before deploying your software. You can run this check using the SAS Deployment Wizard:

1. Open the SAS Deployment Wizard.
2. On the **Select Deployment Task** page under **Administrator Tasks**, select **Manage SAS Software Depot**, and then click **Next**.
3. On the **Manage SAS Software Depot** page, select **Retrieve Hot Fixes**, and then click **Next**.
4. On the **Manage SAS Software Depot** page, select the order for which you want to retrieve hot fixes and click **Finish**.

The retrieved hot fixes are added to your SAS Software Depot. Now when you deploy your order, the hot fixes are automatically applied. By managing your hot fixes through your SAS Software Depot, you can avoid software changes as you deploy across multiple systems or tiers. If you do not want the set of hot fixes to change between deployments, download them once into your depot and do not repeat the **Retrieve Hot Fixes** check when you move to the next deployment.

Starting in SAS 9.4M7 (August 2020), most hot fixes are downloaded with your order. Some hot fixes include post-installation instructions in these files:

- For all deployment types, see `DeploymentSummary.html`.
- For planned deployments:
  - For new configurations, click the link for the post-installation instructions in the "Warnings and Notices" section of `config-root-directory/Documents/Instructions.html`.
  - For an updated configuration, click the link in `config-root-directory/Documents/UpdateInstructions.html`

### *Managing Hot Fixes*

Over time, additional hot fixes might be released. To determine whether there are additional hot fixes for your products, see the SAS Hot Fix Analysis, Download and Deployment Tool. This tool evaluates your software deployment and generates a report that includes information and links to hot fixes that are available for your software. This tool is available at <http://ftp.sas.com/techsup/download/hotfix/hotfix.html>.

To deploy these hot fixes, see "Finding and Applying Hot Fixes" in *SAS Deployment Wizard and SAS Deployment Manager 9.4: User's Guide*.

## Upgrading in Place from SAS 9.4M6: Apply the Latest Hot Fix for the SAS Web Server

If you applied the SAS 9.4M6 hot fix for the SAS Web Server to your environment, this hot fix does not remain when you upgrade in place to a newer SAS release. For example, if you upgrade in place from SAS 9.4M6 to SAS 9.4M7 or SAS 9.4M8, you need to download and apply the SAS Web Server to the updated SAS 9.4M7 or SAS 9.4M8 environment. To download the hot fix, see [SAS Web Server 9.46: Hot Fix Downloads](#).

*Note:* Hot fixes for the SAS Web Server are not included in the SAS Software Depot and are not downloaded with your order.

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## Security Updates

SAS Security Updates are updates (hot fixes, SAS Security Updates download pages, and in some cases SAS releases) for releases of SAS that are under Standard Support. SAS Security Updates are included in each maintenance release. SAS Security Updates are also made available on a regular (quarterly) basis. See the latest bulletins and updates at [SAS Product Security](#). Locate the entry for your SAS release.

### **CAUTION:**

**Due to a software defect at 9.4M8, the SAS Security Update for 9.4M8 (TS1M8) and beyond are not automatically included in the following revisions: Rev. 940\_23w05, Rev. 940\_23w08, Rev. 940\_23w12, and Rev. 940\_23w20.** If you installed one of these revisions, review the [Security Bulletins](#) and install the [SAS Security Update for SAS 9.4M8 \(TS1M8\)](#). This security update must be re-applied every time you add on a product or apply additional hotfixes. Alternatively, contact SAS to obtain, download, and deploy an order for Rev 940\_23w25 or later, which includes the latest security update.

Starting in SAS 9.4 M7 (August 2020), any SAS Security Update that you previously applied is reapplied when you apply a hot fix using SAS Deployment Manager. As new SAS Security Updates are released, you need to download and apply these updates. Subsequently, these updates are also reapplied when you apply any hot fixes. For the latest SAS Security Updates, see [Applying SAS Security Updates and Hot Fixes](#).



## Chapter 10

# Upgrading PostgreSQL

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## Prerequisites

To avoid running out of database connections during an upgrade in place, set the **max\_connections** and **max\_prepared\_transactions** properties to **1024** in the `postgresql.conf` file. You can return to the original values after the upgrade in place is complete. Each edit of the `postgresql.conf` file requires a restart of the data server.

---

## Upgrade Note

When you perform the upgrade to SAS 9.4M7 and SAS 9.4M7, sometimes the cursor is not returned to the user. The upgrade appears to stop responding after it reports that all databases have been upgraded. You can press Ctrl+C to exit the upgrade at this point.

*Note:* This issue has been fixed in SAS 9.4M8.

## SAS 9.4M8: Upgrading to PostgreSQL 14

### About Upgrading to PostgreSQL 14

SAS 9.4M1 to SAS 9.4M5 delivered PostgreSQL 9.1 as the Web Infrastructure Platform Data Server. This server was used by SAS applications such as the Web Infrastructure Platform and SAS Visual Analytics. SAS 9.4M6 supported PostgreSQL 9.5. SAS 9.4M7 supported PostgreSQL 12. Starting in SAS 9.4M8, SAS supports PostgreSQL 14.

If you are installing SAS 9.4M8 for the first time or you are migrating previous SAS deployments to SAS 9.4M8, your version of PostgreSQL is automatically upgraded to PostgreSQL 14. No additional steps are required.

However, if you are performing an upgrade in place, those deployments are not automatically upgraded to PostgreSQL 14.

*Note:* The Postgres database instances for any retired products are not upgraded. For more information about retired SAS products, see [“Unconfiguring and Uninstalling Retired Products”](#) on page 59.

### Upgrading to PostgreSQL 14 after Upgrading to SAS 9.4M8

After you upgrade to SAS 9.4M8, your deployment is still running using the version of PostgreSQL that was in place *before* the upgrade.

To upgrade to PostgreSQL 14:

1. Perform a backup of the deployment. For more information, see [SAS 9.4 Upgrade in Place: System-Level Backup and Recovery Best Practices](#). This backup preserves the system in its pre-database upgrade state.
2. Stop all SAS Services across all machines, except for the Metadata Server and the WebInfrastructurePlatform data server. See [“Stopping SAS Servers That Are Running”](#) in *SAS Intelligence Platform: Installation and Configuration Guide*.
3. Determine the version of PostgreSQL that you are currently running. This is the version of PostgreSQL that you are upgrading *from*. You need this information in later steps.

To identify the version of PostgreSQL database that you are upgrading *from*:

- a. On the machine that your WebInfrastructureDataServer (WIP) database is configured, open a command prompt.
- b. On UNIX, append the `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/lib` path to the environment variable so that the command finds the libpg.so.5 library required by psql.

**Table 10.1** Environment Variable Name for Each Flavor of UNIX

Operating Environment	Environment Variable Name
Solaris	\$LD_LIBRARY_PATH



Operating Environment	Environment Variable Name
AIX/R	\$LIBPATH
Linux	\$LD_LIBRARY_PATH

Here is an example of this command for a Linux environment: **export LD\_LIBRARY\_PATH=<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/lib:\$LD\_LIBRARY\_PATH.**

- c. Run this command to connect to the database and to query the version where <SASHome> is the path to your SASHome directory:

```
<SASHome>\SASWebInfrastructurePlatformDataServer\9.4\bin\psql" -h <hostname of the ma
```

Here is an example:

```
"C:\Program Files\SASHome\SASWebInfrastructurePlatformDataServer\9.4\bin\psql" -h myw
```

- d. When prompted, enter the password for the database. Press Enter.
- e. Record the version of the current database. This is the value returned when you run the command. You need this value in step 11.
- f. Shut down the Metadata Server and WebInfrastructurePlatform data server.
4. Run the SAS Deployment Wizard from your software depot.
  5. Select **Install SAS software** and click **Next**.
  6. Select an existing SAS Home and click **Next**.
  7. Select **Install Additional Software** and click **Next**.
  8. Select the **SAS Web Infrastructure Platform Data Server** check box and click **Next**.
  9. Click **Next** through the next several steps, and then click **Start**.
  10. When the installation has completed successfully, click **Next** and **Finish**.
  11. In the <SASHome>/SASWebInfrastructurePlatformDataServer directory, complete these steps:
    - a. Locate the 9.4\_PREVIOUS-yyyy-mm-dd-HH.MM.SS folder that contains the version of the PostgreSQL database that you are upgrading from that you identified in step 3e.

*Note:* If you have only one 9.4\_PREVIOUS directory, you can skip the rest of step 11. You already have the correct binaries in place.

To determine the version of binaries in each of the 9.4\_PREVIOUS\* directories:

At a command prompt, run the **postgres --version** command from the **bin** directory.

- UNIX: <SASHome>/SASWebInfrastructurePlatformDataServer/9.4\_PREVIOUS-yyyy-mm-dd-HH.MM.SS/bin/postgres --version
- Windows: <SASHome>\SASWebInfrastructurePlatformDataServer\9.4\_PREVIOUS-yyyy-mm-dd-HH.MM.SS\bin\postgres.exe --version

- b. If the current **9.4\_PREVIOUS** directory does not contain the correct binaries, rename or delete this directory.
  - c. Rename the folder that contains the binaries that match the version of PostgreSQL database that you are upgrading *from* to **9.4\_PREVIOUS**.
12. Repeat steps 3–11 for each tier that has **SASHome/SASWebInfrastructurePlatformDataServer** installed.
  13. Start the Metadata Server.
  14. For all machines that contain at least one PostgreSQL database instance, run steps 15–17.
  15. In a command prompt or terminal session, change the directory to **<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/scripts/upgrade**.
  16. Display an analysis report on the deployment of PostgreSQL. This report lists each PostgreSQL database configuration that is found in the metadata, whether the configuration is located locally to the machine or remotely on another machine, and whether the configuration is ready to upgrade or has already been upgraded to PostgreSQL 14.
    - In Linux environments, enter the **run.sh** command.
    - In Windows environment, enter the **run.bat** command.

Use these parameters to connect to a metadata server using the SAS Administrator (sasadmin) credentials:

```
--metaserver <metadata-host>
--metaport <metadata-port>
--metauser <sasadm-userid>
--metapass <sasadm-password>
```

Here is an example for UNIX:

```
./run.sh
--metaserver <metadata-host>
--metaport <metadata-port>
--metauser sasadm@saspw
--metapass XXXXXX
```

17. Upgrade any of the local PostgreSQL database instance by running the script again after adding the **--upgrade** parameter.

Here is an example for UNIX:

```
./run.sh
--metaserver <metadata-host>
--metaport <metadata-port>
--metauser sasadm@saspw
--metapass XXXXXX
--upgrade
```

18. After all the PostgreSQL database instances on all machines have been upgraded, start all SAS Services across all machines. For more information, see [“Starting Servers in the Correct Order”](#) in *SAS Intelligence Platform: System Administration Guide*.

After you successfully upgrade Postgres, you need to keep only the current active version of PostgreSQL, which resides in the **SASHome\SASWebInfrastructurePlatformDataServer\9.4** directory.

After the PostgreSQL database upgrade is complete and you have verified that the SAS deployment is functioning properly, delete any **SASHome** `\SASWebInfrastructurePlatformDataServer9.4_PREVIOUS` and `9.4_PREVIOUS_date-time-stamp` directories. These directories contain the binaries for any older versions of Postgres and are no longer used after the database upgrade is complete.

## Upgrading PostgreSQL 14 without Using Metadata

In some circumstances (for example, incomplete or stale configuration metadata), the script might not be able to use metadata to upgrade all PostgreSQL database instances. For these cases, you can use a single instance mode that does not require a metadata connection. Using this mode requires that you provide the paths to each PostgreSQL database instance to upgrade the instances one at a time.

To upgrade to PostgreSQL 14:

1. Perform a backup of the deployment. For more information, see [SAS 9.4 Upgrade in Place: System-Level Backup and Recovery Best Practices](#). This backup preserves the system in its pre-database upgrade state.
2. Stop all SAS Services across all machines, except for the Metadata Server and the WebInfrastructurePlatform data server. See “Stopping SAS Servers That Are Running” in *SAS Intelligence Platform: Installation and Configuration Guide*.
3. Determine the version of PostgreSQL that you are currently running. This is the version of PostgreSQL that you are upgrading *from*. You need this information in later steps.

To identify the version of PostgreSQL database that you are upgrading *from*:

- a. On the machine that your WebInfrastructureDataServer (WIP) database is configured, open a command prompt.
- b. On UNIX, append the `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/lib` path to the environment variable so that the command finds the libpg.so.5 library required by psql.

**Table 10.2** Environment Variable Name for Each Flavor of UNIX

Operating Environment	Environment Variable Name
Solaris	SLD_LIBRARY_PATH
AIX/R	\$LIBPATH
Linux	SLD LIBRARY PATH

Here is an example of this command for a Linux environment: **export LD\_LIBRARY\_PATH=<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/lib:\$LD\_LIBRARY\_PATH.**

- c. Run this command to connect to the database and to query the version where `<SASHome>` is the path to your SASHome directory:

```
<SASHome>\SASWebInfrastructurePlatformDataServer\9.4\bin\psql" -h <hostname of the ma
```

Here is an example:

```
"C:\Program Files\SASHome\SASWebInfrastructurePlatformDataServer\9.4\bin\psql" -h myw
```

- d. When prompted, enter the password for the database. Press Enter.
  - e. Record the version of the current database. This is the value returned when you run the command. You need this value in step 11.
  - f. Shut down the Metadata Server and WebInfrastructurePlatform data server.
4. Run the SAS Deployment Wizard from your software depot.
  5. Select **Install SAS software** and click **Next**.
  6. Select an existing SAS Home and click **Next**.
  7. Select **Install Additional Software** and click **Next**.
  8. Select the **SAS Web Infrastructure Platform Data Server** check box and click **Next**.
  9. Click **Next** through the next several steps, and then click **Start**.
  10. When the installation has completed successfully, click **Next** and **Finish**.
  11. In the `<SASHome>/SASWebInfrastructurePlatformDataServer` directory, complete these steps:
    - a. Locate the `9.4_PREVIOUS-yyyy-mm-dd-HH.MM.SS` folder that contains the version of the PostgreSQL database that you are upgrading from that you identified in step 3e.
 

*Note:* If you have only one `9.4_PREVIOUS` directory, you can skip the rest of step 11. You already have the correct binaries in place.

To determine the version of binaries in each of the `9.4_PREVIOUS*` directories:

At a command prompt, run the `postgres --version` command from the `bin` directory.

      - UNIX: `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4_PREVIOUS-yyyy-mm-dd-HH.MM.SS/bin/postgres --version`
      - Windows: `<SASHome>\SASWebInfrastructurePlatformDataServer\9.4_PREVIOUS-yyyy-mm-dd-HH.MM.SS\bin\postgres.exe --version`
    - b. If the current `9.4_PREVIOUS` directory does not contain the correct binaries, rename or delete this directory.
    - c. Rename the folder that contains the binaries that match the version of PostgreSQL database that you are upgrading *from* to `9.4_PREVIOUS`.
  12. Repeat steps 3–11 for each tier that has `SASHome/SASWebInfrastructurePlatformDataServer` installed.
  13. For all machines that contain at least one PostgreSQL database instance, run steps 14–17.
  14. In a command prompt or terminal session, change the directory to `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/scripts/upgrade`.
  15. Display an analysis report on the deployment of PostgreSQL. This report lists whether the instance is ready to upgrade or has already been upgraded to PostgreSQL 14.
    - In Linux environments, run `run.sh`.

- In Windows environment, run `run.bat`.

Use these parameters to connect to the PostgreSQL database instance that you are upgrading:

```
--singleinstance --pgscript <instance-script-path>
--pguser <superuser-id>
--pgpass <superuser-password>
>
```

Here is an example for UNIX:

```
./run.sh --singleinstance
--pgscript /local/config/Lev1/WebInfrastructurePlatformDataServer/webinfdsvrc.sh
--pguser dbmsowner
--pgpass XXXXXX
```

16. Upgrade the PostgreSQL database instance by running the script again after adding the `--upgrade` parameter.

Here is an example for UNIX:

```
./run.sh --singleinstance
--pgscript /local/config/Lev1/WebInfrastructurePlatformDataServer/webinfdsvrc.sh
--pguser dbmsowner
--pgpass XXXXXX
--upgrade
```

17. After all the PostgreSQL database instances on all machines have been upgraded, start all SAS Services across all machines. For more information, see [“Starting Servers in the Correct Order”](#) in *SAS Intelligence Platform: System Administration Guide*.

After you successfully upgrade Postgres, you need to keep only the current active version of PostgreSQL, which resides in the `SASHome \SASWebInfrastructurePlatformDataServer\9.4` directory.

After the upgrade of the PostgreSQL database is complete and you have verified that the SAS deployment is functioning properly, delete any `SASHome \SASWebInfrastructurePlatformDataServer\9.4_PREVIOUS` and `9.4_PREVIOUS_<datetimestamp>` directories. These directories contain the binaries for any older versions of Postgres and are no longer used after the database upgrade is complete.

---

## SAS 9.4M7: Upgrading to PostgreSQL 12

### *About Upgrading to PostgreSQL 12*

SAS 9.4M1 to SAS 9.4M5 delivered PostgreSQL 9.1 as the Web Infrastructure Platform Data Server. This server was used by SAS applications such as the Web Infrastructure Platform and SAS Visual Analytics. SAS 9.4M6 supported PostgreSQL 9.5. Starting in SAS 9.4M7, SAS supports PostgreSQL 12.

If you are installing SAS 9.4M7 for the first time or you are migrating previous SAS deployments to SAS 9.4M7, your version of PostgreSQL is automatically upgraded to PostgreSQL 12. No additional steps are required.

However, if you are performing an upgrade in place, those deployments are not automatically upgraded to PostgreSQL 12.

*Note:* The Postgres database instances for any retired products are not upgraded. For more information about retired SAS products, see [“Unconfiguring and Uninstalling Retired Products”](#) on page 59.

### **Possible Additional Step for SAS 9.4M6 (July 2020, Rev. 9.4\_20w30) Users**

To register the SAS 9.4M7 version of the SAS Web Infrastructure Platform Data Server properly in the SAS Deployment Registry, you might need to perform an additional step between the upgrade-in-place installation and the steps for updating the existing configuration.

This step applies only to SAS 9.4M6 customers (Rev. 9.4\_20w30) who upgraded their internal version of PostgreSQL to version 12 before upgrading in place and who are upgrading-in-place to SAS 9.4M7.

After SASHome has been upgraded to SAS 9.4M7:

1. Stop the SAS Deployment Wizard.
2. Start the SAS Deployment Wizard from your SAS 9.4M7 depot.
3. Select **Install SAS software**, and click **Next**.
4. Select an existing SAS Home location, and click **Next**.
5. Select **Install Additional Software**, and click **Next**.
6. Select the **SAS Web Infrastructure Platform Data Server** check box, and click **Next**.
7. Click **Next** through the subsequent steps, and then click **Start**.
8. When the installation has completed successfully, click **Next** and then **Finish**.
9. Repeat these steps on each machine in the deployment that contains **SASHome/SASWebInfrastructurePlatformDataServer**.

To complete the configuration upgrade, skip the remaining steps in [“Install and Configure a Software Update”](#) on page 53. Instead, complete the steps in [“Configure Updated or Upgraded SAS Products”](#) in *SAS Intelligence Platform: Installation and Configuration Guide*.

### **Upgrading to PostgreSQL 12 after Upgrading to SAS 9.4M7**

After you upgrade to SAS 9.4M7, your deployment is still running using the version of PostgreSQL that was in place *before* the upgrade.

To upgrade to PostgreSQL 12:

1. Perform a backup of the deployment. For more information, see [SAS 9.4 Upgrade in Place: System-Level Backup and Recovery Best Practices](#). This backup preserves the system in its pre-database upgrade state.
2. Stop all SAS Services across all machines, except for the Metadata Server and the WebInfrastructurePlatform data server. See [“Stopping SAS Servers That Are Running”](#) in *SAS Intelligence Platform: Installation and Configuration Guide*.

3. Determine the version of PostgreSQL that you are currently running. This is the version of PostgreSQL that you are upgrading *from*. You need this information in later steps.

To identify the version of PostgreSQL database that you are upgrading *from*:

- a. On the machine that your WebInfrastructureDataServer (WIP) database is configured, open a command prompt.
- b. On UNIX, append the `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/lib` path to the environment variable so that the command finds the `libpg.so.5` library required by `psql`.

**Table 10.3** Environment Variable Name for Each Flavor of UNIX

Operating Environment	Environment Variable Name
Solaris	\$LD_LIBRARY_PATH
AIX/R	\$LIBPATH
HP-UX	\$LD_LIBRARY_PATH or \$SHLIB_PATH
Linux	\$LD_LIBRARY_PATH

Here is an example of this command for a Linux environment: `export LD_LIBRARY_PATH=<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/lib:$LD_LIBRARY_PATH.`

- c. Run this command to connect to the database and to query the version where `<SASHome>` is the path to your SASHome directory:

```
<SASHome>\SASWebInfrastructurePlatformDataServer\9.4\bin\psql" -h <hostname of the machine>
```

Here is an example:

```
"C:\Program Files\SASHome\SASWebInfrastructurePlatformDataServer\9.4\bin\psql" -h mywip
```

- d. When prompted, enter the password for the database. Press Enter.
  - e. Record the version of the current database. This is the value returned when you run the command. You need this value in step 11.
  - f. Shut down the Metadata Server and WebInfrastructurePlatform data server.
4. Run the SAS Deployment Wizard from your software depot.
  5. Select **Install SAS software** and click **Next**.
  6. Select an existing SAS Home and click **Next**.
  7. Select **Install Additional Software** and click **Next**.
  8. Select the **SAS Web Infrastructure Platform Data Server** check box and click **Next**.
  9. Click **Next** through the next several steps, and then click **Start**.
  10. When the installation has completed successfully, click **Next** and **Finish**.

11. In the `<SASHome>/SASWebInfrastructurePlatformDataServer` directory, complete these steps:

- a. Locate the `9.4_PREVIOUS-yyyy-mm-dd-HH.MM.SS` folder that contains the version of the PostgreSQL database that you are upgrading from that you identified in step 3e.

*Note:* If you have only one `9.4_PREVIOUS` directory, you can skip the rest of step 11. You already have the correct binaries in place.

To determine the version of binaries in each of the `9.4_PREVIOUS*` directories:

At a command prompt, run the `postgres --version` command from the `bin` directory.

- UNIX: `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4_PREVIOUS-yyyy-mm-dd-HH.MM.SS/bin/postgres --version`
  - Windows: `<SASHome>\SASWebInfrastructurePlatformDataServer\9.4_PREVIOUS-yyyy-mm-dd-HH.MM.SS\bin\postgres.exe --version`
- b. If the current `9.4_PREVIOUS` directory does not contain the correct binaries, rename or delete this directory.
  - c. Rename the folder that contains the binaries that match the version of PostgreSQL database that you are upgrading *from* to `9.4_PREVIOUS`.

12. Repeat steps 3–11 for each tier that has `SASHome/SASWebInfrastructurePlatformDataServer` installed.

13. Start the Metadata Server.

14. For all machines that contain at least one PostgreSQL database instance, run steps 15–17.

15. In a command prompt or terminal session, change the directory to `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/scripts/upgrade`.

16. Display an analysis report on the deployment of PostgreSQL. This report lists each PostgreSQL database configuration that is found in the metadata, whether the configuration is located locally to the machine or remotely on another machine, and whether the configuration is ready to upgrade or has already been upgraded to PostgreSQL 12.

- In Linux environments, run `run.sh`.
- In Windows environment, run `run.bat`.

Use these parameters to connect to a metadata server using the SAS Administrator (`sasadmin`) credentials:

```
--metaserver <metadata-host>
--metaport <metadata-port>
--metauser <sasadm-userid>
--metapass <sasadm-password>
```

Here is an example for UNIX:

```
./run.sh
--metaserver <metadata-host>
--metaport <metadata-port>
--metauser sasadm@saspw
--metapass XXXXXX
```



17. Upgrade any of the local PostgreSQL database instance by running the script again after adding the `--upgrade` parameter.

Here is an example for UNIX:

```
./run.sh
  --metaserver <metadata-host>
  --metaport <metadata-port>
  --metauser sasadm@saspw
  --metapass XXXXXX
  --upgrade
```

18. After all the PostgreSQL database instances on all machines have been upgraded, start all SAS Services across all machines. For more information, see “Starting Servers in the Correct Order” in *SAS Intelligence Platform: System Administration Guide*.

After you successfully upgrade Postgres, you need to keep only the current active version of PostgreSQL, which resides in the `SASHome \SASWebInfrastructurePlatformDataServer\9.4` directory.

After the PostgreSQL database upgrade is complete and you have verified that the SAS deployment is functioning properly, delete any `SASHome \SASWebInfrastructurePlatformDataServer9.4_PREVIOUS` and `9.4_PREVIOUS_date-time-stamp` directories. These directories contain the binaries for any older versions of Postgres and are no longer used after the database upgrade is complete.

## Upgrading PostgreSQL 12 without Using Metadata

In some circumstances (for example, incomplete or stale configuration metadata), the script might not be able to use metadata to upgrade all PostgreSQL database instances. For these cases, you can use a single instance mode that does not require a metadata connection. Using this mode requires that you provide the paths to each PostgreSQL database instance to upgrade the instances one at a time.

To upgrade to PostgreSQL 12:

1. Perform a backup of the deployment. For more information, see [SAS 9.4 Upgrade in Place: System-Level Backup and Recovery Best Practices](#). This backup preserves the system in its pre-database upgrade state.
2. Stop all SAS Services across all machines, except for the Metadata Server and the WebInfrastructurePlatform data server. See “Stopping SAS Servers That Are Running” in *SAS Intelligence Platform: Installation and Configuration Guide*.
3. Determine the version of PostgreSQL that you are currently running. This is the version of PostgreSQL that you are upgrading *from*. You need this information in later steps.

To identify the version of PostgreSQL database that you are upgrading *from*:

- a. On the machine that your WebInfrastructureDataServer (WIP) database is configured, open a command prompt.
- b. On UNIX, append the `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/lib` path to the environment variable so that the command finds the `libpg.so.5` library required by `psql`.

**Table 10.4** Environment Variable Name for Each Flavor of UNIX

Operating Environment	Environment Variable Name
Solaris	\$LD_LIBRARY_PATH
AIX/R	\$LIBPATH
HP-UX	\$LD_LIBRARY_PATH or \$SHLIB_PATH
Linux	\$LD_LIBRARY_PATH

Here is an example of this command for a Linux environment: **export LD\_LIBRARY\_PATH=<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/lib:\$LD\_LIBRARY\_PATH.**

- c. Run this command to connect to the database and to query the version where <SASHome> is the path to your SASHome directory:

```
<SASHome>\SASWebInfrastructurePlatformDataServer\9.4\bin\psql" -h <hostname of the ma
```

Here is an example:

```
"C:\Program Files\SASHome\SASWebInfrastructurePlatformDataServer\9.4\bin\psql" -h myw
```

- d. When prompted, enter the password for the database. Press Enter.
  - e. Record the version of the current database. This is the value returned when you run the command. You need this value in step 11.
  - f. Shut down the Metadata Server and WebInfrastructurePlatform data server.
4. Run the SAS Deployment Wizard from your software depot.
  5. Select **Install SAS software** and click **Next**.
  6. Select an existing SAS Home and click **Next**.
  7. Select **Install Additional Software** and click **Next**.
  8. Select the **SAS Web Infrastructure Platform Data Server** check box and click **Next**.
  9. Click **Next** through the next several steps, and then click **Start**.
  10. When the installation has completed successfully, click **Next** and **Finish**.
  11. In the <SASHome>/SASWebInfrastructurePlatformDataServer directory, complete these steps:
    - a. Locate the 9.4\_PREVIOUS-**yyyy-mm-dd-HH.MM.SS** folder that contains the version of the PostgreSQL database that you are upgrading from that you identified in step 3e.

*Note:* If you have only one 9.4\_PREVIOUS directory, you can skip the rest of step 11. You already have the correct binaries in place.

To determine the version of binaries in each of the 9.4\_PREVIOUS\* directories:

At a command prompt, run the **postgres --version** command from the **bin** directory.

- UNIX: `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4_PREVIOUS-yyyy-mm-dd-HH.MM.SS/bin/postgres -version`
  - Windows: `<SASHome>\SASWebInfrastructurePlatformDataServer\9.4_PREVIOUS-yyyy-mm-dd-HH.MM.SS\bin\postgres.exe --version`
- b. If the current `9.4_PREVIOUS` directory does not contain the correct binaries, rename or delete this directory.
  - c. Rename the folder that contains the binaries that match the version of PostgreSQL database that you are upgrading *from* to `9.4_PREVIOUS`.
12. Repeat steps 3–11 for each tier that has `SASHome/SASWebInfrastructurePlatformDataServer` installed.
  13. For all machines that contain at least one PostgreSQL database instance, run steps 14–17.
  14. In a command prompt or terminal session, change the directory to `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/scripts/upgrade`.
  15. Display an analysis report on the deployment of PostgreSQL. This report lists whether the instance is ready to upgrade or has already been upgraded to PostgreSQL 12.
    - In Linux environments, run `run.sh`.
    - In Windows environment, run `run.bat`.

Use these parameters to connect to the PostgreSQL database instance that you are upgrading:

```
--singleinstance --pgscript <instance-script-path>
--pguser <superuser-id>
--pgpass <superuser-password>
>
```

Here is an example for UNIX:

```
./run.sh --singleinstance
--pgscript /local/config/Levl/WebInfrastructurePlatformDataServer/webinfdsvrc.sh
--pguser dbmsowner
--pgpass XXXXXX
```

16. Upgrade the PostgreSQL database instance by running the script again after adding the `--upgrade` parameter.

Here is an example for UNIX:

```
./run.sh --singleinstance
--pgscript /local/config/Levl/WebInfrastructurePlatformDataServer/webinfdsvrc.sh
--pguser dbmsowner
--pgpass XXXXXX
--upgrade
```

17. After all the PostgreSQL database instances on all machines have been upgraded, start all SAS Services across all machines. For more information, see [“Starting Servers in the Correct Order”](#) in *SAS Intelligence Platform: System Administration Guide*.

*Note:* If your deployment includes SAS Business Data Network, additional steps are required after you upgrade to PostgreSQL 12. For more information, see [“SAS Business Data Network and PostgreSQL 12”](#) on page 133.

After you successfully upgrade Postgres, you need to keep only the current active version of PostgreSQL, which resides in the `SASHome` `\SASWebInfrastructurePlatformDataServer\9.4` directory.

After the upgrade of the PostgreSQL database is complete and you have verified that the SAS deployment is functioning properly, delete any `SASHome` `\SASWebInfrastructurePlatformDataServer\9.4_PREVIOUS` and `9.4_PREVIOUS_<datetimestamp>` directories. These directories contain the binaries for any older versions of Postgres and are no longer used after the database upgrade is complete.

---

## SAS 9.4M6: Upgrading to PostgreSQL 9.5

### End-of-Life for PostgreSQL 9.5

The final build of PostgreSQL 9.5 reached end-of-life on 11 February 2021. SAS recommends upgrading your site to SAS 9.4M8. If you are installing SAS 9.4M8 for the first time or you are migrating previous SAS deployments to SAS 9.4M8, your version of PostgreSQL is automatically upgraded to PostgreSQL 14. No additional steps are required.

However, if you are performing an upgrade in place, those deployments are not automatically upgraded to PostgreSQL 14. For more information, see [“SAS 9.4M8: Upgrading to PostgreSQL 14”](#) on page 66.

### About Upgrading to PostgreSQL 9.5

SAS 9.4M1 to SAS 9.4M5 delivered PostgreSQL 9.1 as the Web Infrastructure Platform Data Server. This server was used by SAS applications such as the Web Infrastructure Platform and SAS Visual Analytics. Starting in SAS 9.4M6, SAS supports PostgreSQL 9.5.

If you are installing SAS 9.4M6 for the first time or you are migrating previous SAS deployments to SAS 9.4M6, your version of PostgreSQL is automatically upgraded to PostgreSQL 9.5. No additional steps are required.

However, if you are performing an upgrade in place, those deployments are not automatically upgraded to PostgreSQL 9.5. You need to perform additional steps.

### Upgrading to PostgreSQL 9.5 after Upgrading to SAS 9.4M6

After you upgrade to SAS 9.4M6, your deployment is still running using the version of PostgreSQL that was in place *before* the upgrade.

To upgrade to PostgreSQL 9.5:

1. Perform a backup of the deployment. For more information, see [SAS 9.4 Upgrade in Place: System-Level Backup and Recovery Best Practices](#). This backup preserves the system in its pre-database upgrade state.
2. Stop all SAS Services across all machines, except for the Metadata Server and the WebInfrastructurePlatform data server. See [“Stopping SAS Servers That Are Running”](#) in *SAS Intelligence Platform: Installation and Configuration Guide*.

3. Determine the version of PostgreSQL that you are currently running. This is the version of PostgreSQL that you are upgrading *from*. You need this information in later steps.

To identify the version of PostgreSQL database that you are upgrading *from*:

- a. On the machine that your WebInfrastructureDataServer (WIP) database is configured, open a command prompt.
- b. On UNIX, append the `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/lib` path to the environment variable so that the command finds the `libpg.so.5` library required by `psql`.

**Table 10.5** Environment Variable Name for Each Flavor of UNIX

Operating Environment	Environment Variable Name
Solaris	\$LD_LIBRARY_PATH
AIX/R	\$LIBPATH
HP-UX	\$LD_LIBRARY_PATH or \$SHLIB_PATH
Linux	\$LD_LIBRARY_PATH

Here is an example of this command for a Linux environment: **export LD\_LIBRARY\_PATH=<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/lib:\$LD\_LIBRARY\_PATH.**

- c. Run this command to connect to the database and to query the version where `<SASHome>` is the path to your SASHome directory:

```
<SASHome>\SASWebInfrastructurePlatformDataServer\9.4\bin\psql" -h <hostname of the machine>
```

Here is an example:

```
"C:\Program Files\SASHome\SASWebInfrastructurePlatformDataServer\9.4\bin\psql" -h mywip
```

- d. When prompted, enter the password for the database. Press Enter.
  - e. Record the version of the current database. This is the value returned when you run the command. You need this value in step 11.
  - f. Shut down the Metadata Server and WebInfrastructurePlatform data server.
4. Run the SAS Deployment Wizard from your software depot.
  5. Select **Install SAS software** and click **Next**.
  6. Select an existing SAS Home and click **Next**.
  7. Select **Install Additional Software** and click **Next**.
  8. Select the **SAS Web Infrastructure Platform Data Server** check box and click **Next**.
  9. Click **Next** through the next several steps, and then click **Start**.
  10. When the installation has completed successfully, click **Next** and **Finish**.

11. In the `<SASHome>/SASWebInfrastructurePlatformDataServer` directory, complete these steps:

- a. Locate the `9.4_PREVIOUS-yyyy-mm-dd-HH.MM.SS` folder that contains the version of the PostgreSQL database that you are upgrading from that you identified in step 3e.

*Note:* If you have only one `9.4_PREVIOUS` directory, you can skip the rest of step 11. You already have the correct binaries in place.

To determine the version of binaries in each of the `9.4_PREVIOUS*` directories:

At a command prompt, run the `postgres --version` command from the `bin` directory.

- UNIX: `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4_PREVIOUS-yyyy-mm-dd-HH.MM.SS/bin/postgres --version`
  - Windows: `<SASHome>\SASWebInfrastructurePlatformDataServer\9.4_PREVIOUS-yyyy-mm-dd-HH.MM.SS\bin\postgres.exe --version`
- b. If the current `9.4_PREVIOUS` directory does not contain the correct binaries, rename or delete this directory.
  - c. Rename the folder that contains the binaries that match the version of PostgreSQL database that you are upgrading *from* to `9.4_PREVIOUS`.

12. Repeat steps 3–11 for each tier that has `SASHome/SASWebInfrastructurePlatformDataServer` installed.

13. Start the Metadata Server.

14. For all machines that contain at least one PostgreSQL database instance, run steps 15–17.

15. In a command prompt or terminal session, change the directory to `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/scripts/upgrade`.

16. Display an analysis report on the deployment of PostgreSQL. This report lists each PostgreSQL database configuration that is found in the metadata, whether the configuration is located locally to the machine or remotely on another machine, and whether the configuration is ready to upgrade or has already been upgraded to PostgreSQL 9.5.

- In Linux environments, run `run.sh`.
- In Windows environment, run `run.bat`.

Use these parameters to connect to a metadata server using the SAS Administrator (`sasadmin`) credentials:

```
--metaserver <metadata-host>
--metaport <metadata-port>
--metauser <sasadm-userid>
--metapass <sasadm-password>
```

Here is an example for UNIX:

```
./run.sh
--metaserver <metadata-host>
--metaport <metadata-port>
--metauser sasadm@saspw
--metapass XXXXXX
```

17. Upgrade any of the local PostgreSQL database instance by running the script again after adding the **--upgrade** parameter.

Here is an example for UNIX:

```
./run.sh
  --metaserver <metadata-host>
  --metaport <metadata-port>
  --metauser sasadm@saspw
  --metapass XXXXXX
  --upgrade
```

18. After all the PostgreSQL database instances on all machines have been upgraded, start all SAS Services across all machines. For more information, see “[Starting Servers in the Correct Order](#)” in *SAS Intelligence Platform: System Administration Guide*.

After you successfully upgrade Postgres, you need to keep only the current active version of PostgreSQL, which resides in the **SASHome** `\SASWebInfrastructurePlatformDataServer\9.4` directory.

After the PostgreSQL database upgrade is complete and you have verified that the SAS deployment is functioning properly, delete any **SASHome** `\SASWebInfrastructurePlatformDataServer9.4_PREVIOUS` and `9.4_PREVIOUS_date-time-stamp` directories. These directories contain the binaries for any older versions of Postgres and are no longer used after the database upgrade is complete.

### Upgrading PostgreSQL 9.5 without Using Metadata

In some circumstances (for example, incomplete or stale configuration metadata), the script might not be able to use metadata to upgrade all PostgreSQL database instances. For these cases, you can use a single instance mode that does not require a metadata connection. Using this mode requires that you provide the paths to each PostgreSQL database instance to upgrade the instances one at a time.

To upgrade to PostgreSQL 9.5:

1. Perform a backup of the deployment. For more information, see [SAS 9.4 Upgrade in Place: System-Level Backup and Recovery Best Practices](#). This backup preserves the system in its pre-database upgrade state.
2. Stop all SAS Services across all machines, except for the Metadata Server and the WebInfrastructurePlatform data server. See “[Stopping SAS Servers That Are Running](#)” in *SAS Intelligence Platform: Installation and Configuration Guide*.
3. Determine the version of PostgreSQL that you are currently running. This is the version of PostgreSQL that you are upgrading *from*. You need this information in later steps.

To identify the version of PostgreSQL database that you are upgrading *from*:

- a. On the machine that your WebInfrastructureDataServer (WIP) database is configured, open a command prompt.
- b. On UNIX, append the `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/lib` path to the environment variable so that the command finds the libpg.so.5 library required by psql.

**Table 10.6** Environment Variable Name for Each Flavor of UNIX

Operating Environment	Environment Variable Name
Solaris	\$LD_LIBRARY_PATH
AIX/R	\$LIBPATH
HP-UX	\$LD_LIBRARY_PATH or \$SHLIB_PATH
Linux	\$LD_LIBRARY_PATH

Here is an example of this command for a Linux environment: **export LD\_LIBRARY\_PATH=<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/lib:\$LD\_LIBRARY\_PATH.**

- c. Run this command to connect to the database and to query the version where <SASHome> is the path to your SASHome directory:

```
<SASHome>\SASWebInfrastructurePlatformDataServer\9.4\bin\psql" -h <hostname of the ma
```

Here is an example:

```
"C:\Program Files\SASHome\SASWebInfrastructurePlatformDataServer\9.4\bin\psql" -h myw
```

- d. When prompted, enter the password for the database. Press Enter.
  - e. Record the version of the current database. This is the value returned when you run the command. You need this value in step 11.
  - f. Shut down the Metadata Server and WebInfrastructurePlatform data server.
4. Run the SAS Deployment Wizard from your software depot.
  5. Select **Install SAS software** and click **Next**.
  6. Select an existing SAS Home and click **Next**.
  7. Select **Install Additional Software** and click **Next**.
  8. Select the **SAS Web Infrastructure Platform Data Server** check box and click **Next**.
  9. Click **Next** through the next several steps, and then click **Start**.
  10. When the installation has completed successfully, click **Next** and **Finish**.
  11. Navigate to the <SASHome>/SASWebInfrastructurePlatformDataServer directory and complete these steps:
    - a. Locate the 9.4\_PREVIOUS-**yyyy-mm-dd-HH.MM.SS** folder that contains the version of the PostgreSQL database that you are upgrading from that you identified in step 3e.

*Note:* If you have only one 9.4\_PREVIOUS directory, you can skip the rest of step 11. You already have the correct binaries in place.

To determine the version of binaries in each of the 9.4\_PREVIOUS\* directories:

At a command prompt, run the **postgres --version** command from the **bin** directory.



- UNIX: `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4_PREVIOUS-yyyy-mm-dd-HH.MM.SS/bin/postgres -version`
  - Windows: `<SASHome>\SASWebInfrastructurePlatformDataServer\9.4_PREVIOUS-yyyy-mm-dd-HH.MM.SS\bin\postgres.exe --version`
- b. If the current `9.4_PREVIOUS` directory does not contain the correct binaries, rename or delete this directory.
  - c. Rename the folder that contains the binaries that match the version of PostgreSQL database that you are upgrading *from* to `9.4_PREVIOUS`.
12. Repeat steps 3–11 for each tier that has `SASHome/SASWebInfrastructurePlatformDataServer` installed.
  13. For all machines that contain at least one PostgreSQL database instance, run steps 14–17.
  14. In a command prompt or terminal session, change the directory to `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4/scripts/upgrade`.
  15. Display an analysis report on the deployment of PostgreSQL. This report lists whether the instance is ready to upgrade or has already been upgraded to PostgreSQL 9.5.
    - In Linux environments, run `run.sh`.
    - In Windows environment, run `run.bat`.

Use these parameters to connect to the PostgreSQL database instance that you are upgrading:

```
--singleinstance --pgscript <instance-script-path>
--pguser <superuser-id>
--pgpass <superuser-password>
>
```

Here is an example for UNIX:

```
./run.sh --singleinstance
--pgscript /local/config/Levl/WebInfrastructurePlatformDataServer/webinfdsvrc.sh
--pguser dbmsowner
--pgpass XXXXXX
```

16. Upgrade the PostgreSQL database instance by running the script again after adding the `--upgrade` parameter.

Here is an example for UNIX:

```
./run.sh --singleinstance
--pgscript /local/config/Levl/WebInfrastructurePlatformDataServer/webinfdsvrc.sh
--pguser dbmsowner
--pgpass XXXXXX
--upgrade
```

17. After all the PostgreSQL database instances on all machines have been upgraded, start all SAS Services across all machines. For more information, see [“Starting Servers in the Correct Order”](#) in *SAS Intelligence Platform: System Administration Guide*.

After you successfully upgrade Postgres, you need to keep only the current active version of PostgreSQL, which resides in the `SASHome\SASWebInfrastructurePlatformDataServer\9.4` directory.

After the upgrade of the PostgreSQL database is complete and you have verified that the SAS deployment is functioning properly, delete any **SASHome** **\SASWebInfrastructurePlatformDataServer\9.4\_PREVIOUS** and **9.4\_PREVIOUS\_<datetimestamp>** directories. These directories contain the binaries for any older versions of Postgres and are no longer used after the database upgrade is complete.

## Part 5

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# Product Details and Requirements

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## Chapter 11

# Introduction to Product Details and Requirements

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## How Do I Use This Documentation?

In general, the process for installing and configuring all SAS products is the same. You can perform this installation and configuration by using the SAS Deployment Wizard.

However, some products require that you perform steps before upgrading to a new release or perform post-configuration steps after installing the product. The “Product Details and Requirements” section of this document contains information about product changes and any pre-installation and post-configuration steps that you need to perform for a specific SAS product. Each chapter begins with an upgrade path table. In the table, find the row for your current release and the release that you are upgrading to. The last column in that row contains the high-level steps that you must perform to install and configure a SAS product. It is important that you review the documentation for all products at your site before updating the software at your site, so you can create a complete installation and configuration checklist for your site.

If a product is not listed in this part, then no pre-installation or post-configuration steps are required.

*Note:* To determine the product release numbers for each machine in your SAS deployment, generate a deployment registry report. For more information, see [“How to Run the Deployment Registry Report” on page 11](#).

---

## Understanding SAS Foundation

If the following products are in your SAS 9.4 software order, they are installed with SAS Foundation:

- Base SAS
- SAS/AF
- SAS/ASSIST
- SAS/ACCESS
- SAS/CONNECT
- SAS Data Quality Server
- SAS/EIS
- SAS/ETS
- SAS/FSP
- SAS/GIS
- SAS/GRAPH
- SAS/IntrNet
- SAS Integration Technologies
- SAS OLAP Server
- SAS/SECURE
- SAS/SHARE
- SAS Studio

Before you start the SAS Deployment Wizard, check the “Product Details and Requirements” section of this document to determine whether any product pre-installation or post-configuration steps are required.

---

## Installing Multiple Products

Often, you are updating several software products at the same time. If this is true for your site, you do not need to install each SAS product separately. The SAS Deployment Wizard identifies any files in your SAS Software Depot that are older than the files in your software order, so these software updates are made at the same time. For example, your software order might contain SAS Model Manager 13.1 and SAS Forecast Server 13.2. When you run the SAS Deployment Wizard, both products are installed by default.

---

## Adding a New Product

Your software order might include products that you are adding to your current deployment. Before you install any new products, you must apply any software updates. If any updates are detected, the SAS Deployment Wizard automatically goes into Update mode the first time that you start the wizard.

*Note:* If you are prompted for the SAS installation data file (SID file), select the one for the order that contains the new products. However, the new products are not installed as part of the updates.

After you apply these updates, you must restart the SAS Deployment Wizard to install any new products on each tier. In the SAS Deployment Wizard (which you will use to

install the new products), verify that the SAS installation data file (SID file) you select is for the order that contains the new products. You might need to click **Browse** to select the correct SID file. Then you will need to configure each tier. For more information, see “Adding SAS Products” in *SAS Intelligence Platform: Installation and Configuration Guide*.

If you are adding a SAS solution to an existing SAS 9.4 deployment (or if you need to renew your software license for a SAS solution), use the SAS Deployment Manager to update the SID file in the metadata. Verify that the SID file you select is for the order that contains the new products. You might need to click **Browse** to select the correct SID file. For more information, see the “Software License Renewal Instructions” for your operating environment.

- [Software License Renewal Instructions—SAS 9.4 for Microsoft Windows for x64 Planned Deployment](#)
- [Software License Renewal Instructions—SAS 9.4 for UNIX Environments Planned Deployment](#)
- [Software License Renewal Instructions—SAS 9.4 for z/OS Environments Planned Deployment](#)

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## Adding SAS Visual Analytics to Your Deployment

Many SAS 9.4 products and solutions include SAS Visual Analytics components. The integration of SAS Visual Analytics might require some additional hardware at your site. Adding these components to your deployment also requires updating your plan.xml file. Before applying any software updates to your current deployment, you need to decide whether you want to deploy the SAS Visual Analytics components now or delay their deployment.

If your site meets the minimum system requirements and you want to add SAS Visual Analytics components to your deployment now, complete these steps:

1. Work with your SAS account representative to add the SAS Visual Analytics components to your plan.xml file.
2. After you have updated and saved the revised plan.xml file, follow the process for applying software updates. For more information, see “[Install and Configure a Software Update](#)” on page 53.
3. To add new products to your deployment, run the SAS Deployment Wizard a second time. For more information, see “[Adding a New Product](#)” on page 92.

If your site does not meet the minimum system requirements, you might decide to delay the deployment of the SAS Visual Analytics components. However, you can still use the SAS Deployment Wizard to apply any other software updates. For more information, see “[Install and Configure a Software Update](#)” on page 53. You can also add any new products. For more information, see “[Adding a New Product](#)” on page 92.

*Note:* If you delay the deployment of the SAS Visual Analytics components, you will not be able to use SAS Mobile BI.

When you are ready to add the SAS Visual Analytics components to your deployment, simply complete the previous steps. For more specific information, see the administrator’s documentation for your SAS product or solution.



## Chapter 12

## Base SAS

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## Determining Your Update Path for Base SAS

### Upgrading an Existing Base SAS 9.4 Deployment

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7	9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	<ol style="list-style-type: none"> <li>Before you upgrade, see “Base SAS 9.4M2” on page 101, “Base SAS 9.4M3” on page 102, “Base SAS 9.4M4” on page 104, “Base SAS 9.4M5” on page 104, and “Base SAS 9.4M6” on page 105.</li> <li>To upgrade to the latest release of SAS 9.4, see “Install and Configure a Software Update” on page 53.</li> </ol>

---

### Migrating to Base SAS 9.4

Current Release at Your Site	Release That You Are Migrating To	High-Level Steps and Resources
9.3, 9.3M1, 9.3M2	9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	<ol style="list-style-type: none"> <li>Before you upgrade, see “Base SAS 9.4M2” on page 101, “Base SAS 9.4M3” on page 102, “Base SAS 9.4M4” on page 104, “Base SAS 9.4M5” on page 104, and “Base SAS 9.4M6” on page 105.</li> <li>Install and configure SAS 9.4. To determine the steps for installing and configuring SAS 9.4 at your site, see these resources: <ul style="list-style-type: none"> <li>Quick Start Guides in the <a href="#">SAS Install Center</a></li> <li><a href="#">SAS Intelligence Platform: Installation and Configuration Guide</a></li> </ul> For migration information, see these resources: <ul style="list-style-type: none"> <li><a href="#">SAS Intelligence Platform: Migration Guide</a></li> <li>the product documentation page for <a href="#">Base SAS</a></li> </ul> </li> </ol>

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## Base SAS 9.4

### **Changes to the Default Values in the sasv9.cfg File**

The values of the SORTSIZE and MEMSIZE system options have changed in the sasv9.cfg file.

- In Windows environments, the default value of SORTSIZE has changed from 256M to 1G.
- In UNIX environments, the default value of SORTSIZE has changed from 256M to 1G. The default value of MEMSIZE has changed from 512M to 2G.

You might need to verify that the systems at your site can handle this amount of memory.

### **SAS Procedures**

#### CONTENTS, COPY, MIGRATE, and SORT procedures

The International Components for Unicode (ICU) libraries, used by SAS for linguistic collation, have been upgraded from version 4.2 to version 4.8.1. The new ICU version uses locale data from version 2.0 of the Unicode Common Locale Data Repository (CLDR), improves language support, and provides software fixes. For more information, see <http://site.icu-project.org/download/48> and <http://cldr.unicode.org/index/downloads/cldr-2-0>.

A change in the ICU version that is used by SAS can affect the interpretation of some data sets sorted by previous versions of SAS. For more information, see the documentation for the SORT procedure, COPY procedure, and MIGRATE procedure in *Base SAS Procedures Guide*.

The output from the CONTENTS procedure or the CONTENTS statement now shows the ICU version number of a data set that is linguistically sorted.

#### FORMAT procedure

The range to specify a default length of an informat, picture, or format is 1–32767.

#### PRINT procedure

The PROC PRINT statement STYLE= option style attributes for the HEADER location no longer affect the Obs column heading. You specify style attributes for the Obs column heading by using the OBSHEADER location.

#### PRINTTO procedure

The PROC PRINTTO PRINT= statement opens the LISTING destination. You no longer need to specify the ODS LISTING statement before you use the PRINTTO procedure.

#### QDEVICE procedure

Here are some important updates for SAS 9.4:

- The PROC QDEVICE DEVLOC= option enables you to specify a device library other than the SAS/GRAPH Gdevice libraries and the Sashelp library. You can report on the first occurrence of a device, or you can report on all occurrences of a device in the Gdevice and Sashelp libraries.
- The PROC QDEVICE CATALOG= option enables you to specify a catalog, other than the DEVICES catalog, to search.

- The DEVICE statement and the PRINTER statement allow the wildcards \* and ? in device names and printer names.
- The value for a Windows printer device type, as reported by the TYPE variable, is Printer Interface Device. Printer Interface Device replaces the value System Printer.
- For all reports, the NAMETYPE variable has been renamed to TYPE.
- For all reports except the General report, information about prototypes has been removed. The PROTOTYPE variable information is now reported in only the General report.
- Character variable lengths in report output data sets now have a fixed length of 128 characters. The LENGTH statement is no longer required when reports are merged or concatenated.

## System Options

The EXTENDOBSCOUNTER (EOC) system option is new for SAS 9.4. In SAS 9.3, this option was available only as a data set option and a LIBNAME option.

- If you are creating data sets with SAS 9.4 and those data sets need to be backward compatible with a SAS release earlier than SAS 9.3, set the EXTENDOBSCOUNTER system option to NO.
- If your SAS 9.4 data sets are not going to be read by a SAS release earlier than SAS 9.3, set the EXTENDOBSCOUNTER system option to YES.

The default values have changed for these system options:

System Option	New Default Value
CPUCOUNT=	ACTUAL or 4 for systems that have more than four processors
DMSOUTSIZE=	2,147,483,647
LRECL=	32,767
PDFCOMMENT	PDFCOMMENT
YEARCUTOFF=	1926

## ODS Changes

- In SAS 9.4, the default HTML style for z/OS environments has changed from Default to Htmlblue.
- The ODS.TAGSETS RTF statement now supports the BACKGROUNDIMAGE= style attribute.
- The following enhancements have been made to the ODS GRAPHICS statement:
  - The default for the ANTIALIASMAX= option has changed from 600 to 4000.



- The default device driver for the RTF and TAGSETS.RTF destination has changed to EMF.
- The default style for all Printer family destinations (PS, PDF, PCL) has changed from Styles.Printer to Styles.Pearl.

If you are upgrading from a previous release of SAS, note that several new defaults were implemented in SAS 9.3 for the SAS windowing environment in UNIX and Windows operating environments.

Area of Change	Previous Default	New Default Beginning with SAS 9.3
Output Destination	LISTING	HTML
Default style for HTML destination	Styles.Default	Styles.HTMLBlue
ODS Graphics	OFF	ON
Where graphs are saved	Current SAS directory	SAS Work Library

The previous defaults are still used when you run SAS in batch mode.

Because of the changes in the default values, you will see the following changes:

- Results are displayed in the HTMLBlue style, which is a modern style well suited for displaying graphs and tables together. Prior to SAS 9.3, tables were displayed in monospace, and graphs were displayed using the LISTING style.
- Analytical procedures that support ODS Graphics automatically create graphs. Prior to SAS 9.3, you had to explicitly enable ODS Graphics.
- Tables and graphs are displayed together in the HTML results viewer window. Prior to SAS 9.3, tables and graphs were displayed separately in the Output and Graph windows.
- Graphs are no longer saved in the current SAS directory by default. Instead, they are saved in the directory that corresponds to your SAS Work library. Hence, by default, graphs are automatically deleted at the end of your SAS session. You can specify a different directory in your SAS preferences.

For more information, see the *SAS Output Delivery System: User's Guide*.

## **Changes Required for Your Existing SAS Graph Template Language Programs**

### **DENSITYPLOT Statement**

In SAS 9.4, the WEIGHT= option of the KERNEL() distribution option in the DENSITYPLOT statement is changed to WEIGHTFUNCTION=. This change enables the addition of the WEIGHT= option in the DENSITYPLOT statement. Starting with SAS 9.4, the WEIGHT= option is not valid in the KERNEL() distribution option and results in a syntax error. If your existing SAS programs specify the WEIGHT= option in the KERNEL() distribution option, you must change the option to WEIGHTFUNCTION=.

**BARCHART Statement**

In SAS 9.4, the BARCHART statement STAT=PCT option displays percentages between 0 and 100 in order to be consistent with other GTL statements. In prior releases, STAT=PCT displayed proportional values between 0 and 1. To restore the proportional value in SAS 9.4, change STAT=PCT to STAT=PROPORTION.

**Font Changes**

Here are the font changes in SAS 9.4:

- The new Unicode fonts, Arial Unicode MS and Times New Roman Uni, replace the Monotype Sans WT and Thorndale Duospace WT Unicode fonts.

New Unicode Font	Fonts Being Replaced
Arial Unicode MS	Monotype Sans WT TC
	Monotype Sans WT J
	Monotype Sans WT K
Times New Roman Uni	Thorndale Duospace WT SC
	Thorndale Duospace WT TC
	Thorndale Duospace WT J
	Thorndale Duospace WT K

- CSongGB18030C\_Light, MYingHei\_18030\_C-Medium, and CSongGB19030-LightHWL replace the Simplified Chinese fonts.

New Font	Font Being Replaced
CSongGB18030C_Light	Sim Sun
MYingHei_18030_C-Medium	Sim Hei
CSongGB19030-LightHWL	NSimSun

**Extending the Observation Count for a 32-Bit SAS Data File**

SAS 9.4 enhances the extended observation count functionality by automatically creating a 32-bit SAS data file with an extended observation count and by providing the EXTENDOBSCOUNTER= system option. In SAS 9.4, by default, the EXTENDOBSCOUNTER= data set option, LIBNAME statement option, and system option are set to YES. Therefore, in SAS 9.4, if you do not want a SAS data file created with an extended observation count, you must specify EXTENDOBSCOUNTER=NO.

## Base SAS 9.4M2

### Changes Required for Your Existing SAS Graph Template Language Programs

#### **PBSPLINEPLOT Statement**

In SAS 9.4M2, these changes might impact your existing SAS programs:

- The DEGREE= PBSPLINE regression option range is changed from 0–174 to 0–10. If the DEGREE= option value is outside of this range, an error results and the graph is not generated. If your existing SAS programs specify in a PBSPLINEPLOT statement a value for DEGREE= that is greater than 10, you must change the value to a value in the range of 0-10.
- The DEGREE= and NKNOTS= PBSPLINE regression options cannot both be 0. If both options are set to 0, an error results and the PBSPLINE plot is not generated. If your existing SAS programs specify in a PBSPLINEPLOT statement DEGREE=0 and NKNOTS=0, you must change one of the values to a nonzero value.

#### **REGRESSIONPLOT Statement**

In SAS 9.4M2, the DEGREE= regression option range is changed from 0-174 to 1-10. If the DEGREE= option value is outside of this range, an error results and the graph is not generated. If your existing SAS programs specify in a REGRESSIONPLOT statement a value for DEGREE= that is outside of the 1-10 range, you must change the value to a value that is within the 1-10 range.

### Deprecated Options for GTL Statements

GTL Statement	Deprecated Option	Replaced By
AXISTABLE	HEADERLABEL=	TITLE= option
	HEADERLABELATTRS=	TITLEATTRS= option
SCATTERPLOT	MARKERCOLORGRADIENT=	COLORRESPONSE= option
	MARKERSIZERESPONSE=	SIZERESPONSE= option
	MARKERSIZEMAX=	SIZEMAX= option
	MARKERSIZEMIN=	SIZEMIN= option
	OUTLINEDMARKERCHARACTERS =	TEXTPLOT statement
SCATTERPLOTMATRI X	MARKERCOLORGRADIENT=	COLORRESPONSE= option

GTL Statement	Deprecated Option	Replaced By
SURFACEPLOTPARM	SURFACECOLORGRADIENT=	COLORRESPONSE= option

You can continue to use the deprecated options. However, SAS recommends that you switch to the new options or alternate statement as soon as possible.

---

## Base SAS 9.4M3

### *Hadoop Support*

- The requirements for connecting to a Hadoop cluster using either the HADOOP procedure or the FILENAME, Hadoop access method have changed. There is an alternate method for specifying the location of the Hadoop configuration files so that you no longer have to merge properties from multiple Hadoop configuration files and then use the CFG= option to specify the location. You can now use the SAS\_HADOOP\_CONFIG\_PATH environment variable to specify the location of the configuration files. For more information, see the documentation for the HADOOP procedure in *Base SAS Procedures Guide*.
- The CONCAT and DIR Hadoop options in the FILENAME, Hadoop access method are now mutually exclusive because the SAS\_HADOOP\_CONFIG\_PATH environment variable is available.

### *Output Delivery System (ODS)*

- The default EPUB version has changed from EPUB2 to EPUB3. You can change the default EPUB version by updating the SAS registry. For more information, see “Changing ODS EPUB Destination Default Value” in *SAS Output Delivery System: User’s Guide*
- The ODS EPUB and ODS EPUB3 statements no longer support the ENCODING= option. ODS uses the encoding that is specified in the SAS Registry. For more information, see “Changing the ODS EPUB and EPUB3 Encoding Settings” in *SAS Output Delivery System: User’s Guide*.

### *National Language Support (NLS)*

The ManxGaelic\_UnitedKingdom (gv\_GB) locale is no longer supported, and the I18N level has changed for numerous functions. For more information, see “Internationalization Compatibility for SAS String Functions” in *SAS National Language Support (NLS): Reference Guide*.

### *Procedures*

- The new HEADERS statement in PROC HTTP replaces the HEADERIN and CT procedure options. You now can use the new HEADERS statement to specify header requests without providing a fully formatted input file via a fileref. For more information, see “HEADERS Statement” in *Base SAS Procedures Guide*.

- The default method for PROC HTTP when the METHOD or IN options are not specified has changed from POST to GET. For more information, see the PROC HTTP METHOD option in *Base SAS Procedures Guide*
- For web servers that support caching, the HTTP procedure now uses connection caching and cookie caching by default. For more information, see “HTTP Procedure” in *Base SAS Procedures Guide*.
- The default value of BUFSIZE has changed in PROC MIGRATE. The new default is the buffer page size of the current session. To continue using the previous behavior (which is to clone the page size of the members from the source library), specify BUFSIZE=KEEPSIZE. For more information, see “MIGRATE Procedure” in *Base SAS Procedures Guide*.
- A license to SAS/ACCESS Interface to Hadoop is required to use the SQOOP procedure.

## **SAS Macro Facility**

The MVARSIZE system option now has a default value of 65534.

## **Changes Required for Your Existing SAS Graph Template Language Programs**

### **BARCHART Statement**

In SAS 9.4, the BARCHART statement STAT=PCT option now displays percentages in the range 0–100 in order to be consistent with other GTL statements. In prior releases, STAT=PCT displays proportional values in the range 0–1. To restore the proportional values in SAS 9.4 and later releases, change STAT=PCT to STAT=PROPORTION.

In SAS 9.4M3, the COLORSTAT= option is added to the BARCHART statement. The COLORSTAT= option is enabled by the COLORRESPONSE= option. The COLORSTAT= option specifies the statistic to be calculated for the data range of the bar-color gradient. The default is SUM. For existing SAS programs that use the BARCHART statement, if STAT= is used with COLORRESPONSE= in the BARCHART statement and STAT= specifies a statistic other than SUM, then the bar-chart colors and color statistic might change from those of previous releases. In that case, to restore the original colors and color statistic, set COLORSTAT= in the BARCHART statement to the same statistic that is specified in STAT=.

### **DENSITYPLOT Statement**

In SAS 9.4, the WEIGHT= option of the KERNEL() distribution option in the DENSITYPLOT statement is changed to WEIGHTFUNCTION=. This change enables the addition of the WEIGHT= option in the DENSITYPLOT statement. Starting with SAS 9.4, the WEIGHT= option is not valid in the KERNEL() distribution option and results in a syntax error. If your existing SAS programs specify the WEIGHT= option in the KERNEL() distribution option, then you must change WEIGHT= to WEIGHTFUNCTION=.

### **HEATMAPPARM Statement**

In SAS 9.4M3, the DISCRETEX= and DISCRETEY= options are added to the HEATMAPPARM statement. These options specify whether the X or Y axis is discrete. The default is FALSE. For existing SAS programs that use the HEATMAPPARM statement, if the X axis is discrete, the DISCRETEX=TRUE option must be specified in

the HEATMAPPARM statement. Likewise, if the Y axis is discrete, the DISCRETEY=TRUE option must be specified in the HEATMAPPARM statement. Otherwise, the heat map might not be drawn.

### ***WATERFALLCHART Statement***

In SAS 9.4M3, the COLORSTAT= option is added to the WATERFALLCHART statement. The COLORSTAT= option is enabled by the COLORRESPONSE= option. The COLORSTAT= option specifies the statistic to be calculated for the data range of the color gradient. The default is SUM. For existing SAS programs that use the WATERFALLCHART statement, if STAT= is used with COLORRESPONSE= in the WATERFALLCHART statement and STAT= specifies a statistic other than SUM, then the chart colors and color statistic might change from those of previous releases. In that case, to restore the original colors and color statistic, set COLORSTAT= in the WATERFALLCHART statement to the same statistic that is specified in STAT=.

## **Base SAS 9.4M4**

The default behavior of the CFG= option has changed for the FILENAME statement, Hadoop access method. If CFG= is not provided, the SAS\_HADOOP\_CONFIG\_PATH and SAS\_HADOOP\_JAR\_PATH environment variables are now scanned for the location of the required JAR and configuration files.

## **Base SAS 9.4M5**

Base SAS 9.4M5 shipped in September 2017.

### ***SAS\_PUT\_VALUE Function Replaces SAS\_PUT Function***

In SAS 9.4M5, the SAS\_PUT\_VALUE function replaces the SAS\_PUT function from previous releases. The SAS\_PUT\_VALUE function requires you to identify a variable by its name only (and does not accept its position in the data set).

### ***Changes to the ODS Graphics Procedures***

For bar charts and histograms, the FILLTYPE option has changed.

Starting with SAS 9.4M5, FILLTYPE=GRADIENT displays the color from the applied style at the end of the bar (or bin), gradually changing to the color of the wall at the baseline of the bar. The option does not involve transparency. Only the color is affected. FILLTYPE=ALPHAGRADIENT has been added to determine gradient fill color. Each bar is filled with a color and transparency gradient. The gradient transitions from the user-specified transparency at the end of the bar to fully transparent at the baseline.

Prior to SAS 9.4M5, FILLTYPE=GRADIENT was used to determine gradient fill color. Each bar is filled with a color and transparency gradient. The gradient transitions from the user-specified transparency at the end of the bar to fully transparent at the baseline.

## Changes Required for Your Existing SAS Graph Template Language Programs

### **BARChart, BARChartPARM, HISTOGRAM, and HISTOGRAMPARM Statements**

In SAS 9.4M5, the behavior of the FILLTYPE=GRADIENT option is changed. In earlier releases, GRADIENT fills each bar with a color and a transparency gradient that starts with the initial transparency that is assigned to that bar, and ends with full transparency. Starting with SAS 9.4M5, GRADIENT is replaced by ALPHAGRADIENT, which has the same behavior as GRADIENT in earlier releases. GRADIENT is changed to an alias of COLORGRADIENT, which fills each bar with an opaque color gradient that starts with the fill color that is assigned to that bar and ends with the color that is specified in a new option, FILLENDCOLOR=. For existing SAS programs that use the BARChart, BARChartPARM, HISTOGRAM, or HISTOGRAMPARM statement FILLTYPE=GRADIENT option, the bar gradients will change. To restore the original bar gradients in that case, specify FILLTYPE=ALPHAGRADIENT.

### **DISPLAY=ALL Option in Plot Statements**

Starting with SAS 9.4M5, band plots, box plots, bubble plots, high-low charts, ellipse plots, and polygon plots support fill patterns. Also starting with SAS 9.4M5, fill patterns are added to the ODS styles. If your SAS program uses the DISPLAY=ALL option in any of these plot statements, your graph might now display fill patterns in addition to fill color, outline, and so on. If you do not want to use fill patterns in your graph, use the DISPLAY= option in your plot statement to display only the features that you want.

## **SAS/TOOLKIT**

To use your SAS/TOOLKIT images in SAS 9.4M5, you must rebuild your images using the SAS 9.4M5 binary files.

For more information, see [Usage Note 15647: Documentation for SAS/Toolkit software](#).

## **Base SAS 9.4M6**

### **DS2 Language**

- In an effort to align the SUBSTR(right of =) function with DATA step behavior, a length of 0 is now considered invalid.
- User-written DS2 methods that return a DOUBLE value now return the specified missing value. Previously, the regular SAS missing value (a period) was returned.

### **Hadoop Support**

Information about IBM Big Insights and Pivotal has been removed from *Hadoop Configuration Guide for Base SAS and SAS/ACCESS*. These Hadoop vendors have asked their customers to move to Hortonworks.

## Output Delivery System (ODS)

The default style for HTML5 output has been changed from HTMLBlue to HTMLEncore.

## Mapping Support

- These procedures are delivered with Base SAS and are no longer delivered with SAS/GRAPH: PROC GINSIDE, PROC GPROJECT, PROC GREDUCE, PROC GREMOVE
- The %CENTROID macro that supports the SGMAP procedure has moved from SAS/GRAPH to Base SAS and is now an autocall macro. Running the %ANNOMAC macro before using %CENTROID is no longer necessary.

## System Options

In the May 2019 update of the documentation, the SORTDUP system option was removed. In SAS 9.4, you should use PROC SORT with the NODUPKEY option to remove all duplication observations from a data set. For more information, see “Eliminate All Duplicate Observations Using NODUPKEY” in *Base SAS Procedures Guide*.

## z/OS Environment

The MSYMTABMAX= system option default value has changed from 1,048,576 bytes to 2,097,152 bytes.

## Restriction for PROC SQL Views

In SAS 9.4M6 and later releases, if you use the V9 engine to create a PROC SQL view that contains a USING clause, the view is not accessible in SAS 9.4M5 or earlier releases.

## Base 9.4M7

- Starting with SAS 9.4M7 or if you apply a hot fix to SAS 9.4 or to SAS Viya, in the XMLV2 engine, the behavior of the AUTOMAP= LIBNAME statement option is changed. Some XML entities are not supported.
- The default value for the YEARCUTOFF option has changed from 1926 to 1940.

## Base 9.4M8

- Starting with SAS 9.4M8, SAS ODS Graphics Editor and SAS ODS Graphics Designer are retired products. If you order SAS 9.4M8, SAS ODS Graphics Designer and SAS ODS Graphics Editor are not included in that order. 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” on page 59](#).

- For UNIX environments, the HP-UX platform is no longer supported.
- In UNIX and Windows environments, the Syncsort utility is no longer supported by the SORT procedure.

Here are additional changes in security in SAS 9.4M8:

- SAS/SECURE is a retired feature. 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” on page 59](#).

The SAS/SECURE feature that was included with Base SAS software prior to SAS 9.4M8, is no longer necessary. Starting with SAS 9.4M8, SAS uses the cryptographic libraries available from the operating system instead of those delivered by SAS/SECURE. For more information, see [“SAS/SECURE with SAS 9.4M8” in \*Encryption in SAS\*](#).

- IBM System SSL is used to provide TLS for z/OS. SAS no longer provides OpenSSL libraries to support TLS on z/OS, but instead uses System SSL. See [“IBM System SSL Provides OpenSSL Capabilities for z/OS in SAS 9.4M8” in \*Encryption in SAS\*](#).

Because of this change, the following SAS System Options have been deprecated and added.

*Note:* SAS does not support IBM System SSL on z/64 in SAS 9.4M8.

- SAS system options that are deprecated for use with z/OS are SSLCACERTDATA, SSLCACERTDIR, SSLCALISTLOC, SSLCERTLOC, SSLCIPHERLIST, SSLCRLLOC, SSLPKCS12LOC, SSLPKCS12PASS, SSLPVTKEYLOC, SSLPVTKEYPASS, and SSLSNHOSTNAME. See [“SAS System Options Deprecated for Use with SAS 9.4M8 on z/OS” in \*Encryption in SAS\*](#).
- SAS system options that are new and are used with z/OS are SSLGSKTRACE, SSLHWDETECTMESSAGE, SSLICSFERRORMESSAGE, SSLGSKTRACEFILE, SSLKEYRINGFILE, SSLKEYRINGLABEL, SSLKEYRINGPW, and SSLKEYRINGSTASHFILE. See [“SAS System Options Used for IBM z/OS System SSL with SAS 9.4M8” in \*Encryption in SAS\*](#).
- In SAS 9.4M8, SAS Foundation servers use the cryptographic libraries that are provided and installed on the operating system to provide encryption for data at rest and data in motion. With this change, SAS no longer provides OpenSSL libraries for SAS Foundation Servers.

Because the operating system’s OpenSSL libraries might not provide all of the encryption algorithms that were previously available in SAS (mainly because they are deemed unsecure), a warning might be generated. See [“WARNING: The OpenSSL 3 "legacy" provider could not be loaded. Certain functions may not work without ciphers from the "legacy" provider” in \*Encryption in SAS\*](#).

- If you use SAS Micro Analytic Service as an execution engine, be aware that starting with SAS 9.4M8, SAS Micro Analytic Service does not support Solaris.



*Chapter 13***SAS/ACCESS**

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## Determining Your Update Path for SAS/ACCESS

### Upgrading an Existing SAS 9.4 Deployment

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7	9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	<ol style="list-style-type: none"> <li>Before you upgrade, see “SAS/ACCESS 9.4M1” on page 111, “SAS/ACCESS 9.4M2” on page 111, “SAS/ACCESS 9.4M3” on page 112, “SAS/ACCESS 9.4M4” on page 112, and “SAS/ACCESS 9.4M5” on page 113 (if appropriate).</li> <li>To upgrade to the latest release of SAS 9.4, see “Install and Configure a Software Update” on page 53.</li> </ol>

---

### Migrating to SAS 9.4

Current Release at Your Site	Release That You Are Migrating To	High-Level Steps and Resources
9.3, 9.3M1, 9.3M2, 9.2, 9.2M2, 9.2M3	9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	<ol style="list-style-type: none"> <li>Before you migrate, see “SAS/ACCESS 9.4” on page 111, “SAS/ACCESS 9.4M1” on page 111, “SAS/ACCESS 9.4M2” on page 111, “SAS/ACCESS 9.4M3” on page 112, “SAS/ACCESS 9.4M4” on page 112, and “SAS/ACCESS 9.4M5” on page 113 (if appropriate).</li> <li>Install and configure SAS 9.4.  To determine the steps for installing and configuring SAS 9.4 at your site, see these resources: <ul style="list-style-type: none"> <li>Quick Start Guides in the <a href="#">SAS Install Center</a></li> <li><i>SAS Intelligence Platform: Installation and Configuration Guide</i></li> </ul> For migration information, see these resources: <ul style="list-style-type: none"> <li><i>SAS Intelligence Platform: Migration Guide</i></li> <li>the product documentation page for <a href="#">SAS/ACCESS</a></li> </ul> </li> </ol>

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## SAS/ACCESS 9.4

Starting in SAS 9.4, the SAS/ACCESS engines no longer support HP-UX or Linux x86 operating environments.

SAS/ACCESS 9.4 to PC Files imports data from JMP files saved in JMP 7 or later formats, and it exports data to files in JMP 7 or later formats. File formats in JMP 3 through JMP 6 are no longer supported. Support for these newer file formats enables you to access JMP files from mobile apps such as the JMP Graph Builder iPad app. For more information, see “JMP Files” in *SAS/ACCESS Interface to PC Files: Reference*.

- The META statement is used only for importing and exporting JMP files. META is no longer supported and is ignored. Instead, extended attributes are automatically used. If a file has extended attributes, they are automatically transferred to the new file when that file is imported or exported. For example, when importing a JMP file with extended attributes, the attributes are automatically attached to the new SAS data set.
- The META data type for JMP files has been replaced by support for extended attributes. META is ignored in programs, and a NOTE is generated about it in the SAS log.
- The ROWSTATE data type is generated by JMP and is used to store several row-level characteristics. If the JMP file contains row state information, PROC IMPORT stores this information as a new variable with the name `_rowstate_`. If the EXPORT procedure finds a column named `_rowstate_`, the procedure converts this column into the row state information in the output JMP file. For more information, see “JMP Data Types” in *SAS/ACCESS Interface to PC Files: Reference*.
- JMP variable names can be up to 255 characters in length.
- Because you can use the Base SAS IMPORT and EXPORT procedures on JMP files without a SAS/ACCESS license, the preceding information applies to SAS 9.4 as well.

---

## SAS/ACCESS 9.4M1

The SAS/ACCESS 9.4M1 software shipped in December 2013.

- The SAS/ACCESS Interface to Relational Databases and the SAS/ACCESS Interface to PC Files include some new and enhanced options.
- In the SAS/ACCESS Interface to PC Files when you open a Microsoft Excel workbook (XLSX format), all other worksheets in the workbook have their formulas automatically recalculated. This includes any formulas that reference a sheet that has been added or replaced by PROC EXPORT DBMS=XLSX.

---

## SAS/ACCESS 9.4M2

The SAS/ACCESS 9.4M2 software shipped in August 2014.

- In SAS/ACCESS 9.4 Interface to PC Files, these SAS LIBNAME options are no longer supported: FILELOCK=, CONNECTION=, and CONNECTION\_GROUP=.
- In the SAS/ACCESS Interface to Hadoop, HiveServer2 is the default Hive protocol. To set the location of Hadoop configuration files, you use the SAS environment variable SAS\_HADOOP\_CONFIG\_PATH and not the CFG= LIBNAME option. The CFG= option is deprecated.
- For the SAS/ACCESS Interface to Oracle, starting with Oracle 12c, the default data type for SAS character variables in SAS output has changed to either VARCHAR2 or CLOB, depending on the length of the variable.

## SAS/ACCESS 9.4M3

The SAS/ACCESS 9.4M3 software shipped in July 2015.

In SAS 9.4M3, these SAS/ACCESS features are different:

- The format for specifying octal codes using the BL\_ESCAPE= data set option has changed. Specifying these codes with a preceding 'E' is no longer supported. For example, instead of E\24', specify this code as the three-digit octal code, \024.
- The default value of the SQLGENERATION= system option is now (NONE DBMS='TERADATA DB2 ORACLE NETEZZA ASTER GREENPLM HADOOP SAPHANA IMPALA HAWQ').
- For Hadoop, the NUMTASKS= LIBNAME option is no longer supported.
- For Impala, you can use 'IMPALA' in the LIBNAME statement to specify this engine.
- For MySQL, these functions now require SQL\_FUNCTIONS=ALL before they can be passed to MySQL: BYTE, COMPRESS, DATE, DATEPART, DATETIME, LENGTH, REPEAT, ROUND, SOUNDEX, SUBSTR, TIME, TIMEPART, TODAY.
- For OLE DB, the COMPRESS function can be passed via the SQL pass-through facility only when SQL\_FUNCTIONS=ALL.
- For PostgreSQL, the COMPRESS and COT functions can be passed automatically via the SQL pass-through facility. These functions do not require SQL\_FUNCTIONS=ALL.
- For Teradata, the SUM4 function was removed from the list of functions that can be passed via the SQL pass-through facility. The TRIM function can be passed automatically and does not require SQL\_FUNCTIONS=ALL. The LENGTH function does require SQL\_FUNCTIONS=ALL.

## SAS/ACCESS 9.4M4

The SAS/ACCESS 9.4M4 software shipped in November 2016.

For SAS/ACCESS Interface to Hadoop, Hive2 is now the only valid value for the SUBPROTOCOL= LIBNAME option.

---

## SAS/ACCESS 9.4M5

The SAS/ACCESS 9.4M5 software shipped in September 2017.

- For SAS/ACCESS Interface to Netezza, documentation no longer indicates support for the DELETE\_MULT\_ROWS= or UPDATE\_MULT\_ROWS= LIBNAME options.
- For SAS/ACCESS Interface to PostgreSQL, the documented default value for the DBINDEX= LIBNAME and data set options is now listed as NO.

---

## SAS/ACCESS 9.4M6

The SAS/ACCESS 9.4M6 software shipped in November 2018.

- For SAS/ACCESS Interface to DB2 under UNIX and PC hosts, the default value for the PRESERVE\_COL\_NAMES= and PRESERVE\_TAB\_NAMES= LIBNAME options is now NO.
- Here are the changes for the SAS/ACCESS Interface to Hadoop:
  - The default value for the BULKLOAD= data set option is now YES.
  - To work with HOUR, MINUTE, and SECOND functions, you must specify SQL\_FUNCTIONS=ALL, as these are no longer passed down automatically.
- For SAS/ACCESS Interface to SAP HANA, the MSCRYPTO value is no longer available for the SSLCRYPTOPROVIDER= LIBNAME option.

---

## SAS/ACCESS 9.4M7

The SAS/ACCESS 9.4M7 software shipped in August 2020. Support was added for Spark and Yellowbrick.

- The default value for the SQLGENERATION system option has been updated to (NONE DBMS='TERADATA DB2 ORACLE NETEZZA ASTER GREENPLM HADOOP SAPHANA IMPALA HAWQ POSTGRES REDSHIFT SQLSVR VERTICA BIGQUERY SNOW YBRICK'). This update adds values for the Google BigQuery, Snowflake, and Yellowbrick interfaces.
- For SAS/ACCESS Interface to Amazon Redshift, the default value for the INSERTBUFF= LIBNAME option is now 250.
- For SAS/ACCESS Interface to MySQL, the default value for the INSERTBUFF= LIBNAME option has changed from 0 to 1. A value greater than 0 causes the engine to calculate the number of rows that can be inserted at one time, based on row size.

Starting in SAS 9.4M7, these interfaces are no longer available with SAS offerings:

- SAS/ACCESS Interface to CA IDMS
- SAS/ACCESS Interface to CA-Datcom/DB

*Note:* SAS/ACCESS Interface to Spark is not available on SAS Viya 3.5.

---

## SAS/ACCESS 9.4M8

### ***Interfaces No Longer Supported***

These SAS/ACCESS interfaces are no longer supported.

- SAS/ACCESS Interface to ADABAS
- SAS/ACCESS Interface to Aster
- SAS/ACCESS Interface to HAWQ

*Note:* As an alternative to HAWQ, consider storing your data on Greenplum and accessing it with SAS/ACCESS Interface to Greenplum.

- SAS/ACCESS Interface to MySQL on the AIX platform
- SAS/ACCESS Interface to Oracle on the z/OS platform
- SAS/ACCESS Interface to Teradata on the z/OS platform

If you have an instance of these SAS/ACCESS interfaces and plan to upgrade to SAS 9.4M8 or later, SAS recommends that you unconfigure and uninstall it. For more information, see [“Unconfiguring and Uninstalling Retired Products”](#) on page 59.

### ***DBIDIRECTEXEC System Option***

The DBIDIRECTEXEC system option is now enabled by default for all data sources that support that option. This is a change for these data sources:

- DB2 under UNIX and PC Hosts
- DB2 under z/OS
- Greenplum
- Hadoop
- Impala
- Informix
- Microsoft SQL Server
- MySQL
- Netezza
- Oracle
- PostgreSQL
- SAP ASE
- SAP HANA
- SAP IQ
- Teradata
- Vertica



**SQLGENERATION= System Option**

The default value for the SQLGENERATION= system option was updated to include MySQL.

**SAS/ACCESS Interface to Hadoop**

The following changes have been made for Hadoop that might require updates to existing SAS programs:

- The HDFS\_PRINCIPAL= LIBNAME option is deprecated.
- The HIVE\_PRINCIPAL= LIBNAME option is deprecated.

**SAS/ACCESS Interface to Impala**

In SAS 9.4M8, the CONFIG= LIBNAME option and the CONFIG= data set option are deprecated. It is preferable to use the tracer tool to configure the appropriate environment variables. For more information, see [Running the Hadoop Tracer Script](#).

**SAS/ACCESS Interface to PC Files**

The Microsoft ACE driver is a prerequisite for SAS/ACCESS Interface to PC files and needs to be installed by the user.



*Chapter 14*

# SAS Add-In for Microsoft Office

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## Determining Your Update Path for SAS Add-In for Microsoft Office

### Upgrading an Existing SAS 9.4 Deployment

SAS Add-In 6.1, 7.1, 8, 8.1, 8.2, 8.3, and 8.4 for Microsoft Office run on SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Upgrading To (SAS Release)	High-Level Steps and Resources
6.1 (SAS 9.4), 6.1M1 (SAS 9.4M1) 7.1, 7.11 (SAS 9.4M2); 7.12 (SAS 9.4M3); 7.13, 7.14 (SAS 9.4M4); 7.15 (SAS 9.4M5); 8 (SAS 9.4M5); 8.1 (SAS 9.4M6); 8.2 (SAS 9.4M6); 8.3 (SAS 9.4M7 and SAS 9.4M8)	8.4 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>Before you upgrade, see “SAS Add-In 6.1 for Microsoft Office” on page 120, “SAS Add-In 7.1* for Microsoft Office” on page 121, and “SAS Add-In 8 for Microsoft Office” on page 122.</li> <li>To upgrade to the latest release of SAS Add-In for Microsoft Office, see “Install and Configure a Software Update” on page 53.</li> </ol>

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### Migrating to SAS 9.4

SAS Add-In 8 for Microsoft Office, SAS Add-In 7.1 for Microsoft Office, SAS Add-In 6.1 for Microsoft Office run on SAS 9.2, SAS 9.3, and SAS 9.4. This documentation

assumes that you want to run SAS Add-In for Microsoft Office on SAS 9.4. You can migrate to SAS 9.4, or you can create a SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
5.1, 4.3 (SAS 9.3)	6.1 (SAS 9.4), 6.1M1 (SAS 9.4M1) 7.1, 7.11 (SAS 9.4M2); 7.12 (SAS 9.4M3); 7.13, 7.14 (SAS 9.4M4); 7.15 (SAS 9.4M5) 8 (SAS 9.4M5); 8.1 and 8.2 (SAS 9.4M6); 8.3 (SAS 9.4M7 and SAS 9.4M8); 8.4 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see “SAS Add-In 6.1 for Microsoft Office” on page 120, “SAS Add-In 7.1* for Microsoft Office” on page 121, and “SAS Add-In 8 for Microsoft Office” on page 122.</li> <li>2. To migrate to the new release, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i>. To create a new deployment, see <i>SAS 9.4 Intelligence Platform: Installation and Configuration Guide</i>.</li> <li>3. To complete any post-configuration steps, see <i>SAS Enterprise Guide 8.1</i> and <i>SAS Add-In 8.1 for Microsoft Office: Administrator’s Guide</i>.</li> </ol>
6.1 (SAS 9.4), 6.1M1 (SAS 9.4M1) 7.1, 7.11 (SAS 9.4M2); 7.12 (SAS 9.4M3); 7.13, 7.14 (SAS 9.4M4); 7.15 (SAS 9.4M5); 8 (SAS 9.4M5); 8.1 (SAS 9.4M6); 8.2 (SAS 9.4M6); 8.3 (SAS 9.4M7 and SAS 9.4M8)	8.4 (SAS 9.4M8)	To migrate within the same SAS release, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i> .
8.4 (SAS 9.4M8)	8.4 (SAS 9.4M8)	To migrate within the same release, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i> .

## Managing Multiple Installations of SAS Add-In for Microsoft Office

You can install multiple releases of SAS Add-In for Microsoft Office on your computer. The release of the SAS add-in determines what SAS content you can access.

- You can use SAS Add-In 8.3, 8.2, 8.1, 8, 7.1, and 6.1 for Microsoft Office to access SAS 9.4, SAS 9.3, and SAS 9.2 content.

Starting in SAS Add-In 7.13 for Microsoft Office, you can also upload data to Cloud Analytic Services (CAS). SAS Add-In 7.15 for Microsoft Office includes support for

SAS Viya. SAS Studio Viya tasks are available and can be run in the SAS add-in. You can also submit CAS code in the program window.

- You can use SAS Add-In 5.1 for Microsoft Office to access SAS 9.3 and SAS 9.2 content.

You can use only one release of the SAS add-in at a time. The functionality that is available in the SAS add-in depends on the roles and capabilities that are assigned in SAS Management Console. These settings are release specific. If you are running SAS Add-In 6.1 for Microsoft Office, you can use only those capabilities that are defined for the 6.1 release. If you are running SAS Add-In 5.1 for Microsoft Office, you can use only those capabilities that are defined for the 5.1 release. For more information about roles and capabilities for SAS Add-In for Microsoft Office, see *SAS Intelligence Platform: Desktop Application Administration Guide*.

If you have administrative privileges, use the SAS Add-In for Microsoft Office Utility to select which release of the SAS add-in to enable for selected Microsoft Office applications. (Always use the SAS Add-In for Microsoft Office Utility that is included with the latest release of the SAS add-in.) For more information about this utility, see the Help for SAS Add-In for Microsoft Office.

---

## SAS Add-In 6.1 for Microsoft Office

Since the 5.1 release, SAS Add-In for Microsoft Office has been available as either a 32-bit application or a 64-bit application. If you are using a 32-bit Microsoft Windows operating system, then you must use the 32-bit version of SAS Add-In for Microsoft Office. If you are using a 64-bit Windows operating system, then you can run either the 32-bit version or the 64-bit version of SAS Add-In for Microsoft Office. Your version of SAS Add-In for Microsoft Office must match your version of Microsoft Office. For example, if you are running the 32-bit version of Microsoft Office, you must use the 32-bit version of SAS Add-In for Microsoft Office.

*Note:* Third-party ActiveX controls are not supported in 64-bit versions of Microsoft Office. If you are running in a 64-bit Windows environment, use the ActiveX image format for your SAS content.

Here are some of the new features in SAS Add-In 6.1 for Microsoft Office:

- support for Microsoft Office 2013, 2010, and 2007
- enhancements to the automation interfaces, including new objects that enable you to work with reports from SAS Visual Analytics
- support for the Excel XP tagset
- new tasks, such as High-Performance Logistic Regression, High-Performance Linear Regression, SAS Rapid Predictive Modeler, and SAS Recency, Frequency, and Monetary, that provide more integration with other SAS products

A new stand-alone installer is available for SAS Add-In for Microsoft Office. For more information, see *SAS Deployment Wizard and SAS Deployment Manager 9.4: User's Guide*, available at <http://support.sas.com/deploywizug94.html>.

Before upgrading to SAS Add-In 6.1M1 for Microsoft Office, review these notes about interoperability with SAS Visual Analytics:

- Using for SAS Add-In 6.1M1 for Microsoft Office, you can open reports from SAS Visual Analytics 6.2 and 6.3. However, you cannot open reports from SAS Visual Analytics 6.1.

- SAS Add-In for Microsoft Office 6.1 supported reports from SAS Visual Analytics 6.1. When you upgrade from 6.1 to 6.1M1, you must upgrade from SAS Visual Analytics 6.1 to SAS Visual Analytics 6.2 or 6.3.
- To use SAS Visual Analytics 6.4, you must apply a hot fix. For more information, see [SAS Note 52813](#).

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## SAS Add-In 7.1\* for Microsoft Office

### *Support for Microsoft Office*

SAS Add-In 7.1 for Microsoft Office supports these versions of Microsoft Office:

- SAS Add-In 7.12 for Microsoft Office (and later releases) support 32-bit and 64-bit versions of Microsoft Office 2016, 2013, 2010, and 2007.
- SAS Add-In 7.1 and 7.11 for Microsoft Office (and later releases) support 32-bit and 64-bit versions of Microsoft Office 2013, 2010, and 2007.

### *SAS Add-In 7.1 for Microsoft Office: A New Task Interface*

In SAS Add-In 7.1 for Microsoft Office, a new task interface replaces the Task Gallery that was available in SAS Add-In 6.1 for Microsoft Office. To access this new interface, click **Task** on the **SAS** tab.

The tasks are no longer available as options from the **Task** drop-down menu on the **SAS** tab. To turn on the **Task** drop-down menu, select the new **Show menu for built-in tasks on the Ribbon** option in the Options dialog box.

Also, the **Show Prompts** option on the **SAS** tab has been replaced by the **Report Controls** option. This new option shows the entire report and the prompts. With the report controls, you can filter, drill, expand, collapse, and brush the data.

### *SAS Add-In 7.11 for Microsoft Office: Applying Software Updates*

SAS Add-In 7.11 for Microsoft Office includes a new feature that enables you to check for updates when you first open Microsoft Excel, Microsoft Word, Microsoft PowerPoint, or Microsoft Outlook or while you are working in these applications. If an update is available, a message appears. In the message dialog box, click [support.sas.com](http://support.sas.com) to learn more about the contents of the software update. To apply a software update, you must close all Microsoft Excel, Word, PowerPoint, and Outlook applications. This feature became available in SAS Add-In 7.11 for Microsoft Office. You can use this updates feature to upgrade to the current release.

### *SAS Add-In 7.12 for Microsoft Office: Introduction of Two Add-Ins*

SAS Add-In 7.12 for Microsoft Office includes two add-ins:

- SAS Add-In for Microsoft Office – This add-in provides you with all of the SAS add-in functionality, including the ability to open, interact, and refresh SAS Visual Analytics reports in Microsoft Excel, Microsoft Word, Microsoft PowerPoint, and Microsoft Outlook.

- SAS Visual Analytics Add-In for Office – This add-in enables you to open, interact, and refresh SAS Visual Analytics reports in Microsoft Excel and Microsoft PowerPoint.

If you have SAS Add-In for Microsoft Office already installed, you have all the functionality that is in SAS Visual Analytics Add-In for Office. As a result, your update does not include the new SAS Visual Analytics Add-In for Office.

If you want to switch to SAS Visual Analytics Add-In for Office, you first must uninstall SAS Add-In for Microsoft Office. Then you can install SAS Visual Analytics Add-In for Office. Now, your add-in functionality is limited to opening, interacting, and refreshing SAS Visual Analytics reports in Microsoft Excel and Microsoft PowerPoint.

### **SAS Add-In 7.13 for Microsoft Office**

SAS Add-In for Microsoft Office 7.13 shipped in November 2016. SAS Add-In for Microsoft Office 7.14 shipped in April 2017. These releases provide integration with SAS Visual Analytics 7.4. .

### **SAS Add-in 7.14 for Microsoft Office**

SAS Add-In 7.14 for Microsoft Office shipped in April 2017. This release provides integration with SAS Visual Analytics 7.4 and 8.1. A new connections dialog box makes it easier for you to select an active SAS 9 metadata profile and to add connections to SAS Visual Analytics servers.

### **SAS Add-In 7.15 for Microsoft Office**

SAS Add-In for Microsoft Office 7.15 shipped in September 2017. This release includes integration with SAS Viya. SAS Studio Viya tasks are available and can be run in the SAS add-in. You can also run Cloud Analytic Services (CAS) code from the program window.

---

## **SAS Add-In 8 for Microsoft Office**

SAS Add-In 8 for Microsoft Office shipped in July 2018. This release has a new user interface and integrates with SAS Visual Analytics 8.3.

In this release, Automatic Charts and Quick Start functionality was removed. If you open an existing document that contains automatic charts, the charts are still available, but they cannot be modified or refreshed.

- SAS Add-In 8.1 for Microsoft Office shipped in June 2019. Starting in this release, if your site does not have web access, you can download the documentation and access it locally.
- SAS Add-In 8.2 for Microsoft Office shipped in November 2019.
- SAS Add-In 8.3 for Microsoft Office shipped in August 2020.
- SAS Add-In 8.4 for Microsoft Office shipped in March 2024.

For more information, see the software product page for [SAS Add-In for Microsoft Office](#).



## Chapter 15

# SAS Anti-Money Laundering

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---

## Determining Your Update Path for SAS Anti-Money Laundering

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Anti-Money Laundering 6.1, 6.2, and 6.3 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
6.1, 6.1M1, 6.2, 6.2M1	6.3, 6.3M1 (SAS 9.4)	For more information about how to request this new release and the features that are available, contact your SAS account representative.

---

## Migrating to SAS 9.4

To run SAS Anti-Money Laundering 6.1, 6.2, 6.3, or 7.1, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
5.1, 5.1M1 (SAS 9.3)	7.1 (SAS 9.4)	If your site is running SAS Anti-Money Laundering 5.1 or earlier, you should upgrade to SAS Anti-Money Laundering 7.1. For more information about how to request this new release and the features that are available, contact your SAS account representative.
5.2M1 (SAS 9.3) 6.1, 6.1M1, 6.2, 6.2M1, 6.3, 6.3M1 (SAS 9.4)	6.3, 6.3M1 (SAS 9.4)	For more information about how to request this new release and the features that are available, contact your SAS account representative.

---

## About SAS Anti-Money Laundering

SAS has shipped these releases of SAS Anti-Money Laundering:

- SAS Anti-Money Laundering 6.1 in November 2013.
- SAS Anti-Money Laundering 6.2 in April 2014.
- SAS Anti-Money Laundering 6.3 in January 2015.
- SAS Anti-Money Laundering 6.3M1 in January 2016.
- SAS Anti-Money Laundering 7.1 in July 2016. If your site is running SAS Anti-Money Laundering 5.1 or earlier, you should upgrade to SAS Anti-Money Laundering 7.1.

*Note:* To use the SAS Customer Due Diligence 7.1 functionality that is included in SAS Anti-Money Laundering 7.1, you must apply a hot fix. For more information, see [SAS Note 60039](#).

For more information about this release, contact your SAS account representative and see the product documentation page for [SAS Anti-Money Laundering](#).

*Note:* The documentation for SAS Anti-Money Laundering is available only to customers who license this product.

## Chapter 16

# SAS BI Dashboard

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---

## Determining Your Update Path for SAS BI Dashboard

### *Upgrading an Existing SAS 9.4 Deployment*

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
4.4 (SAS 9.4)	4.41 (SAS 9.4M7 and SAS 9.4M8)	<ol style="list-style-type: none"> <li>To upgrade to the latest release of SAS BI Dashboard 4.4, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> <li>Complete the post-configuration steps in <a href="#">“Updating Favorites in Your Web Browser”</a> on page 128.</li> </ol>
4.4M1 (SAS 9.4M1)		
4.4M2 (SAS 9.4M2)		
4.4M3 (SAS 9.4M3)		
4.4M4 (SAS 9.4M4)		
4.4M5 (SAS 9.4M5)		
4.4M6 (SAS 9.4M6)		

---

## Migrating to SAS 9.4

To run SAS BI Dashboard 4.4, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
4.31, 4.31M1, 4.31M2 (SAS 9.3) 4.3 (SAS 9.2M3)	4.4 4.4M1 (SAS 9.4M1) 4.4M2 (SAS 9.4M2) 4.4M3 (SAS 9.4M3) 4.4M4 (SAS 9.4M4) 4.4M5 (SAS 9.4M5) 4.4M6 (SAS 9.4M6) 4.41 (SAS 9.4M7 and SAS 9.4M8)	<ol style="list-style-type: none"> <li>Before you migrate, see “SAS BI Dashboard 4.4” on page 127.</li> <li>To migrate to the new release, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i>. To create a new deployment, see <i>SAS 9.4 Intelligence Platform: Installation and Configuration Guide</i>.</li> <li>Complete the post-configuration steps in “Updating Favorites in Your Web Browser” on page 128 and <i>SAS 9.4 Intelligence Platform: Web Application Administration Guide</i>.</li> </ol>
4.4, 4.4M1, 4.4M2, 4.4M3, 4.4M4, 4.4M5, 4.4M6	4.4 4.4M1 (SAS 9.4M1) 4.4M2 (SAS 9.4M2) 4.4M3 (SAS 9.4M3) 4.4M4 (SAS 9.4M4) 4.4M5 (SAS 9.4M5) 4.4M6 (SAS 9.4M6) 4.41 (SAS 9.4M7 and SAS 9.4M8)	To migrate within the same SAS release, follow the steps in <i>SAS 9.4 Intelligence Platform: Migration Guide</i> .
4.41 (SAS 9.4M7 and SAS 9.4M8)	4.41 (SAS 9.4M7 and SAS 9.4M8)	To migrate within the same release, follow the steps in <i>SAS 9.4 Intelligence Platform: Migration Guide</i> .

---

## SAS BI Dashboard 4.4

SAS BI Dashboard 4.4 has the same features and enhancements as SAS BI Dashboard 4.3 and 4.31. The only difference is that SAS BI Dashboard 4.4 runs on SAS 9.4.

---

## SAS BI Dashboard 4.3

If you are running SAS BI Dashboard 4.2, you must upgrade to SAS BI Dashboard 4.3 before upgrading to SAS BI Dashboard 4.4. If you upgrade from 4.2 to 4.4, your data explorations in SAS Web Report Studio 4.2 might not convert properly. For more information, see [Chapter 103, “SAS Web Report Studio,” on page 415](#).

When upgrading to SAS BI Dashboard 4.3, you have these options:

- You can upgrade to the latest release of SAS 9.2. SAS BI Dashboard 4.3 runs on SAS 9.2.

To upgrade to the latest release of SAS 9.2, see [Planning for Maintenance Releases and Product Upgrades for SAS 9.2](#).

- You can upgrade to the latest release of SAS 9.3. SAS BI Dashboard 4.31 runs on SAS 9.3.

When you upgrade to SAS 9.3, you can migrate, or you can create a new deployment. For specific steps, see *SAS 9.3 Intelligence Platform: Migration Guide* (if you are migrating to the new release) or *SAS 9.3 Intelligence Platform: Installation and Configuration Guide* (if you are creating a new deployment). For post-configuration steps, see *SAS 9.3 Intelligence Platform: Web Application Administration Guide*.

---

## SAS BI Dashboard 4.41

*Important:* SAS BI Dashboard 4.41 designer has been discontinued. Users can continue to view existing dashboards and indicators that were created in SAS BI Dashboard designer with the SAS BI Dashboard 4.41 viewer or SAS BI Dashboard 4.41 portlets.

The SAS BI Dashboard 4.41 viewer user interface has been rewritten in HTML5.

In addition, SAS BI Dashboard 4.41 portlets can be seen in SAS Information Delivery Portal 4.4, which has also been rewritten in HTML5. SAS BI Dashboard 4.41 continues to use the Adobe Flash Player to provide interactive user interfaces. Adobe announced that it intends to end support for Flash technology and will stop updating and distributing the Flash Player at the end of 2020. Browser vendors disabled Flash by default in 2019. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

In addition, Internet Explorer 11 is not a supported browser for SAS BI Dashboard 4.41.

For specific information about SAS BI Dashboard 4.41 viewer, see [Exceptions in SAS BI Dashboard 4.41 Viewer](#).

## Updating Favorites in Your Web Browser

After the deployment of any new release, you must change the release number in the resolved URL that you use to open the product. For example, if you upgraded from 4.3 to 4.4, then the updated URL is `http://server:port/SASLogon/index.jsp?_sasapp=BI+Dashboard+4.4&`.

If you saved the URL for the previous release as a Favorites link in a web browser, then this link is broken when you upgrade to the new release. You must re-create this favorite for the new release. You can also access SAS BI Dashboard 4.4 by using this unresolved link: `http://server:port/SASBIDashboard`.

## Chapter 17

## SAS BI Portal

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## Determining Your Update Path for SAS BI Portal

### Upgrading an Existing SAS 9.4 Deployment

*Note:* Starting with SAS 9.4M8, SAS BI Portal is a retired product. For more information, see [“SAS 9.4M8 Retired Product: SAS BI Portal”](#) on page 130.

<b>Current Release at Your Site</b> <b>(SAS Release)</b>	<b>Release That You Are Upgrading To</b> <b>(SAS Release)</b>	<b>High-Level Steps and Resources</b>
4.4 (SAS 9.4), 4.4M1 (SAS 9.4M1), 4.4M2 (SAS 9.4M2), 4.4M3 (SAS 9.4M3), 4.4M4 (SAS 9.4M4), 4.4M5 (SAS 9.4M5), 4.4M6 (SAS 9.4M6)	4.4M7 (SAS 9.4M7)	To upgrade to the latest release of SAS BI Portal 4.4, see <a href="#">“Install and Configure a Software Update”</a> on page 53.

---

## Migrating to SAS 9.4

To run SAS BI Portal 4.4, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
4.31, 4.31M1, 4.31M2 (SAS 9.3) 4.3 (SAS 9.2M3)	4.4, 4.4M1, 4.4M2, 4.4M3, 4.4M4, 4.4M5, 4.4M6, 4.4M7 (SAS 9.4)	To migrate to a new release, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i> . To create a new deployment, see <i>SAS 9.4 Intelligence Platform: Installation and Configuration Guide</i> .
4.4, 4.4M1, 4.4M2, 4.4M3, 4.4M4, 4.4M5, 4.4M6 (SAS 9.4)	4.4, 4.4M1, 4.4M2, 4.4M3, 4.4M4, 4.4M5, 4.4M6, 4.4M7 (SAS 9.4)	To migrate within the same SAS release, follow the steps in <i>SAS 9.4 Intelligence Platform: Migration Guide</i> .
4.4M7 (SAS 9.4)	4.4M7 (SAS 9.4)	To migrate within the same release, follow the steps in <i>SAS 9.4 Intelligence Platform: Migration Guide</i> .

---

## SAS BI Portal 4.4

SAS BI Portal 4.4 shipped in July 2013 and runs on SAS 9.4.

---

## SAS 9.4M8 Retired Product: SAS BI Portal

Starting with SAS 9.4M8, SAS BI Portal is a retired product. If you order SAS 9.4M8, SAS BI Portal is not included in that order. 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”](#) on page 59.



## Chapter 18

# SAS Business Data Network

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---

## Determining Your Update Path for SAS Business Data Network

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Business Data Network 3.1, 3.2, 3.3, and 3.4 run on SAS 9.4.

<b>Current Release at Your Site</b> (SAS Release)	<b>Release That You Are Upgrading To</b> (SAS Release)	<b>High-Level Steps and Resources</b>
3.1 (SAS 9.4); 3.2 (SAS 9.4M4); 3.3 (SAS 9.4M6)	3.4 (SAS 9.4M8)	For more information about this release, see <i>SAS Business Data Network: User's Guide</i> .

---

### *Migrating to SAS 9.4*

SAS Business Data Network is a new product that runs on SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
3.1 (SAS 9.4); 3.2 (SAS 9.4M4); 3.3 (SAS 9.4M6)	3.4 (SAS 9.4M8)	For more information about migration, see <i>SAS Business Data Network: User's Guide</i> .
3.4 (SAS 9.4M8)	3.4 (SAS 9.4M8)	

---

## About SAS Business Data Network

SAS Business Data Network is an application that enables you to manage a business data term list. SAS Business Data Network supports a collaborative approach to managing the following information:

- descriptions of business terms, including their requirements and attributes
- related source data and reference data
- contacts (such as technical owners, business owners, and interested parties)
- relationships between terms and processes (such as Data Management Studio jobs, services, and business rules)

By linking terms to business rules and data monitoring processes, SAS Business Data Network provides a single entry point for all data consumers to better understand their data. Data stewards, IT staff, and enterprise architects can use the terms to promote a common vocabulary across projects and business units. Permissions can be set to allow only specific users to access and control the data in SAS Business Data Network.

SAS Business Data Network also provides workflow support that enables you to divide the responsibilities for creating, reviewing, and approving terms among the members of your team. In this way, each role can be fulfilled by the most qualified member of the team.

For more information, see the software product page for [SAS Business Data Network](#).

---

## Releases for SAS Business Data Network

Here are the releases of SAS Business Data Network in SAS 9.4:

- SAS Business Data Network 3.1 shipped in November 2014.
- SAS Business Data Network 3.2 shipped in April 2017.
- SAS Business Data Network 3.3 shipped in June 2019.
- SAS Business Data Network 3.4 shipped in January 2023.

This product is new for SAS 9.4. To determine whether SAS Business Data Network is in your order, review your Software Order Email or the SAS Order Information file.

If SAS Business Data Network is in your order, you must run the SAS Deployment Wizard a second time to add SAS Business Data Network to your deployment. For more information, see [“Adding a New Product” on page 92](#).

---

## SAS Business Data Network and PostgreSQL 12

SAS 9.4M7 (August 2020) supports PostgreSQL 12. If your SAS 9.4M7 deployment includes SAS Business Data Network 3.3, you need to verify that SAS Business Data Network 3.3 is working after you upgrade to PostgreSQL 12.

After you upgrade, you need to add any collations manually.

1. Log in to the SAS Business Data Network database in the SAS Data Management Data Server.
2. Run the following SQL command to create the collation for your locale:

```
CREATE COLLATION IF NOT EXISTS pg_catalog."xx_XX" (LOCALE=xx-XX-x-icu)
```

In *xx-XX*, the first two characters in the locale are the language and the last two characters are the country.

For English in the US, replace *xx-XX* with **en\_US**.

For the French locale in France, here is the SQL command for a French collation using the French icu type locale:

```
CREATE COLLATION IF NOT EXISTS pg_catalog."fr_FR" (LOCALE=fr_FR-x-icu)
```

For more information about upgrading your version of PostgreSQL, see [“SAS 9.4M7: Upgrading to PostgreSQL 12” on page 71](#).



## Chapter 19

# SAS Business Rules Manager

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---

## Determining Your Update Path for SAS Business Rules Manager

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Business Rules Manager 2.1, 2.2, 3.1, 3.2, and 3.3 run on SAS 9.4.

<b>Current Release at Your Site</b> (SAS Release)	<b>Release That You Are Upgrading To</b> (SAS Release)	<b>High-Level Steps and Resources</b>
2.1 (SAS 9.4), 2.2 (SAS 9.4M2), 3.1 (SAS 9.4M3), 3.2 (SAS 9.4M4), 3.2M1 (SAS 9.4M6)	3.3 (SAS 9.4M6); 3.3M1 (SAS 9.4M7); 3.3M2 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see “<a href="#">SAS Business Rules Manager 2.2</a>” on page 136 , “<a href="#">SAS Business Rules Manager 3.1</a>” on page 136, and “<a href="#">SAS Business Rules Manager 3.2</a>” on page 137 (if appropriate).</li> <li>2. To upgrade to the latest release of SAS Business Rules Manager, see “<a href="#">Install and Configure a Software Update</a>” on page 53.</li> <li>3. Complete the post-installation configuration steps in <i>SAS Business Rules Manager: Administrator’s Guide</i>.</li> </ol>

---

## Migrating to SAS 9.4

To run SAS Business Rules Manager 2.1, 2.2, 3.1, 3.2, or 3.3, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
1.2 (SAS 9.3M2)	2.1 (SAS 9.4), 2.2 (SAS 9.4M2), 3.1_(SAS 9.4M3), 3.2 (SAS 9.4M4), 3.2M1 (SAS 9.4M6); 3.3 (SAS 9.4M6); 3.3M1 (SAS 9.4M7); 3.3M2 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see “<a href="#">SAS Business Rules Manager 2.2</a>” on page 136, “<a href="#">SAS Business Rules Manager 3.1</a>” on page 136, “<a href="#">SAS Business Rules Manager 3.2</a>” on page 137 (if appropriate).</li> <li>2. To migrate to the new release, see <i>SAS Business Rules Manager: Administrator’s Guide</i>. To create a new deployment, see <i>SAS 9.4 Intelligence Platform: Installation and Configuration Guide</i>.</li> </ol>
2.1 (SAS 9.4), 2.2 (SAS 9.4M2), 3.1 (SAS 9.4M3), 3.2 (SAS 9.4M4)	3.3 (SAS 9.4M6); 3.3M1 (SAS 9.4M7); 3.3M2 (SAS 9.4M8)	To migrate to the latest release of SAS Business Rules Manager, see <i>SAS Business Rules Manager: Administrator’s Guide</i> .
3.3M2 (SAS 9.4M8)	3.3M2 (SAS 9.4M8)	To migrate within the same release, see <i>SAS Business Rules Manager: Administrator’s Guide</i> .

---

## SAS Business Rules Manager 2.2

If you are upgrading from a previous release of SAS Business Rules Manager, note these changes:

- Business contexts have been removed.
- The Designer and Definitions workspaces have been consolidated. Users do not have to switch between workspaces.
- The Business Rules Manager Users group is no longer created during the installation process. The Decision Manager Users group is created instead.
- Rule flow tests and test results are now saved in the file system. Users can delete test cases, including the test results, that are no longer needed. Administrators can delete test results directly from the file system.

---

## SAS Business Rules Manager 3.1

SAS Business Rules Manager 3.1 runs on SAS 9.4M3.

When upgrading to SAS Business Rules Manager 3.1, you must run the SAS Deployment Wizard twice to complete the upgrade. During the first run of the SAS Deployment Wizard, you upgrade your existing deployment. You must run the SAS Deployment Wizard a second time to install the new product components and to complete the configuration.

Beginning with SAS Business Rules Manager 3.1, the rule set editor does not automatically add the term name in an expression that begins with a minus sign (-). For example, if you enter **-10** for term, SAS Business Rules Manager interprets this as **term = -10**. (The behavior for positive values has not changed. The value **+10** is still interpreted as **term = term +10**.)

---

## SAS Business Rules Manager 3.2

SAS Business Rules Manager 3.2 shipped in November 2016 and runs on SAS 9.4M4.

SAS Business Rules Manager 3.2M1 shipped in November 2018 and runs on SAS 9.4M6.

---

## SAS Business Rules Manager 3.3

SAS Business Rules Manager 3.3M1 shipped in August 2020 and runs on SAS 9.4M7. SAS Business Rules Manager 3.3 shipped in June 2019 and runs on SAS 9.4M6 and later releases.

Starting with this release, the user interface has been rewritten in HTML5. Previously, many SAS applications and SAS solutions used the Adobe Flash Player to provide interactive user interfaces. Adobe has announced that it intends to end support for Flash technology and will stop updating and distributing the Flash Player at the end of 2020. Browser vendors disabled Flash by default in 2019. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

For more information, see the software product page for [SAS Business Rules Manager](#).





*Chapter 20*

# SAS Clinical Standards Toolkit

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## **Determining Your Update Path for SAS Clinical Standards Toolkit**

### ***Upgrading an Existing SAS 9.4 Deployment***

Starting with SAS 9.4M8, SAS Clinical Standards Toolkit is a retired product. If you order SAS 9.4M8, SAS Clinical Standards Toolkit is not included in that order. 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” on page 59](#).



## Chapter 21

## SAS/CONNECT

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## Determining Your Update Path for SAS/CONNECT

### *Upgrading to an Existing SAS 9.4 Deployment*

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7	9.4M8	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“Maintenance Releases for SAS/CONNECT”</a> on page 142.</li> <li>2. To upgrade to the latest release of SAS/CONNECT 9.4, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> </ol>

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## Migrating to SAS 9.4

Current Release at Your Site	Release That You Are Migrating To	High-Level Steps and Resources
9.3, 9.3M1, 9.3M2	9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	<ol style="list-style-type: none"> <li>Before you migrate, see “<a href="#">SAS/CONNECT 9.4</a>” on page 142 and “<a href="#">Maintenance Releases for SAS/CONNECT</a>” on page 142.</li> <li>Install and configure SAS 9.4.</li> </ol> <p>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</p> <ul style="list-style-type: none"> <li>Quick Start Guides in the <a href="#">SAS Install Center</a></li> <li><a href="#">SAS Intelligence Platform: Installation and Configuration Guide</a></li> </ul> <p>For migration information, see these resources:</p> <ul style="list-style-type: none"> <li><a href="#">SAS Intelligence Platform: Migration Guide</a></li> <li>the product documentation page for <a href="#">SAS/CONNECT</a></li> </ul>

---

## SAS/CONNECT 9.4

The following SAS/CONNECT spawner options are no longer supported:

- -TIMESTAMP
- -LOGEVENTS
- -SECURITY | -NOSECURITY
- -DELETE

The following SAS/CONNECT spawner options have been replaced:

- CNTSPAWN replaces the deprecated SPAWNER command (in Windows operating environments) and the deprecated SASTCPD command (in UNIX and z/OS operating environments) as the new spawner start-up command.
- -UNINSTALL replaces the -DELETE option.
- -LOGCONFIGLOC replaces the -LOGEVENTS and -TIMESTAMP options.
- -SSPI authentication is no longer enabled by default on the SAS/CONNECT spawner.

---

## Maintenance Releases for SAS/CONNECT

- In December 2013, SAS shipped SAS 9.4M1.

This maintenance release includes the new LOCKDOWN statement and LOCKDOWN system option. With LOCKDOWN, SAS server administrators can create a restricted environment in which the SAS client has access to a limited set of directories and files. All other directories and files are inaccessible. In addition to there being access restrictions on directories and files, there are restrictions on how SAS/CONNECT users can sign on when running SAS in a locked-down state. For more information about the LOCKDOWN feature in SAS/CONNECT, see “Locked-Down SAS Sessions” in *SAS/CONNECT User’s Guide*.

- In August 2014, SAS shipped SAS 9.4M2.
- In July 2015, SAS shipped SAS 9.4M3.
- In November 2016, SAS shipped SAS 9.4M4.
- In September 2017, SAS shipped SAS 9.4M5.

You no longer need to add the NOCLEARTEXT spawner option to increase security. The NOCLEARTEXT spawner option has been made the default value and is no longer valid as an option. The CLEARTEXT option has been added to be used only when absolutely necessary because credentials are transmitted unencoded.

Users who sign on from workspace servers that allow numeric session-ids now get an error message. The documentation has been updated to indicate that a server name must be eight characters or less and start with an alphabetic character.

- In November 2018, SAS shipped SAS 9.4M6.
- In August 2020, SAS shipped SAS 9.4M7.
- In January 2023, SAS shipped SAS 9.4M8.
- With the June 2023 hot fix, Telnet is deprecated and it is recommended to use SAS/CONNECT Spawner for client sign-ons. The -CLEARTEXT option has been deprecated and is no longer available. For more information, see [SAS Note 70114](#).



## Chapter 22

# SAS Contextual Analysis

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## Determining Your Update Path for SAS Contextual Analysis

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Contextual Analysis 12.3, 13.2, 14.1, 14.2, 14.3, and 15.1 run on SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Upgrading To (SAS Release)	High-Level Steps and Resources
12.3 (SAS 9.4), 13.2 (SAS 9.4M2); 14.1 and 14.1M1 (SAS 9.4M3); 14.2 (SAS 9.4M4); 14.3 (SAS 9.4M5)	15.1 (SAS 9.4M6)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“About SAS Contextual Analysis”</a> on page 146.</li> <li>2. To upgrade to the latest release of SAS Contextual Analysis, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> </ol>

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*Note:* The last supported release of SAS Contextual Analysis is SAS Contextual Analysis 15.1. For more information, see [“Support for SAS Contextual Analysis”](#) on page 147.

## Migrating to SAS 9.4

To run SAS Contextual Analysis 13.2, 14.1, 14.2, 14.3, or 15.1, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
13.2 (SAS 9.4M2)	13.2 (SAS 9.4M2); 14.1 and 14.1M1 (SAS 9.4M3); 14.2 (SAS 9.4M4); 14.3 (SAS 9.4M5); 15.1 (SAS 9.4M6)	For more information, contact your SAS account representative.
14.1, 14.1M1 (SAS 9.4M3); 14.2 (SAS 9.4M4); 14.3 (SAS 9.4M5)	14.1, 14.1M1 (SAS 9.4M3); 14.2 (SAS 9.4M4); 14.3 (SAS 9.4M5)	
15.1 (SAS 9.4M6)	15.1 (SAS 9.4M6)	

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## About SAS Contextual Analysis

SAS Contextual Analysis is a web-based categorization application that combines aspects of the power of SAS Text Miner and components of SAS Enterprise Content Categorization into a single user interface. Using SAS Contextual Analysis, you can build classification models that can automatically categorize a set of input documents. You can modify the text model to meet your needs.

SAS Contextual Analysis enables you to identify key textual topics in your document collections, automatically generate Boolean linguistic rules, and refine the model and use it to categorize documents. You can also take advantage of concept extraction capabilities by writing your own rules. (A concept is a property such as a book title, last name, city, gender, and so on.)

SAS has shipped these releases:

- SAS Contextual Analysis 12.3 in October 2013
- SAS Contextual Analysis 13.2 in August 2014
- SAS Contextual Analysis 14.1 in July 2015
- SAS Contextual Analysis 14.1M1 in November 2015
- SAS Contextual Analysis 14.2 in November 2016
- SAS Contextual Analysis 14.3 in September 2017
- SAS Contextual Analysis 15.1 in November 2018

For more information about these releases, contact your SAS account representative and see the software product page for [SAS Contextual Analysis](#).



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## Support for SAS Contextual Analysis

### **SAS 9.4M7 Retired Product: SAS Contextual Analysis**

Starting in SAS 9.4M7 (August 2020), SAS Contextual Analysis (which uses Adobe Flash) is a retired product. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

SAS Contextual Analysis 15.1 on SAS 9.4M6 is the last release of the product. If you order SAS 9.4M7, SAS Contextual Analysis will not be included in that order.

To use a more recent version of SAS 9.4 with other SAS products, consider migrating your data to SAS Visual Text Analytics in SAS Viya.

### **How to Unconfigure and Uninstall SAS Contextual Analysis from Your Deployment**

A best practice is to unconfigure SAS Contextual Analysis *before* you upgrade and to uninstall SAS Contextual Analysis *after* you upgrade. For more information, see [“Unconfiguring and Uninstalling Retired Products” on page 59](#).

If you upgraded to the [August 2020 release of SAS 9.4M7](#) and you did not unconfigure SAS Contextual Analysis before the upgrade, review this table.

**Table 22.1** Results from Upgrade in Place or Migration

Task	Expectation	For More Information
Upgrade in Place	Your latest release of SAS Contextual Analysis from your source system remains installed and configured on your target system. However, SAS Contextual Analysis is not operable on the target system.	.To unconfigure and install the software, see <a href="#">“Unconfiguring and Uninstalling Retired Products” on page 59</a> .
Migration	<ul style="list-style-type: none"> <li>SAS Contextual Analysis is not installed or configured in the target environment. However, you can continue to use SAS Contextual Analysis in the source environment.</li> <li>The SAS Migration Utility brings artifacts of SAS Contextual Analysis from the source system to the target system.</li> </ul>	For information about migration, see <a href="#">SAS Intelligence Platform: Migration Guide</a> .

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## Chapter 23

# SAS Cost and Profitability Management

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## Determining Your Update Path for SAS Cost and Profitability Management

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Cost and Profitability Management 8.1 and 8.4 runs on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
8.1, 8.1M1, 8.1M2, 8.1M4, 8.1M5, 8.1M6, 8.1M7 (SAS 9.4)	8.4 (SAS 9.4M6)	For more information about how to upgrade to the latest release, see <i>SAS Cost and Profitability Management: Installation, Migration, and Configuration Guide</i> .

---

## Migrating to SAS 9.4

To run SAS Cost and Profitability Management 8.1 and 8.4, you must be running SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
7.2 (SAS 9.3)	8.1, 8.1M1, 8.1M2, 8.1M4, 8.1M5, 8.1M6, 8.1M7 (SAS 9.4), 8.4 (SAS 9.4M6)	For more information about how to migrate to this release, see <i>SAS Cost and Profitability Management: Installation, Migration, and Configuration Guide</i> .
8.1, 8.1M1, 8.1M2, 8.1M4, 8.1M5, 8.1M6, 8.1M7 (SAS 9.4)	8.4 (SAS 9.4M6)	
8.4 (SAS 9.4M6)	8.4 (SAS 9.4M6)	

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## About SAS Cost and Profitability Management

By applying direct and indirect business costs to activities, SAS Cost and Profitability Management enables managers to get a true understanding of the costs and profits that are associated with a product, business process, customer, or service.

An activity-based management system identifies activities and associated resources (expenditures) with those activities. The system also flows the cost of activities to cost objects.

With SAS Cost and Profitability Management, you can analyze business trends, and you can make the results of your analyses available to business professionals throughout your organization. You do not need to know how to program or how to use database tools.

SAS shipped these releases of SAS Cost and Profitability Management:

- SAS Cost and Profitability Management 8.1 in June 2014
- SAS Cost and Profitability Management 8.1M1 in September 2014
- SAS Cost and Profitability Management 8.1M2 in February 2015
- SAS Cost and Profitability Management 8.1M4 in February 2016
- SAS Cost and Profitability Management 8.1M5 in July 2016
- SAS Cost and Profitability Management 8.1M6 in April 2017
- SAS Cost and Profitability Management 8.1M7 in September 2017
- SAS Cost Profitability Management 8.4 in June 2019.

Many SAS applications and SAS solutions used the Adobe Flash Player to provide interactive user interfaces. Adobe has announced that it intends to end support for Flash technology and will stop updating and distributing the Flash Player at the end of 2020. Browser vendors will disable Flash by default in 2019. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

Because Adobe is discontinuing support for Flash player, the Survey and What-If and Scenario Builder applications, which are based on Flash, have been removed from Cost and Profitability Management.

- You can create surveys by exporting them to Excel, and then send them out. You can import the completed survey data into a SAS Cost and Profitability Management model. You can create these surveys: Driver Survey, Attribute Survey, Entered Cost Element Survey, and Output Quantity Survey.
- The separate What-If and Scenario Builder Flash application has been removed from the application. This does not affect the ability to do “What-If” analysis and scenario building in the SAS Cost and Profitability Management solution. Users can load multiple periods and scenarios directly into SAS LASR to perform the analysis in SAS Visual Analytics. Use this process to replace the external What-If and Scenario Builder application.

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS Cost and Profitability Management](#).



## Chapter 24

# SAS Credit Risk for Banking

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## Support for SAS Credit Risk for Banking

### ***SAS Credit Risk for Banking Is Not Available in SAS 9.4M7***

SAS Credit Risk for Banking uses Adobe Flash. Adobe announced that it intends to end support for Flash technology and will stop updating and distributing the Flash Player at the end of 2020. Any SAS Credit Risk for Banking releases prior to SAS 9.4M7 might not work as expected starting January 1, 2021. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

If you order SAS 9.4M7, SAS Credit Risk for Banking will not be included in that order.

### ***Steps for SAS 9.4.M7 Upgrades***

If you have SAS Credit Risk for Banking in your order and you plan to upgrade to SAS 9.4M7, unconfigure and uninstall SAS Credit Risk for Banking before upgrading or migrating to SAS 9.4M7.

- To uninstall SAS Software, see “Uninstall SAS Software (Graphical User Interface Tool)” in *SAS Deployment Wizard and SAS Deployment Manager 9.4: User’s Guide*.
- To uninstall the components of SAS Credit Risk for Banking, see your Order Manifest, which includes the product details (12-bytes) for the uninstall process.

If SAS Credit Risk for Banking is not removed before you upgrade or migrate to SAS 9.4M7, review the steps for upgrade in place or migration.

**Table 24.1** *Results from Upgrade in Place or Migration*

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Task	Expectations	For More Information
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Upgrade in Place	Your latest release of SAS Credit Risk for Banking from your source system will remain installed and configured on your target system. However, SAS Credit Risk for Banking is not operable on the target system.	.To unconfigure and install the software, see <a href="#">“Unconfiguring and Uninstalling Retired Products”</a> on page 59.
Migration	<ul style="list-style-type: none"><li>• SAS Credit Risk for Banking will not be installed or configured in the target environment. However, you can continue to use SAS Credit Risk for Banking in the source environment.</li><li>• The SAS Migration Utility will bring artifacts of SAS Credit Risk for Banking from the source system to the target system.</li></ul>	For information about migration, see <a href="#">SAS Intelligence Platform: Migration Guide</a> .

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## Chapter 25

# SAS Credit Scoring for Banking

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## Determining Your Update Path for SAS Credit Scoring for Banking

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Credit Scoring for Banking 5.3 and 5.4 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
5.3 (SAS 9.4)	5.4 (SAS 9.4)	For more information about how to upgrade to the latest release, see <i>SAS Credit Scoring for Banking: Upgrade and Migration Guide</i> .

---

### *Migrating to SAS 9.4*

To run SAS Credit Scoring for Banking 5.3 or 5.4, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
5.1, 5.2 (SAS 9.3)	5.3, 5.4 (SAS 9.4)	For more information, see <i>SAS Credit Scoring for Banking: Upgrade and Migration Guide</i> .
5.3 (SAS 9.4)	5.4 (SAS 9.4)	
5.4 (SAS 9.4)	5.4 (SAS 9.4)	

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## About SAS Credit Scoring for Banking

SAS shipped these releases of SAS Credit Scoring for Banking:

- SAS Credit Scoring for Banking 5.3 in April 2014
- SAS Credit Scoring for Banking 5.4 in May 2015

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS Credit Scoring for Banking](#).

*Note:* The documentation for SAS Credit Scoring for Banking is available only to customers who license this product.

## Chapter 26

# SAS Customer Due Diligence

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---

## Determining Your Update Path for SAS Customer Due Diligence

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Customer Due Diligence 6.1, 6.2, and 6.3 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
6.1, 6.2, 6.3 (SAS 9.4)	6.3M1 (SAS 9.4)	For more information about how to request this new release and the features that are available, contact your SAS account representative.

---

## Migrating to SAS 9.4

SAS Customer Due Diligence 6.1, 6.2, and 6.3 run on SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
6.1, 6.2, 6.3 (SAS 9.4)	6.3M1 (SAS 9.4)	For more information about how to migrate to the latest release, contact your SAS account representative.

---

## About SAS Customer Due Diligence

SAS shipped these releases of SAS Customer Due Diligence:

- SAS Customer Due Diligence 6.1 in November 2013
- SAS Customer Due Diligence 6.2 in April 2014
- SAS Customer Due Diligence 6.3 in January 2015. This release includes some SAS Visual Analytics components. For more information about how to deploy these components, see [“Adding SAS Visual Analytics to Your Deployment”](#) on page 93.
- SAS Customer Due Diligence 6.3M1 in January 2016

For more information about this release, contact your SAS account representative and see the product documentation page for [SAS Customer Due Diligence](#).

*Note:* The documentation for SAS Customer Due Diligence is available only to customers who license this product.

## Chapter 27

# SAS Customer Intelligence

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## Determining Your Update Path for SAS Customer Intelligence

### *Upgrading an Existing SAS 9.4 Deployment*

*Note:* Several SAS Customer Intelligence 6.6 products and solutions are not available on SAS 9.4M8 or later. For more information, see [“Support for SAS Customer Intelligence” on page 161](#).

SAS Customer Intelligence includes these products:

- SAS Digital Marketing
  - Note:* The last supported release of SAS Digital Marketing was 6.5 on SAS 9.4M5.
- SAS Marketing Automation (SAS Campaign Management)
- SAS Marketing Optimization
- SAS Real-Time Decision Manager

SAS Customer Intelligence 6.3, 6.4, 6.5, and 6.6 run on SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Upgrading To (SAS Release)	High-Level Steps and Resources
6.3, 6.4 (SAS 9.4)	6.4, 6.5 (SAS 9.4)	For more information about this release, contact your SAS account representative.
6.4, 6.5 (SAS 9.4)	6.6 (SAS 9.4M6)	

### Migrating to SAS 9.4

To run SAS Customer Intelligence 6.3, 6.4, 6.5, or 6.6, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
5.41, 6.1 (SAS 9.3)	6.3 (SAS 9.4M2); 6.4 (SAS 9.4M3); 6.5 (SAS 9.4M6)	For more information about how to request this new release and the features that are available, contact your SAS account representative.
6.3 (SAS 9.4)	6.4 (SAS 9.4M3); 6.5 (SAS 9.4M6)	To migrate to SAS Customer Intelligence 6.4 or 6.5, contact your SAS account representative.
6.4, 6.5 (SAS 9.4)	6.4 (SAS 9.4M3); 6.5 (SAS 9.4M6); 6.6 (SAS 9.4M6)	To migrate to SAS Customer Intelligence 6.4, 6.5, or 6.6, contact your SAS account representative. <i>Note:</i> The last supported release of SAS Digital Marketing was 6.5 on SAS 9.4M5.
6.6 (SAS 9.4M6)	6.6 (SAS 9.4M6)	To migrate within the same release, see the documentation for SAS Customer Intelligence.

## SAS Customer Intelligence 6.3

These products are included in SAS Customer Intelligence 6.3, which shipped in May 2014:

- SAS Digital Marketing 6.3
- SAS Marketing Automation 6.3
- SAS Marketing Optimization 6.3
- SAS Real-Time Decision Manager 6.3

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## SAS Customer Intelligence 6.4

These products are included in SAS Customer Intelligence 6.4, which shipped in March 2015:

- SAS Digital Marketing 6.4
- SAS Marketing Automation 6.4
- SAS Marketing Optimization 6.4
- SAS Real-Time Decision Manager 6.4

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## SAS Customer Intelligence 6.5

These products are included in SAS Customer Intelligence 6.5, which shipped in June 2016:

- SAS Digital Marketing 6.5
- SAS Marketing Automation 6.5
- SAS Marketing Optimization 6.5
- SAS Real-Time Decision Manager 6.5

---

## SAS Customer Intelligence 6.6

These products are included in SAS Customer Intelligence 6.6, which shipped in May 2020:

- SAS Marketing Automation 6.6
- SAS Marketing Optimization 6.6
- SAS Real-Time Decision Manager 6.6

For more information about this release, contact your SAS account representative and see the product documentation page for [SAS Customer Intelligence](#).

*Note:* The documentation for SAS Customer Intelligence is available only to customers who license this product.

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## Support for SAS Customer Intelligence

### ***SAS Customer Intelligence 6.6 Products Not Available in SAS 9.4M8 or Later***

These SAS Customer Intelligence 6.6 products on SAS 9.4M7 are the last releases:

- SAS Campaign Management
- SAS Marketing Automation
- SAS Marketing Optimization
- SAS Real-Time Decision Manager

If you order SAS 9.4M8 or later and your site has licensed these SAS Customer Intelligence 6.6 products or earlier, these products will not be included in that order and will no longer function after upgrading to SAS 9.4M8. If you plan to upgrade or migrate to SAS 9.M8 or later, we recommend that you instead consider SAS Customer Intelligence 360 and SAS Intelligent Decisioning for your business needs. Contact your SAS representative for more information.

### Steps for SAS 9.4M8 Upgrades

If you have SAS Customer Intelligence 6.6 or earlier products in your order and you plan to upgrade to SAS 9.4M8, then unconfigure and uninstall SAS Customer Intelligence 6.6 or earlier products before upgrading or migrating to SAS 9.4M8.

For more information, see [“Unconfiguring and Uninstalling Retired Products”](#) on page 59.

*Note:* As a best practice, back up your SAS Customer Intelligence 6.6 or earlier environment before unconfiguring or uninstalling. For more information, see [“Best Practices for Backup and Restore”](#) in *SAS Intelligence Platform: System Administration Guide*.

If SAS Customer Intelligence 6.6 or earlier products are not removed before you upgrade or migrate to SAS 9.4M8, complete the steps in [SAS Note 69832 - Unconfiguring SAS Customer Intelligence Studio after an update-in-place to SAS 9.4M8 \(TS1M8\)](#).

**Table 27.1** Results from Upgrade in Place or Migration

Task	Expectations	For More Information
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Upgrade-in-Place	<p>Any SAS Customer Intelligence 6.6 and earlier products that already exist on your source system will remain installed and configured in an unchanged state after you upgrade in-place to SAS 9.4M8. However, SAS Customer Intelligence 6.6 or earlier products will not exist in your SAS 9.4M8 depot or license, so they will not function on your target system. After you upgrade in-place, unconfigure and uninstall these non-functioning products.</p> <p>For best results, first unconfigure SAS Customer Intelligence 6.6 or earlier products before upgrading to SAS 9.4M8.</p>	<p>To unconfigure and install the software, see <a href="#">“Unconfiguring and Uninstalling Retired Products”</a> on page 59.</p>
Migration	<p>If you capture a SAS 9.4M8 migration package from a system that is running SAS Customer Intelligence 6.6 or earlier, the SAS Migration Utility does not export SAS Customer Intelligence 6.6 or earlier products. However, the SAS Migration Utility will bring metadata artifacts of these products from the source system to the target system. These migrated artifacts will not be operable on the target system.</p> <p>For best results, first unconfigure SAS Customer Intelligence 6.6 or earlier products before migrating to SAS 9.4M8.</p>	<p>To unconfigure and install the software, see <a href="#">“Unconfiguring and Uninstalling Retired Products”</a> on page 59.</p>

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## Chapter 28

# SAS Customer Link Analytics

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## Determining Your Update Path for SAS Customer Link Analytics

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Customer Link Analytics 5.5, 5.6, and 6.5 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
5.5, 5.6 (SAS 9.4)	5.6 (SAS 9.4), 6.5 (SAS 9.4M3)	For more information about how to request this new release and the features that are available, contact your SAS account representative.

---

*Note:* The last supported release of SAS Customer Link Analytics is 6.5 on SAS 9.4M6.

## Migrating to SAS 9.4

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
5.5 , 5.6 (SAS 9.4)	5.6 (SAS 9.4); 6.5 (SAS 9.4M3)	For more information about how to migrate to the latest release, contact your SAS account representative.
6.5 (SAS 9.4M3)	6.5 (SAS 9.4M3)	

---

## About SAS Customer Link Analytics

SAS has shipped these releases of SAS Customer Link Analytics:

- SAS Customer Analytics 5.5 shipped in March 2014.
- SAS Customer Link Analytics 5.6 shipped in February 2015. This release includes some SAS Visual Analytics components. For more information about how to deploy these components, see [“Adding SAS Visual Analytics to Your Deployment” on page 93](#).
- SAS Customer Link Analytics 6.5 shipped in June 2016.

For the product documentation, see the product documentation page for [SAS Customer Link Analytics](#).

*Note:* The documentation for SAS Customer Link Analytics is available only to customers who license this product.

---

## Support for SAS Customer Link Analytics

### **SAS 9.4M7 Retired Product: SAS Customer Link Analytics**

Starting in SAS 9.4M7, SAS Customer Link Analytics is retired. Consider using other SAS Customer Intelligence solutions or SAS Viya Machine Learning. For more information, contact your SAS account executive.

### **How to Unconfigure and Uninstall SAS Customer Link Analytics from Your Deployment**

A best practice is to unconfigure SAS Customer Link Analytics *before* you upgrade and to uninstall SAS Customer Link Analytics *after* you upgrade. For more information, see [“Unconfiguring and Uninstalling Retired Products” on page 59](#).

## Chapter 29

# SAS and DataFlux

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## About SAS and DataFlux

SAS has fully integrated the DataFlux suite of data quality, data integration, data governance, and data management solutions. Incorporating the DataFlux brand into SAS helps customers build a more integrated information management approach that goes

beyond data management and governance to support analytics and decision management.

Some DataFlux products are being enhanced and changing their names to SAS, and others will in the future. For example, in the SAS 9.4 release, DataFlux Federation Server has been enhanced and become SAS Federation Server. In this release, SAS has also created new web-based products that include new features and some functionality from earlier DataFlux products, such as SAS MDM for data management. Certain SAS data management offerings include these newer versions of the SAS products.

Instead of being licensed separately, DataFlux products are now part of SAS software offerings that include other SAS products as well. For example, the SAS Data Management offering includes Base SAS and the SAS Metadata Server as well as DataFlux Data Management Studio and Data Management Server.

These DataFlux products are now part of SAS software offerings:

- DataFlux Authentication Server  
*Note:* DataFlux Authentication Server is no longer available with SAS offerings as of SAS 9.4 M7 (August 2020).
- DataFlux Data Management Server
- DataFlux Data Management Studio
- DataFlux Expression Language
- DataFlux Quality Knowledge Base for Contact Information (See also SAS Quality Knowledge Base.)
- DataFlux Quality Knowledge Base for Product Data (See also SAS Quality Knowledge Base.)
- DataFlux Secure
- DataFlux Web Studio

In certain SAS data management offerings, the following SAS products replace older DataFlux products:

- SAS Event Stream Processing Engine
- SAS Federation Server, which includes SAS Federation Server Manager and SAS Drivers for Federation Server
- SAS MDM, which includes new products such as SAS Data Remediation and SAS Task Manager

The following DataFlux products are still supported but are used only in earlier software releases:

- DataFlux dfPower Studio and DataFlux Integration Server
- DataFlux Event Stream Processing Engine
- DataFlux Federation Server, which includes DataFlux Federation Server Manager and DataFlux Drivers for ODBC and JDBC.
- DataFlux qMDM Solution

For more information, see product names that begin with “DataFlux” on the [SAS Product Documentation](#) page.

For more information, see the product-specific software pages in the [SAS Product Listing: Index A-Z](#).

---

## Support for NCOA, CASS, SERP, and Geocode Data Packs Ends July, 2023

Starting in July 31, 2023, SAS no longer supports:

- National Change of Address (NCOA) • Coding Accuracy Support System (CASS)
- Software Evaluation and Recognition System (SERP)
- Geocode (except for Loqate geocode data)

Users must migrate to the Loqate Data Pack prior to July 31, 2023 or there is a system error. See the *DataFlux Data Management Studio and Server 2.9: Migration Guide for Data Packs*.

For more information, see the product documentation which is available from the support page for [DataFlux Data Management Server](#).

---

## Migrating SAS Enterprise Data Integration Server to SAS 9.4

In SAS 9.4, the SAS Data Management Standard 2.41 offering replaces the SAS Enterprise Data Integration Server offering. For more information, see the software product page for [SAS Data Management and SAS Data Integration Server](#).

SAS Enterprise Data Integration Server included SAS/SHARE, but the SAS Data Management Standard offering does not. As a result, your source environment might include SAS/SHARE, but your migrated SAS 9.4 environment will not.

*Note:* In SAS Management Console, if you see a SAS/SHARE server in the metadata, this server reference is a remnant from the source environment. No SAS/SHARE server is listed in the SAS configuration directory.

If you want to continue using SAS/SHARE, contact your SAS account representative. If your site is licensed for SAS/SHARE, work with your SAS account representative to include SAS/SHARE in your software order.

---

## Migration Issue for SAS Data Management

If you are migrating and getting SAS Data Management or any components for SAS Data Management (such as SAS Job Monitor, SAS Task Manager, SAS Data Remediation, or SAS Visual Process Orchestration) for the first time, you might encounter migration failures in the November 2014 release of SAS 9.4 (SAS 9.4, Rev. 940\_14w47). For more information, see [SAS Note 54631](#).

---

## Determining Your Update Path for DataFlux Products

To upgrade from a previous release, complete the steps described in your product's installation and configuration guide or in the product's administrator's guide.

---

## DataFlux Authentication Server

### *Support for DataFlux Authentication Server*

#### **SAS 9.4M8: Retired Product**

Starting with SAS 9.4M8, DataFlux Authentication Server is a retired product. If you order SAS 9.4M8, these products are not included in that order. 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” on page 59](#).

*Note:* If you upgraded from SAS 9.4M6 to SAS 9.4M8 before you ran the SAS Deployment Manager to unconfigure DataFlux Authentication Server, complete the steps in [SAS Note 69803: Steps that are required to unconfigure DataFlux Authentication Server after an update-in-place from SAS 9.4M6 \(TS1M6\) to SAS 9.4M8 \(TS1M8\)](#).

#### **SAS 9.4M7: Last Release**

The last release of DataFlux Authentication Server is 4.1M1 (the first maintenance release of 4.1). Starting with SAS 9.4M7 (August 2020), DataFlux Authentication Server is not included in most of the SAS Data Management offerings. However, DataFlux Authentication Server is still part of the SAS Federation Server offering.

*Note:* If you are updating to the August 2020 release of SAS 9.4M7 or earlier, *before* you unconfigure and uninstall any SAS Data Management products, contact SAS Technical Support to assess your site's situation and provide further instructions.

### **DataFlux Authentication Server 4.1**

The DataFlux Authentication Server 4.1 software is now required for use with SAS Federation Server and DataFlux Web Studio Server only. Other DataFlux clients and servers can use the DataFlux Authentication Server 4.1 software as they did in previous releases.

The installation process for the UNIX and Linux operating environments now configures host authentication. Formerly, this configuration process took place after installation. Now, after installation, you can reconfigure authentication as needed, as described in *DataFlux Authentication Server 4.1 Administrator's Guide*.

You use the SAS Deployment Wizard to configure the metadata for DataFlux Authentication Server 4.1 and SAS Federation Server 4.1. However, because no



metadata existed for these products before the 4.1 release, you must run the SAS Deployment Wizard twice to upgrade from the 3.2 release to the 4.1 release.

During the first run, the SAS Deployment Wizard applies any maintenance releases and installs any product updates. Run the SAS Deployment Wizard a second time to complete the configuration steps for DataFlux Authentication 4.1 and SAS Federation Server 4.1.

### **DataFlux Authentication Server 4.1M1**

Before you upgrade to DataFlux Authentication Server 4.1M1, SAS Foundation must be installed on the same machine as the DataFlux Authentication Server.

Starting with this release, the DataFlux Authentication Server is required only by DataFlux Web Studio and DataFlux Web Studio Server.

In the DataFlux Authentication Server 4.1M1, you can use the ASEXP procedure to export users and groups from the DataFlux Authentication Server to the SAS Metadata Server. However, to use the ASEXP procedure, you must also be running SAS 9.4M3.

For more information about DataFlux Authentication Server 4.1M1 and the ASEXP procedure, see *DataFlux Authentication Server 4.1 Administrator's Guide, Second Edition*.

---

## **DataFlux Data Management Server**

### **DataFlux Data Management Server 2.5**

The DataFlux Data Management Server 2.5 supports the ability to authenticate users against the SAS Metadata Repository. Beginning with SAS 9.4, the SAS Metadata Server can be configured to run in a clustered node in order to support high availability.

However, the DataFlux Data Management Server 2.5 is not aware of metadata server clusters. Therefore, it connects to the host and port address of a single node in the cluster. This configuration works as expected as long as the addressed node is running.

### **DataFlux Data Management Server 2.7**

DataFlux Data Management Server 2.7 uses the SAS Metadata Server exclusively to support authentication and authorization. Included is support for accessing a clustered SAS Metadata Server.

Metadata for individual instances of DataFlux Data Management Server 2.7 is now created automatically on the SAS Metadata Server during installation. The server instances can be updated to revise parts of the server configuration. Server instances are no longer manually registered in DataFlux Data Management Studio. The primary administrative interface for DataFlux Data Management Server remains in DataFlux Data Management Studio.

Software upgrades can now be installed by updating the existing installed location of the previous release (no manual migration). You can also choose to perform a SAS Migration Utility migration and then manually migrate any files that are not automatically migrated by the SAS Migration Utility.

If you are moving from a DataFlux Authentication Server to a SAS Metadata Server, a new utility is available to move the content for the DataFlux Data Management Server.

The `dftool` utility updates the local security files to replace DataFlux Authentication Server IDs with SAS Metadata Server IDs.

FIPS compliance for SOAP client connections is now available as a security enhancement for the DataFlux Data Management Server.

---

## SAS Data Management Console

### **SAS 9.4M7 Retired Product: SAS Data Management Console**

SAS Data Management Console (which uses Adobe Flash) is retired as of SAS 9.4 M7. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

### **How to Unconfigure and Uninstall SAS Data Management Console**

**CAUTION:**

**Do not uninstall SAS Data Management Console before upgrading to SAS 9.4M7.** Several products have dependencies to SAS Data Management Console. When you uninstall SAS Data Management Console, you are required to uninstall the dependent products as well.

*Note:* If you are upgrading to the August 2020 release of SAS 9.4M7 or earlier, *before* you unconfigure and uninstall any SAS Data Management products, contact SAS Technical Support to assess your site's situation and provide further instructions.

If you are upgrading to the September release of SAS 9.4M7 or later, complete these steps:

1. Before you upgrade, unconfigure any retired SAS Data Management products by using the Remove Existing Configuration task in SAS Deployment Manager.
2. Upgrade to SAS 9.4M7.
3. After you unconfigure and upgrade to SAS 9.4M7, use the Uninstall SAS Software task in SAS Deployment Manager to uninstall the retired SAS Data Management products.

---

## DataFlux Data Management Studio

### **DataFlux Data Management Studio 2.9**

As of January 2022, the Address Update functionality (which was available as a separate download) is no longer available from SAS. Starting in August 2023, SAS will no longer be listed by the USPS as an NCOA (National Change of Address) provider on [NCOALink Certified Software Developers](#). For more information, see “Address Update” in *DataFlux Data Management Server: Administrator's Guide*.

## DataFlux Data Management Studio 2.6

Previous releases of DataFlux Data Management Studio included administrative interfaces for DataFlux Business Data Network. These interfaces have been removed. DataFlux Business Data Network has been replaced by a new web client, SAS Business Data Network. For more information, see [Chapter 18, “SAS Business Data Network,”](#) on [page 131](#).

Similarly, previous releases of DataFlux Data Management Studio exported lineage information to DataFlux Business Data Network. DataFlux Data Management Studio now exports lineage information to a new web client, SAS Lineage Viewer. For more information, see [Chapter 71, “SAS Lineage,”](#) on [page 303](#).

## DataFlux Data Management Studio 2.7

In earlier releases of DataFlux Data Management Studio, connections to SAS Federation Server or DataFlux Data Management Server can use the DataFlux Authentication Server. These connections are not available in DataFlux Data Management Studio 2.7. You must create new connections to SAS Federation Server or DataFlux Data Management Server that use the SAS Metadata Server. For more information, see the product documentation page for [DataFlux Data Management Server](#) and the product documentation page for [SAS Federation Server](#).

---

# DataFlux Secure

## DataFlux Secure 2.41

DataFlux Secure 2.41 is now installed as part of the regular installation process for these products:

- DataFlux Authentication Server 2.41
- DataFlux Data Management Server 2.41
- DataFlux Data Management Studio 2.41
- DataFlux Web Studio 2.41
- DataFlux Web Studio Server 2.41
- SAS Federation Server 3.2
- SAS Federation Server Client 3.2
- SAS Federation Server Manager 3.2

DataFlux Secure is installed in a disabled state. If you have not used DataFlux Secure before, and if you do not want to use it now, then do not change your previous configuration files as you move them forward into 2.41.

If you have used DataFlux Secure before, then you need to configure all of your products to enable the provided security features. To enable and configure DataFlux Secure, see *DataFlux Secure: Administrator's Guide*.

If you want to configure DataFlux Secure for the first time, you need to enable and configure DataFlux Secure on all instances of the products listed earlier. Global

enablement ensures that the same level of protection is provided for all of your servers, clients, and network connections.

### **DataFlux Secure 2.5**

DataFlux Secure 2.5 applies to these products:

- DataFlux Authentication Server 4.1
- DataFlux Data Management Server 2.5
- DataFlux Data Management Studio 2.5
- DataFlux Web Studio 2.5
- DataFlux Web Studio Server 2.5
- SAS Federation Server 4.1
- SAS Federation Server Client 4.1
- SAS Federation Server Manager 4.1
- SAS Visual Process Orchestration 2.1 Runtime Server
- SAS Visual Process Orchestration 2.1 Web Client

DataFlux Secure 2.5 is installed in a disabled state. To enable and configure DataFlux Secure, see *DataFlux Secure: Administrator's Guide*.

DataFlux Authentication Server now provides automated configuration of authentication in UNIX and Linux installations. The server now starts automatically after all installations. The server also now enables the generation of user names, in log files, instead of metadata IDs. And the server does not start if a port number is not specified during installation. Administrators can now add users with the ASBATCH utility and the AdminLoginManagementPolicy option.

### **DataFlux Secure 2.7**

DataFlux Secure 2.7 applies to these products:

- DataFlux Authentication Server 4.1
- DataFlux Data Management Server 2.7
- DataFlux Data Management Studio 2.7
- DataFlux Web Studio 2.5
- DataFlux Web Studio Server 2.5
- SAS Federation Server 4.2
- SAS Visual Process Orchestration 2.1 Runtime Server
- SAS Visual Process Orchestration 2.1 Web Client

DataFlux Secure is installed in a disabled state. To enable and configure DataFlux Secure, see *DataFlux Secure: Administrator's Guide*.

DataFlux Secure now offers FIPS compliance for SOAP client connections in DataFlux Data Management Server and DataFlux Data Management Studio.

---

## DataFlux Web Studio and Server

### Support for DataFlux Web Studio and Server

#### **SAS 9.4M7 Retired Product: DataFlux Web Studio and Server**

Starting with SAS 9.4M7, DataFlux Web Studio and Server (which uses Adobe Flash) is retired. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

#### **How to Unconfigure and Uninstall DataFlux Web Studio and Server**

*Note:* If you are upgrading to the August 2020 release of SAS 9.4M7 or earlier, *before* you unconfigure and uninstall any SAS Data Management products, contact SAS Technical Support to assess your site's situation and provide further instructions.

If you are upgrading to the September 2020 release of SAS 9.4M7 or later, complete these steps:

1. Before you upgrade, unconfigure any retired SAS Data Management products by using the Remove Existing Configuration task in SAS Deployment Manager.
2. Upgrade to SAS 9.4M7.
3. After you unconfigure and upgrade, use the Uninstall SAS Software task in SAS Deployment Manager to uninstall the retired SAS Data Management products.
4. If you are running on Windows, the uninstall process is complete.

If you are running on UNIX, complete these additional steps:

- a. Stop the SAS Web Studio application.

```
<SASHome>/DataFluxWebStudio/2.5/webstudio/bin/wsadmin stop
```

- b. Confirm that the application is stopped.

```
<SASHome>/DataFluxWebStudio/2.5/webstudio/bin/wsadmin status
```

- c. Delete the SAS Web Studio Server from the server tier.

```
rm -rf <SASHome>/DataFluxWebServer
```

- d. Delete SAS Web Studio application from the middle tier.

```
rm -rf <SASHome>/DataFluxWebStudio
```

### **DataFlux Web Studio 2.5**

- If you update DataFlux Web Studio 2.4.1 to DataFlux Web Studio 2.5 and DataFlux Data Management Studio 2.5 to DataFlux Management Studio 2.6 at the same time, you must add the following options to the `app.cfg` file for the DataFlux Web Studio Server. If you do not add these options, DataFlux Web Studio Server will not start after you upgrade the software.
  - `BASE/REPOS_VERSION_ACCEPT_LOW=8`
  - `BASE/REPOS_VERSION_ACCEPT_HIGH=8`

- DataFlux Web Studio 2.5 no longer contains the Business Data Network module. SAS Business Data Network 3.1 and SAS Lineage 3.1 are available as separate products. For more information, see [Chapter 18, “SAS Business Data Network,” on page 131](#) and [Chapter 71, “SAS Lineage,” on page 303](#).
- If you are running DataFlux Web Studio 2.5 in conjunction with DataFlux Data Management Studio 2.7, you must register the Web Studio Server in SAS Management Console. For more information, see the product Help for SAS Management Console.

This step must be performed for both new installations and for existing installations. After the Web Studio Server is in SAS Management Console, this server appears in the Data Management Servers riser in DataFlux Data Management Studio.

## Chapter 30

## SAS Data Integration Studio

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## Determining Your Update Path for SAS Data Integration Studio

### *Updating an Existing SAS 9.4 Deployment*

SAS Data Integration Studio 4.7, 4.8, and 4.9 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
4.7 (SAS 9.4)	4.8 (SAS 9.4M1), 4.9 (SAS 9.4M2), 4.901 (SAS 9.4M3), 4.902 (SAS 9.4M4), 4.903 (SAS 9.4M5), 4.904 (SAS 9.4M6), 4.905 (SAS 9.4M7), 4.906 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“SAS Data Integration Studio 4.7M1 and 4.8”</a> on page 179 and <a href="#">“SAS Data Integration Studio 4.7M* and 4.9*”</a> on page 179 (if appropriate).</li> <li>2. To upgrade to SAS Data Integration Studio 4.8 or 4.9, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> </ol>

---

Current Release at Your Site (SAS Release)	Release That You Are Upgrading To (SAS Release)	High-Level Steps and Resources
4.8 (SAS 9.4M1)	4.9 (SAS 9.4M2), 4.901 (SAS 9.4M3), 4.902 (SAS 9.4M4), 4.903 (SAS 9.4M5), 4.904 (SAS 9.4M6), 4.905 (SAS 9.4M7), 4.906 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see “SAS Data Integration Studio 4.7M* and 4.9*” on page 179.</li> <li>2. To upgrade to SAS Data Integration Studio 4.9, see “Install and Configure a Software Update” on page 53.</li> </ol>

### Migrating to SAS 9.4

To run SAS Data Integration Studio 4.7, 4.8, or 4.9, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
4.6 (SAS 9.3)	4.7 (SAS 9.4), 4.8 (SAS 9.4M1), 4.9 (SAS 9.4M2), 4.901 (SAS 9.4M3), 4.902 (SAS 9.4M4), 4.903 (SAS 9.4M5), 4.904 (SAS 9.4M6), 4.905 (SAS 9.4M7), 4.906 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see “SAS Data Integration Studio 4.7” on page 178, “SAS Data Integration Studio 4.7M1 and 4.8” on page 179, and “SAS Data Integration Studio 4.7M* and 4.9*” on page 179 (if appropriate).</li> <li>2. To migrate to SAS 9.4, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i>. To create a deployment, see <i>SAS 9.4 Intelligence Platform: Installation and Configuration Guide</i>.</li> </ol>

## SAS Data Integration Studio 4.7

In releases prior to SAS Data Integration Studio 4.5, error tables for Data Validation transformations were not specified with a full path. In these earlier releases, the path was specified as a text string that contained the libref and table name. This text string no longer suffices to specify the error table.

SAS Data Integration Studio 4.5 (and later) provides two ways to register an error table in metadata:

- Use the **Error & Exception** tab in the properties window for the transformation.



- Right-click on the transformation and select **Add Error Table**.

After you have registered an error table in the metadata, complete these steps:

1. Double-click the port for the error table (the second port in the hierarchy of ports on the Data Validation transformation).
2. Click the **Physical Storage** tab.
3. Specify the name of an error table and point to the library in which it is registered. This name could be the name of the error table for the job that you migrated.
4. Save your changes.

---

## SAS Data Integration Studio 4.7M1 and 4.8

SAS Data Integration Studio 4.7M1 is actually SAS Data Integration Studio 4.8, which shipped in December 2013. When you upgrade to SAS Data Integration Studio 4.8, the SAS Deployment Wizard and the deployment registry list the release number as 4.7M1. However, after you install SAS Data Integration Studio, the release number that appears in the software is 4.8.

---

## SAS Data Integration Studio 4.7M\* and 4.9\*

SAS Data Integration Studio 4.7M2 is actually SAS Data Integration Studio 4.9, which shipped in August 2014. When you upgrade to SAS Data Integration Studio 4.9, the SAS Deployment Wizard and the deployment registry list the release number as 4.7M2. However, after you install SAS Data Integration Studio, the release number that appears in the software is 4.9.

This numbering scheme continues in the subsequent 4.9 releases.

- SAS Data Integration Studio 4.7M3 is SAS Data Integration Studio 4.901. This release shipped in July 2015.
- SAS Data Integration Studio 4.7M4 is SAS Data Integration Studio 4.902. This release shipped in November 2016.

In this release, you cannot use the **Analyze in Web Viewer** option in SAS Data Integration Studio unless the SAS Lineage web client is installed. If the SAS Lineage web client is available on your network, you can use it to display lineage for tables and external files that are used in SAS Data Integration Studio. For more information, see [Chapter 71, “SAS Lineage,” on page 303](#).

- SAS Data Integration Studio 4.7M5 is SAS Data Integration Studio 4.903. This release shipped in September 2017.

In this release, the Cloud Analytic Services Transfer transformation was replaced by the Cloud Analytic Services Table Loader transformation. Existing jobs that use the Cloud Analytic Services Transfer transformation should continue to work.

- SAS Data Integration Studio 4.905 shipped in August 2020.
- SAS Data Integration Studio 4.906 shipped in January 2023.
  - Several transformations have been archived and are no longer supported.

- Attunity CDC
  - DB2 CDC
  - General CDC
  - Oracle CDC
  - Microsoft Queue Reader
  - Microsoft Queue Writer
  - WebSphere Queue Reader
  - WebSphere Queue Writer
- Two new options control the use of `CONNECT USING` instead of `CONNECT TO` in generated code.

## Chapter 31

# SAS Data Loader

---

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---

## About SAS Data Loader for Hadoop

SAS Data Loader for Hadoop is a software offering that makes it easier to move, cleanse, and analyze data in Hadoop. It enables business users and data scientists to complete self-service data preparation on a Hadoop cluster.

---

## SAS Data Loader for Hadoop 3.1

SAS Data Loader for Hadoop used to run inside a virtual machine or vApp. For the 3.1 release, the web application runs entirely on servers in the SAS middle tier. Now, the only software installation requirement for web client host computers is installing a supported web browser.

Because of these changes, the installation instructions for SAS Data Loader for Hadoop have changed significantly. For more information, see [SAS Data Loader for Hadoop: Installation and Configuration Guide](#) on the documentation page for [SAS Data Loader for Hadoop](#).

---

## SAS 9.4M8 Retired Product: SAS Data Loader for Hadoop Spark Engine

Starting with SAS 9.4M8, SAS Data Loader for Hadoop Spark Engine is a retired product. If you order SAS 9.4M8, SAS Data Loader for Hadoop Spark Engine is not included in that order. 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”](#) on page 59.



## Chapter 32

# SAS Data Quality Accelerator for Teradata

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## Determining Your Update Path for SAS Data Quality Accelerator for Teradata

### Upgrading an Existing SAS 9.4 Deployment

SAS Data Quality Accelerator 2.4, 2.5, 2.6, 2.7, and 9.4 for Teradata run on SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Upgrading To (SAS Release)	High-Level Steps and Resources
2.4, 2.5, 2.6, 2.7 (SAS 9.4)	2.5, 2.6, 2.7, 9.4 (SAS 9.4)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“About SAS Data Quality Accelerator for Teradata”</a> on page 184.</li> <li>2. To upgrade to the latest release of SAS Data Quality Accelerator for Teradata, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> </ol>

### Migrating to SAS 9.4

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
2.4, 2.5, 2.6, 2.7, 9.4 (SAS 9.4)	2.5, 2.6, 2.7, 9.4 (SAS 9.4)	To migrate within the same SAS release, see <i>SAS and SAS Viya In-Database Products: Administrator’s Guide</i> .

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## About SAS Data Quality Accelerator for Teradata

SAS has shipped these releases of SAS Data Quality Accelerator for Teradata.

- SAS Data Quality Accelerator 2.5 for Teradata shipped in March 2014.

Here are the changes to the existing stored procedures:

- The session-based stored procedures have been retired. The accelerator now provides one set of data quality stored procedures, which specify the locale as a stored procedure parameter. To use the locale value set with `DQ_SET_LOCALE()`, customers specify NULL in the locale parameter.
- The data quality stored procedure syntax has been changed such that optional parameters are specified at the end of the syntax specification.

To remove the session-based variants and use the new syntax, you need to rewrite your existing client programs.

- SAS Data Quality Accelerator 2.6 for Teradata shipped in February 2015. SAS Data Quality Accelerator 2.6 for Teradata includes internal enhancements that provide improved memory management and streamline the software infrastructure.
- Starting with SAS 9.4M4 (which shipped in November 2016), the release numbering of the SAS Data Quality Accelerator for Teradata product has changed from SAS Data Quality Accelerator 2.7 for Teradata to SAS 9.4 Data Quality Accelerator for Teradata. The change is a result of the company's recent integration of DataFlux Data Management Studio into the SAS suite of data quality, data integration, data governance, and master data management solutions.
- Starting with SAS 9.4M6 (which shipped in November 2018), the deployment of SAS Data Quality Accelerator for Teradata in the Teradata database has changed due to changes in the delivery and deployment of the SAS Embedded Process. The SAS Embedded Process must be deployed before SAS Data Quality Accelerator for Teradata. For information about deploying the SAS Embedded Process, see [SAS Embedded Process: Deployment Guide](#). For information about installing SAS Data Quality Accelerator for Teradata stored procedures in the Teradata database, see [SAS Data Quality Accelerator for Teradata](#) in *SAS In-Database Products: Administrator's Guide*.

For more information, see the software product page for [SAS Data Quality Accelerator](#).

## Chapter 33

# SAS Data Quality Server

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## Determining Your Update Path for SAS Data Quality Server

### *Upgrading an Existing SAS 9.4 Deployment*

<b>Current Release at Your Site</b>	<b>Release That You Are Upgrading To</b>	<b>High-Level Steps and Resources</b>
SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7	SAS 9.4M8	<ol style="list-style-type: none"> <li>1. Before you upgrade, see “<a href="#">SAS 9.4 Data Quality Server</a>” on page 186.</li> <li>2. To upgrade to the latest release of SAS 9.4, see “<a href="#">Install and Configure a Software Update</a>” on page 53.</li> </ol>

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## Migrating to SAS 9.4

To run SAS Data Quality Server 9.4, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site	Release That You Are Migrating To	High-Level Steps and Resources
SAS 9.3, 9.3M1, 9.3M2	SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	<ol style="list-style-type: none"> <li>1. Before you migrate, see “<a href="#">SAS 9.4 Data Quality Server</a>” on page 186.</li> <li>2. Install and configure SAS 9.4.</li> </ol> <p>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</p> <ul style="list-style-type: none"> <li>• Quick Start Guides in the <a href="#">SAS Install Center</a></li> <li>• <a href="#">SAS Intelligence Platform: Installation and Configuration Guide</a></li> </ul> <p>For migration information, see these resources:</p> <ul style="list-style-type: none"> <li>• <a href="#">SAS Intelligence Platform: Migration Guide</a></li> <li>• the product documentation page for <a href="#">SAS Data Quality Server</a></li> </ul>

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## SAS 9.4 Data Quality Server

The SAS integration of DataFlux products has resulted in resource changes that might affect SAS Data Quality customers. For technical support, licensing (new and renewals), and downloads, as well as documentation and training, customers now use the resources on the [SAS Support site](#). The MyDataFlux Portal is no longer supported.

In SAS 9.3, all functions and procedures that contain the DQSRV prefix were deprecated. The DQSRV functions were used with the DataFlux Integration Server. However, the DMSRV functions support the DataFlux Data Management Server.

SAS Data Quality Server has shipped these maintenance releases:

- SAS 9.4M1 in December 2013
- SAS 9.4M2 in August 2014
- SAS 9.4M3 in July 2015
- SAS 9.4M4 in November 2016
- SAS 9.4M5 in September 2017
- SAS 9.4M6 in November 2018
- SAS 9.4M7 in November 2020
- SAS 9.4M8 in January 2023



## Chapter 34

# SAS Data Remediation

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## Determining Your Update Path for SAS Data Remediation

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Data Remediation 2.1, 2.2, 2.3, 2.4, and 2.5 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
2.1, 2.1M1, 2.2, 2.4 (SAS 9.4)	2.5 (SAS 9.4M8)	For more information about this release, contact your SAS account representative.

### *Migrating to SAS 9.4*

SAS Data Remediation 2.1 is a new product that runs on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Migrating To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
2.1, 2.1M1, 2.2, 2.3, 2.4 (SAS 9.4)	2.5 (SAS 9.4M8)	To migrate to SAS Data Remediation 2.4, see <i>SAS MDM: Administrator's Guide</i> .
2.5 (SAS 9.4M8)	2.5 (SAS 9.4M8)	To migrate within the same release, see <i>SAS MDM: Administrator's Guide</i> .

---

## About SAS Data Remediation

SAS shipped these releases of SAS Data Remediation:

- SAS Data Remediation 2.1M1 in April 2014
- SAS Data Remediation 2.2 in March 2015
- SAS Data Remediation 2.3 in April 2017
- SAS Data Remediation 2.4 in June 2019

Starting with this release, the user interface has been rewritten in HTML5. Previously, many SAS applications and SAS solutions used the Adobe Flash Player to provide interactive user interfaces. Adobe has announced that it intends to end support for Flash technology and will stop updating and distributing the Flash Player at the end of 2020. Browser vendors will disable Flash by default in 2019. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

Here are some of the major changes in the user interface:

- The **SAS Data Remediation** tab is now the Issues window.
- The **SAS Data Remediation Administration** tab is now the Applications window.

SAS Data Remediation 2.4 is no longer accessed from SAS Data Management Console. Instead, sign in to SAS Data Remediation directly.

Deep linking refers to constructing a URL (link) that, when initiated, takes a user directly to an issue in SAS Data Remediation rather than requiring the user to search for it. The URL syntax has changed in this release.

- SAS Data Remediation 2.5 in January 2023

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS Data Remediation](#).

## Chapter 35

# SAS Decision Manager

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## Determining Your Update Path for SAS Decision Manager

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Decision Manager 2.1, 2.2, 3.1, 3.2, and 3.3 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
2.1 (SAS 9.4); 2.2 (SAS 9.4M2); 3.1 (SAS 9.4M3), 3.2 (SAS 9.4M4), 3.2M1 (SAS 9.4M6)	3.3 (SAS 9.4M6); 3.3M1 (SAS 9.4M7); 3.3M2 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“About SAS Decision Manager” on page 190</a>.</li> <li>2. To upgrade to the latest release of SAS Decision Manager, see <a href="#">“Install and Configure a Software Update” on page 53</a>.</li> <li>3. Complete the post-upgrade steps in <i>SAS Decision Manager: Administrator’s Guide</i>.</li> </ol>

---

## Migrating to SAS 9.4

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
2.1 (SAS 9.4), 2.2 (SAS 9.4M2)	2.2 (SAS 9.4M2), 3.1 (SAS 9.4M3), 3.2 (SAS 9.4M4), 3.2M1 (SAS 9.4M6); 3.3 (SAS 9.4M6); 3.3M1 (SAS 9.4M7); 3.3M2 (SAS 9.4M7)	To migrate to the latest release of SAS Decision Manager, see <i>SAS Decision Manager: Administrator's Guide</i> .
3.1 (SAS 9.4M3), 3.2 (SAS 9.4M4), 3.2M1 (SAS 9.4M6)	3.1 (SAS 9.4M3), 3.2 (SAS 9.4M4), 3.2M1 (SAS 9.4M6); 3.3 (SAS 9.4M6); 3.3M1 (SAS 9.4M7); 3.3M2 (SAS 9.4M8)	To migrate within the same release, see <i>SAS Decision Manager: Administrator's Guide</i> .

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## About SAS Decision Manager

### SAS Decision Manager 2.2

If you are upgrading to SAS Decision Manager 2.2, note these changes:

- Business contexts have been removed.
- The Designer and Definitions workspaces have been consolidated. Users do not have to switch between workspaces.
- The Business Rules Manager Users group is no longer created during the installation process. The Decision Manager Users group is created instead.
- Rule flow tests and test results are now saved in the file system. Users can delete test cases, including the test results, that are no longer needed. Administrators can delete test results directly from the file system.
- Decision flow functionality is not available in SAS Decision Manager 2.2, but is available in SAS Real-Time Decision Manager.
- The full functionality of the SAS Model Manager Java Client application and the Workflow Console web-based application have been integrated into SAS Decision Manager 2.2.

### **SAS Decision Manager 3.1**

SAS Decision Manager 3.1 runs on SAS 9.4M3.

When upgrading to SAS Decision Manager 3.1, you must run the SAS Deployment Wizard twice to complete the upgrade. During the first run of the SAS Deployment Wizard, you upgrade your existing deployment. You must run the SAS Deployment Wizard a second time to install the new product components and to complete the configuration.

Beginning with SAS Decision Manager 3.1, the rule set editor does not automatically add the term name in an expression that begins with a minus sign (–). For example, if you enter **-10** for term, SAS Decision Manager interprets this as **term = -10**. (The behavior for positive values has not changed. The value **+10** is still interpreted as **term = term +10**.)

For more information, see the software product page for [SAS Decision Manager](#).

Starting in March 2016, SAS Micro Analytic Services was available. When you upgrade SAS Decision Manager, you might see new prompts for licensing and databases. These new prompts are related to Micro Analytic Services. For more information about these prompts, see *SAS Micro Analytic Services: Programming and Administration Guide*. For more information, see [Chapter 78, “SAS Micro Analytic Service,”](#) on page 325.

### **SAS Decision Manager 3.2**

SAS Decision Manager 3.2 shipped in November 2016 and runs on SAS 9.4M4. SAS Decision Manager 3.2M1 shipped in November 2018 and runs on SAS 9.4M6.

When upgrading from SAS Decision Manager 2.2 to 3.2, you must run the SAS Deployment Wizard twice to complete the upgrade. During the first run of the SAS Deployment Wizard, you upgrade your existing deployment. You must run the SAS Deployment Wizard a second time to install the new product components and to complete the configuration. For more information, see *SAS Decision Manager: Administrator's Guide*.

### **SAS Decision Manager 3.3**

Starting with this release, the user interface has been rewritten in HTML5. Previously, many SAS applications and SAS solutions used the Adobe Flash Player to provide interactive user interfaces. Adobe has announced that it intends to end support for Flash technology and will stop updating and distributing the Flash Player at the end of 2020. Browser vendors disabled Flash by default in 2019. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

- SAS Decision Manager 3.3 (June 2019) runs on SAS 9.4M6 and later releases.
- SAS Decision Manager 3.3M1 shipped in August 2020 and runs on SAS 9.4M7.
- SAS Decision Manager 3.3M2 shipped in January 2023 and runs on SAS 9.4M8.



## Chapter 36

# SAS Decision Services

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## Determining Your Update Path for SAS Decision Services

### Upgrading an Existing SAS 9.4 Deployment

*Note:* Starting with SAS 9.4M8, SAS Decision Services is a retired product. For more information, see [“SAS 9.4M8 Retired Product: SAS Decision Services”](#) on page 194.

SAS Decision Services 6.2, 6.3, 6.4, 6.4M1, and 6.4M2 run on SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Upgrading To (SAS Release)	High-Level Steps and Resources
6.3 (SAS 9.4M1)	6.4M1 (SAS 9.4M5)	For more information about how to request this new release and the features that are available, contact your SAS account representative.
6.4 (SAS 9.4M2), 6.4M1 (SAS 9.4M6)	6.4M2 (SAS 9.4M7)	

### Migrating to SAS 9.4

To run SAS Decision Services 6.2, 6.3, 6.4, 6.4M1, or 6.4M2, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
5.5, 5.5M1, 5.6 (SAS 9.3)	6.3 (SAS 9.4M1); 6.4 (SASM2); 6.4M1 (SAS 9.4M5)	For more information about how to request this new release and the features that are available, contact your SAS account representative.
6.3 (SAS 9.4M1); 6.4 (SAS 9.4M2)	6.4 (SAS 9.4M2); 6.4M1 (SAS 9.4M5)	
6.4 (SAS 9.4M2); 6.4M1 (SAS 9.4M6)	6.4M2 (SAS 9.4M7)	

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## About SAS Decision Services

SAS has shipped these releases of SAS Decision Services:

- SAS Decision Services 6.2 shipped in July 2013.
- SAS Decision Services 6.3 shipped in May 2014.
- SAS Decision Services 6.4 shipped in March 2015.
- SAS Decision Services 6.4M1 shipped in June 2016.
- SAS Decision Services 6.4M2 shipped in August 2020.

For more information about this release, contact your SAS account representative and see the product documentation page for [SAS Decision Services](#).

*Note:* The documentation for SAS Decision Services is available only to customers who license this product.

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## SAS 9.4M8 Retired Product: SAS Decision Services

Starting with SAS 9.4M8, SAS Decision Services is a retired product. If you order SAS 9.4M8, SAS Decision Services is not included in that order. 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](#)” on page 59.



## Chapter 37

# SAS Digital Marketing

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## Determining Your Update Path for SAS Digital Marketing

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Digital Marketing 6.3, 6.4, and 6.5 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
6.3, 6.4, 6.5 (SAS 9.4)	6.4 (SAS 9.4M3); 6.5 (SAS 9.4M6)	For more information about this release, contact your SAS account representative.

*Note:* The last supported release is SAS Digital Marketing 6.5 on SAS 9.4M5. For more information, see [“SAS 9.4M6 Retired Product: SAS Digital Marketing”](#) on page 196.

### *Migrating to SAS 9.4*

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Migrating To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
5.41, 6.1 (SAS 9.3)	6.3 (SAS 9.4M2); 6.4 (SAS 9.4M3); 6.5 (SAS 9.4M6)	For more information about how to request this new release and the features that are available, contact your SAS account representative.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
6.3, 6.4 (SAS 9.4)	6.5 (SAS 9.4M6)	To migrate to SAS Digital Marketing 6.5, contact your SAS account representative.
6.5 (SAS 9.4M6)	6.5 (SAS 9.4M6)	To migrate within the same release, contact your SAS account representative.

---

## About SAS Digital Marketing

SAS has shipped these releases of SAS Digital Marketing:

- SAS Digital Marketing 6.3 shipped in May 2014.
- SAS Digital Marketing 6.4 shipped in March 2015.
- SAS Digital Marketing 6.5 shipped in June 2016.

For more information, contact your SAS account representative and see the product documentation page for [SAS Customer Intelligence](#).

*Note:* The documentation for SAS Digital Marketing is available only to customers who license this product.

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## SAS 9.4M6 Retired Product: SAS Digital Marketing

The last supported release is SAS Digital Marketing 6.5 in SAS 9.4M5. Starting in May 2020 release of SAS 9.4M6, this product is retired. If you plan to upgrade to SAS 9.4M6 or later, see “Impact on SAS Digital Marketing Deployments” in *SAS Customer Intelligence: Deployment Guide* for more information.

*Chapter 38*

# SAS Document Conversion Server

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## About SAS Document Conversion Server

SAS Document Conversion Server is a helper service that extracts plain text from file formats so that the text can be analyzed by SAS Text Miner. File formats include PDF, Microsoft Office (DOC, DOCX, PPT, PPTX, XLS, XLSX), OpenOffice.org (ODT, ODP, ODS), and RTF. By default, the **Text Import** node and the %TMFILTER macro communicate with SAS Document Conversion Server on TCP port 7111.

For more information about SAS Text Miner, see [Chapter 98, “SAS Text Miner,”](#) on [page 385](#).

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## Determining Your Update Path for SAS Document Conversion Server

### Upgrading an Existing SAS 9.4 Deployment

SAS Document Conversion Server is installed as part of SAS Text Miner.

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
12.3, 13.1, 13.2, 14.1, 14.2	14.3	<p>For more information about how to request this new release and the features that are available, contact your SAS account representative.</p> <p>To upgrade to the latest release of SAS Document Conversion Server, see <a href="#">“About SAS Document Conversion Server”</a> on page 198.</p>

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### Migrating to SAS 9.4

To run SAS Text Miner 12.3, 13.1, 13.2, 14.1, 14.2, or 14.3, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site	Release That You Are Migrating To	High-Level Steps and Resources
12.3, 13.1, 13.2, 14.1, 14.2 5.1M1	14.3	<p>For more information about how to request this new release and the features that are available, contact your SAS account representative.</p> <p>To upgrade to the latest release of SAS Document Conversion Server, see <a href="#">“About SAS Document Conversion Server”</a> on page 198.</p>

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## About SAS Document Conversion Server

SAS Document Conversion Server is automatically installed when you upgrade to the latest release of SAS Text Miner. For more information about prerequisites, how to operate SAS Document Conversion Server, and how to change the port, see the `SAS_Document_Conversion_readme.pdf` in the **ReadMeFiles** directory in your SAS Software Depot.

To upgrade to the latest release of SAS Document Conversion Server:

1. In the Windows Control panel, use the Add or Remove Programs functionality to uninstall SAS Document Conversion Server.
2. Run the SAS Deployment Wizard to update all relevant components, including SAS Text Miner 5.1M1.
3. After this installation is complete, run the SAS Deployment Wizard again and install only SAS Document Conversion Server.

*Note:* In UNIX operating environments, after you upgrade to SAS Document Conversion Server 13.1, you have a 12.3 directory and a 13.1 directory. To manage your installation of SAS Document Conversion Server, use the scripts in the new 13.1 directory. To remove the 12.3 directory, run `uninstall.sh` in the 12.3 directory (which removes the contents of the directory), and then delete the 12.3 directory.



## Chapter 39

# SAS Energy Forecasting

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## Determining Your Update Path for SAS Energy Forecasting

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Energy Forecasting 3.1, 3.2, and 4.1 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
3.1, 3.2 (SAS 9.4)	4.1 (SAS 9.4M5)	For more information about this release, contact your SAS account representative.

### *Migrating to SAS 9.4*

SAS Energy Forecasting is a new product that runs on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Migrating To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
3.1, 3.2 (SAS 9.4)	4.1 (SAS 9.4M5)	To migrate within the same release, contact your SAS account representative.
4.1 (SAS 9.4M5)	4.1 (SAS 9.4M5)	

## About SAS Energy Forecasting

SAS shipped these releases of SAS Energy Forecasting:

- SAS Energy Forecasting 3.1 in March 2015
- SAS Energy Forecasting 3.2 in March 2016
- SAS Energy Forecasting 3.2M1 in April 2017
- SAS Energy Forecasting 4.1 in February 2018

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS Energy Forecasting](#).



## Chapter 40

# SAS Enterprise Case Management

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## Determining Your Update Path for SAS Enterprise Case Management

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Enterprise Case Management 6.1, 6.2, and 6.3 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
6.1, 6.1M1, 6.2, 6.2M2, 6.3 (SAS 9.4)	6.3M1 (SAS 9.4)	For more information about how to request this new release and the features that are available, contact your SAS account representative.

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*Note:* The last supported release is SAS Enterprise Case Management 6.3M1. For more information, see [“Support for SAS Enterprise Case Management” on page 204](#).

## Migrating to SAS 9.4

Current Release at Your Site (SAS Release)	Release That You are Upgrading To (SAS Release)	High-Level Steps and Resources
6.1, 6.1M1, 6.2, 6.2M2, 6.3 (SAS 9.4) 3.2M1 (SAS 9.3)	6.3M1 (SAS 9.4)	For more information about how to migrate to the latest release of SAS Enterprise Case Management, see <i>SAS Enterprise Case Management: Administrator's Guide</i> .

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## SAS Enterprise Case Management

SAS shipped these releases of SAS Enterprise Case Management:

- SAS Enterprise Case Management 6.1 in October 2013.
- SAS Enterprise Case Management 6.2 in April 2014.
- SAS Enterprise Case Management 6.3 in January 2015. This release includes some SAS Visual Analytics components. For more information about how to deploy these components, see [“Adding SAS Visual Analytics to Your Deployment” on page 93](#).
- SAS Enterprise Case Management 6.3M1 in October 2015.

For more information about the new features and enhancements in each release, contact your SAS account representative.

For the product documentation, see the product documentation page for [SAS Enterprise Case Management](#).

*Note:* The documentation for SAS Enterprise Case Management is available only to customers who license this product.

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## Support for SAS Enterprise Case Management

### **SAS Enterprise Case Management 6.3 Is Not Available in SAS 9.4M7**

SAS Enterprise Case Management uses Adobe Flash. Adobe announced that it intends to end support for Flash technology and will stop updating and distributing the Flash Player at the end of 2020. Any SAS Enterprise Case Management releases prior to SAS 9.4M7 might not work as expected starting January 1, 2021. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

SAS Enterprise Case Management 6.3 on SAS 9.4M6 is the last release of the product. If you order SAS 9.4M7, SAS Enterprise Case Management will not be included in that order.

If you have an existing installation of SAS Enterprise Case Management in your environment and you plan to upgrade or migrate to SAS 9.4M7, consider SAS Visual Investigator in SAS Viya.

### Steps for SAS 9.4.M7 Upgrades

If you have SAS Enterprise Case Management in your order and you plan to upgrade to SAS 9.4M7, unconfigure and uninstall SAS Enterprise Case Management before upgrading or migrating to SAS 9.4M7.

- To uninstall SAS Software, see “Uninstall SAS Software (Graphical User Interface Tool)” in *SAS Deployment Wizard and SAS Deployment Manager 9.4: User’s Guide*.
- To uninstall the components of SAS Enterprise Case Management, see your Order Manifest, which includes the product details (12-bytes) for the uninstall process.

If SAS Enterprise Case Management is not removed before you upgrade or migrate to SAS 9.4M7, review the steps for upgrade in place or migration.

**Table 40.1** Results from Upgrade in Place or Migration

Task	Expectations	For More Information
Upgrade in Place	Your latest release of SAS Enterprise Case Management from your source system will remain installed and configured on your target system. However, SAS Enterprise Case Management is not operable on the target system.	To unconfigure and install the software, see <a href="#">“Unconfiguring and Uninstalling Retired Products”</a> on page 59.
Migration	<ul style="list-style-type: none"> <li>• SAS Enterprise Case Management will not be installed or configured in the target environment. However, you can continue to use SAS Enterprise Case Management in the source environment.</li> <li>• The SAS Migration Utility will bring artifacts of SAS Enterprise Case Management from the source system to the target system.</li> </ul>	For information about migration, see <a href="#">SAS Intelligence Platform: Migration Guide</a> .



## Chapter 41

# SAS Enterprise GRC

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## Determining Your Update Path for SAS Enterprise GRC

### *Updating an Existing SAS 9.4 Deployment*

*Note:* Starting with SAS 9.4M8, SAS Enterprise GRC is a retired product. For more information, see “[SAS 9.4M8 Retired Product: SAS Enterprise GRC](#)” on page 208.

SAS Enterprise GRC 6.1 is the first release on SAS 9.4.

### *Migrating to SAS 9.4*

To work with SAS Enterprise GRC 6.1, you must be running SAS 9.4. To migrate from a previous release of SAS Enterprise GRC, see *SAS Enterprise GRC: Installation and Configuration Guide*.

---

## SAS Enterprise GRC 6.1

SAS Enterprise GRC 6.1 shipped in October 2014. For more information about the new features in this release, see the software product page for [SAS Enterprise GRC](#).

## SAS 9.4M8 Retired Product: SAS Enterprise GRC

Starting with SAS 9.4M8, SAS Enterprise GRC is a retired product. If you order SAS 9.4M8, SAS Enterprise GRC is not included in that order. 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” on page 59](#).

## Chapter 42

## SAS Enterprise Guide

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## Determining Your Update Path for SAS Enterprise Guide

### Updating an Existing SAS 9.4 Deployment

SAS Enterprise Guide 6.1, 7.1, 8.1, 8.2, 8.3, and 8.4 run on SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Upgrading To (SAS Release)	High-Level Steps and Resources
6.1 (SAS 9.4); 6.1M1 (SAS 9.4M1); 7.1, 7.11 (SAS 9.4M2); 7.12 (SAS 9.4M3); 7.13 (SAS 9.4M4); 7.15 (SAS 9.4M5), 8.1 (SAS 9.4M6); 8.2 (SAS 9.4M6); 8.3 (SAS 9.4M7 and SAS 9.4M8)	8.4 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>Before you upgrade, see the topics for each relevant release of SAS Enterprise Guide.</li> <li>To upgrade to the latest release of SAS Enterprise Guide, see <a href="#">“Install and Configure a Software Update” on page 53</a>.</li> </ol> <p><i>Note:</i> SAS Enterprise Guide 8.1 is a new version. The SAS Deployment Wizard does not open in Update mode if you have SAS Enterprise Guide 7.15 installed.</p>

### Migrating to SAS 9.4

SAS Enterprise Guide works with SAS 9.2, SAS 9.3, and SAS 9.4. This documentation assumes that you want to run SAS Enterprise Guide on SAS 9.4. You can migrate to SAS 9.4, or you can create a SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
5.1, 4.3 (SAS 9.3)	6.1 (SAS 9.4); 6.1M1 (SAS 9.4M1); 7.1, 7.11 (SAS 9.4M2); 7.12 (SAS 9.4M3), 7.13 (SAS 9.4M4), 7.15 (SAS 9.4M5); 8.1 and 8.2 (SAS 9.4M6); 8.3 (SAS 9.4M7 and SAS 9.4M8); 8.4 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>Before you upgrade, see the topic for each relevant release of SAS Enterprise Guide.</li> <li>To migrate to the new release, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i>. To create a deployment, see <i>SAS 9.4 Intelligence Platform: Installation and Configuration Guide</i>.</li> <li>To complete any post-configuration steps, see <i>SAS Enterprise Guide 8.4 and SAS Add-In 8.4 for Microsoft Office: Administrator's Guide</i>.</li> </ol>



Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
6.1 (SAS 9.4), 6.1M1 (SAS 9.4M1); 7.1, 7.11 (SAS 9.4M2), 7.12 (SAS 9.4M3), 7.13 (SAS 9.4M4), 7.15 (SAS 9.4M5); 8.1 (SAS 9.4M6); 8.2 (SAS 9.4M6); 8.3 (SAS 9.4M7 and SAS 9.4M8)	8.4 (SAS 9.4M8)	To migrate within the same SAS release, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i> .
8.4 (SAS 9.4M8)	8.4 (SAS 9.4M8)	To migrate within the same release, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i> .

---

## SAS Enterprise Guide 6.1

### *Removal of Several Styles*

In SAS 9.4, these styles were removed:

- Astronomy.css
- Banker.css
- beige.css
- brick.css
- brown.css
- Curve.css
- d3d.css
- Education.css
- EGDefault82.css
- Electronics.css
- Gears.css
- Magnify.css
- Money.css
- Rsvp.css
- sansprinter.css
- Science.css
- serifprinter.css

- Sketch.css
- Solutions.css
- Theme.css
- Tom.css
- Watercolor.css

The removal of these styles could affect the SAS Enterprise Guide user in either of these ways:

- If your default style in SAS Enterprise Guide is set to one of the styles that were removed, you will not see any styles when you open your results. The HTML appears white, and the default for any SAS Report content defaults to sasweb. If you rerun the SAS Enterprise Guide project, the style is reset to HtmlBlue.
- The code or SAS task that generates the results refers to a style that has been removed. In this case, you must edit the code to refer to an existing style, or contact SAS Technical Support to obtain a ZIP file that contains the removed styles.

### **Changes from Earlier Releases**

If you are upgrading from SAS Enterprise Guide 4.3 or an earlier release, these considerations might apply to your site:

- SAS Enterprise Guide repositories are no longer supported. All metadata must be stored in a SAS Metadata Repository.
- Administration tasks (such as administering servers, users, and user groups) must be done using SAS Management Console (instead of through SAS Enterprise Guide Explorer).
- Tasks are no longer enabled or disabled for user groups, so task assignments for SAS Enterprise Guide users are not maintained. Any restrictions on SAS Enterprise Guide tasks must be made through roles and administered through SAS Management Console. For more information, see the SAS Enterprise Guide chapter in *SAS Intelligence Platform: Desktop Application Administration Guide*.
- Starting in SAS Enterprise Guide 4.3, external file references are stored as relative paths. Use pathnames that are relative to the current location of the project file instead of using a full path.

---

## **SAS Enterprise Guide 6.1M1**

SAS Enterprise Guide 6.1M1 shipped in December 2013. SAS Enterprise Guide is available as either a 32-bit application or a 64-bit application. If you are using a 32-bit Microsoft Windows operating system, you must run the 32-bit version of SAS Enterprise Guide. If you are using a 64-bit Windows operating system, you can run either the 32-bit version or the 64-bit version of SAS Enterprise Guide.

To use SAS Visual Analytics 6.4 with SAS Enterprise Guide 6.1M1, you must apply a hot fix. For more information, see [SAS Note 52813](#).

---

## SAS Enterprise Guide 7.1\*

### ***SAS Enterprise Guide 7.1: Integration with SAS Visual Analytics***

SAS Enterprise Guide 7.1 shipped in October 2014 and provided more integration with SAS Visual Analytics.

### ***SAS Enterprise Guide 7.11: Applying Software Updates***

SAS Enterprise Guide 7.11 shipped in May 2015. This release included a new feature that enables you to check for updates when you first open SAS Enterprise Guide or while you are working in SAS Enterprise Guide. If an update is available, a message appears. In the message dialog box, a link to support.sas.com is available where you can learn more about the contents of the software update. To apply a software update, you must close SAS Enterprise Guide. You can use this updates feature to upgrade from the 7.11 release to the 7.12 release.

### ***SAS Enterprise Guide 7.12: New Save All Option***

SAS Enterprise Guide 7.12 shipped in February 2016. Starting in SAS Enterprise Guide 7.12, the save functionality has been updated to include a new Save All option (Ctrl + Shift + S). The default behavior of the save option (Ctrl + S) now saves the active item in the project.

### ***SAS Enterprise Guide 7.13: Change in Default Format for Graphical Output***

SAS Enterprise Guide 7.13 shipped in November 2016. Starting in this release, the default format for graphical output is PNG. In previous releases, the default format was ActiveX. Consequently, your results might look a little different from previous releases. Use the new **Graph Format for Built-in Tasks** option to generate graphs in the ActiveX format for tasks that are shipped with SAS Enterprise Guide.

### ***SAS Enterprise Guide 7.15: Integration with SAS Viya***

SAS Enterprise Guide 7.15 shipped in September 2017. This release provides integration with SAS Viya. SAS Studio Viya tasks are available and can be run in SAS Enterprise Guide. You can also submit Cloud Analytic Services (CAS) code from the program window.

---

## SAS Enterprise Guide 8.1

In 8.1 release, the user interface for SAS Enterprise Guide has been redesigned. When working with SAS Enterprise Guide 8.1, please note these changes in behavior from previous releases:

- By default, when you re-run a task, the results from the previous run are automatically replaced. In previous releases, you were prompted to replace existing results.
- If you specify HTML5 for your HTML results, the default graph format is SVG. Graphs that are generated using the SVG format will include grid lines.
- Full screen mode does not persist between SAS Enterprise Guide sessions. If you are working in full screen mode, close SAS Enterprise Guide, and then restart it, the application will appear in the normal layout.
- In SAS Enterprise Guide 8.1, most options that were in the context menus for reports have been moved to the snowman toolbar. Here are the exceptions:
  - The **Paste** and **Delete** options are not available when viewing a report. You must use the Edit Contents window to delete items from or add items to reports.
  - The **Page Break After** and **Make Same Size** options are no longer available.
  - SAS Enterprise Guide Explorer is not available from the **Tools** menu. To open it, double-click SEGExplorer.exe in the installation directory.

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## SAS Enterprise Guide 8.2

SAS Enterprise Guide 8.2 shipped in November 2019. Support for SAS Viya was added in this release.

---

## SAS Enterprise Guide 8.3

SAS Enterprise Guide 8.3 shipped in August 2020.

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## SAS Enterprise Guide 8.4

SAS Enterprise Guide 8.4 shipped in March 2024. This release provides support for the SAS Viya 4 platform. For more information, see the software product page for [SAS Enterprise Guide](#).

## Chapter 43

## SAS Enterprise Miner

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## Determining Your Update Path for SAS Enterprise Miner

### Updating an Existing SAS 9.4 Deployment

SAS Enterprise Miner 12.3, 13.1, 13.2, 14.1, 14.2, 14.3, 15.1, 15.2, and 15.3 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
12.3 (SAS 9.4)	13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7), 15.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“SAS Enterprise Miner 12.3”</a> on page 216 and <a href="#">“SAS Enterprise Miner 13.1 and Later Releases”</a> on page 217.</li> <li>2. To upgrade to the latest release of SAS Enterprise Miner, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> </ol>
13.1 (SAS 9.4M1); 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7)	15.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“SAS Enterprise Miner 13.1 and Later Releases”</a> on page 217.</li> <li>2. To upgrade to the latest release of SAS Enterprise Miner, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> </ol>

---

## Migrating to SAS 9.4

To run SAS Enterprise Miner 12.3, 13.1, 13.2, 14.1, 14.2, 14.3, 15.1, 15.2, and 15.3, your site must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
12.1, 12.1M1 (SAS 9.3)	12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7), 15.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>Before you migrate, see “<a href="#">SAS Enterprise Miner 12.3</a>” on page 216 and “<a href="#">SAS Enterprise Miner 13.1 and Later Releases</a>” on page 217.</li> <li>To migrate from a previous release or to create a deployment, follow the steps in <i>SAS Enterprise Miner: Administration and Configuration Guide</i> (for your release).</li> </ol>
12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7)	15.3 (SAS 9.4M8)	To migrate within the same SAS release, follow the steps in <i>SAS Enterprise Miner Administration and Configuration Guide</i> (for your release).
15.3 (SAS 9.4M8)	15.3 (SAS 9.4M8)	To migrate within the same release, follow the steps in <i>SAS Enterprise Miner: Administration and Configuration Guide</i> .

---

## SAS Enterprise Miner 12.3

SAS Enterprise Miner 12.3 does not support middle-tier clustering. As a result, SAS Enterprise Miner runs on the master node in the cluster. If the master node is not available, SAS Enterprise Miner is not available (even if other SAS applications are available on other nodes in the cluster).

If you are upgrading from an earlier release of SAS Enterprise Miner, note these changes:

- Starting with SAS Enterprise Miner 12.1, SAS consolidated the version numbers for the main analytical products. Before the consolidation, the most recent version number for SAS Enterprise Miner was 7.1.
- Starting with SAS Enterprise Miner 12.1, the SAS Analytics Platform server was deprecated. The SAS Analytics Platform server is not used for any SAS 9.3 (or later) products or solutions.

---

## SAS Enterprise Miner 13.1 and Later Releases

Starting with SAS Enterprise Miner 13.1, when you order SAS Enterprise Miner, your site is also conditionally licensed for SAS/IML to enable specific functionality in SAS Enterprise Miner. You must install SAS/IML to use the **Open Source Integration** node on the **Utility** tab. For more information about how to install SAS/IML, see [“Adding a New Product”](#) on page 92.

- In SAS Enterprise Miner 13.1, support for middle-tier clustering was added.
- SAS Enterprise Miner 13.2 shipped in August 2014. This release adds support for SAP HANA and Scalable Performance Data Engine (SPD Engine).
- SAS Enterprise Miner 14.1 shipped in July 2015. This release supports PMML 4.2 and includes a new **High-Performance Bayesian Network** node.
- SAS Enterprise Miner 14.2 shipped in November 2016.
- SAS Enterprise Miner 14.3 shipped in September 2017.
- SAS Enterprise Miner 15.1 shipped in November 2018.
- SAS Enterprise Miner 15.2 shipped in August 2020.
- SAS Enterprise Miner 15.3 shipped in January 2023.

For more information about SAS Enterprise Miner, see the software product page for [SAS Enterprise Miner](#).





## Chapter 44

## SAS Environment Manager

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## Determining Your Update Path for SAS Environment Manager

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Environment Manager 2.1 runs on SAS 9.4. The first release of SAS Environment Manager 2.1 shipped with the initial release of SAS 9.4. The second release of SAS Environment Manager 2.1 shipped with SAS 9.4M1.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
2.1 (SAS 9.4, SAS 9.4M1)	2.7 (SAS 9.4M8)	1. Before you upgrade, see “ <a href="#">SAS Environment Manager 2.1 (SAS 9.4M1)</a> ” on page 221, “ <a href="#">SAS Environment Manager 2.3 and SAS Environment Manager 2.4</a> ” on page 221, and “ <a href="#">SAS Environment Manager 2.5</a> ” on page 222 (if appropriate).
2.3 and 2.4 (SAS 9.4M2)		
2.5 (SAS 9.4M3, SAS 9.4M4, and SAS 9.4M5)		2. To upgrade to the latest release, see “ <a href="#">Install and Configure a Software Update</a> ” on page 53.
2.6 (SAS 9.4M6)		

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## Migrating to SAS 9.4

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
2.1 (SAS 9.4, SAS 9.4M1) 2.3 and 2.4 (SAS 9.4M2) 2.5 (SAS 9.4M3, SAS 9.4M4, and SAS 9.4M5) 2.6 (SAS 9.4M6)	2.7 (SAS 9.4M8)	To migrate within the same SAS release, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i> .
2.7 (SAS 9.4M8)	2.7 (SAS 9.4M8)	

---

## About SAS Environment Manager

SAS Environment Manager, which is new with SAS 9.4, is an operational monitoring and management system for SAS deployments. SAS Environment Manager incorporates VMware's Hyperic technology in order to offer enterprise-class operational features. This new application includes plug-ins that are especially designed for the administration, management, and monitoring of SAS technologies. Agents on each managed host enable SAS Environment Manager to automatically discover server resources, gather health and availability information, perform control actions, collect usage information, and monitor logs.

The web-based interface enables administrators to perform these tasks:

- use the application's dashboard to obtain a snapshot of resource availability, recent control actions, favorite resources, saved charts, recent alerts, and selected metrics
- create personalized dashboards for particular SAS Environment Manager roles or for particular users
- drill into information about the current status of each resource, the availability of the resource over time, and detailed metrics in numeric and graphical format
- perform control actions for the SAS Web Application Server and for servers on the SAS server tier
- view and filter currently active alerts, display a deployment-wide view of events, and identify resources that are down or that have unfixed alerts
- configure the application to include SAS log messages and resource configuration changes in events
- view a list of the folders and folder contents that are stored in SAS metadata, and view details about an object's metadata

SAS Environment Manager is not currently a replacement for SAS Management Console, and no functionality has been removed from SAS Management Console.

---

## SAS Environment Manager 2.1 (SAS 9.4M1)

In December 2013, SAS shipped SAS Environment Manager 2.1, which runs on SAS 9.4M1. This release changes how SAS Environment Manager users and roles are managed in a SAS environment, and introduces the capability to synchronize users and roles between SAS Environment Manager and SAS metadata.

Users in SAS Environment Manager are mapped to users that are created in SAS metadata. During installation, three user groups are created in SAS metadata to contain SAS Environment Manager users. Users that are members of these groups are mapped to user definitions in SAS Environment Manager with corresponding roles. Here are the user groups and their corresponding roles:

Group Name in SAS Metadata	Role in SAS Environment Manager
SAS_EV_Super_User	Super User Role
SAS_EV_Guest	Guest Role
SAS_EV_AppServer_Tier	SAS App Tier Role

For example, users that are added to the group SAS\_EV\_Guest are added as users in SAS Environment Manager under the Guest role when the users are synchronized.

When you install SAS Environment Manager 2.1, all existing SAS Environment Manager user definitions are automatically added to the SAS\_EV\_Guest group in metadata. After the existing users have been added to the SAS\_EV\_Guest group, use SAS Management Console to modify the user definitions or assign the users to other SAS\_EV groups in metadata.

After you have defined new users in SAS metadata, sign on to SAS Environment Manager. Select **Manage** ⇒ **Synchronize Users**. User definitions are created for all users that are defined in the three SAS\_EV groups in metadata. Any SAS Environment Manager users that are not associated with user definitions in metadata are deleted.

If you sign on to SAS Environment Manager by using a user ID that is defined in metadata, and if the user ID is a member of one of the SAS\_EV groups but is not defined in SAS Environment Manager, a user definition is automatically created in SAS Environment Manager and assigned to the correct role.

---

## SAS Environment Manager 2.3 and SAS Environment Manager 2.4

In August 2014, SAS shipped SAS Environment Manager 2.3, and in October 2014, SAS shipped SAS Environment Manager 2.4. Both of these releases run on SAS 9.4M2.

When you upgrade your SAS Environment Manager software in place and the release number for SAS Environment Manager does not change, these backup folders are

created in the *SAS-configuration-directory/sas/Levn/Web/SASEnvironmentManager* directory:

- `agent-backup_date-time`
- `server-backup_date-time`

After the installation is validated, you can delete these directories.

When you upgrade your SAS Environment Manager software in place and the release number for SAS Environment Manager changes, two folders are created on the server because the version number for Hyperic is included in the name of the directory. For example, if you are upgrading from SAS Environment Manager 2.1 to 2.3, the version of Hyperic changed between these releases. As a result, you see these two folders in the *SAS-configuration-directory/Levn/Web/SASEnvironmentManager* directory after the software upgrade:

- `server-5.0.0-EE`
- `server-5.8.0-EE`

Any new plug-ins for SAS Environment Manager might be deployed to the original directory (`server-5.8.0-EE`) rather than to the new location (`server-5.8.0-EE`). For example, these JAR files might appear in the *SAS-configuration-directory/Levn/Web/SASEnvironmentManager/server-5.0.0-EE/hq-server/webapp/ROOT/WEB-INF/hq-plugins/* directory:

- `emi-framework-plugin.jar`
- `emi-reportcenter-plugin.jar`
- `emi-snapshot-plugin.jar`

You might also have these new JAR files in the *SAS-configuration-directory/Levn/Web/SASEnvironmentManager/server-5.0.0-EE/hq-server/webapp/ROOT/WEB-INF/hq-plugins/emi\_framework/lib* directory.

- `sas.sasev.framework.common.jar`
- `sas.sasev.framework.plugins.common.jar`
- `sas.sasev.framework.plugins.impl.jar`

In order for the new plug-ins to work in the latest release of SAS Environment Manager, you must copy these files and directories to the new location (`server-5.8.0-EE`). Then you should delete the old location (`server-5.8.0-EE`). You might need to restart SAS Environment Manager to see the new plug-ins.

## SAS Environment Manager 2.5

SAS Environment Manager 2.5 initially shipped in July 2015 and runs on SAS 9.4M3. SAS Environment Manager 2.5M1 shipped in November 2016 and runs SAS 9.4M4. For information about how to configure SAS Environment Manager 2.5 with SAS 9.4M5 (September 2017), see the list of supported scenarios in “Configuring SAS Environment Manager for HTTPS Starting at SAS 9.4M5” in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

If you modified certain default locations or settings in the SAS Environment Manager Service Architecture, you must manually change these settings in SAS Environment

Manager 2.5. Then you must run the `ugipinit` script. Here are some changes that you must manually update:

- Content that you stored in metadata folders must be manually imported. The update process backed up this information, so you must import the data from the backup location.
- Changes that you made to the service architecture configuration were not saved. You must apply these changes manually.
- LIBNAME statements that you changed in the service architecture `autoexec` files must be manually entered. The old files were backed up, so you can use the files as a reference for making the changes. However, you cannot use the old `autoexec` files with the new version of the application.

If you used the SAS Grid Manager plug-in for SAS Environment Manager, the functions of this plug-in have been replaced by a SAS Grid Manager module. For more information, see [Chapter 57, “SAS Grid Manager,” on page 251](#).

If you are upgrading from SAS Environment Manager 2.4 and you did not enable the SAS Environment Manager Service Architecture, you can ignore the message about the update failing.

In the SAS Environment Manager Data Mart, the `ACM.IOMSERVERS` table has been replaced by `ACM.SASAPPSERVERS` and `ACM.SASLOGICALSERVERS` tables.

---

## SAS Environment Manager 2.6

SAS Environment Manager 2.6 shipped in May 2019 and runs on SAS 9.4M6 and later releases.

---

## SAS Environment Manager 2.7

SAS Environment Manager 2.7 shipped in January 2023 and runs on SAS 9.4M8 and later releases. For more information about this release, see the software product page for [SAS Environment Manager](#).



## Chapter 45

## SAS Episode Analytics

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---

## Determining Your Update Path for SAS Episode Analytics

### *Upgrading an Existing SAS 9.4 Deployment*

*Note:* Starting with SAS 9.4M8, SAS Episode Analytics is a retired product. For more information, see “[SAS 9.4M8 Retired Product: SAS Episode Analytics](#)” on page 226.

SAS Episode Analytics 2.1, 2.2, and 3.1 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
2.1, 2.2 (SAS 9.4)	2.2, 3.1 (SAS 9.4)	For information about the new features and enhancements in this release, contact your SAS account representative.

---

## Migrating to SAS 9.4

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
2.1, 2.2, 3.1 (SAS 9.4)	2.2, 3.1 (SAS 9.4)	To migrate within the same release, see the documentation for SAS Episode Analytics.

---

## SAS Episode Analytics

SAS shipped these releases of SAS Episode Analytics:

- SAS Episode Analytics 2.2 shipped in February 2015.
- SAS Episode Analytics 3.1 shipped in February 2016.

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS Episode Analytics](#).

*Note:* The documentation for SAS Episode Analytics is available only to customers who license this product.

---

## SAS 9.4M8 Retired Product: SAS Episode Analytics

Starting with SAS 9.4M8, SAS Episode Analytics is a retired product. If you order SAS 9.4M8, SAS Episode Analytics is not included in that order. 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](#)” on page 59.



## Chapter 46

# SAS/ETS

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---

## Determining Your Update Path for SAS/ETS

### *Upgrading Your Existing SAS 9.4 Deployment*

SAS/ETS 12.3, 13.1, 13.2, 14.1, 14.2, 14.3, 15.1, 15.2, and 15.3 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M6), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7)	15.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“About SAS/ETS” on page 228</a>.</li> <li>2. To upgrade to the latest release of SAS/ETS, see <a href="#">“Install and Configure a Software Update” on page 53</a>.</li> </ol>

---

## Migrating to SAS 9.4

To run SAS/ETS 12.3, 13.1, 13.2, 14.1, 14.2, 14.3, 15.1, 15.2, or 15.3 you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
12.1 (SAS 9.3) 9.3M1, 9.3	12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7), 15.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>Before you upgrade, see “About SAS/ETS” on <a href="#">page 228</a>.</li> <li>Install and configure SAS 9.4.</li> </ol> <p>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</p> <ul style="list-style-type: none"> <li>Quick Start Guides in the <a href="#">SAS Install Center</a></li> <li><a href="#">SAS Intelligence Platform: Installation and Configuration Guide</a></li> </ul> <p>For migration information, see these resources:</p> <ul style="list-style-type: none"> <li><a href="#">SAS Intelligence Platform: Migration Guide</a></li> <li>the product documentation page for <a href="#">SAS/ETS</a></li> </ul>

---

## About SAS/ETS

SAS has shipped these releases of SAS/ETS:

- SAS/ETS 12.3 shipped in July 2013. This is essentially a maintenance release, with the exception that high-performance procedures for use in single-machine mode have been added.
- SAS/ETS 13.1 shipped in December 2013. For more information about the new features and enhancements in SAS/ETS 13.1, see [What’s New in SAS/ETS 13.1](#).
- SAS/ETS 13.2 shipped in August 2014. For more information about the new features and enhancements in SAS/ETS 13.2, see [What’s New in SAS/ETS 13.2](#).
- SAS/ETS 14.1 shipped in July 2015. For more information about the new features and enhancements in SAS/ETS 14.1, see [What’s New in SAS/ETS 14.1](#).
- SAS/ETS 14.2 shipped in November 2016. For more information about the new features and enhancements in SAS/ETS 14.2, see [What’s New in SAS/ETS 14.2](#).
- SAS/ETS 14.3 shipped in September 2017. For more information about the new features and enhancements in SAS/ETS 14.3, see [What’s New in SAS/ETS 14.3](#).
- SAS/ETS 15.1 shipped in November 2018. For more information about the new features and enhancements in SAS/ETS 15.1, see [What’s New in SAS/ETS 15.1](#).
- SAS/ETS 15.2 shipped in August 2020. This release includes bug fixes and hot fixes.
- SAS/ETS 15.3 shipped in January 2023.

## Chapter 47

## SAS Financial Crimes Monitor

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---

## Determining Your Update Path for SAS Financial Crimes Monitor

### *Upgrading an Existing SAS 9.4 Deployment*

*Note:* Starting with SAS 9.4M7, SAS Financial Crimes Monitor is a retired product. For more information, see [“SAS 9.4M7 Retired Product: SAS Financial Crimes Monitor”](#) on page 230.

SAS Financial Crimes Monitor 6.2 and 6.3 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
6.2 (SAS 9.4)	6.3 (SAS 9.4)	For more information about how to request this new release and the features that are available, contact your SAS account representative.

---

## Migrating to SAS 9.4

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
6.2 (SAS 9.4) 3.1M1 (SAS 9.3)	6.3 (SAS 9.4)	For more information about how to migrate to the latest release of SAS Financial Crimes Monitor see <i>SAS Financial Crimes Monitor: Installation and Configuration Guide</i> .

---

## About SAS Financial Crimes Monitor

SAS has shipped these releases of SAS Financial Crimes Monitor:

- SAS Financial Crimes Monitor 6.2 shipped in April 2014.
- SAS Financial Crimes Monitor 6.3 shipped in February 2020.

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS Financial Crimes Monitor](#).

*Note:* The documentation for SAS Financial Crimes Monitor is available only to customers who license this product.

---

## SAS 9.4M7 Retired Product: SAS Financial Crimes Monitor

Starting with SAS 9.4M7, SAS Financial Crimes Monitor is a retired product. If you order SAS 9.4M7, SAS Financial Crimes Monitor is not included in that order. 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](#)” on page 59.

## Chapter 48

# SAS Financial Management

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---

## Determining Your Update Path for SAS Financial Management

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Financial Management 5.4, 5.5, and 5.6 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Migrating To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
5.4, 5.5 (SAS 9.4)	5.6 (SAS 9.4)	For more information about how to upgrade to this release, contact your SAS account representative.

---

### *Migrating to SAS 9.4*

To run SAS Financial Management 5.4 or 5.5, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
5.4, 5.5 (SAS 9.4) 5.3, 5.3M1 (SAS 9.3)	5.6 (SAS 9.4)	To migrate or create a new deployment, see <i>SAS Financial Management 5.6: Installation and Configuration Guide</i>

---

## SAS Financial Management 5.4

SAS shipped SAS Financial Management 5.4 in December 2013.

---

## SAS Financial Management 5.5

SAS shipped SAS Financial Management 5.5 in January 2015. This release includes some SAS Visual Analytics components. For more information about how to deploy these components, see [“Adding SAS Visual Analytics to Your Deployment” on page 93](#).

---

## SAS Financial Management 5.6

SAS Financial Management 5.6 shipped in June 2019 and runs on SAS 9.4M6.

Starting with this release, the user interface has been rewritten in HTML5. Previously, many SAS applications and SAS solutions used the Adobe Flash Player to provide interactive user interfaces. Adobe has announced that it intends to end support for Flash technology and will stop updating and distributing the Flash Player at the end of 2020. Browser vendors will disable Flash by default in 2019. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

You can now edit the form data only through SAS Financial Management Add-In for Microsoft Excel. You cannot edit the forms in the Forms workspace.

In the HTML5 user interface, the Administration and Processes Workspace is not provided. You can complete the tasks that are related to administration and business processes through SAS Financial Management Studio.

For more information about the new features and enhancements in this release, contact your SAS account representative and see the product documentation page for [SAS Financial Management](#).

*Note:* The documentation for SAS Financial Management is available only to customers who license this product.

## Chapter 49

## SAS Factory Miner

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---

## Determining Your Update Path for SAS Factory Miner

### Updating an Existing SAS 9.4 Deployment

SAS Factory Miner 14.1, 14.2, 15.1, 15.2, and 15.3 run on SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Upgrading To (SAS Release)	High-Level Steps and Resources
14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7)	15.3 (SAS 9.4M8)	To upgrade to the latest release of SAS Enterprise Miner, see <a href="#">“Install and Configure a Software Update”</a> on page 53.

---

### Migrating to SAS 9.4

SAS Factory Miner is new for SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 15.1 (SAS 9.4M6), 15.2 (SAS9.4M7)	15.3 (SAS 9.4M8)	To migrate within the same SAS release, follow the steps in <i>SAS Factory Miner: Administration and Configuration Guide</i> (for your release).

---

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Migrating To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
15.3 (SAS 9.4M8)	15.3 (SAS 9.4M8)	To migrate within the same release, follow the steps in <i>SAS Factory Miner 14.2: Administration and Configuration Guide</i> .

---

## Releases of SAS Factory Miner

SAS Factory Miner has shipped these releases:

- SAS Factory Miner 14.2 in July 2015
- SAS Factory Miner 14.2 in November 2016
- SAS Factory Miner 15.1 in November 2018
- SAS Factory Miner 15.2 in August 2020
- SAS Factory Miner 15.3 in January 2023

For more information about SAS Factory Miner, see the software product page for [SAS Factory Miner](#).



## Chapter 50

# SAS Firmwide Risk for Banking

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## Support for SAS Firmwide Risk for Banking

### ***SAS Firmwide Risk for Banking Is Not Available in SAS 9.4M7***

SAS Firmwide Risk for Banking uses Adobe Flash. Adobe announced that it intends to end support for Flash technology and will stop updating and distributing the Flash Player at the end of 2020. Any SAS Firmwide Risk for Banking releases prior to SAS 9.4M7 might not work as expected starting January 1, 2021. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

If you order SAS 9.4M7, SAS Firmwide Risk for Banking will not be included in that order.

### ***Steps for SAS 9.4.M7 Upgrades***

If you have SAS Firmwide Risk for Banking in your order and you plan to upgrade to SAS 9.4M7, unconfigure and uninstall SAS Firmwide Risk for Banking before upgrading or migrating to SAS 9.4M7.

- To uninstall SAS Software, see “Uninstall SAS Software (Graphical User Interface Tool)” in *SAS Deployment Wizard and SAS Deployment Manager 9.4: User’s Guide*.
- To uninstall the components of SAS Firmwide Risk for Banking, see your Order Manifest, which includes the product details (12-bytes) for the uninstall process.

If SAS Firmwide Risk for Banking is not removed before you upgrade or migrate to SAS 9.4M7, review the steps for upgrade in place or migration.

**Table 50.1** *Results from Upgrade in Place or Migration*

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Task	Expectations	For More Information
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Upgrade in Place	Your latest release of SAS Firmwide Risk for Banking from your source system will remain installed and configured on your target system. However, SAS Firmwide Risk for Banking is not operable on the target system.	.To unconfigure and install the software, see <a href="#">“Unconfiguring and Uninstalling Retired Products”</a> on page 59.
Migration	<ul style="list-style-type: none"><li>• SAS Firmwide Risk for Banking will not be installed or configured in the target environment. However, you can continue to use SAS Firmwide Risk for Banking in the source environment.</li><li>• The SAS Migration Utility will bring artifacts of SAS Firmwide Risk for Banking from the source system to the target system.</li></ul>	For information about migration, see <a href="#">SAS Intelligence Platform: Migration Guide</a> .

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## Chapter 51

# SAS Firmwide Risk for Solvency II

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## Determining Your Update Path for SAS Firmwide Risk for Solvency II

### *Upgrading an Existing SAS 9.4 Deployment*

Current SAS Release at Your Site	SAS Release That You Are Upgrading To	High-Level Steps and Resources
3.1, 3.2, (SAS 9.4)	3.3 (SAS 9.4)	To upgrade to a new release, see <i>SAS Infrastructure for Risk Management: Administrator's Guide</i> .

---

### *Migrating to SAS 9.4*

To run SAS Firmwide Risk for Solvency II 3.1, 3.2, 3.3, or 3.4, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current SAS Release at Your Site	SAS Release That You Are Migrating To	High-Level Steps and Resources
3.1, 3.2 (SAS 9.4)	3.3 (SAS 9.4)	To migrate to the new release or to create a new deployment, see <i>SAS Infrastructure for Risk Management: Administrator's Guide</i> .

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## Chapter 52

# SAS Forecast Analyst Workbench

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---

## Determining Your Update Path for SAS Forecast Analyst Workbench

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Forecast Analysis Workbench 5.2 and 5.3 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
5.2, 5.2M2, 5.3 (SAS 9.4)	5.2M2, 5.3, 5.3M1 (SAS 9.4)	For more information about how to upgrade to the latest release, see <i>SAS Forecast Analyst Workbench: Upgrade and Migration Guide</i> .

---

## Migrating to SAS 9.4

To run SAS Forecast Analyst Workbench 5.2 and 5.3, you must be running SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
5.1 (SAS 9.3)	5.2, 5.2M2, 5.3, 5.3M1 (SAS 9.4)	For more information about how to migrate to this release, see <i>SAS Forecast Analyst Workbench: Upgrade and Migration Guide</i> .
5.2, 5.2M2 (SAS 9.4)	5.2M2, 5.3, 5.3M1 (SAS 9.4)	
5.3, 5.3M1 (SAS 9.4)	5.3, 5.3M1 (SAS 9.4)	

---

## About SAS Forecast Analyst Workbench

SAS Forecast Analyst Workbench is the demand planning module of the SAS Demand-Driven Planning and Optimization suite. SAS Forecast Analyst Workbench helps planners and analysts track, monitor, and predict the demand for products and services. SAS Forecast Analyst Workbench helps organizations gain instant visibility and understanding of the demand for their products without relying on personal judgments.

Depending on the license that your organization has, you can use the Collaboration Planning Workbench module of the SAS Forecast Analyst Workbench.

SAS shipped these releases of SAS Forecast Analyst Workbench:

- SAS Forecast Analyst Workbench 5.2 in August 2014
- SAS Forecast Analyst Workbench 5.2M2 in May 2015
- SAS Forecast Analyst Workbench 5.3 in May 2016
- SAS Forecast Analyst Workbench 5.3M1 in April 2017

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS Forecast Analyst Workbench](#).

*Note:* The documentation for SAS Forecast Analyst Workbench is available only to customers who license this product.

## Chapter 53

## SAS Forecast Server

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## Determining Your Update Path for SAS Forecast Server

### Migrating to SAS 9.4

To run SAS Forecast Server 12.3, 13.1, 13.2, 14.1, 14.2, 14.3, 15.1, 15.2, or 15.3 you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
12.1, 4.1 (SAS 9.3)	12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7), 15.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you migrate, see <a href="#">“About SAS Forecast Server” on page 242</a>.</li> <li>2. To migrate to the new release, see <i>SAS Forecast Server: Migration Guide</i> (for your release). To create a deployment, see <i>SAS Forecast Server: Administrator’s Guide</i> (for your release).</li> </ol>
12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7)	15.3 (SAS 9.4M8)	To migrate within the same SAS release, see <i>SAS Forecast Server: Migration Guide</i> (for the release at your site).

---

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
15.3 (SAS 9.4M8)	15.3 (SAS 9.4M8)	To migrate within the same release, see <i>SAS Forecast Server: Migration Guide</i> .

---

## About SAS Forecast Server

SAS Forecast Server 12.3 is the first release of SAS Forecast Server that runs on SAS 9.4. SAS Time Series Studio, which is a component of SAS Forecast Server, is production software in this release.

Software orders of SAS Forecast Server also include SAS Forecast Server Procedures. In earlier releases of SAS Forecast Server, these procedures were called High-Performance Forecasting.

For more information about SAS Forecast Server, see <http://support.sas.com/software/products/forecast>.

SAS Forecast Server 12.3 does not support clustering of the middle-tier servers. Because middle-tier clustering is not supported, SAS Forecast Server runs on the master node in the cluster. If the master node is not available, SAS Forecast Server is not available (even if other SAS applications are available on other nodes in the cluster).

If you are upgrading from an earlier release of SAS Forecast Server, note these changes:

- Beginning with SAS Forecast Server 12.1, SAS consolidated the version numbers for the main analytical products. Before the consolidation, the most recent version number for SAS Forecast Server was 4.1.
- Beginning with SAS Forecast Server 4.1, the SAS Analytics Platform server was deprecated. The SAS Analytics Platform service is not used for any SAS 9.3 (or later) products or solutions.

SAS also shipped these releases:

- SAS Forecast Server 13.1 in December 2013. Support for middle-tier clustering was added in this release.
- SAS Forecast Server 13.2 in August 2014.
- SAS Forecast Server 14.1 in July 2015. This release includes SAS Forecast Server Client, a new web-based interface that you can use to segment and forecast your data.
- SAS Forecast Server 14.2 in November 2016.
- SAS Forecast Server 14.3 in September 2017.
- SAS Forecast Server 15.1 in November 2018.
- SAS Forecast Server 15.2 in August 2020.
- SAS Forecast Server 15.3 in January 2023.

For more information about these releases, contact your SAS account representative and see the software product page for [SAS Forecast Server](#).



## Chapter 54

# SAS Fraud Management

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## Determining Your Update Path for SAS Fraud Management

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Fraud Management 4.1, 4.3, 4.4M0, 4.4M1, 6.1, and 6.2 run on SAS 9.4.

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
4.1, 4.3, 4.4M0, 4.4M1, 6.1	6.2	For more information about how to upgrade to the latest release, contact your SAS account representative.  <i>Note:</i> Upgrade-in-place is not available.

---

### *Migrating to SAS 9.4*

To run SAS Fraud Management 4.1, 4.3, 4.4M0, 4.4M1, 6.1, or 6.2, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
3.3, 3.3M1 (SAS 9.3)	6.2 (SAS 9.4M8)	For more information, contact your SAS account representative.
4.1, 4.3, 4.4M0, 4.4M1 (SAS 9.4)	6.2 (SAS 9.4M8)	<i>Note:</i> Upgrade-in-place is not available.
6.1 (SAS 9.4M7)	6.2 (SAS 9.4M8)	

---

## About SAS Fraud Management

*Note:* The documentation for SAS Fraud Management is available only to customers who license this product.

For more information SAS Fraud Management documentation, contact your SAS account representative and see the product documentation page for [SAS Fraud Management](#).

## Chapter 55

# SAS Genetics

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## Determining Your Update Path for SAS Genetics

### *Upgrading an Existing SAS 9.4 Deployment*

Starting with SAS 9.4M8, SAS Genetics is a retired product. If you order SAS 9.4M8, SAS Genetics is not included in that order. 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”](#) on page 59.



## Chapter 56

## SAS/GRAPH

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---

## Determining Your Update Path for SAS/GRAPH

### Upgrading an Existing SAS 9.4 Deployment

*Note:* Starting with SAS 9.4M8, SAS/GRAPH ActiveX Control and SAS/GRAPH Java Applets for Web Servers are retired products. If you order SAS 9.4M8, these products are not included in that order. 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”](#) on page 59.

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, SAS 9.4M6, SAS 9.4M7	SAS 9.4M8	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“About SAS/GRAPH 9.4”</a> on page 248.</li> <li>2. To upgrade to the latest release of SAS/GRAPH 9.4, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> </ol>

---

## Migrating to SAS 9.4

Current Release at Your Site	Release That You Are Migrating To	High-Level Steps and Resources
SAS 9.3, 9.3M2, 9.3M3	SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	<ol style="list-style-type: none"> <li>1. Before you migrate, see <a href="#">“About SAS/GRAPH 9.4” on page 248</a>.</li> <li>2. Install and configure SAS 9.4.</li> </ol> <p>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</p> <ul style="list-style-type: none"> <li>• Quick Start Guides in the <a href="#">SAS Install Center</a></li> <li>• <a href="#">SAS Intelligence Platform: Installation and Configuration Guide</a></li> </ul> <p>For migration information, see these resources:</p> <ul style="list-style-type: none"> <li>• <a href="#">SAS Intelligence Platform: Migration Guide</a></li> <li>• the product documentation page for <a href="#">SAS/GRAPH</a></li> </ul>

---

## About SAS/GRAPH 9.4

For more information about SAS/GRAPH 9.4, see the software product page for [SAS/GRAPH](#).

- Starting in SAS 9.4M1 (December 2013), if you are using a hyphen in your NAME= option, be aware that the hyphen ‘-’ is converted to an underscore. For catalog-based output, the NAME= option enables you to specify a name for the GRSEG entry and the graphics output file name, if generated.

*Note:* For more information about significant changes that occurred in SAS 9.4, see [“Base SAS 9.4” on page 97](#).

- Prior to SAS 9.4M2, if the NAME= option specifies a value that is greater than eight characters and begins with a number, SAS prepends an underscore to the graphics output file name. The GRSEG entry name continues to prepend an underscore to the NAME= value that begins with a number.

Starting in SAS 9.4M2 (August 2014), when the NAME= value is greater than eight characters and begins with a number, the graphics output file name is the NAME= value specified and an underscore is no longer prepended. When the NAME= value is eight characters or less, the graphics output file name continues to be equivalent to the GRSEG entry name.

- SAS shipped SAS/GRAPH 9.4M3 in July 2015.
- SAS shipped SAS/GRAPH 9.4M4 in November 2016.
- SAS shipped SAS/GRAPH 9.4M5 in September 2017.

Mapping procedures GEOCODE, GPROJECT, and MAPIMPORT are moved from SAS/GRAPH to Base SAS. Mapping procedures GINSIDE, GMAP, GREDUCE,

and GREMOVE remain with SAS/GRAPH. Also starting in SAS 9.4M5, SAS/GRAPH Network Visualization Workshop is no longer shipped with SAS/GRAPH.

- SAS shipped SAS/GRAPH 9.4M6 in November 2018.

PROC GINSIDE, PROC GPROJECT, PROC GREDUCE, and PROC GREMOVE have moved from SAS/GRAPH to Base SAS.

The %CENTROID macro that supports the SGMAP procedure has moved from SAS/GRAPH to Base SAS and is now an autocall macro. Running the %ANNOMAC macro before using %CENTROID is no longer necessary.

- SAS shipped SAS/GRAPH 9.4M7 in August 2020.

The SAS/GRAPH Java applets are deprecated:

- JAVA and JAVAMETA graphics devices
- %DS2CONST and %DS2TREE macros
- Constellation applet
- Contour applet
- Graph applet
- Map applet
- Treemap applet
- Treeview applet

Existing programs that use these items still work. However, these items are no longer supported, and they might be removed in a future release.

The document *SAS/GRAPH: Java Applets and ActiveX Control User's Guide* is discontinued.

- SAS shipped SAS/GRAPH 9.4M8 in January 2023.

---

## SAS 9.4M8: Retired SAS/GRAPH Products

Starting in SAS 9.4M8, SAS/GRAPH ActiveX Control and SAS/GRAPH Java Applets for Web Servers are retired products. If you order SAS 9.4M8, these products not included in that order. 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” on page 59](#).





## Chapter 57

## SAS Grid Manager

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## Determining Your Update Path for SAS Grid Manager

### *Upgrading an Existing SAS 9.4 Deployment*

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7	SAS 9.4M8	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“Releases of SAS Grid Manager”</a> on page 252.</li> <li>2. To upgrade to the latest release for SAS 9.4, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> </ol>

---

## Migrating to SAS 9.4

To run SAS Grid Manager 9.4, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site	Release That You Are Migrating To	High-Level Steps and Resources
SAS 9.3, 9.3M1, 9.3M2	SAS 9.4M8	<ol style="list-style-type: none"> <li>1. Before you migrate, see <a href="#">“Releases of SAS Grid Manager” on page 252</a>.</li> <li>2. Install and configure SAS 9.4.</li> </ol> <p>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</p> <ul style="list-style-type: none"> <li>• Quick Start Guides in the <a href="#">SAS Install Center</a></li> <li>• <a href="#">SAS Intelligence Platform: Installation and Configuration Guide</a></li> </ul> <p>For migration information, see these resources:</p> <ul style="list-style-type: none"> <li>• <a href="#">SAS Intelligence Platform: Migration Guide</a></li> <li>• the product documentation page for <a href="#">SAS Grid Manager</a></li> </ul>
SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7		

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## Releases of SAS Grid Manager

SAS has shipped these releases:

- SAS Grid Manager 9.4M3 in July 2015.

The SAS Grid Manager plug-in for SAS Environment Manager 2.4 has been replaced by the SAS Grid Manager module for SAS Environment Manager 2.5. Although the old plug-in continues to operate, the new module provides enhanced functionality and an improved user interface. If you are using the new SAS Grid Manager module, you should remove the old SAS Grid Manager plug-in.

To remove the old plug-in, delete the `GridManagerPlugin` folder from the `hqu` directory. A typical location is `/Web/SASEnvironmentManager/server-5.8.0-EE/hq-engine/hq-server/webapps/ROOT/hqu`.

- SAS Grid Manager 9.4M4 in November 2016.
- SAS Grid Manager 9.4M5 in September 2017.
- SAS Grid Manager 9.4M6 in November 2018.
  - The existing SAS Grid Manager Agent Plug-in for SAS Management Console has been renamed to SAS Grid Manager for Platform Agent Plug-in.
  - The existing SAS Grid Manager Module for SAS Environment Manager has been renamed to SAS Grid Manager for Platform Module. The user interface has completely changed, although the functions provided remain the same.

- SAS Grid Manager 9.4M7 in August 2020.
- SAS Grid Manager 9.4M8 in January 2023.



*Chapter 58*

# SAS High-Performance Analytics Infrastructure

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## About SAS High-Performance Analytics Infrastructure

The SAS High-Performance Analytics infrastructure consists of these products:

- SAS High-Performance Computing Management Console
  - SAS Plug-ins for Hadoop
  - SAS High-Performance Analytics Environment (also referred to as the SAS High-Performance Node Installation)
- 

## Determining Your Update Path for SAS High-Performance Analytics Infrastructure

Before you upgrade to the latest release of SAS High-Performance Analytics Infrastructure, see *SAS High-Performance Analytics Infrastructure: Installation and Configuration Guide*. For more information, see the product documentation page for [SAS High-Performance Analytics Infrastructure](#).

Upgrading to the latest version of the infrastructure requires upgrading SAS High-Performance Analytics Environment. If you overwrite the software on the cluster (or move the existing software and install in the same path), then the upgraded or migrated SAS software runs without modification.

Depending on your current version, upgrading the SAS High-Performance Analytics Environment can provide this functionality:

- Create a high-speed parallel connection that delivers data from your remote data source to the SAS High-Performance Analytics Environment on the analytic cluster.
- Perform text analysis in SAS LASR Analytic Server with SAS Visual Analytics and to run PROC HPTMINE and HPTMSCORE with SAS Text Miner.

If you choose to install the software in a different directory on the cluster, specify the new path as follows:

- For SAS LASR Analytic Servers, see “Add a LASR Analytic Server” in *SAS Intelligence Platform: Data Administration Guide*.
- For SAS High-Performance Risk, see “Change the SAS High-Performance Risk Property Values” in *SAS High-Performance Risk: Administrator’s Guide*.

*Note:* The infrastructure documentation and the documents in the preceding list are available only to customers who license these products.

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## Additional Releases of SAS High-Performance Analytics Infrastructure

- SAS High-Performance Analytics Infrastructure 3.8 shipped in June 2018.
- SAS High-Performance Analytics Infrastructure 3.9 shipped in April 2019.

---

## SAS High-Performance Analytics Infrastructure 3.7

SAS High-Performance Analytics Infrastructure 3.7 shipped in September 2017.

- There is a new SAS Plug-ins for Hadoop installation script for the Cloudera and Hortonworks Hadoop distributions. The script automates tasks that in the past required manual steps.
- It is now possible to use separate networks for internal and external communication.

For more information about this release, see *SAS High-Performance Analytics Infrastructure: Installation and Configuration Guide*.

---

## SAS High-Performance Analytics Infrastructure 3.5

Starting in November 2016, SAS discontinued SAS High-Performance Deployment for Hadoop. If you want to co-locate the SAS High-Performance Analytics environment with Hadoop, you can select and install a supported commercial version of Hadoop that meets your business requirements. Or, you can choose to download and deploy an Apache Hadoop distribution. Supported Hadoop distributions that you co-locate with the analytics environment must be modified with SAS Plug-ins for Hadoop.

For more information, see *SAS High-Performance Analytics Infrastructure: Installation and Configuration Guide*.

---

## SAS High-Performance Analytics Infrastructure

### 2.8

The following list identifies the changes that affect the upgrade process:

- SAS High-Performance Deployment of Hadoop includes Apache Hadoop 2.4. This is an upgrade from Apache Hadoop 0.23.1. The **hadoopInstall** configuration program includes a new prompt for configuring YARN. Configuring YARN is optional, but the configuration program is available as an experimental feature for resource management.
- The SAS High-Performance Analytics environment includes a **resource.settings** file that can be used to integrate with the YARN resource management. The file also offers settings for managing memory and CPU resources, even if you do not use YARN.
- The SAS High-Performance Computing Management Console has removed support for managing memory with cgroups. Memory management is available with the features listed in the preceding two bullets.

For more information about upgrading, see *SAS High-Performance Analytics Infrastructure: Installation and Configuration Guide*.





## Chapter 59

# SAS High-Performance Risk

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## Determining Your Update Path for SAS High-Performance Risk

### *Upgrading an Existing SAS 9.4 Deployment*

<b>Current Release at Your Site</b>	<b>Release That You Are Upgrading To</b>	<b>High-Level Steps and Resources</b>
4.1 (SAS 9.4M5), 4.2 (SAS 9.4M6), 4.3 (SAS 9.4M7)	4.4 (SAS 9.4M8)	For more information about how to upgrade to the latest release, contact your SAS account representative.

### *Migrating to SAS 9.4*

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Migrating To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
4.1 (SAS 9.4M5), 4.2 (SAS 9.4M6), 4.3 (SAS 9.4M7), 4.4 (SAS 9.4M8)	4.4 (SAS 9.4M8)	For more information about how to migrate to this release, contact your SAS account representative.

---

## About SAS High-Performance Risk

SAS shipped these releases of SAS High-Performance Risk:

- SAS High-Performance Risk 3.2 in December 2013. Some of the new features in this release require that you update to SAS High-Performance Analytics Infrastructure 2.4 (or later).
- SAS High-Performance Risk 3.2M1 in June 2014.
- SAS High-Performance Risk 3.3 in November 2014.
- SAS High-Performance Risk 3.4 in May 2015.
- SAS High-Performance Risk 3.5 in October 2015.
- SAS High-Performance Risk 3.6 in April 2016.
- SAS High-Performance Risk 3.7 in November 2016.
- SAS High-Performance Risk 3.8 in June 2017.
- SAS High-Performance Risk 3.9 in September 2017.
- SAS High-Performance Risk 4.1 in June 2018.
- SAS High-Performance Risk 4.2 in June 2019.
- SAS High-Performance Risk 4.3 in August 2020.
- SAS High-Performance Risk 4.4 in January 2023.

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS High-Performance Risk](#).

*Note:* The documentation for SAS High-Performance Risk is available only to customers who license this product.

## Chapter 60

# SAS/IML

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## Determining Your Update Path for SAS/IML

### *Upgrading an Existing SAS 9.4 Deployment*

SAS/IML 12.3, 13.1, 13.2, 14.1, 14.2, 14.3, 15.1, 15.2, and 15.3 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
12.3 (SAS 9.4); 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7)	15.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“About SAS/IML” on page 262</a>.</li> <li>2. To upgrade to the latest release of SAS/IML, see <a href="#">“Install and Configure a Software Update” on page 53</a>.</li> </ol>

---

## Migrating to SAS 9.4

To run SAS/IML 12.3, 13.1, 13.2, 14.1, 14.2, 14.3, 15.1, 15.2, or 15.3, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
12.1 (SAS 9.3) 9.3M1, 9.3	12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7), 15.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>Before you migrate, see “About SAS/IML” on <a href="#">page 262</a>.</li> <li>Install and configure SAS 9.4.</li> </ol> <p>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</p> <ul style="list-style-type: none"> <li>Quick Start Guides in the <a href="#">SAS Install Center</a></li> <li><a href="#">SAS Intelligence Platform: Installation and Configuration Guide</a></li> </ul> <p>For migration information, see these resources:</p> <ul style="list-style-type: none"> <li><a href="#">SAS Intelligence Platform: Migration Guide</a></li> <li>the product documentation page for <a href="#">SAS/IML</a></li> </ul>
12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M6), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7)	15.3 (SAS 9.4M8)	To migrate within the same SAS release, see <a href="#">SAS Intelligence Platform: Migration Guide</a> .
15.3 (SAS 9.4M8)	15.3 (SAS 9.4M8)	

## About SAS/IML

SAS has shipped these releases of SAS/IML:

- SAS/IML 12.3 shipped in July 2013. This release is a maintenance release with no new features.
- SAS/IML 13.1 shipped in December 2013. For more information about the new features and enhancements in SAS/IML 13.1, see [What’s New in SAS/IML 13.1](#).
- SAS/IML 13.2 shipped in August 2014. For more information about the new features and enhancements in SAS/IML 13.2, see [What’s New in SAS/IML 13.2](#).
- SAS/IML 14.1 shipped in July 2015. For more information about the new features and enhancements in SAS/IML 14.1, see [What’s New in SAS/IML 14.1](#).

- SAS/IML 14.2 shipped in November 2016. For more information about the new features and enhancements in SAS/IML 14.2, see [What's New in SAS/IML 14.2](#).
- SAS/IML 14.3 shipped in September 2017. For more information about the new features and enhancements in SAS/IML 14.3, see [What's New in SAS/IML 14.3](#).
- SAS/IML 15.1 shipped in November 2018. For more information about this release, see [What's New in SAS/IML 15.1](#).
- SAS/IML 15.2 shipped in August 2020.
- SAS/IML 15.3 shipped in January 2023.



## Chapter 61

# SAS Information Delivery Portal

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## Determining Your Update Path for the SAS Information Delivery Portal

### Upgrading an Existing SAS 9.4 Deployment

*Note:* Starting with SAS 9.4M8, SAS Information Delivery Portal is a retired product. For more information, see [“SAS 9.4M8 Retired Product: SAS Information Delivery Portal” on page 268](#).

SAS Information Delivery Portal 4.4 runs on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
4.4 (SAS 9.4)	4.4M1 (SAS 9.4M1), 4.4M2 (SAS 9.4M2)	<ol style="list-style-type: none"> <li>1. To upgrade to the latest release of SAS Information Portal 4.4, see <a href="#">“Install and Configure a Software Update” on page 53</a>.</li> <li>2. Complete any post-configuration steps. For more information, see <a href="#">“Updating Favorites in Your Web Browser” on page 267</a>.</li> </ol>

---

## Migrating to SAS 9.4

To run SAS Information Delivery Portal 4.4, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
4.31, 4.31M1, 4.31M2 (SAS 9.3) 4.3 (SAS 9.2M3)	4.4, 4.4M1, 4.4M2 (SAS 9.4)	<ol style="list-style-type: none"> <li>1. Before you migrate, see <a href="#">“SAS Information Delivery Portal 4.4”</a> on page 266.</li> <li>2. To migrate to the new release, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i>. To create a new deployment, see <i>SAS 9.4 Intelligence Platform: Installation and Configuration Guide</i>.</li> <li>3. Complete any post-configuration steps in <a href="#">“Updating Favorites in Your Web Browser”</a> on page 267 and <i>SAS 9.4 Intelligence Platform: Web Application Administration Guide</i>.</li> </ol>
4.2 (SAS 9.2)	4.4M2 (SAS 9.4)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“SAS Information Delivery Portal 4.3”</a> on page 267 and <a href="#">“SAS Information Delivery Portal 4.4”</a> on page 266.</li> <li>2. To migrate to the new release, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i>. To create a new deployment, see <i>SAS 9.4 Intelligence Platform: Installation and Configuration Guide</i>.</li> <li>3. Complete any post-configuration steps in <a href="#">“Updating Favorites in Your Web Browser”</a> on page 267 and <i>SAS 9.4 Intelligence Platform: Web Application Administration Guide</i>.</li> </ol>
4.4 (SAS 9.4)	4.4, 4.4M1 (SAS 9.4)	To migrate within the same SAS release, follow the steps in <i>SAS 9.4 Intelligence Platform: Migration Guide</i> .
4.4M1 (SAS 9.4)	4.4M1 (SAS 9.4)	To migrate within the same release, follow the steps in <i>SAS 9.4 Intelligence Platform: Migration Guide</i> .

## SAS Information Delivery Portal 4.4

The list of features and enhancements for the SAS Information Delivery Portal has remained the same since the 4.2 release. The only difference between these releases is the version of SAS that is required to run the SAS Information Delivery Portal.



Release of SAS Information Delivery Portal	Release of SAS
SAS Information Delivery Portal 4.4	SAS 9.4
SAS Information Delivery Portal 4.31	SAS 9.3
SAS Information Delivery Portal 4.3	SAS 9.2

*Note:* Starting in SAS Information Delivery Portal 4.4 (which runs on SAS 9.4), data explorations are no longer converted to reports during migration or promotion.

---

## SAS Information Delivery Portal 4.3

*Note:* This section is relevant only if you are upgrading to either SAS Information Delivery Portal 4.4 or SAS Information Delivery Portal 4.4M1. These releases run on SAS 9.4 or SAS 9.4M1, respectively. These steps are not required if you are upgrading to SAS Information Delivery Portal 4.4M2, which runs on SAS 9.4M2.

If you are running SAS Information Delivery Portal 4.2, you must upgrade to SAS Information Delivery Portal 4.3 before you upgrade to SAS Information Delivery Portal 4.4. If you upgrade from 4.2 to 4.4, your data explorations in SAS Web Report Studio 4.2 might not convert properly. For more information, see [Chapter 103, “SAS Web Report Studio,”](#) on page 415.

When you upgrade to SAS Information Delivery Portal 4.3, you have these options:

- You can upgrade to the latest release of SAS 9.2. SAS Information Delivery Portal 4.3 runs on SAS 9.2.

To upgrade to the latest release of SAS 9.2, see [Planning for Maintenance Releases and Product Upgrades for SAS 9.2](#).

- You can upgrade to the latest release of SAS 9.3. SAS Information Delivery Portal 4.31 runs on SAS 9.3.

When you upgrade to SAS 9.3, you can migrate, or you can create a new deployment. For specific steps, see *SAS 9.3 Intelligence Platform: Migration Guide* (if you are migrating to the new release) or *SAS 9.3 Intelligence Platform: Installation and Configuration Guide* (if you are creating a new deployment). For post-configuration steps, see *SAS 9.3 Intelligence Platform: Web Application Administration Guide*.

---

## Updating Favorites in Your Web Browser

After the deployment of any new release, you must change the release number in the resolved URL that you use to open the product. For example, if you upgraded from 4.3 to 4.4, the updated URL is `http://server:port/SASLogon/index.jsp?_sasapp=Info+Delivery+Portal+4.3`.

If you saved the URL for the previous release as a Favorite link in a web browser, then this link is broken when you upgrade to the new release. You must re-create this favorite

for the new release. You can also access the SAS Information Delivery Portal by using this unresolved link: `http://server:port/SASPortal`.

---

## SAS 9.4M8 Retired Product: SAS Information Delivery Portal

Starting with SAS 9.4M8, SAS Information Delivery Portal is a retired product. If you order SAS 9.4M8, SAS Information Delivery Portal is not included in that order. 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”](#) on page 59.

## Chapter 62

# SAS Infrastructure for Risk Management

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## Determining Your Update Path for SAS Infrastructure for Risk Management

### Upgrading an Existing SAS 9.4 Deployment

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
3.1, 3.2, 3.3, 3.4, 3.5 (SAS 9.4), 3.6 (SAS 9.4M6)	3.7 (SAS 9.4M8)	For more information about how to upgrade to the latest release, see <i>SAS Infrastructure for Risk Management: Administrator's Guide</i> .

### Migrating to SAS 9.4

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
3.1, 3.2, 3.3, 3.4, 3.5 (SAS 9.4), 3.6 (SAS 9.4M6)	3.7 (SAS 9.4M8)	For more information about how to upgrade to the latest release, see <i>SAS Infrastructure for Risk Management: Administrator's Guide</i> .

## About SAS Infrastructure for Risk Management

SAS has shipped these releases of SAS Infrastructure for Risk Management:

- SAS Infrastructure for Risk Management 3.1 in October 2015
- SAS Infrastructure for Risk Management 3.2 in March 2017, which supports SAS 9.4M4
- SAS Infrastructure for Risk Management 3.3 in May 2017
- SAS Infrastructure for Risk Management 3.4 in September 2017, which supports SAS 9.4M5

*Note:* Starting in the 3.4 release, SAS Infrastructure for Risk Management can be ordered separately. In previous releases, SAS Infrastructure Risk Management was available only as part of a content release or part of a solution, such as SAS Firmwide for Solvency II.

- SAS Infrastructure for Risk Management 3.5 in June 2018
- SAS Infrastructure for Risk Management 3.6 in May 2019
- SAS Infrastructure for Risk Management 3.7 in January 2023, which supports SAS 9.4M8

For more information about these releases, contact your SAS account representative and see the product documentation for [SAS Infrastructure for Risk Management](#).

*Note:* The documentation for SAS Infrastructure Risk Management is available only to customers who license this product.

## Chapter 63

# SAS In-Database Technologies

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## Determining Your Update Path for SAS In-Database Technologies

### *Upgrading an Existing SAS 9.4 Deployment*

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7	SAS 9.4M8	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“About SAS In-Database Technologies”</a> on page 272.</li> <li>2. To upgrade to the latest release of SAS 9.4 In-Database Technologies, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> </ol>

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### *Migrating to SAS 9.4*

You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
SAS 9.3, 9.3M1, 9.3M2	SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	<ol style="list-style-type: none"> <li>1. Before you migrate, see “<a href="#">About SAS In-Database Technologies</a>” on page 272.</li> <li>2. Install and configure SAS 9.4.</li> </ol> <p>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</p> <ul style="list-style-type: none"> <li>• Quick Start Guides in the <a href="#">SAS Install Center</a></li> <li>• <a href="#">SAS Intelligence Platform: Installation and Configuration Guide</a></li> </ul> <p>For pre-installation and post-configuration information, see <i>SAS 9.4 In-Database Products: Administrator’s Guide</i> on the product documentation page for <a href="#">SAS In-Database Technology</a>.</p>

## About SAS In-Database Technologies

### SAS 9.4 In-Database Technologies

Starting in SAS 9.4, in-database processing has been enhanced by the addition of SAS In-Database Code Accelerator for Teradata and Greenplum. SAS In-Database Code Accelerator enables you to publish a thread program to the database and execute the thread program in parallel inside the database.

In-database scoring for Netezza has been enhanced by the addition of the SAS Embedded Process. The SAS Embedded Process is a SAS server process that runs within Netezza to read and write data.

### SAS 9.4M1 In-Database Technologies

In SAS 9.4M1, the default behavior for SAS In-Database Code Accelerator has changed. DS2 code is not executed inside the database by default. You must set either the new DS2ACCEL system option to ANY or the PROC DS2 DS2ACCEL option to YES to enable DS2 code to run inside the database. For more information, see the *SAS DS2 Language Reference* and *Base SAS Procedures Guide*.

### SAS 9.4M2 In-Database Technologies

SAS 9.4M2 shipped in August 2014.

### SAS 9.4M3 In-Database Technologies

SAS 9.4M3 shipped in July 2015. In this release, the installation and configuration of the SAS Embedded Process for Hadoop has been improved and simplified.

- For Cloudera and Hortonworks, Cloudera Manager and Ambari can be used to install the SAS Embedded Process and the SAS Hadoop MapReduce JAR files.

- For IBM BigInsights, MapR, and Pivotal HD, the in-database deployment package is delivered to the client from the SAS Install Depot and manually installed.

In addition, the SAS Embedded Process and the SAS Hadoop MapReduce JAR files are installed with one script instead of with two separate scripts. The new process has a smaller client footprint and a faster installation.

Also, the SAS Embedded Process for Hadoop has been rewritten and no longer runs as a Linux service. For more information, see *SAS and SAS Viya In-Database Products: Administrator's Guide*. The installation and configuration of the SAS Embedded Process for Teradata has been improved and simplified. The in-database deployment package is delivered to the client from the SAS Install Depot. The new process has a smaller client footprint and a faster installation.

### **SAS 9.4M4 In-Database Technologies**

SAS 9.4M4 shipped in November 2016.

The installation and configuration of the SAS Embedded Process for Aster, DB2, Greenplum, SAP Hana, Oracle, and Netezza have been improved and simplified. The in-database deployment package is delivered to the client from the SAS Install Depot. The new process has a smaller client footprint and is a faster installation process.

If you license SAS Data Loader for Hadoop, SAS Data Quality Accelerator for Teradata, or SAS Contextual Analysis In-Database Scoring for Hadoop, these components are included in the in-database deployment package for Hadoop and Teradata, respectively.

The SAS Deployment Manager can be used to pull Hadoop JAR and configuration files when configuring Base SAS and the SPD Engine for use with Hadoop. In previous releases, pulling these files was a manual process.

### **SAS 9.4M5 In-Database Technologies**

SAS 9.4M5 shipped in September 2017.

If you license SAS Data Loader for Hadoop, you can now deploy the SAS Embedded Process and the SAS Data Quality Accelerator, the SAS Data Loader for Hadoop Spark Engine, and the SAS Quality Knowledge Base individually, all together, or in any combination at one time.

### **SAS 9.4M6 In-Database Technologies**

SAS 9.4M6 shipped in November 2018.

The delivery, installation, and deployment process for the SAS Embedded Process has changed. The SAS Embedded Process is now being delivered using a link in your Software Order Email (SOE) and the deployment process is the same for both SAS 9.4 and SAS Viya. When you license a SAS product that requires the SAS Embedded Process, you will receive two SOEs:

- One email is for your SAS 9.4 or SAS Viya software offering.
- A second email is for the SAS Embedded Process.

The SAS Embedded Process is delivered from a SAS Viya repository whether your software order includes SAS 9.4 or SAS Viya. Prior to this release, the SAS Embedded Process for SAS 9.4 software was delivered from the SAS 9.4 Software Depot. For SAS Viya, the SAS Embedded Process was delivered from a SAS Viya repository.

The SAS Embedded Process is now delivered as an RPM file for all data sources.

Due to changes to the deployment of the SAS Embedded Process:

- install scripts for SAS Data Quality Accelerator for Teradata stored processes are delivered to a different location
- the script to deploy SAS Contextual Analysis text analytics models to Hadoop nodes is delivered to a different location
- the SAS Deployment Manager is no longer used to deploy the SAS Embedded Process for Hadoop

For more information about this release, see the product documentation page for [SAS In-Database Technologies](#).

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## Additional Releases of SAS In-Database Technologies

- SAS In-Database Technologies 9.4M7 shipped in August 2020.
- SAS In-Database Technologies 9.4M8 shipped in January 2023.



## Chapter 64

# SAS Information Map Studio

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## Determining Your Update Path for SAS Information Map Studio

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Information Map Studio 4.4 runs on SAS 9.4.

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
4.4 (SAS 9.4)	4.4M1 (SAS 9.4M1), 4.4M2 (SAS 9.4M2), 4.4M3 (SAS 9.4M3), 4.4M4 (SAS 9.4M4), 4.4M5 (SAS 9.4M5), 4.4M6 (SAS 9.4M6), 4.4M7 (SAS 9.4M7), 4.4M8 (SAS 9.4M8)	To upgrade to the latest release of SAS Information Map Studio, see <a href="#">“Install and Configure a Software Update”</a> on page 53.

---

### *Migrating to SAS 9.4*

To run SAS Information Map Studio 4.4, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
4.31, 4.31M1, 4.31M2 (SAS 9.3)	4.4, 4.4M1, 4.4M2 (SAS 9.4M2), 4.4M3 (SAS 9.4M3), 4.4M4 (SAS 9.4M4), 4.4M5 (SAS 9.4M5), 4.4M6 (SAS 9.4M6), 4.4M7 (SAS 9.4M7), 4.4M8 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you migrate, see “<a href="#">SAS Information Map Studio 4.4</a>” on page 276.</li> <li>2. To migrate to the new release, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i>. To create a new deployment, see <i>SAS 9.4 Intelligence Platform: Installation and Configuration Guide</i>.</li> <li>3. Complete the post-configuration steps in <i>SAS 9.4 Intelligence Platform: Desktop Applications Guide</i></li> </ol>
4.4, 4.4M1, 4.4M2 (SAS 9.4M2), 4.4M3 (SAS 9.4M3), 4.4M4 (SAS 9.4M4), 4.4M5 (SAS 9.4M5), 4.4M6 (SAS 9.4M6), 4.4M7 (SAS 9.4M7)	4.4, 4.4M1, 4.4M2 (SAS 9.4M2), 4.4M3 (SAS 9.4M3), 4.4M4 (SAS 9.4M4), 4.4M5 (SAS 9.4M5), 4.4M6 (SAS 9.4M6), 4.4M7 (SAS 9.4M7), 4.4M8 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see “<a href="#">SAS Information Map Studio 4.31</a>” on page 277 and “<a href="#">SAS Information Map Studio 4.4</a>” on page 276.</li> <li>2. To migrate to the new release, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i>. To create a new deployment, see <i>SAS 9.4 Intelligence Platform: Installation and Configuration Guide</i>.</li> <li>3. Complete the post-configuration steps in <i>SAS 9.4 Intelligence Platform: Desktop Applications Guide</i></li> </ol>
4.4M8 (SAS 9.4M8)	4.4M8 (SAS 9.4M8)	To migrate within the same release, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i> .

## SAS Information Map Studio 4.4

### About Updates to SAS Information Map Studio

The list of features and enhancements for SAS Information Map Studio has remained the same since SAS Information Map Studio 4.2. The only difference between these releases is the version of SAS that is required to run SAS Information Map Studio.

Release of SAS Information Map Studio	Release of SAS
SAS Information Map Studio 4.4	SAS 9.4
SAS Information Map Studio 4.31	SAS 9.3
SAS Information Map Studio 4.2	SAS 9.2

## Special Considerations When Upgrading SAS Information Map Studio

- SAS Information Map Studio cannot open an information map that uses the advanced join model, assigned results filter, or localized properties features that were introduced in SAS 9.3. You can use the INFOMAPS procedure in SAS 9.3 and later to add these features to an information map. If you use the INFOMAPS procedure, you must continue using the procedure to work with the information map.
- For SAS Information Map Studio, continue to use stored processes that are compatible with SAS 9.2. Upgrading stored processes to use new features that are available in SAS 9.3 might cause errors when the upgraded stored processes are used by information maps. If you have already upgraded your stored processes and you are experiencing problems, you can make your stored processes compatible with SAS 9.2. For more information, see the Make Compatible feature in the Help for SAS Management Console.
- If you cannot find a stored process in SAS Information Map Studio, the **Hide from user** option might have been specified for the stored process. This option is available in SAS 9.3 and later.

---

## SAS Information Map Studio 4.31

*Note:* This section is relevant only if you are upgrading to either SAS Information Map Studio 4.4 or SAS Information Map Studio 4.4M1. These releases run on SAS 9.4 or SAS 9.4M1, respectively. These steps are not required if you are upgrading to SAS Information Map Studio 4.4M2, which runs on SAS 9.4M2.

If you are running SAS Information Map Studio 4.2, you must upgrade to SAS Information Map Studio 4.2M2 before you upgrade to SAS Information Map Studio 4.4. If you upgrade from 4.2 to 4.4, your data explorations in SAS Web Report Studio 4.2 might not convert properly. For more information, see [Chapter 103, “SAS Web Report Studio,” on page 415](#).

When you upgrade to SAS Information Map Studio 4.31, you have these options:

- You can upgrade to the latest release of SAS 9.2. SAS Information Map Studio 4.2M2 runs on SAS 9.2M3.  
To upgrade to the latest release of SAS 9.2, see [Planning for Maintenance Releases and Product Upgrades for SAS 9.2](#).
- You can upgrade to the latest release of SAS 9.3. SAS Information Map Studio 4.31 runs on SAS 9.3.

When you upgrade to SAS 9.3, you can migrate, or you can create a new deployment. For specific steps, see *SAS 9.3 Intelligence Platform: Migration Guide* (if you are migrating to the new release) or *SAS 9.3 Intelligence Platform: Installation and Configuration Guide* (if you are creating a new deployment). For post-configuration steps, see *SAS 9.3 Intelligence Platform: Web Application Administration Guide*.



## Chapter 65

# SAS Infrastructure for Risk Management

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## Determining Your Update Path for SAS Infrastructure for Risk Management

### Upgrading an Existing SAS 9.4 Deployment

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
3.1, 3.2, 3.3, 3.4, 3.5 (SAS 9.4), 3.6 (SAS 9.4M6)	3.7 (SAS 9.4M8)	For more information about how to upgrade to the latest release, see <i>SAS Infrastructure for Risk Management: Administrator's Guide</i> .

### Migrating to SAS 9.4

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
3.1, 3.2, 3.3, 3.4, 3.5 (SAS 9.4), 3.6 (SAS 9.4M6)	3.7 (SAS 9.4M8)	For more information about how to upgrade to the latest release, see <i>SAS Infrastructure for Risk Management: Administrator's Guide</i> .

## About SAS Infrastructure for Risk Management

SAS has shipped these releases of SAS Infrastructure for Risk Management:

- SAS Infrastructure for Risk Management 3.1 in October 2015
- SAS Infrastructure for Risk Management 3.2 in March 2017, which supports SAS 9.4M4
- SAS Infrastructure for Risk Management 3.3 in May 2017
- SAS Infrastructure for Risk Management 3.4 in September 2017, which supports SAS 9.4M5

*Note:* Starting in the 3.4 release, SAS Infrastructure for Risk Management can be ordered separately. In previous releases, SAS Infrastructure Risk Management was available only as part of a content release or part of a solution, such as SAS Firmwide for Solvency II.

- SAS Infrastructure for Risk Management 3.5 in June 2018
- SAS Infrastructure for Risk Management 3.6 in May 2019
- SAS Infrastructure for Risk Management 3.7 in January 2023, which supports SAS 9.4M8

For more information about these releases, contact your SAS account representative and see the product documentation for [SAS Infrastructure for Risk Management](#).

*Note:* The documentation for SAS Infrastructure Risk Management is available only to customers who license this product.

## Chapter 66

# SAS Integration Technologies

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## Determining Your Update Path for SAS Integration Technologies

### *Upgrading an Existing SAS 9.4 Deployment*

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7	SAS 9.4M8	<ol style="list-style-type: none"> <li>1. Before you upgrade, see “<a href="#">SAS 9.4 Integration Technologies</a>” on page 282 and “<a href="#">Maintenance Releases for SAS Integration Technologies</a>” on page 283.</li> <li>2. To upgrade to the latest release of SAS 9.4 Integration Technologies, see “<a href="#">Install and Configure a Software Update</a>” on page 53.</li> </ol>

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## Determining Your Upgrade Path for SAS Integration Technologies

To run SAS Integration Technologies 9.4, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site	Release That You Are Migrating To	High-Level Steps and Resources
SAS 9.3, 9.3M1, 9.3M2	SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	<ol style="list-style-type: none"> <li>Before you migrate, see “<a href="#">SAS 9.4 Integration Technologies</a>” on page 282 and “<a href="#">Maintenance Releases for SAS Integration Technologies</a>” on page 283.</li> <li>Install and configure SAS 9.4.</li> </ol> <p>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</p> <ul style="list-style-type: none"> <li>Quick Start Guides in the <a href="#">SAS Install Center</a></li> <li><a href="#">SAS Intelligence Platform: Installation and Configuration Guide</a></li> </ul> <p>For migration information, see these resources:</p> <ul style="list-style-type: none"> <li><a href="#">SAS Intelligence Platform: Migration Guide</a></li> <li>the product documentation page for <a href="#">SAS Integration Technologies</a></li> </ul>

## SAS 9.4 Integration Technologies

### SAS Stored Processes

PROC STP executes stored processes remotely by default. In SAS 9.3, they were executed locally by default. If you want to use PROC STP to execute a stored process locally, specify the SERVER=LOCAL option. For more information, see [SAS Stored Processes: Developer's Guide](#).

In SAS 9.3, new features were made available for stored processes. If your client does not support the new stored process features, then you might need to make your stored process compatible with 9.2. For more information about how to make stored processes compatible with SAS 9.2, see the Help in SAS Management Console.

### SAS BI Web Services

Resource suffixes for RESTful web service access have been updated. The following table shows the new 9.4 suffixes compared to their 9.3 suffixes:

Suffix for SAS 9.3	Updated Suffix for SAS 9.4
/parameters/	/outputParameters/



Suffix for SAS 9.3	Updated Suffix for SAS 9.4
/streams/	/dataTargets/
/packages/	/packageEntries/

If you are upgrading from an earlier release, note that in SAS/IntrNet 9.3, SAS BI Web Services for .NET was discontinued. SAS BI Web Services for Java supports .NET versions of generated web services that are migrated from SAS 9.2 in a way that is transparent for clients.

### SAS Publishing Framework

Event publishing has been discontinued, and the event publishing documentation has been removed. Instead, use PROC HTTP to issue HTTP requests and receive responses from an HTTP server.

### SAS Foundation Services

In SAS Foundation Services, the Event Broker Service is no longer available.

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## Maintenance Releases for SAS Integration Technologies

SAS has shipped these maintenance releases:

- SAS 9.4M1 Integration Technologies shipped in December 2013.
- SAS 9.4M2 Integration Technologies shipped in August 2014.
- SAS 9.4M3 Integration Technologies shipped in July 2015.

In this release, the App.AllowGuest initialization parameter was added for the SAS Stored Process Web Application. This parameter causes a **Guest** option to be displayed on the SAS Logon Manager sign-in screen. When the AllowGuest parameter is set to **true**, App.AllowGuest must also be set to **true**, or GuestUsername and GuestPassword must be set.

- SAS 9.4M4 Integration Technologies shipped in November 2016.
- SAS 9.4M5 Integration Technologies shipped in September 2017.
- SAS 9.4M6 Integration Technologies shipped in November 2018.

In SAS 9.4M6, functionality has been added to address security vulnerabilities with stored processes. This functionality removes semicolons from most input parameters because semicolons in an input parameter can execute a code injection. If you have existing code that uses semicolons in input parameters, you can use the STP\_UNSAFE\_DISABLE environment parameter to disable this functionality.

- SAS 9.4M7 Integration Technologies shipped in August 2020.
- SAS 9.4M8 Integration Technologies shipped in January 2023.

For more information about these releases, see the software product page for [SAS Integration Technologies](#).



## Chapter 67

## SAS Intelligence Platform

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## Determining Your Update Path for SAS Intelligence Platform

### Upgrading an Existing SAS 9.4 Deployment

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7	SAS 9.4M8	<ol style="list-style-type: none"> <li>Before you upgrade, see “SAS Intelligence Platform 9.4M1” on page 293, “SAS Intelligence Platform 9.4M2” on page 293, “SAS Intelligence Platform 9.4M3” on page 294, “SAS Intelligence Platform 9.4M4” on page 295, and “SAS Intelligence Platform 9.4M5” on page 295 (if appropriate).</li> <li>To upgrade to the latest release of SAS 9.4 Intelligence Platform, see “Install and Configure a Software Update” on page 53.</li> </ol>

### Migrating to SAS 9.4

To run the SAS 9.4 Intelligence Platform, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site	Release That You Are Migrating To	High-Level Steps and Resources
SAS 9.3, 9.3M1, 9.3M2	SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	<ol style="list-style-type: none"> <li>Before you migrate, see “SAS Intelligence Platform 9.4M1” on page 293, “SAS Intelligence Platform 9.4M2” on page 293, “SAS Intelligence Platform 9.4M3” on page 294, and “SAS Intelligence Platform 9.4M4” on page 295 (if appropriate).</li> <li>To migrate to the new release, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i>. To create a new deployment, see <i>SAS 9.4 Intelligence Platform: Installation and Configuration Guide</i>.</li> </ol>
SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7	SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	To migrate within the same SAS release, see <i>SAS Intelligence Platform: Installation and Configuration Guide</i> .
SAS 9.4M8	SAS 9.4M8	To migrate within the same SAS release, see <i>SAS Intelligence Platform: Installation and Configuration Guide</i> .

## SAS 9.4 Intelligence Platform System Administration

### Changes to the Middle Tier

Starting in SAS 9.4, a web application server, such as JBoss, IBM WebSphere, or Oracle WebLogic, is no longer required. Also, you do not need to download and install a Java Development Kit for the middle tier.

SAS 9.4 includes SAS Web Application Server. The middle tier includes SAS Web Server, an HTTP server. The SAS deployment tools can install and configure these servers automatically with the following features:

- horizontal and vertical clustering of SAS Web Application Server
- load-balancing proxy server configuration of SAS Web Server
- HTTPS support for SAS Web Server with CA-signed certificates or self-signed certificates

The new SAS Environment Manager offers monitoring and management features for these servers. For more information, see [Chapter 44, “SAS Environment Manager,” on page 219](#).

The SAS 9.4 middle tier includes JMS Broker for Java Message Services. A Cache Locator is installed and configured on the middle-tier machine. The Cache Locator is used by SAS Web Application Server to locate other SAS applications that use a distributed data cache for sharing information.

The SAS Remote Services application is deprecated, and SAS Enterprise Business Intelligence deployments do not use the server. The SAS Remote Services application is included with the software for backward compatibility with custom applications that rely on it.

*Note:* Starting in SAS 9.4M8, SAS Remote Services is not supported.

### Exceptions to the Middle-Tier Clustering Support

When you deploy SAS 9.4, you have the option of clustering your middle-tier servers. Not all products support this clustering. If you configure a clustered middle-tier environment and you deploy one of the products that do not support clustering, the non-supporting product runs on only one node in the cluster. If that node is not available, the product is not available (even if other SAS applications are available on other nodes in the cluster). For more information, see [SAS Intelligence Platform: Middle-Tier Administration Guide](#).

The following table lists the products that do not support this clustering feature.

Product	Release Number	Notes
SAS BI Dashboard	4.4	

Product	Release Number	Notes
SAS Business Rules Manager	2.1	Support was added in SAS Business Rules Manager 2.2 and later releases.
SAS Contextual Analysis	12.3	Support was added in SAS Contextual Analysis 13.2 and later releases.
SAS Cost and Profitability Management Mid-Tier	8.1	Support was added in SAS Cost Profitability Management Mid-Tier 8.1M3 and later releases.
SAS Decision Manager	2.1	Support was added in SAS Decision Manager 2.2 and later releases.
SAS Digital Marketing	6.3, 6.4, 6.5	
SAS Enterprise Miner	12.3	Support was added in SAS Enterprise Miner 13.1 and later releases.
SAS Financial Management	5.4	SAS Financial Management 5.5 adds support for a secondary server setup for fail over. For more information, see the product documentation.
SAS Forecast Server	12.3	Support was added in SAS Forecast Server 13.1 and later releases.
SAS IT Resource Management	3.4, 3.5	Support was added in SAS IT Resource Management 3.6 and later releases.
SAS Model Manager	12.3	Support was added in SAS Model Manager 13.1 and later releases.
SAS Risk Management for Banking	3.2, 3.3, 3.4	
SAS Security Intelligence Workbench	6.1	
SAS Text Miner	12.3	Support was added in SAS Text Miner 13.1 and later releases.

Product	Release Number	Notes
SAS Time Series Studio	12.3	Support was added in SAS Time Series Studio 13.1 and later releases.

## Changes to the SAS Logon Manager

Before updating your software, review these changes to the SAS Logon Manager:

- In SAS 9.3, the SAS Logon Manager application could be configured to log application response measurement (ARM) information for logon and logoff activities. For SAS 9.4, SAS Logon Manager uses a different architecture. The new architecture does not support ARM monitoring.
- For sites that prevented concurrent logon sessions in SAS Logon Manager, the name of the policy that provides this feature has changed. In SAS 9.3, the `Policy.DisableConcurrentUserLogins` property accepted a value of `true`. In SAS 9.4, setting the value of `Policy.ConcurrentUserLogins` to `deny` prevents concurrent logons in the same way that setting `Policy.DisableConcurrentUserLogins` to `true` prevents concurrent logons in SAS 9.3.
- SAS 9.4 introduces a global single sign-on session. (The default value is 12 hours.) In previous releases, when a user reached the HTTP session time-out interval (with a default value of 30 minutes), the user was logged off and had to provide credentials and reauthenticate to use the application or any other SAS web application. In SAS 9.4, the global single sign-on session enables the user to access a timed-out application, or any other SAS web application, and get a new HTTP session without reauthenticating. The SAS 9.3 and earlier behavior can be reproduced by configuring the **Log user off on timeout** policy for SAS Logon Manager.

For more information, see [SAS Intelligence Platform: Middle-Tier Administration Guide](#).

## SAS Web Infrastructure Platform Data Server

SAS Web Infrastructure Platform requires a transactional data store for middle-tier data such as alerts, comments, and workflows, as well as data for the SAS Content Server. To avoid the expense of licensing a third-party vendor database and to offer complete support through SAS software, SAS provided a data server to meet this need.

In the SAS 9.2 release, SAS Table Server was offered. In the SAS 9.3 release, SAS Framework Data Server was offered. In SAS 9.2 and SAS 9.3, respectively, the SAS Table Server and SAS Framework Data Server could be replaced with a third-party vendor database. Using a customer-selected database was popular for deployments that included a SAS solution that required a database such as Oracle. The transactional needs for the solution and the middle tier could be consolidated in one database and avoided the need for additional administration of a data server offered by SAS.

SAS 9.4 includes SAS Web Infrastructure Platform Data Server. The data server is based on PostgreSQL 9.1.9. Besides fulfilling the role of data store for middle-tier data, it also stores transactional information for SAS Environment Manager. The EVManager database instance that is used by SAS Environment Manager depends on the SAS Web Infrastructure Platform Data Server to log performance data. This dependency cannot be met by a third-party vendor database.

If you used a third-party vendor database for SAS 9.2 or SAS 9.3, the SharedServices database instance can continue to use the third-party vendor database when updating to SAS 9.4. However, you must use the SAS Web Infrastructure Platform Data Server for the SAS Environment Manager database (the EVManager database instance).

## Deployment Backup

The Deployment Backup and Recovery tool, which is new with SAS 9.4, provides an integrated method for backing up and recovering your SAS content across multiple tiers and machines. If this tool is configured, it automatically backs up the following components on the SAS server tier, middle tier, and data tier:

- the metadata server repositories, the repository manager, and all of the files in the metadata server's configuration directory.
- the contents of the **Data**, **SASEnvironment**, and server configuration directories for each server on the SAS server tier. (If symbolic links in these directories point to other locations, the referenced locations are not backed up.)
- all databases that are managed by the SAS Web Infrastructure Platform Data Server.

By default, the tool backs up these items automatically every Sunday at 1:00 a.m. All components (except the metadata server) are backed up to the following path on their respective host machines: **SAS-configuration-directory/Levn/Backup/Vault**. By default, backups are retained there for 30 days.

For metadata server backups, the tool uses the metadata server backup utility and its configured backup location and retention policy.

The Deployment Backup and Recovery tool also enables you to specify a central, network-accessible vault location. A central vault is highly recommended for multiple-machine deployments. For deployments that are not current with SAS 9.4M2, a central vault is required if your middle-tier environment includes a clustered SAS Content Server. If a central vault is specified, the backups from each host machine are copied to the central vault following each backup operation. By default, files are retained in the central vault for 30 days.

The Deployment Backup and Recovery tool includes batch scripts that you can use to perform these tasks:

- execute an ad hoc (unscheduled) backup
- specify a different backup schedule, a different vault location, or additional directories under **SAS-configuration-directory/Levn** that you want to back up
- display information such as the current schedule, the current configuration, and detailed backup history
- complete a full or partial recovery from one of the backups

If your deployment has a heterogeneous operating system environment, you can use the Deployment Backup and Recovery Tool only if your deployment is current with SAS 9.4M1. A heterogeneous environment is one in which the host machines that are included in the backup are in different operating system families (for example, both UNIX and Windows). SAS 9.4M1 also includes support for manually configuring a central vault location in heterogeneous deployments.

For more information, see “Using the Deployment Backup and Recovery Tool” in *SAS Intelligence Platform: System Administration Guide*.



## Metadata Server Backup and Recovery

The default backup schedule for the stand-alone metadata server backup has been changed from seven days a week to six days a week (daily except Sunday) at 1:00 a.m. If you migrate from SAS 9.3 to SAS 9.4, the migration utility performs these tasks:

- migrates your metadata server backup schedule and retention policy to the new deployment. (If no metadata server backup schedule or retention policy is defined in your SAS 9.3 deployment, none will be specified in your SAS 9.4 deployment.)
- removes from the SAS 9.4 metadata server backup schedule any backups that are scheduled on Sunday from 00:00 through 11:59 a.m. This prevents conflicts with the metadata server backup that is performed every Sunday at 1:00 a.m. by the Deployment Backup and Recovery tool.

Do not schedule stand-alone metadata server backups during this time if the Deployment Backup and Recovery tool has been configured.

- sets the metadata server backup destination to the location that you specify in the SAS Deployment Wizard. The default destination is *SAS-configuration-directory/Levn/SASMeta/MetadataServer/Backups* in your SAS 9.4 configuration directory.

In SAS 9.4M1, the metadata server script includes a **-recover** option. This option starts a server that is not currently running, and then restores the server's metadata repository from the most recent backup. The option provides an easy way to recover a server or node that is unresponsive. For more information, see "Backing Up and Recovering the SAS Metadata Server" in *SAS Intelligence Platform: System Administration Guide*.

## Clustered Metadata Servers

SAS 9.4 provides the option of implementing a metadata server cluster. This feature provides redundancy and high availability of the metadata server, which is a core component of the SAS infrastructure. Clustering ensures that the server continues to operate if a server host machine fails. These servers can be monitored, and in SAS Environment Manager, you can view reports for metrics, such as health, availability, and quorum status.

If your SAS 9.4 deployment includes a clustered metadata server, be aware of the following special considerations:

- To start a clustered metadata server, use your preferred method (for example, the server script, SAS Environment Manager, or Windows Service Manager) to start each of the nodes in the cluster. The nodes can be started in any order.
- Make sure that all of the nodes are running before you start components that depend on the metadata server.
- The Active Server Properties dialog box, which is available in the **Metadata Manager** node of SAS Management Console, includes a new **Cluster** tab that displays the overall status of the cluster. Individual nodes can be monitored in SAS Environment Manager and in SAS Management Console Server Manager.
- The following administrative functions cannot be performed on a server that is running with the cluster option:
  - completing a metadata server recovery
  - backing up the metadata server with the REORG option

- running the optimizeIMDB command option of the metadata server script
- running the Metadata Analyze and Repair tools

To perform one of these functions, use the startNoCluster option of the metadata server script to start a single node without the clustering option. After performing the function, restart (or stop and start) the node to place it in cluster mode as the master node. Then start the other nodes in the cluster. The master node updates the other nodes with the new data from the recovery, REORG, optimizeIMDB, or analyze and repair operation.

- The logging facility creates a separate log for each node in the cluster. The logs are stored on their respective host machines and are available for viewing in SAS Management Console.
- Starting in SAS 9.4M2, metadata server clustering is supported on z/OS. In previous SAS 9.4 releases, metadata server clustering is supported only on UNIX and Windows. All of the nodes in the cluster must have the same operating system.

To update a deployment with a clustered metadata server:

1. Terminate all active SAS sessions, daemons, spawners, and servers.
2. Upgrade the first node (that is, the initially configured metadata server). The node is restarted automatically after the upgrade.
3. Stop the metadata server and start it with the **-startNoCluster** option.
4. Update the remaining nodes in the cluster. You can disregard the warning that the SAS Deployment Wizard is in admin mode.
5. After the SAS Deployment Wizard finishes updating the nodes, stop and restart all the nodes in the cluster.
6. Update the remaining tiers in your deployment.

For more information, see “Using Metadata Server Clustering” in *SAS Intelligence Platform: System Administration Guide*.

### **SAS Information Delivery Portal**

In SAS Information Delivery Portal 4.4 (which runs on SAS 9.4), data explorations are no longer converted to reports during migration or promotion.

### **SAS Deployment Agent**

The SAS Deployment Agent, which is new with SAS 9.4, is required for some administration activities such as creating new servers, configuring middle-tier clustering, and using the Deployment Backup and Recovery tool. For more information, see “Starting and Stopping the SAS Deployment Agent” in *SAS Intelligence Platform: System Administration Guide*.

---

## SAS Intelligence Platform 9.4M1

### ***Deployment Backup***

Starting in SAS 9.4M1, the Deployment Backup and Recovery tool includes these changes:

- The syntax has changed for the `sas-backup` and `sas-list-backups` commands.
- The input file specifications have changed for the following commands: `sas-backup`, `sas-set-backup-schedule`, and `sas-remove-backup-schedule`.
- The `sas-status-backup` command can be used only to display the status of a backup operation. It no longer reports the status of recoveries.
- An alert email is generated if a backup or recovery is unsuccessful. By default, the email is sent to the system administrator email address that was specified in the SAS Deployment Wizard.
- A new offline recovery command (`sas-recover-offline`) can restore files from the deployment backup when some resources are unavailable or have been taken offline.
- On UNIX machines, it is no longer necessary to list the backup user (typically, the SAS Installer user) in the `etc/sudoers` file.

### ***Metadata Server Recovery***

In SAS 9.4M1, the metadata server script includes a `-recover` option. This option starts a single node and then restores the node's metadata repository from the most recent backup, which provides an easy way to recover a server or node that is unresponsive.

### ***Server Start-up Order***

In SAS 9.4M1, the documentation was changed to recommend that the SAS Web Server be started before the SAS Web Application Server. This start-up order helps ensure optimum performance when web applications are initialized. The `sas.servers` script has also been changed to incorporate the new order.

---

## SAS Intelligence Platform 9.4M2

### ***SAS Web Infrastructure Platform Data Server***

Starting in SAS 9.4M2, Teradata is no longer supported as an alternate data server for SAS Web Infrastructure Platform Services.

## Deployment Backup

Starting in SAS 9.4M2, the Deployment Backup and Recovery tool includes these changes:

- If you have specified a central vault location, the local backups are deleted from each host machine after they are successfully copied to the central vault. However, metadata server backups are not deleted from the location that is used by the metadata server backup utility.
- A central vault location is no longer required if your middle-tier environment includes a clustered SAS Content Server.
- When you use `sas-update-backup-config` to specify a central vault location, the location is automatically added to the BackupServer.ini file.
- The syntax has changed for `sas-remove-backup-schedule` and `sas-remove-backup-customdir`. JSON files are no longer used with these commands.
- The input data specifications for `sas-add-backup-customdir` have changed.
- Error messages have been modified to improve clarity.
- The recovery process uses `checksums` to validate the contents of the specified backup directory against the originally created backup. If the validation fails, a warning message is generated and the recovery is not performed. To perform the recovery without validating the files, you can specify the new `forced` option be used with the recovery command to perform the recovery without validating the files.
- Commands can be run from any directory.

## Batch Relationship Reporting Tools

In SAS 9.4M2, the terminology has changed for reports produced by the `sas-relationship-reporter` batch command. For example, the term **Contains** replaces the term **Includes**.

## Changes in SAS Mobile BI

SAS Mobile BI 7.1 has a new user interface. The new interface does not include a banner. For this reason, support for the configuration properties that customize the banner in the native mobile viewers is discontinued in SAS Mobile BI 7.1.

---

# SAS Intelligence Platform 9.4M3

## SAS Environment Manager

SAS Environment Manager 2.5 shipped with SAS 9.4M3. The stored process reports in the Report Center have been replaced with stored process prompts, and the SAS Environment Management Data Mart now supports a federated data mart structure.

The new SAS Backup Manager can be accessed from the **Administration** tab of SAS Environment Manager. The SAS Backup Manager is an easy-to-use interface for scheduling, configuring, monitoring, and performing integrated backups. The interface incorporates most of the functions of the Deployment Backup and Recovery tool's batch commands.

### **Deployment Backup**

In SAS 9.4M3, the Deployment Backup and Recovery tool includes these changes:

- The command `sas-update-backup-config` has a new syntax and new filtering capabilities.
- These commands have been deprecated: `sas-display-backup-source-config`, `sas-add-backup-customdir`, `sas-display-backup-customdir`, and `sas-remove-backup-customdir`. For equivalent functionality, use `sas-display-backup-config` and `sas-update-backup-config`.
- Some of the labels in the input file for `sas-recover-offline` and `sas-recover` have been changed.

### **Batch Relationship Reporting Tools**

Automatic loading of relationship data is configured by default to execute on an hourly basis. Cleaning of relationship data is configured by default to execute daily at 11:00 p.m.

### **Deprecated Features**

SAS has deprecated support of the SAS Audit, Performance, and Management package. The functionality provided by the package was integrated into SAS Environment Manager 2.4.

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## **SAS Intelligence Platform 9.4M4**

SAS Intelligence Platform 9.4M4 shipped in November 2016.

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## **SAS Intelligence Platform 9.4M5**

SAS Intelligence Platform 9.4M5 shipped in September 2017.

- The version of SAS Web Application Server used in the SAS 9.4M5 middle-tier environment has been upgraded. It is now based on Apache Tomcat version 8.5.13.
- You can use a new encoding type, SAS005 (AES encryption with 64-bit salt and 10,000 iterations). Although the salt value of SAS005 is the same as that of SAS004, SAS005 also has 10,000 iterations, which increases security for stored passwords. You can configure the metadata server to store any new or updated passwords using SAS005.

## **Additional Releases of SAS Intelligence Platform**

- SAS Intelligence Platform 9.4M6 shipped in November 2018.
- SAS Intelligence Platform 9.4M7 shipped in August 2020.
- SAS Intelligence Platform 9.4M8 shipped in January 2023.

## Chapter 68

# SAS/IntrNet

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## Determining Your Update Path for SAS/IntrNet

### *Upgrading an Existing SAS 9.4 Deployment*

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7	SAS 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“About SAS/IntrNet 9.4”</a> on page 298.</li> <li>2. To upgrade to the latest release of SAS/IntrNet 9.4, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> </ol>

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### *Migrating to SAS 9.4*

To run the latest release of SAS/IntrNet, you must upgrade to SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site	Release That You Are Migrating To	High-Level Steps and Resources
SAS 9.3, 9.3M1, 9.3M2	SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	<ol style="list-style-type: none"> <li>1. Before you migrate, see “<a href="#">About SAS/IntrNet 9.4</a>” on page 298.</li> <li>2. Install and configure SAS 9.4.</li> </ol> <p>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</p> <ul style="list-style-type: none"> <li>• Quick Start Guides in the <a href="#">SAS Install Center</a></li> <li>• <a href="#">SAS Intelligence Platform: Installation and Configuration Guide</a></li> </ul> <p>For migration information, see these resources:</p> <ul style="list-style-type: none"> <li>• <a href="#">SAS Intelligence Platform: Migration Guide</a></li> <li>• the product documentation page for <a href="#">SAS/IntrNet</a></li> </ul>

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## About SAS/IntrNet 9.4

Starting in SAS/IntrNet 9.3, the SAS/IntrNet Configuration Utility was replaced by the SAS/IntrNet Service Tasks in the SAS Deployment Manager. The Create a New IntrNet Service utility on Windows and the inetcfg.pl script on UNIX are no longer available.

- SAS/IntrNet 9.4M1 shipped in December 2013.
- SAS/IntrNet 9.4M2 shipped in August 2014. In this release, the default value for DebugMask has changed from 32767 to 0, which indicates that all debug values are disabled.
- SAS/IntrNet 9.4M3 shipped in July 2015.
- SAS/IntrNet 9.4M4 shipped in November 2016. SAS Application Dispatcher no longer supports the GWAPI version of the Application Broker.
- SAS/IntrNet 9.4M5 shipped in September 2017. SAS 9.4M5 supports the IBM HTTP Server Version 9.0. Use the SAS 9.4M5 Application Broker if you want to use the IBM HTTP Server Version 9.0 with earlier SAS releases.
- SAS/IntrNet 9.4M6 shipped in November 2018.
- SAS/IntrNet 9.4M7 shipped in August 2020.
- SAS/IntrNet 9.4M8 shipped in January 2023.

For more information about this release, see the product documentation page for [SAS/IntrNet software](#).



## Chapter 69

## SAS Inventory Optimization

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## Determining Your Update Path for SAS Inventory Optimization

### Upgrading an Existing SAS 9.4 Deployment

SAS Inventory Optimization Workbench 5.2, SAS Inventory Optimization Workbench 5.3, and SAS Inventory Optimization 5.4 run on SAS 9.4.

*Note:* Starting with SAS Inventory Optimization 5.4, the user interface has been removed, and the product name has changed to SAS Inventory Optimization.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
5.2, 5.2M2, 5.3 (SAS 9.4)	5.2M2, 5.3, 5.3M1 (SAS 9.4)	For more information about how to upgrade to the latest release, see <i>SAS Inventory Optimization Workbench: Upgrade and Migration Guide</i> .
5.3M1 (SAS 9.4)	5.4 (SAS 9.4)	For more information about how to upgrade to the latest release, see <i>SAS Inventory Optimization: Upgrade and Migration Guide</i> .

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## Migrating to SAS 9.4

To run SAS Inventory Optimization Workbench 5.2, SAS Inventory Optimization Workbench 5.3, and SAS Inventory Optimization 5.4, you must be running SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
5.1 (SAS 9.3)	5.2, 5.2M2, 5.3, 5.3M1 (SAS 9.4)	For more information about how to migrate to this release, see <i>SAS Inventory Optimization Workbench: Upgrade and Migration Guide</i> .
5.2, 5.2M2, 5.3 (SAS 9.4)	5.3, 5.3M1 (SAS 9.4)	
5.3, 5.3M1 (SAS 9.4)	5.3, 5.3M1 (SAS 9.4)	
5.3M1 (SAS 9.4)	5.4 (SAS 9.4)	For more information about how to migrate to this release, see <i>SAS Inventory Optimization: Upgrade and Migration Guide</i> .

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## About SAS Inventory Optimization

SAS Inventory Optimization is an inventory optimization and planning module of the SAS Demand-Driven Planning and Optimization suite. SAS Inventory Optimization helps inventory analysts and buyers track, monitor, and predict the inventory for products. SAS Inventory Optimization helps organizations with a single-echelon or multi-echelon network gain instant visibility and an understanding of the inventory performance for their products without relying on manual calculations and judgments.

*Note:* Starting with SAS Inventory Optimization 5.4, the user interface has been removed, and the product name has changed to SAS Inventory Optimization.

SAS shipped these releases of SAS Inventory Optimization:

- SAS Inventory Optimization Workbench 5.2 in August 2014
- SAS Inventory Optimization Workbench 5.2M2 in May 2015
- SAS Inventory Optimization Workbench 5.3 in May 2016
- SAS Inventory Optimization Workbench 5.3M1 in April 2017
- SAS Inventory Optimization 5.4 in February 2020

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS Inventory Optimization](#).

*Note:* The documentation for SAS Inventory Optimization is available only to customers who license this product.

## Chapter 70

# SAS IT Resource Management

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## Determining Your Update Path for SAS IT Resource Management

### Upgrading an Existing SAS 9.4 Deployment

SAS IT Resource Management 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, and 3.11 run on SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Upgrading To (SAS Release)	High-Level Steps and Resources
3.4 (SAS 9.4M1); 3.5 or 3.6 (SAS 9.4M2); 3.7 (SAS 9.4M3); 3.8 (SAS 9.4M4); 3.9 (SAS 9.4M5); 3.10 (SAS 9.4M6)	3.11 (SAS 9.4M6)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“About SAS IT Resource Management”</a> on page 302.</li> <li>2. To upgrade to the latest release of SAS IT Resource Management, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> </ol>

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### Migrating to SAS 9.4

To run SAS IT Resource Management 3.4, you must be running SAS 9.4M1. To run SAS IT Resource Management 3.5 or 3.6, you must be running SAS 9.4M2. To run SAS IT Resource Management 3.7, you must be running SAS 9.4M3. To run SAS IT Resource Management 3.8, you must be running SAS 9.4M4. To run SAS IT Resource Management 3.9, you must be running SAS 9.4M5. To run SAS IT Resource Management 3.10 and 3.11, you must be running SAS 9.4M6.

You can migrate to the latest release of SAS 9.4, or you can create a deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
3.3, 3.21 (SAS 9.3)	3.4 (SAS 9.4M1); 3.5 or 3.6 (SAS 9.4M2); 3.7 (SAS 9.4M3); 3.8 (SAS 9.4M4); 3.9 (SAS 9.4M5); 3.10 (SAS 9.4M6); 3.11 (SAS 9.4M6)	<ol style="list-style-type: none"> <li>1. Before you migrate, see <i>What's New in SAS IT Resource Management</i>.</li> <li>2. To migrate to the new release, see <i>SAS IT Resource Management: Migration Guide</i>.</li> </ol>
3.4 (SAS 9.4M1); 3.5 or 3.6 (SAS 9.4M2); 3.7 (SAS 9.4M3); 3.8 (SAS 9.4M4); 3.9 (SAS 9.4M5); 3.10 (SAS 9.4M6); 3.11 (SAS 9.4M6)	3.11 (SAS 9.4M6)	To migrate to SAS IT Resource Management 3.11, see <i>SAS IT Resource Management 3.11: Migration Guide</i> .

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## About SAS IT Resource Management

SAS shipped these releases of SAS IT Resource Management:

- SAS IT Resource Management 3.4 in December 2013
- SAS IT Resource Management 3.5 in September 2014
- SAS IT Resource Management 3.6 in May 2015
- SAS IT Resource Management 3.7 in February 2016
- SAS IT Resource Management 3.8 in February 2017
- SAS IT Resource Management 3.9 in May 2018
- SAS IT Resource Management 3.10 in June 2019
- SAS IT Resource Management 3.11 in April 2020

To view the documentation for this product, see the product documentation page for [SAS IT Resource Management](#).

## Chapter 71

# SAS Lineage

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## Determining Your Update Path for SAS Lineage

### Upgrading an Existing SAS 9.4 Deployment

SAS Lineage 3.1, 3.2, and 3.3 run on SAS 9.4.

<b>Current Release at Your Site</b> (SAS Release)	<b>Release That You Are Upgrading To</b> (SAS Release)	<b>High-Level Steps and Resources</b>
3.1, 3.2 (SAS 9.4), 3.3 (SAS 9.4M6)	3.4 (SAS 9.4M8)	For more information about this release, see <i>SAS Lineage: User's Guide</i> .

---

### Migrating to SAS 9.4

SAS Lineage is a new product that runs on SAS 9.4.

<b>Current Release at Your Site</b> (SAS Release)	<b>Release That You Are Migrating To</b> (SAS Release)	<b>High-Level Steps and Resources</b>
3.1, 3.2 (SAS 9.4), 3.3 (SAS 9.4M6)	3.4 (SAS 9.4M8)	For more information about migration, see <i>SAS Lineage: User's Guide</i> .
3.4 (SAS 9.4M8)	3.4 (SAS 9.4M8)	

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## About SAS Lineage

SAS Lineage is a web-based diagram component for visualizing relationships between objects. It is used as a stand-alone lineage and relationship viewer that can be accessed by SAS database management and business intelligence applications. The component has two modes. The first mode is a network diagram that displays all relationships. The second mode is two left-to-right dependency diagrams—one diagram displays data governance information (governance), and the other diagram displays parent and child relationships only (impact analysis). The relationship information that is displayed in these diagrams is drawn from the Relationship database that is a part of the Web Infrastructure Platform Data Server.

For more information, see the software product page for [SAS Lineage](#).

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## Releases of SAS Lineage

SAS Lineage 3.1 shipped in November 2014. SAS Lineage 3.2 shipped in April 2017.

If this product is in your order, you must run the SAS Deployment Wizard a second time to add this product to your deployment. For more information, see [“Adding a New Product” on page 92](#).

SAS Lineage 3.3 shipped in June 2019 and runs in SAS 9.4M6.

Starting with this release, the user interface has been rewritten in HTML5. Previously, many SAS applications and SAS solutions used the Adobe Flash Player to provide interactive user interfaces. Adobe has announced that it intends to end support for Flash technology and will stop updating and distributing the Flash Player at the end of 2020. Browser vendors will disable Flash by default in 2019. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

The HTML5 interface for SAS Lineage is displayed in a window that contains these components:

- Diagram Pane
- Manage Views Pane
- Details Pane
- Filter Pane

SAS Lineage 3.4 shipped in January 2023 and runs in SAS 9.4M8.

## Chapter 72

## SAS Management Console

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## Determining Your Update Path for SAS Management Console

### *Upgrading an Existing SAS 9.4 Deployment*

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
9.4	9.4M1, 9.4M2, 9.4M3, 9.4M4	1. Before you upgrade, see <a href="#">“SAS Management Console 9.4”</a> on page 306.
9.4M1,	9.4M2, 9.4M3, 9.4M4	2. To upgrade to the latest release of SAS Management Console 9.4, see <a href="#">“Install and Configure a Software Update”</a> on page 53.
9.4M2	9.4M3, 9.4M4	
9.4M3	9.4M4	

---

## Migrating to SAS 9.4

To run the latest release of SAS Management Console, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site	Release That You Are Migrating To	High-Level Steps and Resources
9.3, 9.3M1, 9.3M2	9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4	<ol style="list-style-type: none"> <li>1. Before you migrate, see “<a href="#">SAS Management Console 9.4</a>” on page 306.</li> <li>2. To migrate to the new release, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i>. To create a new deployment, see <i>SAS 9.4 Intelligence Platform: Installation and Configuration Guide</i>.</li> </ol>
9.4, 9.4M1, 9.4M2, 9.4M3	9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4	To migrate within the same SAS release, see <i>SAS Intelligence Platform: Installation and Configuration Guide</i> .
9.4M4	9.4M4	To migrate within the same SAS release, see <i>SAS Intelligence Platform: Installation and Configuration Guide</i> .

---

## Managing Multiple Installations of SAS Management Console

You can install SAS Management Console 9.4, 9.3, and 9.2 on the same machine. Use the same version of SAS Management Console to connect to the SAS server. For example, use SAS Management Console 9.4 to connect to SAS 9.4 servers, and use SAS Management Console 9.3 to connect to SAS 9.3 servers. Do not try to connect to a different version of a SAS server.

---

## SAS Management Console 9.4

The Application Monitor plug-in has been removed.

In SAS 9.3, new features were made available for stored processes. If your client does not support the new stored process features, then you might need to make your stored process compatible with 9.2. For more information about how to make stored processes compatible with SAS 9.2, see the Help in SAS Management Console.

In SAS Management Console 9.3, the Backup Wizard and the Replication Wizard were removed from the Metadata Manager plug-in. These wizards have been replaced by the Server Backup and Restore facility, which is in the Metadata Utilities folder of the Metadata Manager plug-in. If you have created or scheduled any backup or restore jobs, these jobs will not run in SAS Management Console 9.4. You must use the Server Backup and Restore facility to re-create those jobs.



SAS has shipped these releases of SAS Management Console:

- SAS Management Console 9.4M1 in December 2013
- SAS Management Console 9.4M2 in August 2014
- SAS Management Console 9.4M3 in July 2015
- SAS Management Console 9.4M4 in November 2016

For more information about these releases, see the product documentation page for [SAS Management Console](#).



## Chapter 73

## SAS Marketing Automation

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---

## Determining Your Update Path for SAS Marketing Automation

### *Upgrading an Existing SAS 9.4 Deployment*

*Note:* SAS Marketing Automation is not available in SAS 9.4M8 or later. For more information, see [“SAS 9.4M8 Products Not Available: SAS Marketing Automation”](#) on page 310.

SAS Marketing Automation 6.3, 6.4, 6.5, and 6.6 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
6.3, 6.4 (SAS 9.4)	6.4 (SAS 9.4); 6.5 (SAS 9.4M6)	For more information about this release, contact your SAS account representative.
6.4, 6.5 (SAS 9.4)	6.6 (SAS 9.4M6)	

---

## Migrating to SAS 9.4

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
6.1, 5.41 (SAS 9.3)	6.3, 6.4 (SAS 9.4); 6.5 (SAS 9.4M6); 6.6 (SAS 9.4M6)	For more information about how to request this new release and the features that are available, contact your SAS account representative.
6.3, 6.4 (SAS 9.4)	6.4 (SAS 9.4); 6.5 (SAS 9.4M6)	
6.4, 6.5 (SAS 9.4)	6.6 (SAS 9.4M6)	
6.6 (SAS 9.4M6)	6.6 (SAS 9.4M6)	

---

## About SAS Marketing Automation

SAS has shipped these releases of SAS Marketing Automation:

- SAS Marketing Automation 6.3 shipped in May 2014.
- SAS Marketing Automation 6.4 shipped in March 2015. This release includes some SAS Visual Analytics components. For more information about how to deploy these components, see [“Adding SAS Visual Analytics to Your Deployment”](#) on page 93.

If you already have these SAS Visual Analytics components installed, you still need to create a plan file, and you need to run the SAS Deployment Wizard a second time to add the SAS LASR Analytic Server components for SAS Marketing Automation to your deployment. Use the product documentation to complete the correct migration and deployment steps for your site.

- SAS Marketing Automation 6.5 shipped in June 2016.
- SAS Marketing Automation 6.6 shipped in May 2020.

For more information, see the product documentation page for [SAS Customer Intelligence](#).

*Note:* The documentation for SAS Marketing Automation is available only to customers who license this product.

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## SAS 9.4M8 Products Not Available: SAS Marketing Automation

SAS Marketing Automation is not available in SAS 9.4M8 or later. If you order SAS 9.4M8 or later and your site has licensed SAS Marketing Automation 6.6 or earlier, SAS Marketing Automation will not be included in that order and will no longer function

after upgrading to SAS 9.4M8. If you plan to upgrade or migrate to SAS 9.4M8 or later, we recommend that you instead consider SAS Customer Intelligence 360 for your business needs. Contact your SAS representative for more information.



## Chapter 74

# SAS Marketing Operations Management

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## Determining Your Update Path for SAS Marketing Operations Management

### *Upgrading an Existing SAS 9.4 Deployment*

*Note:* Starting with SAS 9.4M5, SAS Marketing Operations Management is a retired product. If you order SAS 9.4M5 or later, SAS Marketing Operations Management is not included in that order. 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” on page 59](#).

SAS Marketing Operations Management 6.3 and 6.4 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
6.3 (SAS 9.4)	6.4 (SAS 9.4)	For more information about how to upgrade to the latest release, contact your SAS account representative.

---

### *Migrating to SAS 9.4*

To run SAS Marketing Operations Management 6.3 or 6.4, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
6.0 (SAS 9.3)	6.3, 6.4 (SAS 9.4)	For more information, contact your SAS account representative.
6.3 (SAS 9.4)	6.4 (SAS 9.4)	
6.4 (SAS 9.4)	6.4 (SAS 9.4)	

---

## About SAS Marketing Operations Management

SAS shipped these releases of SAS Marketing Operations Management:

- SAS Marketing Operations Management 6.3 in August 2014
- SAS Marketing Operations Management 6.4 in May 2015

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS Marketing Operations Management](#).

*Note:* The documentation for SAS Marketing Operations Management is available only to customers who license this product.

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## SAS 9.4M5 Retired Product: SAS Marketing Operations Management

Starting with SAS 9.4M5, SAS Marketing Operations Management is a retired product. If you order SAS 9.4M5 or later, SAS Marketing Operations Management is not included in that order. 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](#)” on page 59.



## Chapter 75

## SAS Marketing Optimization

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## Determining Your Update Path for SAS Marketing Optimization

### *Upgrading an Existing SAS 9.4 Deployment*

*Note:* SAS Marketing Optimization is not available in SAS 9.4M8 or later. For more information, see [“SAS 9.4M8 Products Not Available: SAS Marketing Optimization”](#) on page 317.

SAS Marketing Optimization 6.3, 6.4, 6.5, and 6.6 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
6.3, 6.4 (SAS 9.4)	6.4 (SAS 9.4); 6.5 (SAS 9.4M6)	For more information about this release, contact your SAS account representative.
6.4, 6.5 (SAS 9.4)	6.6 (SAS 9.4M6)	

---

## Migrating to SAS 9.4

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
5.42, 6.1 (SAS 9.3)	6.3 (SAS 9.4M2); 6.4 (SAS 9.4M3); 6.5 (SAS 9.4M6)	For more information about how to request this new release and the features that are available, contact your SAS account representative.
6.3 (SAS 9.4)	6.4 (SAS 9.4M3); 6.5 (SAS 9.4M6)	To migrate to SAS Marketing Optimization 6.4 or 6.5, see <i>SAS Marketing Optimization: Migration Guide</i> .
6.4, 6.5 (SAS 9.4)	6.5, 6.6 (SAS 9.4M6)	To migrate to SAS Marketing Optimization 6.5 or 6.6, see <i>SAS Marketing Optimization: Migration Guide</i> .
6.6 (SAS 9.4M6)	6.6 (SAS 9.4M6)	To migrate within the same SAS release, see <i>SAS Marketing Optimization: Migration Guide</i> .

---

## About SAS Marketing Optimization

SAS has shipped these releases of SAS Marketing Optimization:

- SAS Marketing Optimization 6.3 shipped in May 2014.
- SAS Marketing Optimization 6.4 shipped in March 2015. This release includes some SAS Visual Analytics components. For more information about how to deploy these components, see [“Adding SAS Visual Analytics to Your Deployment”](#) on page 93.

If you already have these SAS Visual Analytics components installed, you still need to create a plan file, and you need to run the SAS Deployment Wizard a second time to add the SAS LASR Analytic Server components for SAS Marketing Optimization to your deployment. Use the product documentation to complete the correct migration and deployment steps for your site.

- SAS Marketing Optimization 6.5 shipped in June 2016.
- SAS Marketing Optimization 6.6 shipped in May 2020.

For more information, see the product documentation page for [SAS Customer Intelligence](#).

*Note:* The documentation for SAS Marketing Optimization is available only to customers who license this product.

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## **SAS 9.4M8 Products Not Available: SAS Marketing Optimization**

SAS Marketing Optimization is not available in SAS 9.4M8 or later. If you order SAS 9.4M8 or later and your site has licensed SAS Marketing Optimization 6.6 or earlier, SAS Marketing Optimization will not be included in that order and will no longer function after upgrading to SAS 9.4M8. If you plan to upgrade or migrate to SAS 9.4M8 or later, we recommend that you instead consider SAS Customer Intelligence 360 for your business needs. Contact your SAS representative for more information.



## Chapter 76

# SAS Market Risk for Banking

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## Support for SAS Market Risk for Banking

### ***SAS Market Risk for Banking Is Not Available in SAS 9.4M7***

SAS Market Risk for Banking uses Adobe Flash. Adobe announced that it intends to end support for Flash technology and will stop updating and distributing the Flash Player at the end of 2020. Any SAS Market Risk for Banking releases prior to SAS 9.4M7 might not work as expected starting January 1, 2021. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

If you order SAS 9.4M7, SAS Market Risk for Banking will not be included in that order.

### ***Steps for SAS 9.4.M7 Upgrades***

If you have SAS Market Risk for Banking in your order and you plan to upgrade to SAS 9.4M7, unconfigure and uninstall SAS Market Risk for Banking before upgrading or migrating to SAS 9.4M7.

- To uninstall SAS Software, see “Uninstall SAS Software (Graphical User Interface Tool)” in *SAS Deployment Wizard and SAS Deployment Manager 9.4: User’s Guide*.
- To uninstall the components of SAS Market Risk for Banking, see your Order Manifest, which includes the product details (12-bytes) for the uninstall process.

If SAS Market Risk for Banking is not removed before you upgrade or migrate to SAS 9.4M7, review the steps for upgrade in place or migration.

**Table 76.1** *Results from Upgrade in Place or Migration*

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Task	Expectations	For More Information
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Upgrade in Place	Your latest release of SAS Market Risk for Banking from your source system will remain installed and configured on your target system. However, SAS Market Risk for Banking is not operable on the target system.	.To unconfigure and install the software, see <a href="#">“Unconfiguring and Uninstalling Retired Products”</a> on page 59.
Migration	<ul style="list-style-type: none"><li>• SAS Market Risk for Banking will not be installed or configured in the target environment. However, you can continue to use SAS Market Risk for Banking in the source environment.</li><li>• The SAS Migration Utility will bring artifacts of SAS Market Risk for Banking from the source system to the target system.</li></ul>	For information about migration, see <a href="#">SAS Intelligence Platform: Migration Guide</a> .

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## Chapter 77

# SAS MDM (Master Data Management)

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## Determining Your Update Path for SAS MDM

### *Upgrading an Existing SAS 9.4 Deployment*

*Note:* Starting with SAS 9.4M7, SAS MDM is a retired product. For more information, see “[SAS 9.4M7 Retired Product: SAS MDM](#)” on page 322.

SAS MDM 4.1, 4.2, and 4.3 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
4.1, 4.1M1, 4.2 (SAS 9.4)	4.3 (SAS 9.4)	For more information about this release, contact your SAS account representative.

---

### *Migrating to SAS 9.4*

SAS MDM is a new product that runs on SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
4.1, 4.1M1, 4.2 (SAS 9.4)	4.3 (SAS 9.4)	To migrate to SAS MDM 4.2, see <i>SAS MDM: Administrator's Guide</i> .
4.3 (SAS 9.4)	4.3 (SAS 9.4)	To migrate within the same release, see <i>SAS MDM: Administrator's Guide</i> .

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## About SAS MDM

SAS MDM integrates its master data management technologies with the master data management technologies in SAS 9.4. SAS MDM is a web-based application that is accessed through SAS Data Management Console. SAS MDM provides a single, accurate, and unified view of corporate data, integrating information from various data sources into one master record. SAS enables you to develop master data management processes, and it provides the technology required to analyze existing data resources, build a unified view of that information, and manage that master view of data over time.

SAS shipped these releases of SAS MDM:

- SAS MDM 4.1M1 in April 2014
- SAS MDM 4.2 in March 2015
- SAS MDM 4.3 in April 2017

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS MDM](#).

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## Support for SAS MDM

### **SAS 9.4M7 Retired Product: SAS MDM**

Starting in SAS 9.4M7 (August 2020), SAS MDM (which uses Adobe Flash) is a retired product. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

SAS MDM 4.3 on SAS 9.4M6 is the last release of the product. If you order SAS 9.4M7, SAS MDM will not be included in that order.

If you have an existing installation of SAS MDM in your environment and you plan to upgrade or migrate to SAS 9.4M7, consider SAS Visual Analytics for your strategy management needs.

### **How to Unconfigure and Uninstall SAS MDM from Your Deployment**

Best practice is to unconfigure SAS MDM *before* you upgrade and uninstall SAS MDM *after* you upgrade. For more information, see [“Unconfiguring and Uninstalling Retired Products” on page 59](#).



If you upgraded to the August 2020 release of SAS 9.4M7 and you did not unconfigure SAS MDM before the upgrade, review this table.

**Table 77.1** Results from Upgrade in Place or Migration

Task	Expectations	For More Information
Upgrade in Place	Your latest release of SAS MDM from your source system will remain installed and configured on your target system. However, SAS MDM is not operable on the target system.	To unconfigure and install the software, see <a href="#">“Unconfiguring and Uninstalling Retired Products”</a> on page 59.
Migration	<ul style="list-style-type: none"> <li>SAS MDM will not be installed or configured in the target environment. However, you can continue to use SAS MDM in the source environment.</li> <li>The SAS Migration Utility will bring artifacts of SAS MDM from the source system to the target system.</li> </ul>	For information about migration, see <a href="#">SAS Intelligence Platform: Migration Guide</a> .



## Chapter 78

## SAS Micro Analytic Service

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## Determining Your Update Path for SAS Micro Analytic Service

### *Upgrading an Existing SAS 9.4 Deployment*

*Note:* Starting with SAS Micro Analytic Service 2.5M4 (SAS 9.4M8), SAS Micro Analytic Service is not supported on Solaris.

SAS Micro Analytic Service 1.2, 1.3, 2.2, 2.5, 2.5M1, 2.5M3, and 2.5M4 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
1.2, 1.3 (SAS 9.4M3); 2.2 (SAS 9.4M4); 2.5 (SAS 9.4M5); SAS 2.5M1 (SAS 9.4M6); 2.5M3 (SAS 9.4M7)	2.5M4 (SAS 9.4M8)	For information about how to upgrade to this release, contact your SAS account representative and see <i>SAS Micro Analytic Service: Programming and Administration Guide</i> .

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## Migrating to SAS 9.4

SAS Micro Analytic Service is a new product for SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
1.2, 1.3 (SAS 9.4M3); 2.2 (SAS 9.4M4); 2.5 (SAS 9.4M5); SAS 2.5M1 (SAS 9.4M6)	1.3 (SAS 9.4M3); 2.2 (SAS 9.4M4); 2.5 (SAS 9.4M5); SAS 2.5M1 (SAS 9.4M6), 2.5M3 (SAS 9.4M7), 2.5M4 (SAS 9.4M8)	For more information about how to request this release and the features that are available, contact your SAS account representative.
2.5M4 (SAS 9.4M8)	2.5M4 (SAS 9.4M8)	To migrate within the same release, contact your SAS account representative.

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## SAS Micro Analytic Service

SAS shipped these releases of SAS Micro Analytic Service:

- SAS Micro Analytic Service 1.2 shipped in July 2015.
- SAS Micro Analytic Service 1.3 shipped in March 2016.
- SAS Micro Analytic Service 2.2 shipped in November 2016.
- SAS Micro Analytic Service 2.5 shipped in September 2017.
- SAS Micro Analytic Service 2.5M1 shipped in November 2018.
- SAS Micro Analytic Service 2.5M3 shipped in August 2020.
- SAS Micro Analytic Service 2.5M4 shipped in January 2023. However, SAS Micro Analytic Service is not supported on Solaris.

*Note:* Currently, SAS Micro Analytic Service is available with SAS Decision Manager. For more information, see [Chapter 35, “SAS Decision Manager,”](#) on page 189.

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS Micro Analytic Service](#).

## Chapter 79

# SAS Model Implementation Platform

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## Determining Your Update Path for SAS Model Implementation Platform

### *Upgrading an Existing SAS 9.4 Deployment*

*Table 79.1 Upgrade SAS Model Implementation Platform*

Current Release at Your Site (SAS Release)	Release That You Are Upgrading To (SAS Release)	High-Level Steps and Resources
2.3, 2.4, 3.1 (SAS 9.4), 3.2 (SAS 9.4M6)	3.3 (SAS 9.4M8)	For more information about how to upgrade to the latest release, see <i>SAS Model Implementation Platform: Administrator's Guide</i> .

### *Migrating to SAS 9.4*

*Table 79.2 Migrate SAS Model Implementation Platform*

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
2.3, 2.4, 3.1, 3.2 (SAS 9.4), 3.2 (SAS 9.4M6)	3.3 (SAS 9.4M8)	For more information about how to migrate to the latest release, see <i>SAS Model Implementation Platform: Administrator's Guide</i> .

## About SAS Model Implementation Platform

SAS Model Implementation Platform is a robust software platform that is built to handle the diverse challenges that institutions face when implementing and executing systems of credit risk models. SAS Model Implementation Platform is designed for model developers, model implementation teams, and analysts who are responsible for models that support activities such as forecasting, stress testing (CCAR and DFAST), reserving, calculating expected credit loss (IFRS 9 and CECL), and loan valuation.

SAS has shipped these releases of SAS Model Implementation Platform:

- SAS Model Implementation Platform 2.1 in October 2015
- SAS Model Implementation Platform 2.2 in June 2016
- SAS Model Implementation Platform 2.3 in November 2016
- SAS Model Implementation Platform 2.4 in June 2017
- SAS Model Implementation Platform 3.1 in June 2018
- SAS Model Implementation Platform 3.2 in June 2019
- SAS Model Implementation Platform 3.3 in January 2023

For more information, contact your SAS account representative and see the product documentation page for [SAS Model Implementation Platform](#).

*Note:* The documentation for SAS Model Implementation Platform is available only to customers who license this product.

## Chapter 80

## SAS Model Manager

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## Determining Your Update Path for SAS Model Manager

### Upgrading an Existing SAS 9.4 Deployment

SAS Model Manager 12.3, 13.1, 14.1, 14.2, and 14.3 run on SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Upgrading To (SAS Release)	High-Level Steps and Resources
12.3 (SAS 9.4), 13.1 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.2M1 (SAS 9.4M6)	14.3 (SAS 9.4M6); 14.3M1 (SAS 9.4M7), 14.3M2 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see “SAS Model Manager 13.1” on page 331, “SAS Model Manager 14.1” on page 332, “SAS Model Manager 14.2 and 14.2M1” on page 332, and “SAS Model Manager 14.3” on page 333.</li> <li>2. To upgrade to the latest release of SAS Model Manager, see “Install and Configure a Software Update” on page 53.</li> <li>3. Complete the upgrade and post-upgrade steps in <i>SAS Model Manager: Administrator’s Guide</i>.</li> </ol>

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## Migrating to SAS 9.4

To run SAS Model Manager 12.3, 13.1, 14.1, 14.2, or 14.3, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
12.1, 3.1, 3.1M1 (SAS 9.3)	12.3 (SAS 9.4), 13.1 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.2M1 (SAS 9.4M6), 14.3 (SAS 9.4M6); 14.3M1 (SAS 9.4M7); 14.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you migrate, see “SAS Model Manager 12.3” on page 330, “SAS Model Manager 13.1” on page 331, “SAS Model Manager 14.1” on page 332, and “SAS Model Manager 14.2 and 14.2M1” on page 332 (if appropriate).</li> <li>2. To migrate to the new release, see <i>SAS Model Manager: Migration Guide</i>. To create a new deployment, see <i>SAS 9.4 Intelligence Platform: Installation and Configuration Guide</i>.</li> <li>3. Complete the post-installation, configuration, and verification steps in <i>SAS Model Manager: Administrator’s Guide</i>.</li> </ol>
12.3 (SAS 9.4), 13.1 (SAS 9.4M2), 14.1_SAS 9.4M3), 13.1 (SAS 9.4M2), 14.1_SAS 9.4M3), 14.2 (SAS 9.4M4), 14.2M1 (SAS 9.4M6)	14.3 (SAS 9.4M6); 14.3M1 (SAS 9.4M7); 14.3M2 (SAS 9.4M8)	To migrate to the latest release of SAS Model Manager, see <i>SAS Model Manager: Migration Guide</i> .
14.3M2 (SAS 9.4M8)	14.3M2 (SAS 9.4M8)	To migrate within the same release, see <i>SAS Model Manager: Migration Guide</i> .

## SAS Model Manager 12.3

SAS Model Manager 12.3 includes many new and enhanced features that benefit users and administrators:

- create and manage multiple projects in a control group
- monitor performance of champion models for all projects within a control group and publish the models to the SAS Metadata Repository
- schedule performance monitoring tasks
- specify multiple data sources and collection dates when defining performance monitoring tasks
- manage models that are published to a database
- create folders, projects, and versions by using macros



- create and view reports within a workflow activity
- view the process flow diagram for a workflow

In addition, SAS Model Manager 12.3 provides support for these areas:

- SAS Enterprise Miner Random Forest (HPFOREST) models, as well as the SAS/ETS COUNTREG and SEVERITY models
- multiple SAS application servers when scoring or retraining a model, and monitoring performance of champion and challenger models

SAS Model Manager 12.3 does not support middle-tier clustering. As a result, SAS Model Manager runs on the master node in the cluster. If the master node is not available, SAS Model Manager is not available (even if other SAS applications are available on other nodes in the cluster).

If you are upgrading from a previous release of SAS Model Manager, note these changes:

- In the 12.1 release, additional pre-installation configuration tasks were added to create and configure the new SAS Model Manager database, before the Software Deployment Wizard is run. In SAS Model Manager 12.3, the default database type is the Web Infrastructure Platform Data Server. SAS Model Manager also supports third-party databases, including DB2, MySQL, Oracle, PostgreSQL, and SQL Server.
- SAS Model Manager 12.3 on SAS 9.4 no longer uses the multicast address and port configuration.
- Beginning with the 12.1 release of SAS Model Manager, SAS consolidated the version numbers for the main analytical products. Before the consolidation, the most recent version number for SAS Model Manager was 3.1.
- Beginning with SAS Model Manager 3.1, the SAS Analytics Platform server was deprecated.

---

## SAS Model Manager 13.1

SAS Model Manager 13.1, which shipped in August 2014, runs on SAS 9.4M2. The SAS Model Manager Java Client application and the Workflow Console web-based application have been replaced with an integrated web-based application. The SAS Model Manager Client installation is no longer required on a user's desktop. SAS Model Manager 13.1 includes many new and enhanced features that benefit users and administrators and enable them to perform these tasks:

- create libraries and register tables in the SAS Metadata Repository
- manage workflows and track workflow tasks
- publish models to Hadoop and SAP HANA
- manage all versions within a project in one place
- schedule recurrent jobs
- retrain models based on the dashboard project status
- specify performance options for using dynamic data sources and generating dashboard reports
- specify additional reporting options

- attach documents and add comments

If you are upgrading from a previous release of SAS Model Manager, note these changes:

- When you upgrade from SAS Model Manager 12.3 to 13.1, you must complete additional post-upgrade steps. For more information, see *SAS Model Manager: Administrator's Guide*.
- The web application URL has been changed to be consistent across the SAS Enterprise Decision Management product offerings. The SAS Model Manager Java Client application is no longer available from a user's desktop or via the Java Web Start URL.

---

## SAS Model Manager 14.1

SAS Model Manager 14.1, which shipped in July 2015, runs on SAS 9.4M3. SAS Model Manager 14.1 includes many new and enhanced features that benefit users and administrators and enable them to perform these tasks:

- manage SAS Factory Miner models that are registered in the SAS Model Manager model repository
- add model dependencies and view the relationships using SAS Lineage
- manage model versions
- import, update, and export generic models at the folder level
- access the inventory of all models in the same category view
- add and edit model keywords
- add multiple user-defined properties to a model at one time
- search the model inventory with improved performance and filter the search results by the date modified, model properties, and user-defined properties

For more information about the new features and enhancements in this release, see the product documentation page for [SAS Model Manager](#).

If you are upgrading from SAS Model Manager 12.3 or 13.1 to 14.1, you must complete additional upgrade and post-upgrade steps. For more information, see *SAS Model Manager: Administrator's Guide*.

---

## SAS Model Manager 14.2 and 14.2M1

SAS Model Manager 14.2, which shipped in November 2016, runs on SAS 9.4M4. SAS Model Manager 14.2 includes new and enhanced features that benefit users and administrators and enable them to perform these tasks:

- import SAS analytic store models
- publish, score, and run performance or reports for SAS analytic store models
- publish models to Hadoop and Teradata using single sign-on authentication by Kerberos

- run macros to score SAS Factory Miner models within a SAS Model Manager portfolio
- run macros to publish SAS Factory Miner models from within a SAS Model Manager portfolio to a database or Hadoop

SAS Model Manager 14.2M1 shipped in November 2018 and runs on SAS 9.4M6 and later releases. In this release, you can perform these tasks:

- compute the feature contribution indices for interval and nominal predictors using the feature contribution index (FCI) program
- convert and export a model's DS2 score code using the %MM\_GetModelDS2Code macro
- configure support for executable attachments

If you are upgrading from SAS Model Manager 12.3, 13.1, or 14.1 to 14.2, you must complete additional upgrade and post-upgrade steps. For more information, see *SAS Model Manager: Administrator's Guide*.

---

## SAS Model Manager 14.3

SAS Model Manager 14.3M1 runs on the August 2020 release of SAS 9.4M7.

For the June 2019 release of SAS Model Manager 14.3, the user interface was rewritten in HTML5. Previously, many SAS applications and SAS solutions used the Adobe Flash Player to provide interactive user interfaces. Adobe has announced that it intends to end support for Flash technology and will stop updating and distributing the Flash Player at the end of 2020. Browser vendors disabled Flash by default in 2019. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

Here are some differences between SAS Model Manager 14.2 and 14.3:

- SAS Management Console replaces the Data category as the way to create data libraries and register tables.
- The Manage Folders feature replaces the New Folder window and Actions menu options for managing folders. The Manage Folders feature enables you to create and manage folders from within the Models, Projects, and Portfolios category views.
- The Models category view replaces the Inventory category view and provides a way to import models into a folder, as well as export models and manage models in one place.
- On the application bar, the name SAS Decision Manager has been changed to SAS Decision Management.

In addition, it is no longer possible to perform these tasks:

- add model keywords
- filter items by date modified in the Models, Projects, and Portfolios category views
- filter the list of models by keywords and user-defined properties in the Models category view
- duplicate or move a model from one folder to another folder

For more information about the new features and enhancements in this release, see the product documentation page for [SAS Model Manager](#).



## Chapter 81

# SAS Model Risk Management

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## Determining Your Update Path for SAS Model Risk Management

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Model Risk Management 6.1, 7.1, and 7.2 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
6.1 (SAS 9.4)	7.1 (SAS 9.4M3), 7.2 (SAS 9.4M4), 7.3 (SAS 9.4M5), 7.4 (SAS 9.4M5)	For more information about this release, contact your SAS account representative.

### *Migrating to SAS 9.4*

SAS Model Risk Management is new in SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Migrating To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
6.1 (SAS 9.4), 7.1 (SAS 9.4M3), 7.2 (SAS 9.4M4)	7.1 (SAS 9.4M3), 7.2 (SAS 9.4M4), 7.3 (SAS 9.4M5), 7.4 (SAS 9.4M6)	For more information about this release, contact your SAS account representative.

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Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
7.4 (SAS 9.4M6)	7.4 (SAS 9.4M6)	To migrate within the same release, see <i>SAS MDM: Administrator's Guide</i> .

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## About SAS Model Risk Management

SAS Model Risk Management is a user-friendly, web-based application that facilitates the capture and life cycle management of statistical model-related information. That information is then used to conduct all aspects of model risk management, including governance. Specifically, SAS Model Risk Management facilitates the entry, collection, transfer, storage, tracking, and reporting of models that are drawn from multiple lines of business across an organization. It also integrates with other SAS products, including SAS Workflow Engine and SAS Visual Analytics.

SAS has shipped these releases of SAS Model Risk Management:

- SAS Model Risk Management 6.1 in May 2015
- SAS Model Risk Management 7.1 in July 2016
- SAS Model Risk Management 7.2 in November 2016
- SAS Model Risk Management 7.3 in December 2017
- SAS Model Risk Management 7.4 in August 2018

Additional functionality has been provided through subsequent content releases. For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS Model Risk Management](#).

## Chapter 82

# SAS OLAP Server

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## Determining Your Update Path for SAS OLAP Server

### *Upgrading Your Existing SAS 9.4 Deployment*

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7	SAS 9.4M8	<ol style="list-style-type: none"> <li>1. Before you upgrade, see “<a href="#">SAS 9.4 OLAP Server</a>” on page 338.</li> <li>2. To upgrade to the latest release of SAS 9.4 OLAP Server, see “<a href="#">Install and Configure a Software Update</a>” on page 53.</li> </ol>

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### *Migrating to SAS 9.4*

To run the latest release of SAS OLAP Server, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site	Release That You Are Migrating To	High-Level Steps and Resources
SAS 9.3, 9.3M1, 9.3M2	SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	<ol style="list-style-type: none"> <li>1. Before you migrate, see “<a href="#">SAS 9.4 OLAP Server</a>” on page 338.</li> <li>2. Install and configure SAS 9.4.</li> </ol> <p>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</p> <ul style="list-style-type: none"> <li>• Quick Start Guides in the <a href="#">SAS Install Center</a></li> <li>• <a href="#">SAS Intelligence Platform: Installation and Configuration Guide</a></li> </ul> <p>For migration information, see these resources:</p> <ul style="list-style-type: none"> <li>• <a href="#">SAS Intelligence Platform: Migration Guide</a></li> <li>• the product documentation page for <a href="#">SAS OLAP Server</a></li> </ul>
SAS 9.4	SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	To migrate within the same SAS release, see <a href="#">SAS Intelligence Platform: Migration Guide</a> .
SAS 9.4M8	SAS 9.4M8	

## SAS 9.4 OLAP Server

SAS has shipped these releases of SAS OLAP Server:

- SAS 9.4M1 OLAP Server in December 2013. The LOCKDOWN option and statement are supported by the SAS OLAP Server.
- SAS 9.4M2 OLAP Server in August 2014.
- SAS 9.4M3 OLAP Server in July 2015.
- SAS 9.4M4 OLAP Server in November 2016.
- SAS 9.4M5 OLAP Server in September 2017.
- SAS 9.4M6 OLAP Server in November 2018.
- SAS 9.4M7 OLAP Server in August 2020.
- SAS 9.4M8 OLAP Server in January 2023.

For information about the new features and enhancements in these releases, see the product documentation for [SAS OLAP Cube Studio and SAS OLAP Server](#).



## Chapter 83

## SAS OpRisk VaR

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## Determining Your Update Path for SAS OpRisk VaR

### *Upgrading an Existing SAS 9.4 Deployment*

*Note:* Starting with SAS 9.4M8, SAS OpRisk VaR is a retired product. For more information, see [“SAS 9.4M8 Retired Products: SAS OpRisk VaR”](#) on page 340.

SAS OpRisk VaR 6.1 runs on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
6.1, 6.1M1 (SAS 9.4)	6.1M2 (SAS 9.4)	For more information about how to upgrade to the latest release, contact your SAS account representative.

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## Migrating to SAS 9.4

To run SAS OpRisk VaR 6.1, you must be running SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
5.1, 4.21 (SAS 9.3)	6.1, 6.1M1, 6.2M2 (SAS 9.4)	For more information about how to migrate to this release, contact your SAS account representative.
6.1, 6.1M1, 6.1M2 (SAS 9.4)	6.1M2 (SAS 9.4)	

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## About SAS OpRisk VaR

SAS shipped these releases of SAS OpRisk VaR:

- SAS OpRisk VaR 6.1 in June 2014
- SAS OpRisk VaR 6.1M2 in May 2015

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS OpRisk VaR](#).

*Note:* The documentation for SAS OpRisk VaR is available only to customers who license this product.

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## SAS 9.4M8 Retired Products: SAS OpRisk VaR

Starting with SAS 9.4M8, SAS OpRisk VaR is a retired product. If you order SAS 9.4M8, SAS OpRisk VaR is not included in that order. 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](#)” on page 59.

## Chapter 84

# SAS/OR

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## Determining Your Update Path for SAS/OR

### *Upgrading an Existing SAS 9.4 Deployment*

SAS/OR 12.3, 13.1, 13.2, 14.1, 14.2, 14.3, 15.1, 15.2, and 15.3 run on SAS 9.4.

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7)	15.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“About SAS/OR” on page 342</a>.</li> <li>2. To upgrade to the latest release of SAS/OR, see <a href="#">“Install and Configure a Software Update” on page 53</a>.</li> </ol>

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## Migrating to SAS 9.4

To run SAS/OR 12.3, 13.1, 13.2, 14.1, 14.2, 14.3, 15.1, 15.2, or 15.3, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
12.1 (SAS 9.3) 9.3, 9.3M1	12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7), 15.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>Before you migrate, see “About SAS/OR” on <a href="#">page 342</a>.</li> <li>Install and configure SAS 9.4.</li> </ol> <p>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</p> <ul style="list-style-type: none"> <li>Quick Start Guides in the <a href="#">SAS Install Center</a></li> <li><a href="#">SAS Intelligence Platform: Installation and Configuration Guide</a></li> </ul> <p>For migration information, see these resources:</p> <ul style="list-style-type: none"> <li><a href="#">SAS Intelligence Platform: Migration Guide</a></li> <li>the product documentation page for <a href="#">SAS/OR</a></li> </ul>
12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7)	12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7), 15.3 (SAS 9.4M8)	To migrate within the same SAS release, see <a href="#">SAS Intelligence Platform: Migration Guide</a> .
15.3 (SAS 9.4M8)	15.3 (SAS 9.4M8)	

## About SAS/OR

SAS has shipped these releases:

- SAS/OR 12.3 shipped in July 2013. This release is essentially a maintenance release, with the exception that high-performance features for use in single-machine mode have been added.

- SAS/OR 13.1 shipped in December 2013. For more information about the new features and enhancements, see [What's New in SAS/OR 13.1](#).
- SAS/OR 13.2 shipped in August 2014. For more information about the new features and enhancements, see [What's New in SAS/OR 13.2](#).
- SAS/OR 14.1 shipped in July 2015. For more information about the new features and enhancements, see [What's New in SAS/OR 14.1](#).
- SAS/OR 14.2 shipped in November 2016. For more information about the new features and enhancements, see [What's New in SAS/OR 14.2](#).
- SAS/OR 14.3 shipped in September 2017. For more information about the new features and enhancements, see [What's New in SAS/OR 14.3](#).
- SAS/OR 15.1 shipped in November 2018. For more information about this release, see [What's New in SAS/OR 15.1](#).
- SAS/OR 15.2 shipped in August 2020.
- SAS/OR 15.3 shipped in January 2023.



## Chapter 85

# SAS/QC

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## Determining Your Update Path for SAS/QC

### *Upgrading an Existing SAS 9.4 Deployment*

SAS/QC 12.3, 13.1, 13.2, 14.1, 14.2, 14.3, 15.1, 15.2, and 15.3 run on SAS 9.4.

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7)	15.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“About SAS/QC”</a> on page 346.</li> <li>2. To upgrade to the latest release of SAS/QC, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> </ol>

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## Migrating to SAS 9.4

To run SAS/QC 12.3, 13.1, 13.2, 14.1, 14.2, 14.3, 15.1, 15.2, or 15.3, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
12.1 (SAS 9.3) 9.3, 9.3M1	12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7), 15.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>Before you migrate, see “About SAS/QC” on <a href="#">page 346</a>.</li> <li>Install and configure SAS 9.4.</li> </ol> <p>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</p> <ul style="list-style-type: none"> <li>Quick Start Guides in the <a href="#">SAS Install Center</a></li> <li><a href="#">SAS Intelligence Platform: Installation and Configuration Guide</a></li> </ul> <p>For migration information, see these resources:</p> <ul style="list-style-type: none"> <li><a href="#">SAS Intelligence Platform: Migration Guide</a></li> <li>the product documentation page for <a href="#">SAS/QC</a></li> </ul>
12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7)	12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7), 15.3 (SAS 9.4M8)	To migrate within the same SAS release, see <a href="#">SAS Intelligence Platform: Migration Guide</a> .
15.3 (SAS 9.4M8)	15.3 (SAS 9.4M8)	

## About SAS/QC

SAS has shipped these releases:

- SAS/QC 12.3 shipped in July 2013. This release runs on SAS 9.4 and is a maintenance release with no new features.
- SAS/QC 13.1 shipped in December 2013. For more information about the new features and enhancements, see [What’s New in SAS/QC 13.1](#).



- SAS/QC 13.2 shipped in August 2014. For more information about the new features and enhancements, see [What's New in SAS/QC 13.2](#).
- SAS/QC 14.1 shipped in July 2015. For more information about the new features and enhancements, see [What's New in SAS/QC 14.1](#).
- SAS/QC 14.2 shipped in November 2016. For more information about the new features and enhancements, see [What's New in SAS/QC 14.2](#).
- SAS/QC 14.3 shipped in September 2017. For more information about the new features and enhancements, see [What's New in SAS/QC 14.3](#).
- SAS/QC 15.1 shipped in November 2018. For more information, see [What's New in SAS/QC 15.1](#).
- SAS/QC 15.2 shipped in August 2020.
- SAS/QC 15.3 shipped in January 2023.



## Chapter 86

# SAS Quality Analytic Suite

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## About SAS Quality Analytic Suite

SAS Quality Analytic Suite integrates various SAS capabilities and solutions to form a common data foundation and dashboard to help manufacturers perform these tasks:

- organize their data across many channels
- notice relationships in data
- detect early warning signs for issues in products and assets

The SAS Quality Analytic suite consists of a new, consistent user interface across all SAS Quality Analytic solutions, such as SAS Field Quality Analytics, SAS Asset Performance Analytics, and SAS Production Quality Analytics. The interface provides a common workspace for data selection, alerts, reports, and analysis and an integration point among the SAS Quality Analytic solutions.

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## Upgrading SAS Quality Analytic Suite

SAS Quality Analytic Suite 6.2 shipped in November 2016 and SAS Quality Analytic Suite 6.2M1 shipped in July 2017. Both of these releases run on SAS 9.4M4 and later releases. For more information about how to upgrade to the SAS Quality Analytic Suite and the SAS Quality Analytic solutions, see *SAS Quality Analytic Suite 6.2: Administrator's Guide*.



## Chapter 87

# SAS Real-Time Decision Manager

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## Determining Your Update Path for SAS Real-Time Decision Manager

### *Upgrading an Existing SAS 9.4 Deployment*

*Note:* SAS Real-Time Decision Manager is not available in SAS 9.4M8 or later. For more information, see [“SAS 9.4M8 Products Not Available: SAS Real-Time Decision Manager”](#) on page 353.

SAS Real-Time Decision Manager 6.3, 6.4, 6.5, and 6.6 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
6.3, 6.4 (SAS 9.4)	6.4 (SAS 9.4); 6.5 (SAS 9.4M6)	For more information about this release, contact your SAS account representative.
6.4, 6.5 (SAS 9.4)	6.6 (SAS 9.4M6)	

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*Note:* You can upgrade SAS Real-Time Decision Manager Run-Time Server only from 6.5 (SAS 9.4M6) to 6.6 (SAS 9.4M6).

## Migrating to SAS 9.4

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
5.41, 6.1 (SAS 9.3)	6.3 (SAS 9.4M2), 6.4 (SAS 9.4M3); 6.5 (SAS 9.4M6)	For more information about how to request this new release and the features that are available, contact your SAS account representative.
6.3 (SAS 9.4)	6.4 (SAS 9.4M3); 6.5 (SAS 9.4M5)	To migrate to SAS Real-Time Decision Manager 6.4 or 6.5, contact your SAS account representative.
6.4, 6.5 (SAS 9.4)	6.5, 6.6 (SAS 9.4M6)	To migrate to SAS Real-Time Decision Manager 6.5 or 6.6, contact your SAS account representative.
6.6 (SAS 9.4M6)	6.6 (SAS 9.4M6)	To migrate within the same release, contact your SAS account representative.

## About SAS Real-Time Decision Manager

SAS has shipped these releases of SAS Real-Time Decision Manager:

- SAS Real-Time Decision Manager 6.3 shipped in May 2014.
- SAS Real-Time Decision Manager 6.4 shipped in March 2015.

This release includes some SAS Visual Analytics components. For more information about how to deploy these components, see [“Adding SAS Visual Analytics to Your Deployment”](#) on page 93.

If you already have these SAS Visual Analytics components installed, you still need to create a plan file, and you need to run the SAS Deployment Wizard a second time to add the SAS LASR Analytic Server components for SAS Real-Time Decision Manager to your deployment. Use the product documentation to complete the correct migration and deployment steps for your site.

- SAS Real-Time Decision Manager 6.5 shipped in June 2016.

*Note:* SAS Real-Time Decision Manager Run-Time Server 6.4 and 6.5 run on SAS 9.4. If you are currently running SAS Real-Time Decision Manager Run-Time Server 6.4, contact your SAS account representative to upgrade to SAS Real-Time Decision Manager Run-Time Server 6.5. Upgrading and migrating to from the 6.4 release to the 6.5 release is not supported.

- SAS Real-Time Decision Manager 6.6 shipped in May 2020.

*Note:* SAS Real-Time Decision Manager Run-Time Server 6.4 and 6.5 run on SAS 9.4. If you are currently running SAS Real-Time Decision Manager Run-Time Server 6.4, contact your SAS account representative to upgrade to SAS Real-

Time Decision Manager Run-Time Server 6.5 or 6.6. Upgrading and migrating to from the 6.4 release to the 6.5 or 6.6 release is not supported.

For more information, see the product documentation page for [SAS Customer Intelligence](#).

*Note:* The documentation for SAS Real-Time Decision Manager is available only to customers who license this product.

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## **SAS 9.4M8 Products Not Available: SAS Real-Time Decision Manager**

SAS Real-Time Decision Manager is not available in SAS 9.4M8 or later. If you order SAS 9.4M8 or later and your site has licensed SAS Real-Time Decision Manager 6.6 or earlier, SAS Real-Time Decision Manager will not be included in that order and will no longer function after upgrading to SAS 9.4M8. If you plan to upgrade or migrate to SAS 9.4M8 or later, we recommend that you instead consider SAS Customer Intelligence 360 and SAS Intelligent Decisioning for your business needs. Contact your SAS representative for more information.





## Chapter 88

# SAS Risk and Finance Workbench

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## Determining Your Update Path for SAS Risk and Finance Workbench

### Upgrading an Existing SAS 9.4 Deployment

*Note:* Starting with SAS 9.4M8, SAS Risk and Finance Workbench is a retired product. For more information, see “[SAS 9.4M8 Retired Product: SAS Risk and Finance Workbench](#)” on page 356.

Current Release at Your Site (SAS Release)	Release That You Are Upgrading To (SAS Release)	High-Level Steps and Resources
2.2, 2.3, 3.1 (SAS 9.4)	3.2 (SAS 9.4M5)	For more information about how to upgrade to the latest release, see <i>SAS Risk and Finance Workbench: Administrator’s Guide</i> .

---

### Migrating to SAS 9.4

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
2.2, 2.3, 3.1, 3.2 (SAS 9.4)	3.2 (SAS 9.4M5)	For more information about how to migrate to this release, see <i>SAS Risk and Finance Workbench: Administrator’s Guide</i> .

---

---

## About SAS Risk and Finance Workbench

SAS has shipped these releases of SAS Risk and Finance Workbench:

- SAS Stress Testing Workbench 2.1 in October 2015
- SAS Risk and Finance Workbench 2.2 in June 2016
- SAS Risk and Finance Workbench 2.3 in November 2016
- SAS Risk and Finance Workbench 3.1 in December 2017
- SAS Risk and Finance Workbench 3.2 in July 2018

For more information, contact your SAS account representative and see the product documentation page for [SAS Risk and Finance Workbench](#).

*Note:* The documentation for SAS Risk and Finance Workbench is available only to customers who license this product.

---

## SAS 9.4M8 Retired Product: SAS Risk and Finance Workbench

Starting with SAS 9.4M8, SAS Risk and Finance Workbench is a retired product. A best practice is to unconfigure retired SAS products and features before you upgrade and to uninstall them after you upgrade. For more information, see “[Unconfiguring and Uninstalling Retired Products](#)” on page 59.

## Chapter 89

# SAS Risk Dimensions

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## Determining Your Update Path for SAS Risk Dimensions

### *Upgrading an Existing SAS 9.4 Deployment*

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
6.11 (SAS 9.4M5), 6.12 (SAS 9.4M6), 6.13 (SAS 9.4M7)	6.14 (SAS 9.4M8)	For more information about how to upgrade to the latest release, contact your SAS account representative.

---

### *Migrating to SAS 9.4*

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Migrating To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
6.11 (SAS 9.4M5), 6.12 (SAS 9.4M6), 6.13 (SAS 9.4M7), 6.14 (SAS 9.4M8)	6.14 (SAS 9.4M8)	For more information about how to migrate to this release, contact your SAS account representative.

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## About SAS Risk Dimensions

SAS shipped these releases of SAS Risk Dimensions:

- SAS Risk Dimensions 6.1 in July 2013, which supports SAS 9.4
- SAS Risk Dimensions 6.2 in December 2013, which supports SAS 9.4M1
- SAS Risk Dimensions 6.3 in November 2014, which supports SAS 9.4M2
- SAS Risk Dimensions 6.4 in May 2015, which supports SAS 9.4M2
- SAS Risk Dimensions 6.5 in October 2015, which supports SAS 9.4M3
- SAS Risk Dimensions 6.6 in April 2016, which supports SAS 9.4M3
- SAS Risk Dimensions 6.7 in November 2016, which supports SAS 9.4M4
- SAS Risk Dimensions 6.8 in June 2017, which supports SAS 9.4M4
- SAS Risk Dimensions 6.9 in September 2017, which supports SAS 9.4M5
- SAS Risk Dimensions 6.11 in June 2018, which supports SAS 9.4M5
- SAS Risk Dimensions 6.12 in June 2019, which supports SAS 9.4M6
- SAS Risk Dimensions 6.13 in August 2020, which supports SAS 9.4M7
- SAS Risk Dimensions 6.14 in January 2023, which supports SAS 9.4M8

*Note:* Starting with SAS 9.4M8, SAS retired these features:

- SAS Risk Dimensions Java Client
- SAS Risk Model Execution Library Server Configuration
- SAS Risk Model Execution Library Mid-Tier
- SAS Risk Model Execution Library Server

If you order SAS 9.4M8, these features are not included in that order. A best practice is to unconfigure retired SAS products and features before you upgrade and to uninstall them after you upgrade. For more information, see [“Unconfiguring and Uninstalling Retired Products”](#) on page 59.

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS Risk Dimensions](#).

*Note:* The documentation for SAS Risk Dimensions is available only to customers who license this product.

## Chapter 90

# SAS Risk Management for Banking

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<b>SAS 9.4M7 Retired Product: SAS Risk Management for Banking . . . . .</b>	<b>360</b>

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## Determining Your Update Path for SAS Risk Management for Banking

### *Upgrading an Existing SAS 9.4 Deployment*

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
3.2, 3.3 (SAS 9.4)	3.4 (SAS 9.4)	For more information about how to upgrade to the latest release, contact your SAS account representative.

---

### *Migrating to SAS 9.4*

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Migrating To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
3.2, 3.3 (SAS 9.4)	3.4 (SAS 9.4)	For more information about how to migrate to this release, contact your SAS account representative.

---

## About SAS Risk Management for Banking

SAS has shipped these releases of SAS Risk Management for Banking:

- SAS Risk Management for Banking 3.2 in February 2014
- SAS Risk Management for Banking 3.3 in May 2015
- SAS Risk Management for Banking 3.4 in July 2016

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS Risk Management for Banking](#).

*Note:* The documentation for SAS Risk Management for Banking is available only to customers who license this product.

---

## SAS 9.4M7 Retired Product: SAS Risk Management for Banking

The last supported release of SAS Risk Management for Banking is 3.4. Starting in SAS 9.4M7, this product is retired.

A best practice is to unconfigure SAS Risk Management for Banking *before* you upgrade and to uninstall SAS Risk Management for Banking *after* you upgrade. For more information, see “[Unconfiguring and Uninstalling Retired Products](#)” on page 59.

## Chapter 91

## SAS/SECURE

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## Determining Your Update Path for SAS/SECURE

### *Upgrading an Existing SAS 9.4 Deployment*

*Note:* Starting with SAS 9.4M8, SAS/SECURE is updated to use cryptographic libraries available from the operating system. For more information, see [“SAS/SECURE 9.4M8” on page 363](#).

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6	9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“About SAS/SECURE” on page 362</a>.</li> <li>2. To upgrade to the latest release of SAS/SECURE 9.4, see <a href="#">“Install and Configure a Software Update” on page 53</a>.</li> </ol>

---

## Migrating to SAS 9.4

To run SAS/SECURE 9.4, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS deployment.

Current Release at Your Site	Release That You Are Migrating To	High-Level Steps and Resources
9.3, 9.3M1, 9.3M2	9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7	<ol style="list-style-type: none"> <li>1. Before you migrate, see “<a href="#">About SAS/SECURE</a>” on page 362.</li> <li>2. Install and configure SAS 9.4.</li> </ol> <p>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</p> <ul style="list-style-type: none"> <li>• Quick Start Guides in the <a href="#">SAS Install Center</a></li> <li>• <a href="#">SAS Intelligence Platform: Installation and Configuration Guide</a></li> </ul> <p>For migration information, see these resources:</p> <ul style="list-style-type: none"> <li>• <a href="#">SAS Intelligence Platform: Migration Guide</a></li> <li>• the product documentation page for <a href="#">SAS/SECURE</a></li> </ul>

---

## About SAS/SECURE

### SAS/SECURE 9.4

For software delivery purposes, SAS/SECURE is a feature within the SAS System. In SAS 9.4, SAS/SECURE is included with the Base SAS software. In earlier releases, SAS/SECURE was an add-on product that was licensed separately. This change makes strong encryption available in all deployments (except where prohibited by import restrictions). For more information about import and export restrictions, see [Encryption in SAS](#).

SAS/SECURE is installed with the Base SAS software. However, the default encryption is now SASProprietary. To use the higher form of encryption that is provided by SAS/SECURE, specify the NETENCRYPT system option or set the NETENCALG= system option to a value of RC2, RC4, DES, TRIPLEDES, or AES.

### SAS/SECURE 9.4M1

When working with encryption in SAS, note these changes in SAS 9.4M1.

- For TLS encryption, SAS sets the default location of the Certificate Authority (CA) trust list to **SAS-configuration-directory/levn/certs/cacert.pem** for UNIX and z/OS foundation servers. This default location is specified by the SSLCALISTLOC= option in the configuration files.



- For TLS encryption on UNIX and z/OS foundation servers, the `SSL_CERT_DIR` and `SSLCACERTDIR` environment variables can now be used to point to the location of the site- and CA-signed certificates. Certificates can also be found at the location pointed to by the `SSLCALISTLOC=` option.

### **SAS/SECURE 9.4M2**

SAS/SECURE 9.4M2 shipped in August 2014.

SAS provides the libraries needed to run TLS on UNIX. To find the OpenSSL code base version that is used to build the TLS libraries provided by SAS for each release, see “Mapping Between SAS Version and OpenSSL Version” on the product documentation page for [SAS/SECURE](#).

### **SAS/SECURE 9.4M3**

In SAS 9.4M3, the SAS Deployment Wizard automates the process of updating the TLS certificates in UNIX and z/OS environments and for Java applications on Windows and UNIX. In UNIX and z/OS environments, the installation process lays down a Mozilla bundle of trusted CA certificates. The installation also includes the files that are used as the trusted list of certificates. In UNIX environments, trusted certificates are now located in the trusted CA bundle in `SAS-installation-directory/SASSecurityCertificateFramework/1.1/cacerts/trustedcerts.pem`. During installation, the SAS Deployment Wizard sets the `SSLCALISTLOC` system option in the `SAS-installation-directory/sasv9.cfg` file to point to the `trustedcerts.pem` file.

*Note:* The `SAS-configuration-directory/levn/certs/cacert.pem` file that you used in previous releases is no longer supported.

SAS provides the libraries needed to run TLS on UNIX. To find the OpenSSL code base version that is used to build the TLS libraries provided by SAS for each release, see “Mapping Between SAS Version and OpenSSL Version” on the product documentation page for [SAS/SECURE](#).

### **SAS/SECURE 9.4M4**

SAS/SECURE 9.4M4 shipped in November 2016.

### **SAS/SECURE 9.4M5**

SAS/SECURE 9.4M5 shipped in September 2017.

### **SAS/SECURE 9.4M8**

Starting with SAS 9.4M8, SAS/SECURE is updated to use cryptographic libraries available from the operating system. A best practice is to uninstall retired product features after you upgrade. For more information, see “[After You Upgrade: Uninstalling Retired Products](#)” on page 59.

For more information, see “[SAS/SECURE with SAS 9.4M8](#)” in *Encryption in SAS*.



## Chapter 92

## SAS/SHARE

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## Determining Your Update Path for SAS/SHARE

### *Upgrading to an Existing SAS 9.4 Deployment*

Current Release at Your Site	Release That You Are Upgrading To	High-Level Steps and Resources
SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7	SAS 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“About SAS/SHARE”</a> on page 366.</li> <li>2. To upgrade to the latest release of SAS/SHARE 9.4, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> </ol>

---

## Migrating to SAS 9.4

Current Release at Your Site	Release That You Are Migrating To	High-Level Steps and Resources
SAS 9.3, 9.3M1, 9.3M2	SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6, 9.4M7, 9.4M8	<ol style="list-style-type: none"> <li>1. Before you migrate, see <a href="#">“About SAS/SHARE” on page 366</a>.</li> <li>2. Install and configure SAS 9.4.</li> </ol> <p>To determine the steps for installing and configuring SAS 9.4 at your site, see the following resources:</p> <ul style="list-style-type: none"> <li>• Quick Start Guides in the <a href="#">SAS Install Center</a></li> <li>• <a href="#">SAS Intelligence Platform: Installation and Configuration Guide</a></li> </ul> <p>For migration information, see the following resources:</p> <ul style="list-style-type: none"> <li>• <a href="#">SAS Intelligence Platform: Migration Guide</a></li> <li>• the product documentation page for <a href="#">SAS/SHARE</a></li> </ul>

---

## About SAS/SHARE

SAS has shipped these releases:

- In December 2013, SAS shipped SAS 9.4M1.
- In August 2014, SAS shipped SAS 9.4M2.
- In July 2015, SAS shipped SAS 9.4M3.
- In November 2016, SAS shipped SAS 9.4M4.
- In September 2017, SAS shipped SAS 9.4M5.
- In November 2018, SAS shipped SAS 9.4M6.
- In August 2020, SAS shipped SAS 9.4M7.
- In January 2023, SAS shipped SAS 9.4M8.

## Chapter 93

# SAS Social Network Analysis Server

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## Determining Your Update Path for SAS Social Network Analysis Server

### *Upgrading an Existing SAS 9.4 Deployment*

*Note:* Starting with SAS 9.4M7, SAS Social Network Analysis Server is a retired product. For more information, see “[SAS 9.4M7 Retired Product: SAS Social Network Analysis Server](#)” on page 368.

SAS Social Network Analysis Server 6.2 runs on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
6.2, 6.2M1, 6.2M2, 6.2M3 (SAS 9.4)	6.2M4 (SAS 9.4)	For more information about how to request this new release and the features that are available, contact your SAS account representative.

---

## Migrating to SAS 9.4

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
6.2, 6.2M1, 6.2M2, 6.2M3 (SAS 9.4) 3.1M1 (SAS 9.3)	6.2M4 (SAS 9.4)	For more information about how to migrate to the latest release of SAS Social Network Analysis Server, see <i>SAS Social Network Analysis Server: Installation and Configuration Guide</i> .

---

## About SAS Social Network Analysis Server

SAS has shipped these releases of SAS Social Network Analysis Server 6.2:

- SAS Social Network Analysis Server 6.2 shipped in April 2014.
- SAS Social Network Analysis Server 6.2M1 shipped in January 2015.
- SAS Social Network Analysis Server 6.2M2 shipped in October 2015.
- SAS Social Network Analysis Server 6.2M3 shipped in June 2016.
- SAS Social Network Analysis Server 6.2M4 shipped in November 2017.

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS Social Network Analysis Server](#).

*Note:* The documentation for SAS Social Network Analysis Server is available only to customers who license this product.

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## SAS 9.4M7 Retired Product: SAS Social Network Analysis Server

Starting with SAS 9.4M7, SAS Social Network Analysis Server is a retired product. If you order SAS 9.4M7 or later, SAS Social Network Analysis Server is not included in that order. 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”](#) on page 59.

## Chapter 94

# SAS/STAT

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## Determining Your Update Path for SAS/STAT

### *Upgrading an Existing SAS 9.4 Deployment*

SAS/STAT 12.3, 13.1, 13.2, 14.1, 14.2, 14.3, 15.1, 15.2, and 15.3 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7)	15.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“About SAS/STAT” on page 370</a>.</li> <li>2. To upgrade to the latest release of SAS/STAT, see <a href="#">“Install and Configure a Software Update” on page 53</a>.</li> </ol>

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## Migrating to SAS 9.4

To run SAS/STAT 12.3, 13.1, 13.2, 14.1, 14.2, 14.3, 15.1, 15.2, or 15.3 you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
12.1 (SAS 9.3) 9.3, 9.3M1	12.3 (SAS 9.4) 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6); 15.2 (SAS 9.4M7); 15.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>Before you migrate, see “About SAS/STAT” on <a href="#">page 370</a>.</li> <li>Install and configure SAS 9.4.</li> </ol> <p>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</p> <ul style="list-style-type: none"> <li>Quick Start Guides in the <a href="#">SAS Install Center</a></li> <li><a href="#">SAS Intelligence Platform: Installation and Configuration Guide</a></li> </ul> <p>For migration information, see these resources:</p> <ul style="list-style-type: none"> <li><a href="#">SAS Intelligence Platform: Migration Guide</a></li> <li>the product documentation page for <a href="#">SAS/STAT</a></li> </ul>
12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6)	12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6), 15.2 (SAS 9.4M7), 15.3 (SAS 9.4M8)	To migrate within the same SAS release, see <a href="#">SAS Intelligence Platform: Migration Guide</a> .
15.3 (SAS 9.4M8)	15.3 (SAS 9.4M8)	

## About SAS/STAT

SAS has shipped these releases:

- SAS/STAT 12.3 shipped in July 2013. This release is essentially a maintenance release, with the exception that high-performance procedures for use in single-machine mode have been added.



- SAS/STAT 13.1 shipped in December 2013. For more information about the new features and enhancements, see [What's New in SAS/STAT 13.1](#).
- SAS/STAT 13.2 shipped in August 2014. For more information about the new features and enhancements, see [What's New in SAS/STAT 13.2](#).
- SAS/STAT 14.1 shipped in July 2015. For more information about the new features and enhancements, see [What's New in SAS/STAT 14.1](#).
- SAS/STAT 14.2 shipped in November 2016. For more information about the new features and enhancements, see [What's New in SAS/STAT 14.2](#).
- SAS/STAT 14.3 shipped in September 2017. For more information about the new features and enhancements, see [What's New in SAS/STAT 14.3](#).
- SAS/STAT 15.1 shipped in November 2018. For more information about this release, see [What's New in SAS/STAT 15.1](#).
- SAS/STAT 15.2 shipped in August 2020. This release contains bug fixes.
- SAS/STAT 15.3 shipped in January 2023.



## Chapter 95

# SAS Strategy Management

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## Determining Your Update Path for SAS Strategy Management

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Strategy Management 5.5, 5.5M1, and 5.6 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
5.5 (SAS 9.4)	5.6 (SAS 9.4M1) 5.5M1 (SAS 9.4)	For more information about how to upgrade to this release, contact your SAS account representative.
5.5M1 (SAS 9.4)	5.6 (SAS 9.4M2)	

*Note:* The last supported release is SAS Strategy Management 5.6 on SAS 9.4M6. For more information, see [“Support for SAS Strategy Management” on page 374](#).

## Migrating to SAS 9.4

To run SAS Strategy Management 5.5, 5.5M1, or 5.6, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
5.4, 5.4M1 (SAS 9.3) 5.3, 5.3M1 (SAS 9.3)	5.6 (SAS 9.4M1) 5.5, 5.5M1 (SAS 9.4)	<ol style="list-style-type: none"> <li>1. Before you migrate, see “<a href="#">About SAS Strategy Management</a>” on page 374.</li> <li>2. To migrate to the new release, see <i>SAS Strategy Management: Migration Guide</i>. To create a new deployment, see <i>Installation Instructions for SAS Strategy Management for SAS 9.4</i>.</li> </ol>
5.5, 5.5M1(SAS 9.4)	5.6 (SAS 9.4M1); 5.5, 5.5M1 (SAS 9.4)	Before you migrate, see <i>SAS Strategy Management 5.6: Migration Guide</i> or <i>SAS Strategy Management 5.5: Migration Guide</i> .
5.6 (SAS 9.4M1)	5.6 (SAS 9.4M1)	To migrate within the same release, see <i>SAS Strategy Management 5.6: Migration Guide</i> .

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## About SAS Strategy Management

SAS shipped these releases of SAS Strategy Management:

- SAS Strategy Management 5.5 in July 2013.
- SAS Strategy Management 5.6 in March 2014. This is the last release of SAS Strategy Management.

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS Strategy Management](#).

*Note:* The documentation for SAS Strategy Management is available only to customers who license this product.

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## Support for SAS Strategy Management

### SAS 9.4M7 Retired Product: SAS Strategy Management

Starting in SAS 9.4M7 (August 2020), SAS Strategy Management (which uses Adobe Flash) is a retired product. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

SAS Strategy Management 5.6 on SAS 9.4M6 is the last release of the product. If you order SAS 9.4M7, SAS Strategy Management will not be included in that order.

If you have an existing installation of SAS Strategy Management in your environment and you plan to upgrade or migrate to SAS 9.4M7, consider SAS Visual Analytics for your strategy management needs.

## How to Unconfigure and Uninstall SAS Strategy Management from Your Deployment

Best practice is to unconfigure SAS Strategy Management *before* you upgrade and uninstntall SAS Strategy Management *after* you upgrade. For more information, see [“Unconfiguring and Uninstalling Retired Products” on page 59](#).

If you upgraded to the August 2020 release of SAS 9.4M7 and you did not unconfigure SAS Strategy Management before the upgrade, review this table.

**Table 95.1** Results from Upgrade in Place or Migration

Task	Expectations	For More Information
Upgrade in Place	Your latest release of SAS Strategy Management from your source system will remain installed and configured on your target system. However, SAS Strategy Management is not operable on the target system.	.To unconfigure and install the software, see <a href="#">“Unconfiguring and Uninstalling Retired Products” on page 59</a> .
Migration	<ul style="list-style-type: none"> <li>SAS Strategy Management will not be installed or configured in the target environment. However, you can continue to use SAS Strategy Management in the source environment.</li> <li>The SAS Migration Utility will bring artifacts of SAS Strategy Management from the source system to the target system.</li> </ul>	For information about migration, see <a href="#">SAS Intelligence Platform: Migration Guide</a> .



## Chapter 96

# SAS Studio

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## About SAS Studio

### *What Is SAS Studio?*

SAS Studio is a development application for SAS that you access through your web browser. With SAS Studio, you can access your data files, libraries, and existing programs, and you can write new programs. You can also use the predefined tasks in SAS Studio to generate SAS code. When you run a program or task, SAS Studio connects to a SAS server to process the SAS code. The SAS server can be a hosted server in a cloud environment, a server in your local environment, or a copy of SAS on your local machine. After the code is processed, the results are returned to SAS Studio in your browser.

SAS Studio supports multiple web browsers, such as Microsoft Internet Explorer, Apple Safari, Mozilla Firefox, and Google Chrome.

In addition to writing and running your own SAS programs, you can use the predefined tasks that are included with SAS Studio to analyze your data. The tasks are based on

SAS and provide access to some of the most commonly used graph and analytical procedures. You can also use the default task template to write your own tasks.

### How to Add SAS System Procedures to Your Deployment

SAS Studio is included with a wide variety of SAS products and solutions and can be used in every type of SAS deployment. SAS Studio is available in three editions: SAS Studio Mid-Tier (the enterprise edition), SAS Studio Single-User, and SAS Studio Basic. To add SAS Studio Mid-Tier to a planned deployment, see [“Adding a New Product” on page 92](#).

To add SAS Studio – Single User or SAS Studio Basic, see the installation and configuration steps in *SAS Studio: Administrator’s Guide* on the [SAS Studio](#) product documentation page.

## Determining Your Update Path for SAS Studio

### Upgrading an Existing SAS 9.4 Deployment

Current Release at Your Site (SAS Release)	Release That You Are Upgrading To (SAS Release)	High-Level Steps and Resources
3.1, 3.1M1, 3.2, 3.3, 3.4, 3.5 (SAS 9.4); 3.6 (SAS 9.4M4); 3.7, 3.71 (SAS 9.4M5); 3.8 (SAS 9.4M6), 3.81 (SAS 9.4M7)	3.82 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“Releases of SAS Studio” on page 379</a>.</li> <li>2. To upgrade to the latest release of SAS Studio, see <a href="#">“Install and Configure a Software Update” on page 53</a>.</li> </ol>

### Migrating to SAS 9.4

SAS Studio is new for SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To	High-Level Resources and Steps
3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.71, 3.8, 3.81 (SAS 9.4)	3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.71, 3.8, 3.81, 3.82 (SAS 9.4)	To migrate within the same SAS release, see <i>SAS Intelligence Platform: Migration Guide</i> .



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## Releases of SAS Studio

### **SAS Studio 3.1M1: May 2014**

In May 2014, SAS shipped SAS Studio 3.1M1. This maintenance release includes localization support and updates to the SAS Studio Basic Edition. When you run the SAS Deployment Wizard, you can verify that SAS Studio 3.1 is being updated from the Review Required Updates step. (Your current version should be 3.1, and the updated version should be 3.1M1.)

After your software update is complete, review the SASStudioInstructions.html file to complete any post-installation steps. You can also verify this upgrade by reviewing the SAS Studio log files in `SASHome/InstallMisc/InstallLogs`.

*Note:* If you specified a sudo password in your initial deployment of SAS Studio, this password is not saved. After the software update, you might need to rerun the `setup.sh` file to reconfigure SAS Studio and to provide the sudo password.

### **SAS Studio 3.2: August 2014**

SAS Studio 3.2 shipped in August 2014.

In SAS Studio 3.1, the tasks used Apache Velocity 1.5. In SAS Studio 3.2, the tasks use Apache Velocity 1.7. This change affects these three graph tasks: Bar Chart, Scatter Plot, and Series Plot. If you save one of these tasks as a CTK file or in your **My Tasks** folder in SAS Studio 3.1 and then try to run the task in SAS Studio 3.2, the generated SAS code is incorrect. To work around this issue, remove any CTK files or tasks in your **My Tasks** folder that use the Bar Chart, Scatter Plot, and Series Plot tasks. Then re-create these CTK files or tasks in your **My Tasks** folder in SAS Studio 3.2.

For more information about this release, see the product documentation page for [SAS Studio](#).

### **SAS Studio 3.3: February 2015**

SAS Studio 3.3 shipped in February 2015. When using SAS Studio 3.1 or SAS Studio 3.2, you might have added a snippet or task, changed preference settings, and so on. These changes were saved to a file in your home directory. For example, if you added a snippet, this change was saved in the `.mysnippets` directory. If you changed a preference, this change was saved in the `.mypreferences` directory.

Starting in SAS Studio 3.3, these files are saved in a common directory called `.sasstudio`. When you install SAS Studio 3.3, any customized files from SAS Studio 3.1 or 3.2 are copied to the `.sasstudio` directory. If you make additional changes in SAS Studio 3.1 or 3.2, these changes are not saved in the SAS Studio 3.3 files. When you are finished working with SAS Studio 3.1 or 3.2, delete any `.mysnippets`, `.mypreferences`, and so on, directories.

Starting in SAS Studio 3.3, each connection of SAS Studio creates two SAS processes. Each process has its own **Work** directory. One process is for the execution of code, and the other process is dedicated to file I/O. These processes are not delayed or blocked by the execution of other processes.

**SAS Studio 3.4: July 2015**

SAS Studio 3.4 shipped in July 2015. Before you upgrade to a new release of SAS Studio, clear the cache for your web browser. Clearing your cache should remove any obsolete files.

If you are migrating from SAS Studio 3.3 in a Windows operating environment, any data that is not saved in your **My Documents** folder is not available in SAS Studio 3.4. You must manually move this data from SAS Studio 3.3 to SAS Studio 3.4.

**SAS Studio 3.5: February 2016**

SAS Studio 3.5 shipped in February 2016. Before you upgrade to a new release of SAS Studio, clear the cache for your web browser. Clearing your cache should remove any obsolete files.

**SAS Studio 3.6: November 2016**

SAS Studio 3.6 shipped in November 2016. Before you upgrade to a new release of SAS Studio, clear the cache for your web browser. Clearing your cache should remove any obsolete files.

**SAS Studio 3.7: September 2017**

SAS Studio 3.7 shipped in September 2017. Before you upgrade to a new release of SAS Studio, clear the cache for your web browser. Clearing your cache should remove any obsolete files. For more information about this release, see the product documentation page for [SAS Studio](#).

**Integration with the SAS Viya Platform**

SAS Studio 3.7 provides tighter integration with SAS Viya. SAS/CONNECT is no longer required to connect to the SAS Viya platform. As a result of this change, some code snippets and tasks that were available in SAS Studio 3.6 have been revised or removed.

Here are the specific changes:

- In SAS Studio 3.6, the snippets in the SAS Viya Cloud Analytic Services group used SAS/CONNECT to connect to the SAS Viya platform. Because this is not a requirement in SAS Studio 3.7, all of the snippets in this group have been revised.

SAS Studio 3.7 includes additional snippets for SAS Viya. These new snippets are available in the SAS Viya Cloud Analytic Services, SAS Viya Machine Learning, and SAS Viya Image Processing groups.

- SAS Studio 3.6 included a group of tasks called SAS Viya Machine Learning. The tasks in this group were Connect to SAS Viya, Factorization Machine, Forest, Gradient Boosting, Neural Network, and Support Vector Machine. The SAS Viya Machine Learning group has been removed from SAS Studio 3.7.

SAS Studio 3.7 adds new SAS Viya tasks organized into these groups:

- SAS Viya Prepare and Explore
- SAS Viya Unsupervised Learning
- SAS Viya Supervised Learning

- SAS Viya Evaluate and Implement
- SAS Viya Network Analysis and Optimization
- SAS Viya Econometrics

*Note:* Included in your SAS 9.4 M5 order are procedures that enable you to take advantage of additional functionality that is provided by SAS Viya. However, to run these procedures and SAS Studio tasks, you must have a SAS Viya license for the appropriate products:

- SAS Econometrics Procedures
- SAS Machine Learning Procedures
- SAS Visual Statistics Procedures

*Note:* To run the SAS Viya Optimization tasks, you must license and install SAS/OR and have a license for SAS Optimization procedures on the SAS Viya platform.

### **Redesigned Graph Tasks**

In SAS Studio 3.7, all of the graph tasks (Bar Chart, Scatter Plot, Pie Chart, and so on) have been redesigned and rewritten. You can continue to use the graph tasks from previous releases if you saved those tasks in a folder or repository that you can access in SAS Studio 3.7.

### **Changes to SAS Studio Macros**

In this release, the following changes were made to the SAS Studio macros:

- `_CLIENTAPPVERSION` was changed to `_CLIENTVERSION`.
- `CLIENTMACHINE` was changed to `_CLIENTMACHINE`.
- SAS Studio now sets `_SASHOSTNAME`, `SASWORKLOCATION`, and `_CLIENTAPPABREV`.

## **SAS Studio 3.71: December 2017**


SAS Studio 3.71 shipped in December 2017. Before you upgrade to a new release of SAS Studio, clear the cache for your web browser. Clearing your cache should remove any obsolete files.

## **SAS Studio 3.8: November 2018**

SAS Studio 3.8 shipped in November 2018. Before you upgrade to a new release of SAS Studio, clear the cache for your web browser. Clearing your cache should remove any obsolete files.

When you upgrade to SAS Studio 3.8, the table preference for the SAS Variable Name policy is set to the default value of **ANY**. If you need to use another value at your site, specify the default value using the `webdms.defaultVVN` configuration property.

This value can also be changed within a user's SAS Studio session. To set the **SAS variable name policy** option, complete these steps:

1. In SAS Studio, click  and select **Preferences**. The Preferences window opens.
2. In the selection pane, click **Tables**. The Tables panel opens.

3. Under the **Policies** heading, specify the value for the **SAS variable name policy** option.
4. Click **Save**.

Also, in SAS Studio 3.8, FTP support is off by default. Administrators can turn this functionality on using the new `webdms.allowFTPshortcuts` configuration property.

Starting in SAS Studio 3.8, any filters that you create are not saved with the data set. When you reopen a data set, the filter is not available.

For more information about this release, see the product documentation page for [SAS Studio](#).

### **SAS Studio 3.81: August 2020**

SAS Studio 3.81 shipped in August 2020 and runs on SAS 9.4M7 and later releases. When you upgrade to SAS Studio 3.81, the table preference for the SAS Variable Name policy is set to the default value of **ANY**. For more formation, see “[SAS Studio 3.8: November 2018](#)” on page 381.

### **SAS Studio 3.82: January 2023**

SAS Studio 3.82 shipped in January 2023 and runs on SAS 9.4M8.

## Chapter 97

## SAS Task Manager

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## Determining Your Update Path for SAS Task Manager

### Upgrading an Existing SAS 9.4 Deployment

*Note:* SAS Task Manager is part of SAS MDM, which retired in SAS 9.4M7. For more information, see “[SAS 9.4M7 Retired Product: SAS MDM](#)” on page 322.

SAS Task Manager 2.1, 2.2, and 2.4 run on SAS 9.4.

<b>Current Release at Your Site</b> (SAS Release)	<b>Release That You Are Upgrading To</b> (SAS Release)	<b>High-Level Steps and Resources</b>
2.1, 2.1M1, 2.2 (SAS 9.4)	2.4 (SAS 9.4)	For more information about this release, contact your SAS account representative.

---

### Migrating to SAS 9.4

SAS Task Manager 2.1 is a new product that runs on SAS 9.4.

<b>Current Release at Your Site</b> (SAS Release)	<b>Release That You Are Migrating To</b> (SAS Release)	<b>High-Level Steps and Resources</b>
2.1, 2.1M1, 2.2 (SAS 9.4)	2.4 (SAS 9.4)	To migrate to SAS Task Manager 2.4, see <i>SAS MDM: Administrator's Guide</i> .

---

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
2.4 (SAS 9.4)	2.4 (SAS 9.4)	To migrate within the same release, see <i>SAS MDM: Administrator's Guide</i> .

---

## About SAS Task Manager

SAS shipped these releases of SAS Task Manager:

- SAS Task Manager 2.1M1 shipped in April 2014
- SAS Task Manager 2.2 shipped in March 2015
- SAS Task Manager 2.4 shipped in June 2019

Starting with this release, the user interface has been rewritten in HTML5.

Previously, many SAS applications and SAS solutions used the Adobe Flash Player to provide interactive user interfaces. Adobe has announced that it intends to end support for Flash technology and will stop updating and distributing the Flash Player at the end of 2020. Browser vendors will disable Flash by default in 2019. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

- The **Search** and **Filter** options are now located on the left side of the window.
- The **Task Details** and **Task Data** tabs are now located on the right side of the window.

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS Task Manager](#).

## Chapter 98

## SAS Text Miner

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## Determining Your Update Path for SAS Text Miner

### Upgrading an Existing SAS 9.4 Deployment

SAS Text Miner 12.3, 13.1, 13.2, 14.1, 14.2, 14.3, 15.1, 15.2, and 15.3 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5); 15.1 (SAS 9.4M6); 15.2 (SAS 9.4M7)	15.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“About SAS Text Miner” on page 386</a>.</li> <li>2. When you install and configure SAS Enterprise Miner, you can also install and configure SAS Text Miner. For more information, see <i>SAS Enterprise Miner: Administration and Configuration Guide</i>.</li> </ol>

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## Migrating to SAS 9.4

To run SAS Text Miner 12.3, 13.1, 13.2, 14.1, 14.2, 14.3, 15.1, 15.2, or 15.3, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
12.1, 12.1M1 (SAS 9.3) 5.1M1 (SAS 9.3)	12.3 (SAS 9.4) 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6); 15.2 (SAS 9.4M7); 15.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you migrate, see <a href="#">“About SAS Text Miner” on page 386</a>.</li> <li>2. When you install and configure SAS Enterprise Miner, you can also install and configure SAS Text Miner. For more information, see <i>SAS Enterprise Miner: Administration and Configuration Guide</i>.</li> </ol>
12.3 (SAS 9.4), 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6)	12.3 (SAS 9.4) 13.1 (SAS 9.4M1), 13.2 (SAS 9.4M2), 14.1 (SAS 9.4M3), 14.2 (SAS 9.4M4), 14.3 (SAS 9.4M5), 15.1 (SAS 9.4M6); 15.2 (SAS 9.4M7); 15.3 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you migrate, see <a href="#">“About SAS Text Miner” on page 386</a>.</li> <li>2. To migrate within the same SAS release, see <i>SAS Enterprise Miner: Administration and Configuration Guide</i>.</li> </ol>
15.3 (SAS 9.4M8)	15.3 (SAS 9.4M8)	To migrate within the same release, see <i>SAS Enterprise Miner: Administration and Configuration Guide</i> .

## About SAS Text Miner

SAS has shipped these releases of SAS Text Miner:

- SAS Text Miner 12.3.

If you are upgrading from a previous release of SAS Text Miner, note these changes:

- SAS Document Conversion Server is automatically installed when you upgrade SAS Text Miner.



- Beginning with SAS Text Miner 12.1, SAS consolidated the version numbers for the main analytical products. Before the consolidation, the most recent version number for SAS Text Miner was 5.1.
- Beginning with SAS Text Miner 5.1, the **Text Miner** node that was available in previous releases of SAS Text Miner was replaced by the functionality in other SAS Text Miner nodes. Also, the DOCPARSE procedure was replaced by the TGPARSE procedure. If you currently use the DOCPARSE procedure, modify your code to use the TGPARSE procedure.
- SAS Text Miner 13.1 shipped in December 2013
- SAS Text Miner 13.2 shipped in August 2014.
- SAS Text Miner 14.1 shipped in July 2015.

If you are upgrading from a previous release of SAS Text Miner, note these changes:

- A new HPBOOLRULE procedure replaces macros in the **Text Rule Builder** node. For more information about the benefits of running the **Text Rule Builder** node with the HPBOOLRULE procedure and how you can specify to run the **Text Rule Builder** node as it functioned prior to SAS Text Miner 14.1, see the documentation for SAS Text Miner.
- The TGPARSE procedure has been replaced with the HPTMINE procedure in the **Text Parsing** node when the parsing language is Chinese, Dutch, English, Finnish, French, German, Italian, Japanese, Korean, Portuguese, Russian, Spanish, or Turkish. For these languages, parsing is now multithreaded. The TGPARSE procedure continues to be called when the parsing language is Arabic, Czech, Danish, Greek, Hebrew, Hungarian, Indonesian, Norwegian, Polish, Romanian, Slovak, Swedish, Thai, or Vietnamese.
- SAS Text Miner 14.2 shipped in November 2016.
- SAS Text Miner 14.3 shipped in September 2017.
- SAS Text Miner 15.1 shipped in November 2018.
- SAS Text Miner 15.2 shipped in August 2020.
- SAS Text Miner 15.3 shipped in January 2023.

For more information about the new features and enhancements in SAS Text Miner, see the software product page for [SAS Text Miner](#).



## Chapter 99

## SAS Visual Analytics

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## Determining Your Update Path for SAS Visual Analytics

### Upgrading Your Existing SAS 9.4 Deployment

SAS Visual Analytics 6.2, 6.3, 6.4, 7.1, 7.2, 7.3, and 7.5 run on SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Upgrading To (SAS Release)	High-Level Steps and Resources
6.2 (SAS 9.4); 6.3 (SAS 9.4M1); 6.4 (SAS 9.4M1 and SAS 9.4M2); 7.1, 7.2 (SAS 9.4M2); 7.3 (SAS 9.4M3); 7.4 (SAS 9.4M4)	7.5 (SAS 9.4M6); 7.51 (SAS 9.4M7); 7.52 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see “SAS Visual Analytics 6.3” on page 392, “SAS Visual Analytics 6.4” on page 394, “SAS Visual Analytics 7.1” on page 394, “SAS Visual Analytics 7.2” on page 396, “SAS Visual Analytics 7.3” on page 398, “SAS Visual Analytics 7.4” on page 399, and “SAS Visual Analytics 7.5” on page 399.</li> <li>2. To upgrade to the latest release of SAS Visual Analytics, see <i>SAS Visual Analytics: Installation and Configuration Guide</i>.</li> </ol>
6.3 (SAS 9.4M1)	6.4 (SAS 9.4M1 and SAS 9.4M2); 7.1, 7.2 (SAS 9.4M2); 7.3 (SAS 9.4M3); 7.4 (SAS 9.4M4); 7.5 (SAS 9.4M6); 7.51 (SAS 9.4M7); 7.52 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see “SAS Visual Analytics 6.4” on page 394, “SAS Visual Analytics 7.1” on page 394, “SAS Visual Analytics 7.2” on page 396, “SAS Visual Analytics 7.3” on page 398, and “SAS Visual Analytics 7.4” on page 399 (if appropriate).</li> <li>2. To upgrade to the latest release of SAS Visual Analytics, see <i>SAS Visual Analytics: Installation and Configuration Guide</i>.</li> </ol>

## Migrating to SAS 9.4

To run SAS Visual Analytics 6.2, 6.3, 6.4, 7.1, 7.2, 7.3, 7.4, or 7.5, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
6.2 (SAS 9.4); 6.3 (SAS 9.4M1); 6.4 (SAS 9.4M1 and SAS 9.4M2); 7.1, 7.2 (SAS 9.4M2); 7.3 (SAS 9.4M3); 7.4 (SAS 9.4M4)	7.5 (SAS 9.4M6); 7.51 (SAS 9.4M7); 7.52 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>Before you upgrade, see “SAS Visual Analytics 6.4” on page 394, “SAS Visual Analytics 7.1” on page 394, “SAS Visual Analytics 7.2” on page 396, “SAS Visual Analytics 7.3” on page 398, and “SAS Visual Analytics 7.4” on page 399 (if appropriate).</li> <li>To migrate or create a new deployment, see <i>SAS Visual Analytics: Installation and Configuration Guide</i>.</li> </ol>
7.52 (SAS 9.4M8)	7.52 (SAS 9.4M8)	To migrate within the same release, see <i>SAS Visual Analytics: Installation and Configuration Guide</i> .

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## SAS Visual Analytics 6.2

### New Default Application Theme

In earlier releases of SAS Visual Analytics, the default application theme was called Blue Steel. Beginning with SAS Visual Analytics 6.2, the default application theme is called Corporate.

### SAS Visual Analytics Designer

- In earlier releases of SAS Visual Analytics, reports that were created in SAS Visual Analytics Designer automatically had a dark report theme. Beginning with SAS Visual Analytics 6.2, users can select the SAS Light or SAS Dark report theme. Any reports that were created in SAS Visual Analytics 6.1 retain the dark report theme. The new report themes have some differences from the previous releases. For example, table and graph titles are no longer bold, and the thickness of some lines has increased.
- Beginning with SAS Visual Analytics 6.2, lists of data items in SAS Visual Analytics Designer are sorted based on the data set locale. For example, if you view Chinese data in a browser with an English locale, the data items are sorted based on the data set’s Chinese locale.
- Beginning with SAS Visual Analytics 6.2, two map report objects are available in SAS Visual Analytics Designer. The report object known as a geo map in previous releases is now called a geo bubble map. The name was changed to distinguish it from the new geo region map.

### **SAS Visual Analytics Viewer**

- When a report is opened, it is fully expanded. The right pane, which contains the Comments and Properties tabs, is collapsed and section tabs are not displayed. The right pane can be expanded, and an icon is available for accessing navigation between sections.
- In previous releases of SAS Visual Analytics, reports in SAS Visual Analytics Viewer automatically had a dark report theme. Beginning with SAS Visual Analytics 6.2, users can select the SAS Light or SAS Dark report theme. Any reports that were created in SAS Visual Analytics 6.1 retain the dark report theme. The new report themes have some differences from the previous releases. For example, table and graph titles are no longer bold, and the thickness of some lines has increased.

### **Adjustments to the Security Model**

Certain aspects of the security model (relating to metadata-layer permissions, capabilities, and signature files) have been refined. For more information, see *SAS Visual Analytics: Administration Guide*.

### **Increased Constraints on Table Names**

Restrictions on table names have increased. For more information, see *SAS Visual Analytics: Administration Guide*.

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## **SAS Visual Analytics 6.3**

### **SAS High-Performance Analytics Infrastructure 2.4**

Some new features in SAS Visual Analytics 6.3 require that you upgrade to SAS High-Performance Analytics Infrastructure 2.4. For more information, see *SAS High-Performance Analytics Infrastructure: Installation and Configuration Guide*. Also, see *SAS Visual Analytics: Administration Guide* for information about how to reconfigure the LASR Analytic Servers.

### **SAS Visual Analytics Home Page**

Guest access does not provide individualized features on the home page, such as history or preferences.

### **SAS Visual Analytics Designer**

Beginning with SAS Visual Analytics 6.3, pie charts do not include slices with a missing value or a zero.

### **SAS Visual Data Builder**

Some functionality that was added to SAS Foundation is not automatically applied when you upgrade from SAS Visual Analytics 6.2 to 6.3.

*Note:* These steps are not required if you are migrating to SAS Visual Analytics 6.3. They are required only if you are upgrading the software in place.

To complete your upgrade, perform these steps on any tier where a SAS Application Server (with a SAS Workspace Server) is installed:

1. Stop all SAS processes.
2. Restart the SAS Deployment Wizard.
3. Select the **Install SAS Foundation and Related Software** option.
4. From the list of products, select the **SAS Foundation** check box.
5. Select the **Advanced Programming for SAS LASR Analytic Server** check box.
6. Complete your installation.

*Note:* If you need to click **Retry** when using the SAS Deployment Manager, you might see this error message: Failed to update service database: VDBService. You can ignore this error. It is generated because the SAS Deployment Manager attempts to modify a configuration table a second time.

### **SAS Visual Analytics Viewer**

- Report authors can disable object selection, so you might not be able to select some report objects.
- If you are using guest access, some features such as comments, alerts, and the banner are not available.

### **Adjustments to the Security Model**

The standard membership structure has changed. Every registered user should be explicitly assigned to at least one metadata group. In the new standard structure, membership in the SASUSERS implicit group no longer provides access to exploration and design functionality. Instead, a new group, Visual Analytics Users, provides access to that functionality. For more information, see *SAS Visual Analytics: Administration Guide*.

In the metadata, requirements for the Delete permission are replaced by requirements for the Write permission.

### **Changes in SAS Visual Analytics Administrator**

Actions that were previously displayed directly on the menu bar are now within the **LASR** menu and the **Tools** menu.

Some of the icons for loading data have changed.

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## SAS Visual Analytics 6.4

### **SAS High-Performance Analytics Infrastructure 2.5**

Some new features in SAS Visual Analytics 6.4 require that you upgrade to SAS High-Performance Analytics Infrastructure 2.5. For more information, see *SAS High-Performance Analytics Infrastructure: Installation and Configuration Guide*. Also, see *SAS Visual Analytics: Administration Guide* for information about how to reconfigure the LASR Analytic Servers.

### **Changes to Importing Data**

- In SAS Visual Analytics 6.3, you could import data from files and servers only with SAS Visual Data Builder. Starting in SAS Visual Analytics 6.4, the variety of data sources that you can import has increased, and self-service import functionality is available in SAS Visual Analytics Explorer and SAS Visual Analytics Designer as well.
- In SAS Visual Analytics 6.3 when you imported tweets from Twitter, you had to register an application with Twitter. Starting in SAS Visual Analytics 6.4, you no longer need to perform this registration. Instead, you are routed to the Twitter website to log on to your Twitter account and authorize SAS Visual Analytics.

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## SAS Visual Analytics 7.1

### **SAS Visual Analytics Administration and Reporting**

Starting in October 2014 (SAS 9.4, Rev. 940\_14w41), SAS ships SAS Visual Analytics Administration and Reporting with some SAS solution software orders.

SAS Visual Analytics Administration and Reporting is a component piece included in many SAS 9.4 solutions and technology packages to provide enhanced reporting and printing capabilities. Administration and reporting is supported on Linux and Windows machines only. If you have a hardware constraint, you can delay your deployment of the administration and reporting portion of your order until later. For more information, see “Add SAS Visual Analytics Administration and Reporting” in *SAS Intelligence Platform: Installation and Configuration Guide*.

### **Alert Notification Preferences for SAS Visual Analytics Designer and SAS Visual Analytics Viewer**

In SAS Visual Analytics 6.4, two preferences (**Send email messages** and **Send SMS text messages**) were available for alert notifications. Starting in SAS Visual Analytics 7.1, a new **Use the system default for alert notifications** preference has been added. (The **Use the system default for alert notifications** option uses the defaults that are set by an administrator in the SAS Preferences Manager product.) If you selected the **Send email messages** or the **Send SMS text messages** preference in the 6.4 release, then the



new 7.1 preference overrides that preference. You have to reset your preference or you will not receive alert notifications from the designer or the viewer.


## SAS Visual Analytics Home Page

In SAS Visual Analytics 6.4 and earlier, you could set a preference for **Show this number of recent items** between one and 16 items. The default was nine items. Starting in SAS Visual Analytics 7.1, the range for recent items is a minimum of zero and a maximum of 25 items. The default is 10 items.

## SAS Visual Analytics Designer

- In SAS Visual Analytics 6.4, the **Subscription and Notification** tab on the Add Alert window had a Send email to the subscribers option. Starting in SAS Visual Analytics 7.1, this option is called **Send notifications to the subscribers** because users can now specify a preference for how alert notifications are sent from both the designer and the viewer. Email and SMS text messages are options for alert notifications.
- In SAS Visual Analytics 6.4 and earlier, the **Enable selection in the viewers** check box on the **Properties** tab for a stored process was not selected by default. Starting in SAS Visual Analytics 7.1, this check box is selected by default for all stored processes that are added to new reports. This change does not affect existing stored processes in a report.
- In SAS Visual Analytics 6.4 and earlier, the bullet, slider, thermometer, dial, and speedometer gauges were displayed individually under the **Gauges** heading on the **Objects** tab in SAS Visual Analytics Designer. Starting in SAS Visual Analytics 7.1, there is a single **Gauge** report object listed under the **Other** heading on the **Objects** tab. After you drag and drop the **Gauge** report object onto the report canvas, you can use the **Type** property on the **Properties** tab to specify that you want a bullet, slider, thermometer, dial, or speedometer gauge to be displayed in a report.
- Starting in SAS Visual Analytics Designer 7.1, use the Add Recipients window to select the users that you want to email a report to. In previous releases of SAS Visual Analytics, the name of this window was Add Identities.
- In SAS Visual Analytics Designer 6.3 and 6.4, you could not select bubbles, bars, pie slices, and lines in an animated graph. Starting in the 7.1 release, you can select bubbles, bars, pie slices, and lines in an animated graph. The interaction filter is based on the category value (or values) and the selected frame in the animation.

## Changes in Administration

- On the **LASR Tables** and **LASR Servers** tabs:
  - Most of the tab toolbar icons affect only those objects that have a selected (checked) check box.
  - Clicking on the cell next to a check box changes the check box's state.
  - The icon for the **Get Status** action is .
- The Administer permission affects the ability to set a server's tables limit in the administrator. (The ReadMetadata and WriteMetadata permissions are also required.)
- The VA.EP.Capable.\* extended attributes no longer have any effect. (In the 6.4 release, these extended attributes were used by administrators to explicitly specify

whether to attempt parallel loads. In the current release, explicit specification is replaced by automatic detection.)

- SAS Mobile BI 7.1 has a new user interface. The new interface does not include a banner. For this reason, support for the configuration properties that customize the banner in the native mobile viewers is discontinued.
- From SAS Office Analytics 7.1, authentication to SAS Visual Analytics no longer uses SAS Visual Analytics Transport Service. For this reason, actions and information on the **Mobile Devices** tab in the administrator have no impact on SAS Enterprise Guide, SAS Add-in for Microsoft Office, and SAS Web Parts for SharePoint.
- The log4j configuration files for the explorer, designer, and web viewer are modified as follows:
  - Each record in the generated logs includes the application name and identifies the connected user.
  - An APM (SAS Audit, Performance, and Measurement package) log4j configuration file is provided for future use with SAS Environment Manager. Do not modify the log4j configuration files that have an `_apm` suffix.
  - For the SAS\_LASR\_COMMANDS\_FILE appender, generated log files include **LASRActions** in their filenames, and loggers are based on a daily rolling file appender.
- The following predefined directory name no longer includes a version number: **SAS-configuration-directory/Applications/VisualAnalytics**.

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## SAS Visual Analytics 7.2

### *SAS Visual Analytics Home Page*

- In SAS Visual Analytics 7.1 and earlier, there was only one appearance of the home page. Starting in SAS Visual Analytics 7.2, there is a new preference for the default appearance of the home page, which is set to **Administrator default**. There are two appearance choices for users: Modern and Classic . (Classic has the same appearance as the home page in SAS Visual Analytics 7.1 and earlier.)


*Note:* The Modern appearance does not support right-to-left (RTL) languages. To force the use of the appearance that supports RTL languages, specify a value of **classic** for the configuration property `home.ui.mode`. The property is on the **Visual Analytics Hub** node in the Configuration Manager in SAS Management Console. For more information, see the *SAS Intelligence Platform: Web Application Administration Guide*.

- In SAS Visual Analytics 7.1 and earlier, there was an **Other Content** area that displayed lists of explorations, reports, stored processes, stored process reports, queries, or tables that someone with the Visual Analytics: Administration role had added for users. Starting in SAS Visual Analytics 7.2, there is no longer an **Other Content** area. If your site had an **Other Content** area, that area upgrades to a published collection. The published collection is displayed as a collection tile on the home page with the Modern appearance, and as a folder under the **My Content** heading on the home page with the Classic appearance.

## SAS Visual Analytics Administration

- In the metadata layer, the Read permission is enforced for interactions with an encrypted SASHDAT library.

*Note:* In order to support encryption of SASHDAT, you must apply the SAS Intelligence Platform 9.4m2f and the SAS Visual Analytics 7.2 hot fixes. After the hot fixes are applied, you must re-add the Hadoop Server and the SAS Data in HDFS Library resource templates in SAS Management Console. For more information, see *SAS Visual Analytics: Installation and Configuration Guide (Distributed SAS LASR)*.

- On the **LASR Tables** and **LASR Servers** tabs, some columns are initially hidden. To show or hide a column, right-click on any column heading, and then select the column.
- The **LASR Tables** tab does not include a Compression column. In the Status column,  indicates a compressed table. To view the original size of a compressed table, place your pointer over the table's Size cell.
- Initially, the Folders pane is collapsed. To access the Folders pane, select **View** ⇒ **Folders** from the main menu.
- In a new deployment that offers guest access, the property App.AllowGuest is set on individual software components, rather than at the suite level.
- The Build Analytical Model capability in SAS Visual Statistics is in the Visual Analytics Explorer category.
- The SAS Visual Statistics high-cardinality properties have names that begin with vae.modeling.
- The home page is independent from the SAS Visual Analytics suite.
  - The property vah.client.ui.mode is replaced by a new home page property, home.ui.mode.
  - The property va.supportSharedThumbnails must be managed on two separate nodes: **Visual Analytics Hub** and **Visual Analytics**.
  - Capabilities for using the home page are in the Visual Analytics Hub category, which is parallel to the Visual Analytics category.
  - The Visual Analytics Data Administrators group is a member of the new Home:Administration role.
  - The home page's software component (Visual Analytics Hub) is a direct child of SAS Application Infrastructure.
  - A new property, home.exclude.capability.users, blocks home page modification by anonymous users.
  - A new property, home.allow.anonymous.user.personalization, temporarily unblocks home page modification by anonymous users.
  - Home page administration is documented in *SAS Intelligence Platform: Web Application Administration Guide*.

### **SAS Visual Analytics Viewer**

- In SAS Visual Analytics 7.1 and earlier, there was only one appearance for the viewer. Starting in SAS Visual Analytics 7.2, there is a new preference for the default appearance of the viewer, which is set to **Administrator default**. There are two appearance choices for users: modern (preproduction) and classic. (Classic has the same appearance as the viewer in SAS Visual Analytics 7.1 and earlier.)

*Note:* For the viewer, the modern appearance is preproduction in SAS Visual Analytics 7.2.

- In SAS Visual Analytics 7.1 and earlier (and in the classic appearance), you can click a prompt icon to display the prompt dialog box for a prompted stored process. You can use the prompt dialog box to change prompt values for the stored process and to re-execute the stored process. In the modern appearance in SAS Visual Analytics 7.2, stored processes are executed with their default prompt values and those values cannot be changed in the viewer.

### **SAS Visual Statistics**

In SAS Visual Analytics 7.2, the features of SAS Visual Statistics have been integrated into the user interface for SAS Visual Analytics Explorer. If SAS Visual Statistics is licensed at your site, then the data modeling features are available.

## **SAS Visual Analytics 7.3**

### **SAS Visual Analytics Administration**

- Management of audit data is simplified.
  - In the SAS Web Infrastructure Platform's SharedServices database, predefined archive rules cause audit records that are older than 30 days to be archived.
  - You can start a scheduled task that periodically purges records from the full AUDIT\_VISUALANALYTICS table in the autoloading drop zone for administrative data.
- If the `vav.ui.mode` property is not specified, the web viewer uses the modern presentation mode, unless a user selects the classic presentation mode (by using the setting or preference for the web viewer's **Default Appearance**) or uses a web browser that does not support the modern presentation mode.
- Access to external geo map servers is subject to cross-domain proxy constraints.

### **SAS Visual Analytics Viewer**

In SAS Visual Analytics 7.2, the modern appearance of the SAS Visual Analytics Viewer was preproduction. In SAS Visual Analytics 7.3, the modern appearance is production.

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## SAS Visual Analytics 7.4

### ***SAS Visual Data Builder***

Starting in the 7.4 release, importing data from Teradata no longer requires a user name and password.

### ***SAS Visual Analytics Designer***

SAS Visual Analytics 7.4 shipped in April 2017 and supports SAS 9.4M4.

Here are some changes for SAS Visual Analytics Designer in this release:

- In SAS Visual Analytics Designer 7.3 and earlier, all time-based calculations reset to zero automatically on January 1. Starting in the 7.4 release, you can specify a reset-to-zero offset for time-based calculations, which enables you to adjust for a fiscal calendar or another calendar that does not start on January 1.
- In SAS Visual Analytics Designer 7.3 and earlier, all parameters were limited to a single value, and could use only character or numeric data. Starting in the 7.4 release, parameters can have multiple values, and parameters can be based on dates.

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## SAS Visual Analytics 7.5

SAS Visual Analytics 7.5 shipped in May 2019 and supports SAS 9.4M6 and later releases. SAS Visual Analytics 7.51 shipped in August 2020 and supports SAS 9.4M7 and later releases. SAS Visual Analytics 7.52 shipped in January 2023 and supports SAS 9.4M8 and later releases.

The user interface has been rewritten in HTML5. Previously, many SAS applications and SAS solutions used the Adobe Flash Player to provide interactive user interfaces. Adobe has announced that it intends to end support for Flash technology and will stop updating and distributing the Flash Player at the end of 2020. Browser vendors will disable Flash by default in 2019. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

Here are some differences between SAS Visual Analytics 7.4 and 7.5:

- The SAS Visual Analytics Explorer (the explorer) and SAS Visual Analytics Designer (the designer) interfaces have been combined into a single HTML5 interface. There is no longer a choice of application presentation mode (classic or modern).
- Explorations and report objects have been merged into a single object type, SAS report (2G).
- The detail tables behind the analytics that were available in the explorer are available in a new maximize mode, which enables you to see detailed information about any object. This feature is especially useful for analytical models.
- SAS Mobile BI is now SAS Visual Analytics App.

- SAS SDK for iOS and SAS SDK for Android are available from [developer.sas.com](http://developer.sas.com) to enable customers to create custom mobile apps that embed SAS Visual Analytics content.
- The Microsoft Internet Explorer browser was supported for the 7.4 and earlier releases. However, it is not a supported browser for the SAS Visual Analytics 7.5 release.
- The Sankey diagram is now referred to as the path analysis object. In the path analysis object, path weights are aggregated differently from how they were aggregated in the SAS Visual Analytics 7.4 Sankey diagram. The values for each path are summarized before the path weight values are aggregated for each link.
- The network diagram is now referred to as the network analysis object. In the network analysis object, the node layout algorithm has changed and the positions of your nodes might be different. Custom node layouts from reports that were created in previous releases are not migrated.
- Alerts for report objects are now an option in the **Display Rules** pane.
- Importing content from another report was supported for the 7.4 and earlier releases. However, it is not supported for the 7.5 release.
- Functionality that was previously in SAS Visual Analytics Administrator is now incorporated in SAS Environment Manager Administration. For more information, see “What’s New in Administration of SAS Visual Analytics” in *SAS Visual Analytics: Administration Guide*.
- In the unusual circumstance in which a Windows compute tier accesses a distributed LASR server that uses co-located HDFS, additional configuration is required in order to support the **HDFS** tab in SAS Environment Manager Administration. For more information, see “Instructions for a Compute Tier on Windows” in *SAS Visual Analytics: Installation and Configuration Guide (Distributed SAS LASR)*.
- Here are some differences between SAS Visual Data Builder 7.4 and 7.5:
  - The query interface has changed:
    - The query **Design** tab in 7.4 has been replaced with the data query tab.
    - Output columns are maintained on the **Select** tab in the **Filter Groups** interface.
    - You cannot select multiple output columns for editing in the **Columns** interface.
    - **HAVING** clauses for a query are maintained on the **Select** tab in the **Filter Groups** interface.
    - Logs and messages for query processing are combined on a single tab.
  - The scheduling interface for queries has changed:
    - The Scheduling window no longer supports file-based triggers. You can no longer schedule a query to run when conditions are met for a file.
    - The **Run Now** option in 7.4 is now called **Run in Batch**.
    - In 7.4, you could specify multiple start times for a scheduled query. In 7.5, you can specify only one start time for a scheduled query.
  - The BigInsights and Pivotal HAWQ distributions for Hadoop are no longer supported.
  - In 7.5, you cannot drag libraries, functions, tables, or columns to an expression in the expression builder.

- In 7.5, you cannot run append before saving the append tables metadata.
- In 7.4, if you selected a library other than LASR as the output library, the **Create SQL Query View** check box in the query **Properties** pane was automatically deselected. In 7.5, the **Create SQL Query View** check box is not automatically deselected. If you do not want the query to create an SQL view, deselect the **Create SQL Query View** check box in the query **Properties** pane.

You cannot directly migrate content from an earlier release of SAS Visual Statistics (such as 6.4 or 7.1) to SAS Visual Analytics 7.5. First, you must upgrade to SAS Visual Analytics Explorer to 7.2, 7.3, or 7.4. Upgrading to SAS Visual Analytics Explorer converts SAS Visual Statistics content to SAS Visual Analytics exploration. Then you can upgrade the explorations to SAS Visual Analytics 7.5.





## Chapter 100

# SAS Visual Process Orchestration

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## Determining Your Update Path for SAS Visual Process Orchestration

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Visual Process Orchestration 2.1 and 2.2 run on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
2.1 (SAS 9.4)	2.2 (SAS 9.4)	For more information about this release, contact your SAS account representative.

### *Migrating to SAS 9.4*

SAS Visual Process Orchestration 2.1 is a new product that runs on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Migrating To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
2.1 (SAS 9.4)	2.2 (SAS 9.4)	To migrate to SAS Visual Process Orchestration 2.2, see <i>SAS MDM: Administrator's Guide</i> .

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
2.2 (SAS 9.4)	2.2 (SAS 9.4)	To migrate within the same release, see <i>SAS MDM: Administrator's Guide</i> .

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## SAS Visual Process Orchestration 2.2

SAS Visual Process Orchestration 2.2 shipped in March 2015. For more information, see the product documentation page for [SAS Visual Process Orchestration](#).

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## Support for SAS Visual Process Orchestration

### **SAS 9.4M7 Retired Product: SAS Visual Process Orchestration**

Starting in SAS 9.4M7 (August 2020), SAS Visual Process Orchestration (which uses Adobe Flash) is a retired product. For more information about Adobe Flash end-of-life, see [SAS Software and Its Use of the Adobe Flash Player](#).

SAS Visual Process Orchestration on SAS 9.4M6 is the last release of the product. If you order SAS 9.4M7, SAS Visual Process Orchestration is not included in that order.

### **How to Unconfigure and Uninstall SAS Visual Process Orchestration**

*Note:* If you are upgrading to the August 2020 release of SAS 9.4M7 or earlier, *before* you unconfigure and uninstall any SAS Data Management products, contact SAS Technical Support to assess your site's situation and provide further instructions.

If you are upgrading to the September 2020 release of SAS 9.4M7 or later, complete these steps:

1. Before you upgrade, unconfigure any retired SAS Data Management products by using the Remove Existing Configuration task in SAS Deployment Manager.
2. Upgrade to SAS 9.4M7.
3. After you unconfigure and upgrade, use the Uninstall Earlier SAS Products task in SAS Deployment Manager to uninstall the retired SAS Data Management products.
4. If you are running on Windows, the uninstall process is complete.

If you are running on UNIX, complete these additional steps:

- a. Stop the object spawner so that any SAS Visual Process Orchestration design-time servers are stopped.

```
SAS-configuration-directory/Lev1/ObjectSpawner.sh stop
```

- b. Remove the SAS Visual Process Orchestration design-time and run-time servers from the file system.

```
rm -rf <SASHome>/SASVisualProcessOrchestrationServer
```

- c. Restart the object spawner so that any spawner-launched servers are available again.

```
SAS-configuration-directory/Lev1/ObjectSpawner.sh start
```



## Chapter 101

# SAS Visual Scenario Designer

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---

## Determining Your Update Path for SAS Visual Scenario Designer

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Visual Scenario Designer is a new product in SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
6.2, 6.2M2 (SAS 9.4)	6.3 (SAS 9.4)	For more information about how to request this new release and the features that are available, contact your SAS account representative.

---

### *Migrating to SAS 9.4*

SAS Visual Scenario Designer is a new product in SAS 9.4.

---

## About SAS Visual Scenario Designer

SAS shipped these releases of SAS Visual Scenario Designer:

- SAS Visual Scenario Designer 6.2 in May 2014
- SAS Visual Scenario Designer 6.3 in January 2015

For more information about these releases, contact your SAS account representative and see the product documentation page for [SAS Visual Scenario Designer](#).

*Note:* The documentation for SAS Visual Scenario Designer is available only to customers who license this product.

---

## Support for SAS Visual Scenario Designer

### ***SAS Visual Scenario Designer Is Not Available in SAS 9.4M7***

SAS Visual Scenario Designer 6.3 on SAS 9.4M6 is the last release of the product. If you order SAS 9.4M7, SAS Visual Scenario Designer will not be included in that order.

### ***Steps for SAS 9.4.M7 Upgrades***

If you have SAS Visual Scenario Designer in your order and you plan to upgrade to SAS 9.4M7, unconfigure and uninstall SAS Visual Scenario Designer before upgrading or migrating to SAS 9.4M7.

- To uninstall SAS Software, see “Uninstall SAS Software (Graphical User Interface Tool)” in *SAS Deployment Wizard and SAS Deployment Manager 9.4: User’s Guide*.
- To uninstall the components of SAS Visual Scenario Designer, see your Order Manifest, which includes the product details (12-bytes) for the uninstall process.

If SAS Visual Scenario Designer is not removed before you upgrade or migrate to SAS 9.4M7, review the steps for upgrade in place or migration.

**Table 101.1** Results from Upgrade in Place or Migration

Task	Expectations	For More Information
Upgrade in Place	Your latest release of SAS Visual Scenario Designer from your source system will remain installed and configured on your target system. However, SAS Visual Scenario Designer is not operable on the target system.	To unconfigure and install the software, see <a href="#">“Unconfiguring and Uninstalling Retired Products”</a> on page 59.

---

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Migration	If SAS Visual Scenario Designer 6.3 is exported by the SAS Migration Utility and the Order/Install Depot includes SAS Visual Scenario 6.3, the SAS Migration Utility will bring artifacts of SAS Visual Scenario Designer from the source system to the target system. However, SAS Visual Scenario Designer is not operable on the target system.	For information about migration, see <a href="#">SAS Intelligence Platform: Migration Guide</a> .
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## Chapter 102

# SAS Web Parts for Microsoft SharePoint

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## Determining Your Update Path for SAS Web Parts for Microsoft SharePoint

### Upgrading an Existing SAS 9.4 Deployment

*Note:* Starting with SAS 9.4M8, SAS Web Parts for Microsoft SharePoint is a retired product. For more information, see [“SAS 9.4M8 Retired Product: SAS Web Parts for Microsoft SharePoint”](#) on page 412.

SAS Web Parts 6.1 for Microsoft SharePoint runs on SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Upgrading To (SAS Release)	High-Level Steps and Resources
6.1	6.11, 6.12, 6.13	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“About SAS Web Parts for Microsoft SharePoint”</a> on page 412.</li> <li>2. To upgrade to the latest release of SAS Web Parts for Microsoft SharePoint by using the SAS Deployment Wizard, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> </ol>
6.11, 6.12	6.12, 6.13	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“About SAS Web Parts for Microsoft SharePoint”</a> on page 412.</li> <li>2. To upgrade to the latest release of SAS Web Parts for Microsoft SharePoint by using the SAS Deployment Wizard, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> </ol>

---

## Migrating to SAS 9.4

To run SAS Web Parts 6.1 for Microsoft SharePoint, you must be running SAS 9.4.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
6.1 (SAS 9.4)	6.1 (SAS 9.4); 6.11 (SAS 9.4M1); 6.12 and 6.13 (SAS 9.4M2)	To migrate within the same release, see <a href="#">SAS Intelligence Platform: Installation and Configuration Guide</a>
6.12 (SAS 9.4M2)	6.12 and 6.13 (SAS 9.4M2)	

---

## About SAS Web Parts for Microsoft SharePoint

Beginning with the 6.11 release, you can upgrade your SAS Web Parts software in place if you manually install SAS Web Parts for Microsoft SharePoint. The **Install-SASWebParts** function and the **Enable-SASWebParts** function now support the **-Upgrade** parameter. If SAS Web Parts 6.1 for Microsoft SharePoint is installed and you want to upgrade to 6.11, use the **-Upgrade** parameter. When you upgrade, SAS automatically uninstalls the 6.1 release before installing the 6.11 release. If a default profile exists in the 6.1 release, this information remains intact during the upgrade.

For more information about these functions, see *SAS Web Parts for Microsoft SharePoint: Administrator's Guide*.

SAS also shipped these releases of SAS Web Parts for Microsoft SharePoint:

- SAS Web Parts 6.12 for Microsoft SharePoint in October 2014
- SAS Web Parts 6.13 for Microsoft SharePoint in May 2015

For more information, see the software product page for [SAS Web Parts for Microsoft SharePoint](#).

---

## SAS 9.4M8 Retired Product: SAS Web Parts for Microsoft SharePoint

Starting with SAS 9.4M8, SAS Web Parts for Microsoft SharePoint is a retired product. If you order SAS 9.4M8, SAS Web Parts for Microsoft SharePoint is not included in that order. 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”](#) on page 59.



## Chapter 103

## SAS Web Report Studio

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---

## Determining Your Update Path for SAS Web Report Studio

### *Upgrading an Existing SAS 9.4 Deployment*

SAS Web Report Studio 4.4 runs on SAS 9.4.

<b>Current Release at Your Site (SAS Release)</b>	<b>Release That You Are Upgrading To (SAS Release)</b>	<b>High-Level Steps and Resources</b>
4.4 (SAS 9.4)	4.4M1 (SAS 9.4M1), 4.4M2 (SAS 9.4M2), 4.4M3 (SAS 9.4M3), 4.4M4 (SAS 9.4M4), 4.4M5 (SAS 9.4M5), 4.4M6 (SAS 9.4M6), 4.4M7 (SAS 9.4M7), 4.4M8 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“SAS Web Report Studio 4.4”</a> on page 417.</li> <li>2. To upgrade to the latest release of SAS Web Report Studio 4.4, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> <li>3. To complete any post-configuration steps, see <a href="#">“Updating Favorites in Your Web Browser”</a> on page 418.</li> </ol>

---

Current Release at Your Site (SAS Release)	Release That You Are Upgrading To (SAS Release)	High-Level Steps and Resources
4.4M1 (SAS 9.4M1), 4.4M2 (SAS 9.4M2), 4.4M3 (SAS 9.4M3), 4.4M4 (SAS 9.4M4), 4.4M5 (SAS 9.4M5), 4.4M6 (SAS 9.4M6), 4.4M7 (SAS 9.4M7)	4.4M8 (SAS 9.4M8)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“SAS Web Report Studio 4.4”</a> on page 417.</li> <li>2. To upgrade to the latest release of SAS Web Report Studio 4.4, see <a href="#">“Install and Configure a Software Update”</a> on page 53.</li> <li>3. To complete any post-configuration steps, see <a href="#">“Updating Favorites in Your Web Browser”</a> on page 418.</li> </ol>

## Migrating to SAS 9.4

To run SAS Web Report Studio 4.4, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

Current Release at Your Site (SAS Release)	Release That You Are Migrating To (SAS Release)	High-Level Steps and Resources
4.31, 4.31M1, 4.31M2 (SAS 9.3)	4.4, 4.4M1, 4.4M2, 4.4M3, 4.4M4, 4.4M5, 4.4M6, 4.4M7, 4.4M8 (SAS 9.4)	<ol style="list-style-type: none"> <li>1. Before you upgrade, see <a href="#">“SAS Web Report Studio 4.3”</a> on page 417 and <a href="#">“SAS Web Report Studio 4.4”</a> on page 417.</li> <li>2. To migrate to the new release, see <i>SAS 9.4 Intelligence Platform: Migration Guide</i>. To create a new deployment, see <i>SAS 9.4 Intelligence Platform: Installation and Configuration Guide</i>.</li> <li>3. To complete any post-configuration steps, see <a href="#">“Updating Favorites in Your Web Browser”</a> on page 267 and <i>SAS 9.4 Intelligence Platform: Web Application Administration Guide</i>.</li> </ol>
4.4, 4.4M1, 4.4M2, 4.4M3, 4.4M4, 4.4M5 (SAS 9.4)	4.4, 4.4M1, 4.4M2, 4.4M3, 4.4M4, 4.4M5, 4.4M6, 4.4M7, 4.4M8 (SAS 9.4)	To migrate within the same SAS release, follow the steps in <i>SAS 9.4 Intelligence Platform: Migration Guide</i> .
4.4M8 (SAS 9.4)	4.4M8 (SAS 9.4)	To migrate within the same release, follow the steps in <i>SAS 9.4 Intelligence Platform: Migration Guide</i> .

---

## SAS Web Report Studio 4.3

*Note:* This section is relevant only if you are upgrading to either SAS Web Report Studio 4.4 or SAS Web Report Studio 4.4M1. These releases run on SAS 9.4 or SAS 9.4M1, respectively. These steps are not required if you are upgrading to SAS Web Report Studio 4.4M2, which runs on SAS 9.4M2.

In SAS Web Report Studio 4.3, data explorations were converted to reports. If any of the converted objects are based on cubes, then during migration this conversion does not succeed until the cube files are rebuilt. If the LoadContent step displays a warning during migration, follow the instructions in the Instructions.html file to build the cube files and modify and rerun the LoadContent scripts.

If you are running SAS Web Report Studio 4.2, you must upgrade to SAS Web Report Studio 4.3 before upgrading to SAS Web Report Studio 4.4. If you upgrade from 4.2 to 4.4, your data explorations might not convert properly.

When upgrading to SAS Web Report Studio 4.3, you have these options:

- You can upgrade to the latest release of SAS 9.2. SAS Web Report Studio 4.3 runs on SAS 9.2.

To upgrade to the latest release of SAS 9.2, see [Planning for Maintenance Releases and Product Upgrades for SAS 9.2](#).

- You can upgrade to the latest release of SAS 9.3. SAS Web Report Studio 4.31M2 runs on SAS 9.3.

When you upgrade to SAS 9.3, you can migrate, or you can create a new deployment. For specific steps, see *SAS 9.3 Intelligence Platform: Migration Guide* (if you are migrating to the new release) or *SAS 9.3 Intelligence Platform: Installation and Configuration Guide* (if you are creating a new deployment). For post-configuration steps, see *SAS 9.3 Intelligence Platform: Web Application Administration Guide*.

---

## SAS Web Report Studio 4.4

The Format window for a percent of total no longer has a currency option.

For information about the new features and enhancements in SAS Web Report Studio 4.4, see “What’s New in SAS Web Report Studio 4.4” on the product documentation page for [SAS Web Report Studio](#).

SAS shipped these releases of SAS Web Report Studio:

- SAS Web Report Studio 4.4M1 in December 2013
- SAS Web Report Studio 4.4M2 in August 2014
- SAS Web Report Studio 4.4M3 in July 2015
- SAS Web Report Studio 4.4M4 in November 2016
- SAS Web Report Studio 4.4M5 in September 2017
- SAS Web Report Studio 4.4M6 in November 2018.

- SAS Web Report Studio 4.4M7 shipped in August 2020.
- SAS Web Report Studio 4.4M8 in January 2023.

---

## Updating Favorites in Your Web Browser

After the deployment of any new release, you must change the release number in the resolved URL that you use to open the product. For example, if you upgraded from 4.3 to 4.4, then the updated URL is `http://server:port/SASLogon/index.jsp?_sasapp=Web+Report+Studio+4.4&`.

If you saved the URL for a previous release as a Favorite link in a web browser, then this link is broken when you upgrade to the new release. You must re-create this favorite for the new release. You can also access SAS Web Report Studio 4.4 by using this unresolved link: `http://server:port/SASWebReportStudio`.

---

## SAS 9.4M8 Retired Feature: SAS Web Report Viewer

Starting with SAS 9.4M8, SAS Web Report Viewer is a retired feature. If you order SAS 9.4M8, SAS Web Viewer is not included in that order. A best practice is to unconfigure retired SAS products and features before you upgrade and to uninstall them after you upgrade. For more information, see [“Unconfiguring and Uninstalling Retired Products” on page 59](#).



# Recommended Reading

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Here is the recommended reading list for this title:

- *SAS Deployment Wizard and SAS Deployment Manager 9.4: User's Guide*
- *SAS Intelligence Platform: Desktop Application Administration Guide*
- *SAS Intelligence Platform: Installation and Configuration Guide*
- *SAS Intelligence Platform: Middle-Tier Administration Guide*
- *SAS Intelligence Platform: Migration Guide*
- *SAS Intelligence Platform: System Administration Guide*
- *SAS Intelligence Platform: Web Application Administration Guide*
- *What's New in SAS 9.4*

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# Glossary

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**planned deployment**

a method of installing and configuring a SAS business intelligence system. This method requires a deployment plan that contains information about the different hosts that are included in the system and the software and SAS servers that are to be deployed on each host. The deployment plan then serves as input to an installation and configuration tool called the SAS Deployment Wizard.

**SAS configuration directory**

the location where configuration information for a SAS deployment is stored. The configuration directory contains configuration files, logs, scripts, repository files, and other items for the SAS software that is installed on the machine.

**SAS Deployment Manager**

a cross-platform utility that manages SAS deployments. The SAS Deployment Manager supports functions such as updating passwords for your SAS deployment, rebuilding SAS Web applications, and removing configurations.

**SAS Deployment Wizard**

a cross-platform utility that installs and initially configures many SAS products. Using a SAS installation data file and, when appropriate, a deployment plan for its initial input, the wizard is designed to prompt the customer for all the remaining input at the start of the session so that the customer does not have to monitor an entire deployment.

**SAS installation directory**

the location where your SAS software is installed. This location is the parent directory to the installation directories of all SAS products. The SAS installation directory is also referred to as SAS Home in the SAS Deployment Wizard.

**software order e-mail (SOE)**

an e-mail message that is sent to your site that announces the availability of the software and details the order. It also lists the initial installation steps and, for SAS 9.3, contains instructions for using Electronic Software Delivery (ESD), if applicable.



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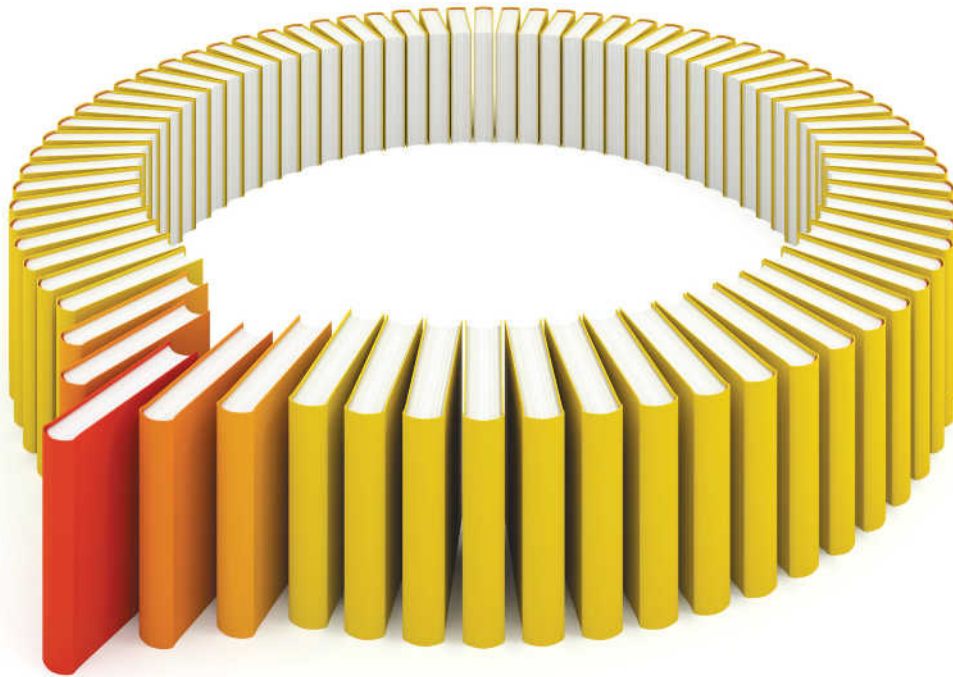
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