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About This Book

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

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.

February 2020 (SAS 9.4, Rev. 940_20w08)

SAS Financial Crimes Monitor 6.3 shipped. For more information, see Chapter 49, “SAS Financial Crimes Monitor,” on page 203.

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 16, “SAS Add-In for Microsoft Office,” on page 99.
- SAS Enterprise Guide 8.2. For more information, see Chapter 42, “SAS Enterprise Guide,” on page 179.

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 16, “SAS Add-In for Microsoft Office,” on page 99.
- SAS Business Rules Manager 3.3. For more information, see Chapter 21, “SAS Business Rules Manager,” on page 117.
- SAS Cost and Profitability Management 8.4. For more information, see Chapter 24, “SAS Cost and Profitability Management,” on page 127.
• SAS Data Remediation 2.4. For more information, see Chapter 34, “SAS Data Remediation,” on page 159.

• SAS Decision Manager 3.3. For more information, see Chapter 35, “SAS Decision Manager,” on page 161.

• SAS Enterprise Guide 8.1. For more information, see Chapter 42, “SAS Enterprise Guide,” on page 179.

• SAS Financial Management 5.6. For more information, see Chapter 50, “SAS Financial Management,” on page 205.

• SAS High-Performance Risk 4.2. For more information, see Chapter 59, “SAS High-Performance Risk,” on page 229.

• SAS IT Resource Management 3.10. For more information, see Chapter 70, “SAS IT Resource Management,” on page 271.

• SAS Lineage 3.3. For more information, see Chapter 71, “SAS Lineage,” on page 273.

• SAS Model Implementation Platform 3.2. For more information, see Chapter 78, “SAS Model Implementation Platform,” on page 289.

• SAS Model Manager 14.3. For more information, see Chapter 79, “SAS Model Manager,” on page 291.


• SAS Task Manager 2.4. For more information, see Chapter 95, “SAS Task Manager,” on page 339.

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 189.

• SAS Event Manager 6.1. For more information, see Chapter 47, “SAS Event Stream Manager,” on page 199.

• SAS Event Stream Processing 6.1. For more information, see Chapter 48, “SAS Event Stream Processing,” on page 201.

• SAS Visual Analytics 7.5. For more information, see Chapter 97, “SAS Visual Analytics,” on page 345.
November 2018 (SAS 9.4, Rev. 940_18w47)

These products shipped a new release:

- SAS Contextual Analysis 15.1. For more information, see Chapter 23, “SAS Contextual Analysis,” on page 125.
- SAS Enterprise Miner 15.1. For more information, see Chapter 43, “SAS Enterprise Miner,” on page 185.
- SAS/ETS 15.1. For more information, see Chapter 46, “SAS/ETS,” on page 197.
- SAS Forecast Server 15.1. For more information, see Chapter 54, “SAS Forecast Server,” on page 213.
- SAS/IML 15.1. For more information, see Chapter 60, “SAS/IML,” on page 231.
- SAS/OR 15.1. For more information, see Chapter 83, “SAS/OR,” on page 303.
- SAS/QC 15.1. For more information, see Chapter 84, “SAS/QC,” on page 307.
- SAS/STAT 15.1. For more information, see Chapter 93, “SAS/STAT,” on page 329.
- SAS Studio 3.8. For more information, see Chapter 94, “SAS Studio,” on page 333.
- SAS Text Miner 15.1. For more information, see Chapter 96, “SAS Text Miner,” on page 341.

These products shipped as part of SAS 9.4M6

- Base SAS. For more information, see Chapter 14, “Base SAS,” on page 81.
- SAS/ACCESS 9.4M6 software. For more information, see Chapter 15, “SAS/ACCESS,” on page 93.
- SAS Data Quality Accelerator for Teradata. For more information, see Chapter 32, “SAS Data Quality Accelerator for Teradata,” on page 155.
- SAS/GRAPH 9.4M6. For more information, see Chapter 56, “SAS/GRAPH,” on page 219.
- SAS In-Database Technology 9.4M6. For more information, see Chapter 63, “SAS In-Database Technologies,” on page 241.
- SAS Intelligence Platform 9.4M6. For more information, see Chapter 67, “SAS Intelligence Platform,” on page 255.
- SAS OLAP Server 9.4M6. For more information, see Chapter 81, “SAS OLAP Server,” on page 299.

These products shipped a maintenance release.

- SAS BI Dashboard 4.4M6. For more information, see Chapter 18, “SAS BI Dashboard,” on page 109.
- SAS BI Portal 4.4M6. For more information, see Chapter 19, “SAS BI Portal,” on page 113.
- SAS Business Rules Manager 3.2M1. For more information, see Chapter 21, “SAS Business Rules Manager,” on page 117.
• SAS Decision Manager 3.2M1. For more information, see Chapter 35, “SAS Decision Manager,” on page 161.

• SAS Information Map Studio 4.4M6. For more information, see Chapter 64, “SAS Information Map Studio,” on page 245.

• SAS Model Manager 14.2M1. For more information, see Chapter 79, “SAS Model Manager,” on page 291.


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 16, “SAS Add-In for Microsoft Office,” on page 99.

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 173.

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 14, “Base SAS,” on page 81.

• SAS Event Stream Processing 5.1. For more information, see Chapter 48, “SAS Event Stream Processing,” on page 201.

• SAS In-Database Technologies. For more information, see Chapter 63, “SAS In-Database Technologies,” on page 241.
These products shipped a new release:

- SAS Add-In for Microsoft Office 7.15. For more information, see Chapter 16, “SAS Add-In for Microsoft Office,” on page 99.
- SAS Contextual Analysis 14.3. For more information, see Chapter 23, “SAS Contextual Analysis,” on page 125.
- SAS Data Integration Studio 4.903. For more information, see Chapter 30, “SAS Data Integration Studio,” on page 149.
- SAS Enterprise Guide 7.15. For more information, see Chapter 42, “SAS Enterprise Guide,” on page 179.
- SAS Enterprise Miner 14.3. For more information, see Chapter 43, “SAS Enterprise Miner,” on page 185.
- SAS/ETS 14.3. For more information, see Chapter 46, “SAS/ETS,” on page 197.
- SAS High-Performance Analytics Infrastructure 3.7. For more information, see Chapter 58, “SAS High-Performance Analytics Infrastructure,” on page 225.
- SAS High-Performance Risk 3.9. For more information, see Chapter 59, “SAS High-Performance Risk,” on page 229.
- SAS/IML 14.3. For more information, see Chapter 60, “SAS/IML,” on page 231.
- SAS Infrastructure for Risk Management. For more information, see Chapter 62, “SAS Infrastructure for Risk Management,” on page 239.
- SAS/OR 14.3. For more information, see Chapter 83, “SAS/OR,” on page 303.
- SAS/QC 14.3. For more information, see Chapter 84, “SAS/QC,” on page 307.
- SAS/STAT 14.3. For more information, see Chapter 93, “SAS/STAT,” on page 329.
- SAS Studio 3.7. For more information, see Chapter 94, “SAS Studio,” on page 333.
- SAS Text Miner 14.3. For more information, see Chapter 96, “SAS Text Miner,” on page 341.

These products shipped as part of SAS 9.4M5

- Base SAS. For more information, see Chapter 14, “Base SAS,” on page 81.
- SAS/ACCESS 9.4M5. For more information, see Chapter 15, “SAS/ACCESS,” on page 93.
- SAS/CONNECT 9.4M5. For more information, see Chapter 22, “SAS/CONNECT,” on page 121.
July 2017 (SAS 9.4, Rev. 940_17w29)

SAS Quality Analytics Suite 6.2 shipped a maintenance release. For more information, see Chapter 85, “SAS Quality Analytic Suite,” on page 311.

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 229.
- SAS Model Implementation Platform 2.4. For more information, see Chapter 78, “SAS Model Implementation Platform,” on page 289.

May 2017 (SAS 9.4, Rev. 940_17w21)

SAS Event Stream Processing 4.3 shipped. For more information, see Chapter 48, “SAS Event Stream Processing,” on page 201.
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 16, “SAS Add-In for Microsoft Office,” on page 99.
- SAS Business Data Network 3.2. For more information, see Chapter 20, “SAS Business Data Network,” on page 115.
- SAS Data Remediation 2.3. For more information, see Chapter 34, “SAS Data Remediation,” on page 159.
- SAS Lineage 3.2. For more information, see Chapter 71, “SAS Lineage,” on page 273.
- SAS MDM 4.3. For more information, see Chapter 76, “SAS MDM (Master Data Management),” on page 285.
- SAS Visual Analytics 7.4. For more information, see Chapter 97, “SAS Visual Analytics,” on page 345.

These products shipped a maintenance release:

- SAS Cost and Profitability Management 8.1M6. For more information, see Chapter 24, “SAS Cost and Profitability Management,” on page 127.
- SAS Energy Forecasting 3.2M1. For more information, see Chapter 39, “SAS Energy Forecasting,” on page 173.
- SAS Forecast Analyst Workbench 5.3M1. For more information, see Chapter 53, “SAS Forecast Analyst Workbench,” on page 211.
- SAS Inventory Optimization Workbench 5.3M1. For more information, see Chapter 69, “SAS Inventory Optimization Workbench,” on page 269.

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 271.

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 16, “SAS Add-In for Microsoft Office,” on page 99.
- SAS Business Rules Manager 3.2. For more information, see Chapter 21, “SAS Business Rules Manager,” on page 117.
• SAS Contextual Analysis 14.2. For more information, see Chapter 23, “SAS Contextual Analysis,” on page 125.

• SAS Data Integration Studio 4.902. For more information, see Chapter 30, “SAS Data Integration Studio,” on page 149.

• SAS Data Loader 3.1. For more information, see Chapter 31, “SAS Data Loader,” on page 153.

• SAS Data Quality Accelerator 9.4 for Teradata. For more information, see Chapter 32, “SAS Data Quality Accelerator for Teradata,” on page 155.

• SAS Decision Manager 3.2. For more information, see Chapter 35, “SAS Decision Manager,” on page 161.


• SAS Enterprise Miner 14.2. For more information, see Chapter 43, “SAS Enterprise Miner,” on page 185.

• SAS/ETS 14.2. For more information, see Chapter 46, “SAS/ETS,” on page 197.

• SAS Firmwide Risk for Solvency II 3.3. For more information, Chapter 52, “SAS Firmwide Risk for Solvency II,” on page 209.

• SAS Forecast Server 14.2. For more information, see Chapter 54, “SAS Forecast Server,” on page 213.

• SAS High-Performance Analytics Infrastructure 3.5. For more information, see Chapter 58, “SAS High-Performance Analytics Infrastructure,” on page 225.

• SAS High-Performance Risk 3.7. For more information, see Chapter 59, “SAS High-Performance Risk,” on page 229.

• SAS/IML 14.2. For more information, see Chapter 60, “SAS/IML,” on page 231.

• SAS Micro Analytic Services 2.2. For more information, see Chapter 77, “SAS Micro Analytic Services,” on page 287.

• SAS Model Implementation Platform 2.3. For more information, see Chapter 78, “SAS Model Implementation Platform,” on page 289.

• SAS Model Manager 14.2. For more information, see Chapter 79, “SAS Model Manager,” on page 291.

• SAS Model Risk Management 7.2. For more information, see Chapter 80, “SAS Model Risk Management,” on page 297.

• SAS/OR 14.2. For more information, see Chapter 83, “SAS/OR,” on page 303.

• SAS Quality Analytic Suite 6.2. For more information, see Chapter 85, “SAS Quality Analytic Suite,” on page 311.

• SAS/QC 14.2. For more information, see Chapter 84, “SAS/QC,” on page 307.

• SAS Risk and Finance Workbench 2.3. For more information, see Chapter 87, “SAS Risk and Finance Workbench,” on page 315.

• SAS Risk Dimensions 6.7. For more information, see Chapter 88, “SAS Risk Dimensions,” on page 317.

• SAS/STAT 14.2. For more information, see Chapter 93, “SAS/STAT,” on page 329.

• SAS Studio 3.6. For more information, see Chapter 94, “SAS Studio,” on page 333.
• SAS Text Miner 14.2. For more information, see Chapter 96, “SAS Text Miner,” on page 341.

These products have been updated for SAS 9.4M4:

• Base SAS. For more information, see Chapter 14, “Base SAS,” on page 81.

• SAS/ACCESS software. For more information, see Chapter 15, “SAS/ACCESS,” on page 93.

• SAS/CONNECT. For more information, see Chapter 22, “SAS/CONNECT,” on page 121.

• SAS Data Quality Server. For more information, see Chapter 33, “SAS Data Quality Server,” on page 157.

• SAS In-Database Technologies. For more information, see Chapter 63, “SAS In-Database Technologies,” on page 241.

• SAS Environment Manager 2.5M1. For more information, see Chapter 44, “SAS Environment Manager,” on page 189.

• SAS/GRAPH. For more information, see Chapter 56, “SAS/GRAPH,” on page 219.

• SAS Grid Manager. For more information, see Chapter 57, “SAS Grid Manager,” on page 223.

• SAS Integration Technologies. For more information, see Chapter 66, “SAS Integration Technologies,” on page 251.

• SAS Intelligence Platform. For more information, see Chapter 67, “SAS Intelligence Platform,” on page 255.

• SAS/IntrNet. For more information, see Chapter 68, “SAS/IntrNet,” on page 267.

• SAS Management Console. For more information, see Chapter 72, “SAS Management Console,” on page 275.

• SAS OLAP Server. For more information, see Chapter 81, “SAS OLAP Server,” on page 299.

• SAS/SECURE. For more information, see Chapter 90, “SAS/SECURE,” on page 321.

August 2016 (SAS 9.4, Rev. 940_16w33)

SAS Event Stream Processing 4.1 shipped. For more information, see Chapter 48, “SAS Event Stream Processing,” on page 201.

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 17, “SAS Anti-Money Laundering,” on page 107.

• SAS Model Risk Management 7.1. For more information, see Chapter 80, “SAS Model Risk Management,” on page 297.
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 139.
- SAS Decision Services 6.5. For more information, see Chapter 36, “SAS Decision Services,” on page 165.
- SAS Digital Marketing 6.5. For more information, see Chapter 37, “SAS Digital Marketing,” on page 167.
- SAS Marketing Automation 6.5. For more information, see Chapter 73, “SAS Marketing Automation,” on page 279.
- SAS Marketing Optimization 6.5. For more information, see Chapter 75, “SAS Marketing Optimization,” on page 283.
- SAS Real-Time Decision Manager 6.5. For more information, see Chapter 86, “SAS Real-Time Decision Manager,” on page 313.

SAS Social Network Analysis Server 6.2M3 is now available. For more information, see Chapter 92, “SAS Social Network Analysis Server,” on page 327.

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 53, “SAS Forecast Analyst Workbench,” on page 211.
- SAS Fraud Management 4.3. For more information, see Chapter 55, “SAS Fraud Management,” on page 217.
- SAS Inventory Optimization Workbench 5.3. For more information, see Chapter 69, “SAS Inventory Optimization Workbench,” on page 269.

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 52, “SAS Firmwide Risk for Solvency II,” on page 209.
- SAS High-Performance Risk 3.6. For more information, see Chapter 59, “SAS High-Performance Risk,” on page 229.
March 2016 (SAS 9.4, Rev. 940_16w13)

SAS Micro Analytic Services 1.3 is now available. For more information, see Chapter 77, “SAS Micro Analytic Services,” on page 287.

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 16, “SAS Add-In for Microsoft Office,” on page 99.
- SAS Episode Analytics 3.1. For more information, see Chapter 45, “SAS Episode Analytics,” on page 195.
- SAS IT Resource Management 3.7. For more information, see Chapter 70, “SAS IT Resource Management,” on page 271.
- SAS Studio 3.5. For more information, see Chapter 94, “SAS Studio,” on page 333.

January 2016 (SAS 9.4, Rev. 940_16w04)

These products shipped a new release:

- “DataFlux Data Management Server 2.7” on page 144
- “DataFlux Secure 2.7” on page 146

These products shipped a maintenance release:

- DataFlux Authentication Server 4.1M1. For more information, see “DataFlux Authentication Server” on page 143.
- SAS Customer Due Diligence 6.3M1. For more information, see Chapter 26, “SAS Customer Due Diligence,” on page 133.
November 2015 (SAS 9.4, Rev. 940_15w47)

SAS Event Stream Processing 3.2 shipped a new release. For more information, see Chapter 48, “SAS Event Stream Processing,” on page 201.

These products shipped a maintenance release:

- SAS Contextual Analysis 14.1M1. For more information, see Chapter 23, “SAS Contextual Analysis,” on page 125.
- SAS Fraud Management 4.2M1. For more information, see Chapter 55, “SAS Fraud Management,” on page 217.

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 229.
- SAS Risk Dimensions 6.5. For more information, see Chapter 88, “SAS Risk Dimensions,” on page 317.

These products shipped a maintenance release:

- SAS Enterprise Case Management 6.3M1. For more information, see Chapter 40, “SAS Enterprise Case Management,” on page 175.
- SAS Social Network Analysis Server 6.2M2. For more information, see Chapter 92, “SAS Social Network Analysis Server,” on page 327.

August 2015 (SAS 9.4, Rev. 940_15w33)

SAS Visual Analytics 7.3 is now available. For more information, see Chapter 97, “SAS Visual Analytics,” on page 345.

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 21, “SAS Business Rules Manager,” on page 117.
- SAS Contextual Analysis 14.1. For more information, see Chapter 23, “SAS Contextual Analysis,” on page 125.
• SAS Decision Manager 3.1. For more information, see Chapter 35, “SAS Decision Manager,” on page 161.
• SAS Data Integration Studio 4.901. For more information, see Chapter 30, “SAS Data Integration Studio,” on page 149.
• SAS Enterprise Miner 14.1. For more information, see Chapter 43, “SAS Enterprise Miner,” on page 185.
• SAS Environment Manager 2.5. For more information, see Chapter 44, “SAS Environment Manager,” on page 189.
• SAS/ETS 14.1. For more information, see Chapter 46, “SAS/ETS,” on page 197.
• SAS Forecast Server 14.1. For more information, see Chapter 54, “SAS Forecast Server,” on page 213.
• SAS Fraud Management 4.2. For more information, see Chapter 55, “SAS Fraud Management,” on page 217.
• SAS/IML 14.1. For more information, see Chapter 60, “SAS/IML,” on page 231.
• SAS Model Manager 14.1. For more information, see Chapter 79, “SAS Model Manager,” on page 291.
• SAS/OR 14.1. For more information, see Chapter 83, “SAS/OR,” on page 303.
• SAS/QC 14.1. For more information, see Chapter 84, “SAS/QC,” on page 307.
• SAS/STAT 14.1. For more information, see Chapter 93, “SAS/STAT,” on page 329.
• SAS Studio 3.4. For more information, see Chapter 94, “SAS Studio,” on page 333.
• SAS Text Miner 14.1. For more information, see Chapter 96, “SAS Text Miner,” on page 341.

These products were updated as part of SAS 9.4M3:
• Base SAS. For more information, see Chapter 14, “Base SAS,” on page 81.
• SAS/ACCESS software. For more information, see Chapter 15, “SAS/ACCESS,” on page 93.
• SAS/CONNECT. For more information, see Chapter 22, “SAS/CONNECT,” on page 121.
• SAS Data Quality Server. For more information, see Chapter 33, “SAS Data Quality Server,” on page 157.
• SAS In-Database Technologies. For more information, see Chapter 63, “SAS In-Database Technologies,” on page 241.
• SAS/GRAPH. For more information, see Chapter 56, “SAS/GRAPH,” on page 219.
• SAS Grid Manager. For more information, see Chapter 57, “SAS Grid Manager,” on page 223.
• SAS Integration Technologies. For more information, see Chapter 66, “SAS Integration Technologies,” on page 251.
• SAS Intelligence Platform. For more information, see Chapter 67, “SAS Intelligence Platform,” on page 255.
• SAS/IntrNet. For more information, see Chapter 68, “SAS/IntrNet,” on page 267.
• SAS Management Console. For more information, see Chapter 72, “SAS Management Console,” on page 275.
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 131.
- SAS Event Stream Processing 3.1. For more information, see Chapter 48, “SAS Event Stream Processing,” on page 201.
- SAS High-Performance Risk 3.4. For more information, see Chapter 59, “SAS High-Performance Risk,” on page 229.
- SAS IT Resource Management 3.6. For more information, see Chapter 70, “SAS IT Resource Management,” on page 271.
- SAS Risk Dimensions 6.4. For more information, see Chapter 88, “SAS Risk Dimensions,” on page 317.
- SAS Risk Management for Banking 3.3. For more information, see Chapter 89, “SAS Risk Management for Banking,” on page 319.
- SAS Visual Analytics 7.2. For more information, see “SAS Visual Analytics 7.2” on page 352.

These products shipped a maintenance release:

- SAS Forecast Analyst Workbench 5.2M2. For more information, see Chapter 53, “SAS Forecast Analyst Workbench,” on page 211.
- SAS Inventory Optimization 5.2M2. For more information, see Chapter 69, “SAS Inventory Optimization Workbench,” on page 269.
- SAS OpRisk VaR 6.1M2. For more information, see Chapter 82, “SAS OpRisk VaR,” on page 301.

These products were also updated:

- SAS Add-In 7.11 for Microsoft Office. For more information, see Chapter 16, “SAS Add-In for Microsoft Office,” on page 99.
- SAS Enterprise Guide 7.11. For more information, see Chapter 42, “SAS Enterprise Guide,” on page 179.
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 159.

• SAS Digital Marketing 6.4. For more information, see Chapter 37, “SAS Digital Marketing,” on page 167.

• SAS Marketing Automation 6.4. For more information, see Chapter 73, “SAS Marketing Automation,” on page 279.

• SAS Marketing Optimization 6.4. For more information, see Chapter 75, “SAS Marketing Optimization,” on page 283.

• SAS MDM 4.2. For more information, see Chapter 76, “SAS MDM (Master Data Management),” on page 285.

• SAS Real-Time Decision Manager 6.4. For more information, see Chapter 86, “SAS Real-Time Decision Manager,” on page 313.

• SAS Task Manager 2.2. For more information, see Chapter 95, “SAS Task Manager,” on page 339.

• SAS Visual Process Orchestration 2.2. For more information, see Chapter 98, “SAS Visual Process Orchestration,” on page 359.

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 139.

• SAS Episode Analytics 2.2. For more information, see Chapter 45, “SAS Episode Analytics,” on page 195.

• SAS Studio 3.3. For more information, see Chapter 94, “SAS Studio,” on page 333.

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 79 topic.

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 17, “SAS Anti-Money Laundering,” on page 107.
November 2014 (SAS 9.4, Rev. 940_14w47)

These products are new:

- SAS Business Data Network 3.1. For more information, see Chapter 20, “SAS Business Data Network,” on page 115.
- SAS Lineage 3.1. For more information, see Chapter 71, “SAS Lineage,” on page 273.

These products shipped a new release:

- DataFlux Data Management Studio 2.6. For more information, see “DataFlux Data Management Studio 2.6” on page 145.
- DataFlux Web Studio 2.5. For more information, see “DataFlux Web Studio 2.5” on page 147.
- SAS High-Performance Risk 3.3. For more information, see Chapter 59, “SAS High-Performance Risk,” on page 229.

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 350.
- Information about how to update a deployment with a clustered metadata server. For more information, see “Clustered Metadata Servers” on page 261.

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 16, “SAS Add-In for Microsoft Office,” on page 99.
- SAS Enterprise GRC 6.1. For more information, see Chapter 41, “SAS Enterprise GRC,” on page 177.
• SAS Environment Manager 2.4. For more information, see Chapter 44, “SAS Environment Manager,” on page 189.

• SAS Visual Analytics 7.1. For more information, see Chapter 97, “SAS Visual Analytics,” on page 345.

SAS Web Parts 6.1 for Microsoft SharePoint shipped a second maintenance release (6.12). For more information, see Chapter 100, “SAS Web Parts for Microsoft SharePoint,” on page 363.

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 271.

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 21, “SAS Business Rules Manager,” on page 117.

• SAS Data Integration Studio 4.9. For more information, see Chapter 30, “SAS Data Integration Studio,” on page 149.

• SAS Decision Rules Manager 2.2. For more information, see Chapter 35, “SAS Decision Manager,” on page 161.

• SAS Enterprise Miner 13.2. For more information, see Chapter 43, “SAS Enterprise Miner,” on page 185.

• SAS Environment Manager 2.3. For more information, see Chapter 44, “SAS Environment Manager,” on page 189.

• SAS/ETS 13.2. For more information, see Chapter 46, “SAS/ETS,” on page 197.

• SAS/IML 13.2. For more information, see Chapter 60, “SAS/IML,” on page 231.

• SAS Model Manager 13.1. For more information, see Chapter 79, “SAS Model Manager,” on page 291.


• SAS Studio 3.2. For more information, see Chapter 94, “SAS Studio,” on page 333.

• SAS Text Miner 13.2. For more information, see Chapter 96, “SAS Text Miner,” on page 341.

These products were updated as part of SAS 9.4M2:

• Base SAS 9.4M2. For more information, see Chapter 14, “Base SAS,” on page 81.

• 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 15, “SAS/ACCESS,” on page 93.
• SAS/CONNECT 9.4M2. For more information, see Chapter 22, “SAS/CONNECT,” on page 121.
• SAS 9.4M2 In-Database Technologies. For more information, see Chapter 63, “SAS In-Database Technologies,” on page 241.
• SAS 9.4M2 Integration Technologies. For more information, see Chapter 66, “SAS Integration Technologies,” on page 251.
• SAS 9.4M2 Intelligence Platform. For more information, see Chapter 67, “SAS Intelligence Platform,” on page 255.
• SAS/IntrNet 9.4M2. For more information, see Chapter 68, “SAS/IntrNet,” on page 267.
• SAS Management Console 9.4M2. For more information, see Chapter 72, “SAS Management Console,” on page 275.
• SAS OLAP Server 9.4M2. For more information, see Chapter 81, “SAS OLAP Server,” on page 299.
• SAS/SECURE 9.4M2. For more information, see Chapter 90, “SAS/SECURE,” on page 321.

These products shipped a maintenance release:
• SAS BI Dashboard 4.4M2. For more information, see Chapter 18, “SAS BI Dashboard,” on page 109.
• SAS Information Delivery Portal 4.4M2. For more information, see Chapter 61, “SAS Information Delivery Portal,” on page 235.
• SAS Information Map Studio 4.4M2. For more information, see Chapter 64, “SAS Information Map Studio,” on page 245.

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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 55, “SAS Fraud Management,” on page 217.
• SAS OpRisk VaR 6.1. For more information, see Chapter 82, “SAS OpRisk VaR,” on page 301.

SAS High-Performance Risk 3.1M1 is available. For more information, see Chapter 59, “SAS High-Performance Risk,” on page 229.

---

**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 141.
• 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 135.
• SAS Decision Services 6.3 is a new release. For more information, see Chapter 36, “SAS Decision Services,” on page 165.
• SAS Federation Server 4.1. For more information, see Chapter 29, “SAS and DataFlux,” on page 141.

SAS Studio 3.1M1 is now available. For more information, see Chapter 94, “SAS Studio,” on page 333.
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 260.
March 2014 (SAS 9.4, Rev. 940_14w11)

SAS Studio 3.1 is a new product. For more information, see Chapter 94, “SAS Studio,” on page 333.

SAS Visual Analytics 6.4 is a new product release. For more information, see Chapter 97, “SAS Visual Analytics,” on page 345.

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 142.

• 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 187.

• 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 257.

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 149.


• SAS Enterprise Miner 13.1. For more information, see Chapter 43, “SAS Enterprise Miner,” on page 185.

• SAS Environment Manager 2.1 (SAS 9.4M1). For more information, see Chapter 44, “SAS Environment Manager,” on page 189.

• SAS/ETS 13.1. For more information, see Chapter 46, “SAS/ETS,” on page 197.

• SAS Financial Management 5.4. For more information, see Chapter 50, “SAS Financial Management,” on page 205.

• SAS Forecast Server 13.1. For more information, see Chapter 54, “SAS Forecast Server,” on page 213.

• SAS High-Performance Risk 3.2. For more information, see Chapter 59, “SAS High-Performance Risk,” on page 229.

• SAS/IML 13.1. For more information, see Chapter 60, “SAS/IML,” on page 231.

• SAS IT Resource Management 3.4. For more information, see Chapter 70, “SAS IT Resource Management,” on page 271.


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 17, “SAS Anti-Money Laundering,” on page 107.

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 141.

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 7, “Undeploying SAS Web Applications,” on page 43.
- a new chapter for the SAS High-Performance Analytics Infrastructure. For more information, see Chapter 58, “SAS High-Performance Analytics Infrastructure,” on page 225.
Part 1

Introduction to Updating SAS Software at Your Site

Chapter 1
Understanding the Process for Software Updates
Chapter 1
Understanding the Process for Software Updates

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.

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.

The General Process for Software Updates

Regardless of 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.

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

2. 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.

3. 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.

4. 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. See the “Request a Maintenance Release” topic at the bottom of the Maintenance Release Announcement.

5. Review your software order. After you request a maintenance release, a product upgrade, or a new SAS product, you receive a Software Order E-mail (SOE), which lists the product bundle that you ordered and the software revision number (for example, SAS 9.4, Rev. 940_13w26).

6. 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.

7. 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 products or components because of the addition of new licensed products or new components that are part of the maintenance release. Adding these products or components require that you run the SAS Deployment Wizard a second time. For more information, see “Adding a New Product” on page 66.

8. Complete any post-configuration steps for the products at your site. 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

Planning for a Software Update

Chapter 2
Determining the Product Release Numbers for Products at Your Site ........................................... 9

Chapter 3
Reviewing Current and Future Software Updates ......................... 13

Chapter 4
Updating Operating Environments and Third-Party Software ....... 29
Chapter 2
Determining the Product Release Numbers for Products at Your Site

Understanding Product Release Numbers

Understanding Technical Support Numbers

Product-Specific Release Numbers for Other SAS Products

Understanding Maintenance Release Numbers

How to Run the Deployment Registry Report

Understanding the Contents of the Deployment Registry Report

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 TSxM y. 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\SASFondation\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;.

2. In Windows and UNIX environments, review the information at the top of the log when SAS starts.

   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:

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Release Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base SAS</td>
<td>9.4</td>
</tr>
<tr>
<td>SAS Add-In for Microsoft Office</td>
<td>7.1</td>
</tr>
<tr>
<td>SAS Enterprise Miner</td>
<td>14.1</td>
</tr>
<tr>
<td>SAS Management Console</td>
<td>9.4</td>
</tr>
<tr>
<td>SAS Visual Analytics</td>
<td>7.3</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Release Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base SAS</td>
<td>9.4M1</td>
</tr>
<tr>
<td>SAS Add-In for Microsoft Office</td>
<td>6.1M1</td>
</tr>
<tr>
<td>SAS Enterprise Guide</td>
<td>6.1M1</td>
</tr>
<tr>
<td>SAS/GRAPH</td>
<td>9.4M1</td>
</tr>
</tbody>
</table>

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](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). For more information, see “The Deployment Summary for the Installation” on page 56.

### 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: bidsignmid
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

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. For more information, see Chapter 8,
“Reviewing Your Software Order,” on page 49.

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.

<table>
<thead>
<tr>
<th>Release Date (Revision Number)</th>
<th>Products</th>
</tr>
</thead>
</table>
| 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 |
<table>
<thead>
<tr>
<th>Release Date (Revision Number)</th>
<th>Products</th>
</tr>
</thead>
</table>
| 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 |
### Release Date (Revision Number) | Products
--- | ---
**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
<table>
<thead>
<tr>
<th>Release Date (Revision Number)</th>
<th>Products</th>
</tr>
</thead>
</table>
| December 2013 (SAS 9.4, Rev. 940_13w51) | Base SAS 9.4M1  
SAS/ACCESS 9.4M1 Interface to PC Files  
SAS Add-In 6.1M1 for Microsoft Office  
SAS/CONNECT 9.4M1  
SAS Data Integration Studio 4.8  
SAS Enterprise Guide 6.1M1  
SAS Enterprise Miner 13.1  
SAS/ETS 13.1  
SAS Financial Management 5.4  
SAS Forecast Server 13.1  
SAS High-Performance Computing Management Console 2.4  
SAS High-Performance Risk 3.2  
SAS/IML 13.1  
SAS 9.4 In-Database Products  
SAS 9.4M1 Integration Technologies  
SAS 9.4M1 Intelligence Platform  
SAS LASR Analytic Server 2.2  
SAS 9.4M1 OLAP Server  
SAS/OR 13.1  
SAS/QC 13.1  
SAS/STAT 13.1  
SAS Theme Designer 4.2 for Flex  
SAS Text Miner 13.1  
SAS Visual Analytics 6.3  
SAS Web Parts 6.11 for Microsoft SharePoint |
| March 2014 (SAS 9.4, Rev. 940_14w11) | SAS Strategy Management 5.6  
SAS Studio 3.1  
SAS Visual Analytics 6.4 |
| April 2014 (SAS 9.4, Rev. 940_14w14) | SAS Anti-Money Laundering 6.2  
SAS Data Quality Accelerator 2.5 for Teradata  
SAS Data Remediation 2.1M1  
SAS MDM 4.1M1  
SAS Task Manager 2.1M1 |
<p>| May 2014 (SAS 9.4, Rev. 940_14w19) | SAS Decision Services 6.3 |</p>
<table>
<thead>
<tr>
<th>Release Date (Revision Number)</th>
<th>Products</th>
</tr>
</thead>
</table>
| 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 |
<p>| September 2014 (SAS 9.4, Rev. 940_14w36) | SAS IT Resource Management 3.5 |</p>
<table>
<thead>
<tr>
<th>Release Date (Revision Number)</th>
<th>Products</th>
</tr>
</thead>
</table>
| 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 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 |
<table>
<thead>
<tr>
<th>Release Date (Revision Number)</th>
<th>Products</th>
</tr>
</thead>
</table>
| 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/GRAHAM 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 |
<table>
<thead>
<tr>
<th>Release Date (Revision Number)</th>
<th>Products</th>
</tr>
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</table>
| 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 |
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<tr>
<th>Release Date (Revision Number)</th>
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| 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 |
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<th>Release Date (Revision Number)</th>
<th>Products</th>
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</table>
| 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 |
<table>
<thead>
<tr>
<th>Release Date (Revision Number)</th>
<th>Products</th>
</tr>
</thead>
</table>
| 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 |
<table>
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<tr>
<th>Release Date (Revision Number)</th>
<th>Products</th>
</tr>
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</table>
| 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 Manager 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 |
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<tr>
<th>Release Date (Revision Number)</th>
<th>Products</th>
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<tr>
<td>May 2019 (SAS 9.4, Rev. 940_19w21)</td>
<td>SAS Environment Manager 2.6</td>
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<td>SAS Event Manager 6.1</td>
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<td>SAS Event Stream Processing 6.1</td>
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<td>SAS Visual Analytics 7.5</td>
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<td>June 2019 (SAS 9.4, Rev. 940_19w25)</td>
<td>SAS Add-In 8.1 for Microsoft Office</td>
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<td>SAS Business Rules Manager 3.3</td>
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<tr>
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<td>SAS Cost and Profitability Management 8.4</td>
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<td>SAS Data Remediation 2.4</td>
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<td>SAS Decision Manager 3.3</td>
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<td>SAS Model Implementation Platform 3.2</td>
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<td>SAS Risk Dimensions 6.12</td>
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<td>SAS Task Manager 2.4</td>
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<td>November 2019 (SAS 9.4, Rev. 940_19w47)</td>
<td>SAS Add-In 8.2 for Microsoft Office</td>
</tr>
<tr>
<td></td>
<td>SAS Enterprise Guide 8.2</td>
</tr>
</tbody>
</table>

### 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.

- 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

Support for Operating Environments

To determine the level of support for each operating environment (for example, which editions of Windows Server 2008 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.

Additional Support for Third-Party Software

When you initially installed your third-party software, these products should have 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 VMware tc Server, and SAS Web Server is based on VMware vFabric Web Server. 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.

For more information, see Chapter 67, “SAS Intelligence Platform,” on page 255.

SAS also delivers the Java 7 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 SAS Third-Party Software Requirements - Java 7 Updates and Security Bulletins from SAS.
Part 3

Preparing Your Site for a Software Update

Chapter 5
Assessing the Effect on Products at Your Site .......................... 33

Chapter 6
Using Backups and Restoring Customizations ......................... 37

Chapter 7
Undeploying SAS Web Applications ................................. 43
Chapter 5
Assessing the Effect on Products at Your Site

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 5.1  How to Start the SAS Deployment Wizard

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Start-up Commands for the SAS Deployment Wizard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows</td>
<td>setup.exe –record</td>
</tr>
<tr>
<td></td>
<td>Note: If you are running Windows Vista, Windows 7, or Windows Server 2008, you might have to right-click on the setup.exe file and select Run as administrator.</td>
</tr>
<tr>
<td>UNIX</td>
<td>setup.sh –record</td>
</tr>
</tbody>
</table>
Operating System | Start-up Commands for the SAS Deployment Wizard
---|---
z/OS | `setup.rexx -record`

To use a temporary directory other than `/tmp`, specify `-templocation new-temp-dir`.

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

2. 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.

3. 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 6

Using Backups and Restoring Customizations

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 44.

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 38.
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. As a best practice, 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. Use the Deployment Backup and Recovery tool 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/Leveln` as specified by the administrator

The Deployment Backup and Recovery tool should be configured on the main machine for the middle tier. For more information about this tool, see *SAS Intelligence Platform: System Administration Guide*.

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/Leveln/Web/WebAppServer` directory. This backup folder can be quite large. The entire contents of the `SAS-configuration-directory/Leveln/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.
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 60.

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 60. 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/Lev/n/Web/WebAppServer/SASServer_n/sas_webapps/sas.svcs.admin.backup.war.
      • $SAS-configuration-directory/Lev/n/Web/WebAppServer/SASServer_n/conf/Catalina/localhost/SASDeploymentBackup.xml.
      • $SAS-configuration-directory/Lev/n/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, SAS 9.4M3, SAS 9.4M4, or SAS 9.4M5, 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.

**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/Levns/Web/gemfire/instances directory. For example, if the port number is 41448, you should see this directory: SAS-configuration-directory/Levns/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/Lev/n/Web/gemfire/instances/gemfire-locator.sh` script.

• In Windows environments, see the value of the set.INSTANCE_PORT= option in the `SAS-configuration-directory\Lev\Web\gemfire\instances\wrapper.conf` file.

**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 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 7
Undeploying SAS Web Applications

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.

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. For more information, see Chapter 8, “Reviewing Your Software Order,” on page 49.

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

• rebuilds all SAS web applications
• redeploy all SAS web applications
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, then 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 redeploy 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.

**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 redepolyed, 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\AppServer\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.
Part 4

Installing Your Software Order

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Chapter 8
Reviewing Your Software Order

What Is in My Order?

When determining what products will be updated at your site, it is often useful to review the list of products in your software order. SAS provides two resources that you can use to determine what is in your order and when your order was placed.

- Software Order Email (SOE)
- SAS Order Information (SOI)

Software Order Email

The Software Order Email (SOE) is sent to you after you request a software update. Here is an example of the information that you might see in the SOE if you requested SAS 9.4:
In the SOE, review the following information:

- **Deployment Type** field.
  - If **Basic** is the deployment type, then you are installing only SAS Foundation at your site. Some of the products that are included with SAS Foundation are Base SAS, SAS/ACCESS software, and SAS/GRAPH. For more information about SAS Foundation, see “Understanding SAS Foundation” on page 77.
  - If **Planned (Deployment plan needed)** is the deployment type, then a deployment plan is needed when you initially install SAS or when you are adding a product that requires configuration to your SAS deployment. For more information, see “About Deployment Plans” in SAS Intelligence Platform: Installation and Configuration Guide.

- **Internal Reference** field to confirm that your order is for SAS 9.4.
  To determine when your order was placed, use the revision number in the Internal Reference field. In this example, the revision number is **Rev. 940_15w33**, which means that the software order is from the 33rd week of 2015.
  - the list of products ordered to determine whether any new products are included in your order. Any new products that you are licensing are indicated by an asterisk.

---

**SAS Order Information**

After you download your order to an existing SAS Software Depot, you can use the SAS Order Information (SOI) file to determine the contents in your order and when the order was placed. The location of the SOI is in your SAS Software Depot. On Windows, this path is `install_doc\order-number\soi.html`. On UNIX and z/OS, this path is `install_doc/order-number/soi.html`.

Here is an example of the information that you might see in the SAS Order Information file.
In the SOI, review the following information:

- the **Deployment Type** field.
  - If **Basic** is the deployment type, then you are installing only SAS Foundation at your site. Some of the products that are included with SAS Foundation are Base SAS, SAS/ACCESS software, and SAS/GRAPH. For more information about SAS Foundation, see “Understanding SAS Foundation” on page 77.
  - If **Planned (Deployment plan needed)** is the deployment type, then a deployment plan is needed when you initially install SAS or when you are adding a product that requires configuration to your SAS deployment. For more information, see “About Deployment Plans” in *SAS Intelligence Platform: Installation and Configuration Guide*.
- the **Internal Reference** field to confirm that your order is for SAS 9.4.
  To determine when your order was placed, use the revision number in the Internal Reference field. In this example, the revision number is **Rev. 940_15w33**, which means that the software order is from the 33rd week of 2015.
- the list of products ordered to determine whether any new products are included in your order. Any new products that you are licensing are indicated by an asterisk.
Chapter 9
Understanding the SAS Software Depot

What Is the SAS Software Depot?

The SAS Software Depot is a directory that consists of a collection of SAS installation files that represent one or more orders. The depot contains the SAS Deployment Wizard executable, one or more deployment plans (if you have a planned deployment), a SAS installation data file, order data, and product data. Before you can install SAS, you must have a software depot. During a SAS software download, the SAS Download Manager downloads your order, verifies it, and automatically creates the SAS Software Depot.

Note: When you install SAS 9.4, you are required to create a new software depot. You cannot combine SAS 9.3 and SAS 9.4 orders in the same software depot. However, all maintenance releases and software upgrades in the SAS 9.4 lifecycle can be added to an existing SAS 9.4 Software Depot.

For more information about the SAS Software Depot, see these resources:

- SAS Installation Note 39379: Documentation and Frequently Asked Questions for the SAS Software Depot
- SAS Note 38236: Validating SAS Software Depots on Windows Using the SAS Software Depot Checker

Comparing Your Plan File to the Contents of Your Depot

When you initially install SAS 9.4 or when you add a product to an existing SAS 9.4 deployment, the SAS Deployment Wizard uses a plan file to install and configure your SAS products. You can use a standard deployment file that is provided by SAS. The benefit of downloading a standard deployment file from SAS is all the extra files that
you receive (such as a pre-installation checklist) in addition to the plan.xml file. Standard deployment plans are available from 9.4 Standard Deployment Plans.

Note: If you need to create a custom deployment plan, contact your SAS account representative or professional services representative. For more information, see SAS Note 44320: Using deployment plans during a SAS installation.

To see what products will be installed and configured, review the plan.xml file before you start the SAS Deployment Wizard. To view a diagram of your customized deployment plan, see details_diagram.html (optimized for Firefox) or details_diagram_for_ie7.mht (optimized for Internet Explorer) files that came with your custom plan file.

In the SAS Deployment Wizard, compare the contents of your plan file with the items in your SAS Software Depot. In the Specify Deployment Plan step, you can see the structure of the selected plan file. Items that are in bold, black font are either not in your order or are not supported on this platform. If software is missing from your order, contact your SAS account representative.

![Image of SAS Deployment Wizard]

**TIP** Standard deployment plans are available in your SAS Software Depot and 9.4 Standard Deployment Plans. Sample plans are also in the SAS Software Depot \products\sampleplans directory. If you need to create a custom deployment plan, copy your plan.xml file to the plan_files directory in your SAS Software Depot. (By default, the plan_files directory is empty after a new installation.) After you add a plan.xml file to this directory, the custom plan file is displayed in the Specify the full path to a customized deployment plan field.

After you complete your installation, a copy of the plan file that you used is saved in the SAS-configuration-directory/Lev1/Utilities directory. An example of this directory path on Windows is C:\SAS\Config\Lev1\Utilities\plan.date_time.xml.
Chapter 10
Understanding the SAS Installation Files

What Are the Instructions.html Files and the Deployment Summary?

When you apply a software update, SAS automatically creates several files that you can use to determine what products were updated, verify that the update was successful, and troubleshoot any errors.

- Instructions.html and UpdateInstructions.html
- Deployment Summary for the installation

Instructions.html and UpdateInstructions.html Files

After you install SAS for the first time, configure a new product, or reconfigure an existing product, you must complete the manual steps in the Instructions.html file to complete your deployment. The latest version of the Instructions.html file is available from a link in the last step of the SAS Deployment Wizard and in the $SAS$-configuration-directory/Levn/Documents/ directory. When you open the Instructions.html file, you see a document titled “Configuration Guidelines and Details for your-machine-name.” This document contains the validation steps for the last deployment that you performed. Previous versions of the Instructions.html file are available from the $SAS$-configuration-directory/Levn/Documents/Backup directory. You might need to refer to a previous Instructions.html file to re-validate your deployment.
After you install a maintenance release or upgrade to a new product release, you could see an UpdateInstructions.html file, which contains the configuration steps that you must manually complete. The UpdateInstructions.html file could contain a subset of steps from the original Instructions.html file, or it could contain new steps that you must complete because you are applying a maintenance release or upgrading to a new product. The latest version of the UpdateInstructions.html file is available from the `SAS-configuration-directory/Levn/Documents` directory. Previous versions of the UpdateInstructions.html file are available from the `SAS-configuration-directory/InstallMisc/InstallLogs` directory.

Note: If you need to re-validate your deployment after a software update, use the Instructions.html file from your initial deployment.

The Deployment Summary for the Installation

**How to Locate the Deployment Summary for the Installation**

A Deployment Summary for the installation process is saved in the `SAS-installation-directory/InstallMisc/InstallLogs` directory. If you exit the SAS Deployment Wizard without installing any updates, then the Deployment Summary is not saved to this directory.

Note: A Deployment Summary for each previous installation is saved in the home directory of the user ID that was used to install SAS. The Deployment Summary for the latest installation of the maintenance release is always available from `SAS-installation-directory/InstallMisc/InstallLogs`.

**About Each Section in the Deployment Summary**

**Update Summary**

The Update Summary lists the products that were updated. Only products that were previously installed on your machine are updated during a maintenance release or when you upgrade to a new product release.

The updates are divided into two categories.

- The Products to Install category lists any new products that you installed or any products that you upgraded to a new release.

- The Products to Upgrade category lists the products that were updated when you applied a software upgrade, such as a SAS maintenance release or a product-specific maintenance release.

For each product in the Update Summary, there are two columns of release numbers:

- The Installed column lists the product release number that was on your machine before you applied the maintenance release or product upgrade.

- The Updated column lists the product release number that is on your machine after you applied the maintenance release or product upgrade.

For each product in the Deployment Summary, review the information in “Product Details and Requirements” to determine the post-configuration steps that are necessary for your site. If you do not complete these post-configuration steps, you might experience unexpected behavior or errors that will affect the use of your SAS software.
**Installation Section**

The Installation section lists whether each product update installed successfully. In the following example, all products installed successfully, so you can complete any post-configuration steps for these products.

**Installation**

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS Deployment Manager</td>
<td>Completed successfully</td>
</tr>
<tr>
<td>SAS Management Console (Update)</td>
<td></td>
</tr>
<tr>
<td>SAS Deployment Tester Plugin for SAS Management Console</td>
<td>Completed successfully</td>
</tr>
<tr>
<td>SAS Table Server Plugin for SAS Management Console (Update)</td>
<td></td>
</tr>
<tr>
<td>SAS Web Infrastructure Client (Update)</td>
<td>Completed successfully</td>
</tr>
<tr>
<td>SAS Forecast Server Plugin for SAS Management Console</td>
<td>Completed successfully</td>
</tr>
<tr>
<td>SAS ESRI Map Manager Plugin for SAS Management Console</td>
<td>Completed successfully</td>
</tr>
<tr>
<td>SAS Enterprise Miner Plugin for SAS Management Console</td>
<td>Completed successfully</td>
</tr>
<tr>
<td>SAS Foundation Services (Update)</td>
<td></td>
</tr>
<tr>
<td>SAS Web Infrastructure Platform (Update)</td>
<td></td>
</tr>
<tr>
<td>SAS Analytics Platform (Update)</td>
<td></td>
</tr>
<tr>
<td>SAS Information Delivery Portal (Update)</td>
<td>Completed successfully</td>
</tr>
<tr>
<td>SAS Web Report Studio (Update)</td>
<td></td>
</tr>
<tr>
<td>SAS Shared Services (Update)</td>
<td></td>
</tr>
<tr>
<td>SAS Information Delivery Portal JPS Extension (Update)</td>
<td>Completed successfully</td>
</tr>
<tr>
<td>SAS BI Dashboard (Update)</td>
<td></td>
</tr>
<tr>
<td>SAS Help Viewer for the Web (Update)</td>
<td>Completed successfully</td>
</tr>
<tr>
<td>SAS Information Delivery Portal Help and Documentation (Update)</td>
<td></td>
</tr>
</tbody>
</table>

However, if a product installation failed or completed with errors (such as the SAS Add-In for Microsoft Office in the following example), review the audit files for that product.

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS Information Map Studio (Update)</td>
<td>Completed successfully</td>
</tr>
<tr>
<td>SAS Intelligence Platform Object Framework (Update)</td>
<td>Completed successfully</td>
</tr>
<tr>
<td>SAS Locate Setup Manager (Update)</td>
<td>Completed successfully</td>
</tr>
<tr>
<td>SAS Metadata Bridges (Update)</td>
<td>Completed successfully</td>
</tr>
<tr>
<td>SAS OLAP Cube Studio (Update)</td>
<td>Completed successfully</td>
</tr>
<tr>
<td>SAS Web Application Themes</td>
<td>Completed successfully</td>
</tr>
<tr>
<td>SAS Add-In for Microsoft Office</td>
<td>Completed with errors</td>
</tr>
<tr>
<td>SAS Data Integration Studio</td>
<td>Completed successfully</td>
</tr>
<tr>
<td>SAS Data Integration Studio (Update)</td>
<td>Completed successfully</td>
</tr>
<tr>
<td>SAS Enterprise Guide</td>
<td>Completed successfully</td>
</tr>
</tbody>
</table>

**Note:** The installation of the SAS Add-In for Microsoft Office might fail if Microsoft Office is not on the machine or if a Microsoft Office product is open.
Chapter 11
Installing SAS 9.4

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, the 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 these resources to determine the steps for installing and configuring SAS 9.4 at your site:

- Quick Start Guides at http://support.sas.com/documentation/installcenter/94
- SAS Intelligence Platform: Installation and Configuration Guide

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:

   ```bash
   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:
     ```bash
     C:\SAS-installation-directory\SASWebInfrastructurePlatformDataServer\9.4\bin\pg_dumpall -c -h localhost -U dbmsowner -p 9432 -f location\db.out
     ```
   - In UNIX environments, here is how you would use the `pg_dumpall` command:
     ```bash
     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
     pg_dumpall -c -h localhost -U dbmsowner -p 9432 -f -/wipdp.out
     ```
   c. When prompted, enter the password for each database that you are using. A separate prompt appears for each database.

   For more information about backups, see *SAS Intelligence Platform: System Administration Guide*.

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>
<thead>
<tr>
<th>Operating System</th>
<th>How to Start the SAS Deployment Wizard</th>
</tr>
</thead>
</table>
| Windows          | Double-click `setup.exe` in the highest-level directory in your SAS Software Depot.  
*Note:* If you are running Windows Vista, Windows 7, or Windows Server 2008, you might have to right-click the `setup.exe` file and select *Run as administrator.*  |
| UNIX             | Execute `setup.sh` from the highest-level directory in your SAS Software Depot. |
| z/OS             | For basic deployments, type `setup.rexx` to run the SAS Deployment Wizard.  
For planned deployments:  
• The first invocation of the SAS Deployment Wizard is to install the metadata server as a 64-bit application: `setup.rexx -z64`  
• The second invocation of the SAS Deployment Wizard is to install the remainder of your SAS 9.4 order as a 31-bit application: `setup.rexx`  
To use a temporary directory other than `/tmp`, specify `-templocation new-temp-dir`.  
*Note:* If you install SAS using the `-nojobsubmit` option, the process for applying a software update differs from the process that is described in this document. For more information, see *Documentation for a SAS 9.4 installation in z/OS operating environment* at support.sas.com. |
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.

![SAS Deployment Wizard](image)

**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 the SAS Deployment Manager. For more information, see “Working with CA Certificates for TLS and HTTPS Security” on page 40.

- 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. 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**. The 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*.

9. 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 the 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`.

10. In the Specify Connection Information page of the SAS Deployment Manager, enter the user ID and password of an unrestricted administrative user (for example, sasadm@saspw).

11. Use the 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.

   **Note:** 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.

   **Note:** On the SAS Web Infrastructure Database JDBC Properties page, the 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 redeployes 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. For more information, see “The Deployment Summary for the Installation” on page 56.

12. 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 the 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.

13. 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.

14. After upgrading all the middle-tier machines, restart all SAS Web Application Servers on all middle-tier machines in your deployment.

15. After the upgrade is complete, clear the cache in your web browser.

16. 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 the 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.

17. To validate the changes to your web application servers and SAS web applications, review the validation sections in your Instructions.html file.
Removing Retired Flex Products from the SAS Registry

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.

Starting in the May 2019 release of SAS 9.4M6, several SAS products have been converted from Flex to HTML5. These retired Flex versions can be removed from the SAS registry.

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

Installing a Hot Fix

Hot fixes that were released before the current maintenance release are automatically installed when you run the SAS Deployment Wizard. Additional hot fixes might be available for your products. If so, now is a good time to install these hot fixes. To determine whether there are additional hot fixes for your products, see http://ftp.sas.com/techsup/download/hotfix/hotfix.html.

The SAS Download Manager automatically downloads the necessary SAS hot fixes required by the SAS products in your order. However, these hot fixes are not automatically applied by the SAS Deployment Wizard during the update of your existing SAS environment.

Note: You can force the SAS Download Manager to skip downloading hot fixes when downloading and creating your SAS Software Depot.
Chapter 12

Upgrading to PostgreSQL 9.5

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 with SAS 9.4M6, SAS supports PostgreSQL 9.5.

If you are installing SAS 9.4M6 for the first time or 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 will not be 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 PostgreSQL 9.1.

To upgrade to PostgreSQL 9.5:

1. (Optional) Perform a backup of the deployment. You might have performed this backup before upgrading in place.
2. Stop all SAS services across all machines.
3. Determine all the machines that contain at least one PostgreSQL data server instance. Each machine contains this directory: `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4`. You need to perform these steps on all machines with PostgreSQL.
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. Repeat steps 4–10 for each SAS Home on that machine.
12. Start the SAS Metadata Server.
13. In a command prompt or terminal session, change the directory to 
   \&lt;SASHome&gt;/SASWebInfrastructurePlatformDataServer/9.4/scripts/upgrade.
14. Display an analysis report on the deployment of PostgreSQL. This report lists each 
   PostgreSQL data server configuration found in metadata, whether they are located 
   locally to the machine or remotely on another machine, and whether they are ready 
   to upgrade or have been upgraded to PostgreSQL 9.5.
   • In Linux environments, run run.sh.
   • In Windows environments, run run.bat.
   Use these parameters to connect to a metadata server using the SAS Administrator 
   (sasadmin) credentials:
   --metaserver &lt;metadata-host&gt; --metaport &lt;metadata-port&gt; --metauser &lt;sasadm-userid&gt; 
   --metapass &lt;sasadm-password&gt;
   Here is an example:
   ./run.sh --metaserver 127.0.0.1 --metaport 8561 --metauser sasadm@saspw --metapass XXXXXX
15. Upgrade any of the local PostgreSQL data servers by running the script again after 
   adding the --upgrade parameter.
   Here is an example:
   ./run.sh --metaserver 127.0.0.1 --metaport 8561 --metauser sasadm@saspw --metapass XXXXXX --upgrade
16. Perform steps 14 and 15 for each Config Level on this machine. Upgrade all Config 
   Levels on this machine before moving to the next machine in your deployment.
17. Repeat 4–16 steps for all machines that contain at least one PostgreSQL data server 
   instance.
18. After all the PostgreSQL data servers on all machines have been upgraded, start all 
   SAS Services across all machines.

Upgrading to PostgreSQL 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 data server instances. 
For these cases, you can use a single instance mode that can be used that does not 
require metadata connection. Using this mode requires that you provide the paths to each 
PostgreSQL data server instance to upgrade them one at a time.
1. (Optional) Perform a backup of the deployment. You might have performed this backup before upgrading in place.

2. Stop all SAS services across all machines.

3. Determine all the machines that contain at least one PostgreSQL data server instance. Each machine contains this directory: `<SASHome>/SASWebInfrastructurePlatformDataServer/9.4`. You need to perform these steps on all machines with PostgreSQL.

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. Repeat steps 4–10 for each SAS Home on that machine.

12. Start the SAS Metadata Server.

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

14. Display an analysis report on a single PostgreSQL data server instance. This report lists whether the instance is ready to upgrade or has been upgraded to PostgreSQL 9.5.
   - In Linux environments, run `run.sh`.
   - In Windows environments, run `run.bat`.

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

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

Here is an example:

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

15. Upgrade the PostgreSQL data server instance by running the script again after adding the `--upgrade` parameter.

Here is an example:

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

16. Perform steps 14 and 15 for each single PostgreSQL data server instance on each Config Lev on the machine. Upgrade all PostgreSQL data servers on this machine.

17. Repeat steps 4–16 for all machines containing at least one PostgreSQL data server instance.

18. After all the PostgreSQL data servers on all machines have been upgraded, start all SAS Services across all machines.
Part 5

Product Details and Requirements

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Chapter 13
Introduction to Product Details and Requirements

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:
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

---

**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 60.
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 78.

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 60. You can also add any new products. For more information, see “Adding a New Product” on page 78.

**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 14
Base SAS

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Determining Your Update Path for Base SAS

Upgrading an Existing Base SAS 9.4 Deployment

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<tr>
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<th>Release That You Are Upgrading To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>

Migrating to Base SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Migrating To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.3, 9.3M1, 9.3M2</td>
<td>9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5</td>
<td>1. Before you upgrade, see “Base SAS 9.4M2” on page 87, “Base SAS 9.4M3” on page 88, “Base SAS 9.4M4” on page 90, “Base SAS 9.4M5” on page 90, and “Base SAS 9.4M6” on page 91. 2. Install and configure SAS 9.4. To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:  • Quick Start Guides in the SAS Install Center  • SAS Intelligence Platform: Installation and Configuration Guide For migration information, see these resources:  • SAS Intelligence Platform: Migration Guide  • the product documentation page for Base SAS</td>
</tr>
</tbody>
</table>
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](http://site.icu-project.org/download/48) and [http://cldr.unicode.org/index/downloads/cldr-2-0](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 Gdevicen 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 Gdevicen 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:

<table>
<thead>
<tr>
<th>System Option</th>
<th>New Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPUCOUNT=</td>
<td>ACTUAL or 4 for systems that have more than four processors</td>
</tr>
<tr>
<td>DMSOUTSIZE=</td>
<td>2,147,483,647</td>
</tr>
<tr>
<td>LRECL=</td>
<td>32,767</td>
</tr>
<tr>
<td>PDFCOMMENT</td>
<td>PDFCOMMENT</td>
</tr>
<tr>
<td>YEARCUTOFF=</td>
<td>1926</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Area of Change</th>
<th>Previous Default</th>
<th>New Default Beginning with SAS 9.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Destination</td>
<td>LISTING</td>
<td>HTML</td>
</tr>
<tr>
<td>Default style for HTML destination</td>
<td>Styles.Default</td>
<td>Styles.HTMLBlue</td>
</tr>
<tr>
<td>ODS Graphics</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>Where graphs are saved</td>
<td>Current SAS directory</td>
<td>SAS Work Library</td>
</tr>
</tbody>
</table>

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 in 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.

<table>
<thead>
<tr>
<th>New Unicode Font</th>
<th>Fonts Being Replaced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arial Unicode MS</td>
<td>Monotype Sans WT TC</td>
</tr>
<tr>
<td></td>
<td>Monotype Sans WT J</td>
</tr>
<tr>
<td></td>
<td>Monotype Sans WT K</td>
</tr>
<tr>
<td>Times New Roman Uni</td>
<td>Thorndale Duospace WT SC</td>
</tr>
<tr>
<td></td>
<td>Thorndale Duospace WT TC</td>
</tr>
<tr>
<td></td>
<td>Thorndale Duospace WT J</td>
</tr>
<tr>
<td></td>
<td>Thorndale Duospace WT K</td>
</tr>
</tbody>
</table>

- CSongGB18030C_Light, MYingHei_18030_C-Medium, and CSongGB19030-LightHWL replace the Simplified Chinese fonts.

<table>
<thead>
<tr>
<th>New Font</th>
<th>Font Being Replaced</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSongGB18030C_Light</td>
<td>Sim Sun</td>
</tr>
<tr>
<td>MYingHei_18030_C-Medium</td>
<td>Sim Hei</td>
</tr>
<tr>
<td>CSongGB19030-LightHWL</td>
<td>NSimSun</td>
</tr>
</tbody>
</table>

**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.
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**

<table>
<thead>
<tr>
<th>GTL Statement</th>
<th>Deprecated Option</th>
<th>Replaced By</th>
</tr>
</thead>
<tbody>
<tr>
<td>AXISTABLE</td>
<td>HEADERLABEL=</td>
<td>TITLE= option</td>
</tr>
<tr>
<td></td>
<td>HEADERLABELATTRS=</td>
<td>TITLEATTRS= option</td>
</tr>
<tr>
<td>SCATTERPLOT</td>
<td>MARKERCOLORGRADIENT=</td>
<td>COLORRESPONSE= option</td>
</tr>
<tr>
<td></td>
<td>MARKERSIZERESPONSE=</td>
<td>SIZERESPONSE= option</td>
</tr>
<tr>
<td></td>
<td>MARKERSIZEMAX=</td>
<td>SIZEMAX= option</td>
</tr>
<tr>
<td></td>
<td>MARKERSIZEMIN=</td>
<td>SIZEMIN= option</td>
</tr>
<tr>
<td></td>
<td>OUTLINEDMARKERCHARACTERS=</td>
<td>TEXTPLOT statement</td>
</tr>
<tr>
<td>SCATTERPLOTMATRIX X</td>
<td>MARKERCOLORGRADIENT=</td>
<td>COLORRESPONSE= option</td>
</tr>
</tbody>
</table>
GTL Statement | Deprecated Option | Replaced By
--- | --- | ---
SURFACEPLOTPARM | SURFACECOLORGRADIENT= | COLORRESPONSE=

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 in 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 HEATMAPARM statement. Likewise, if the Y axis is discrete, the DISCRETEY=TRUE option must be specified in the HEATMAPARM 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 in 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 in 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 in SAS 9.4M5, band plots, box plots, bubble plots, high-low charts, ellipse plots, and polygon plots support fill patterns. Also starting in 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.
Chapter 15
SAS/ACCESS

Determining Your Update Path for SAS/ACCESS

Upgrading an Existing SAS 9.4 Deployment

Migrating to SAS 9.4

SAS/ACCESS 9.4

SAS/ACCESS 9.4M1

SAS/ACCESS 9.4M2

SAS/ACCESS 9.4M3

SAS/ACCESS 9.4M4

SAS/ACCESS 9.4M5

SAS/ACCESS 9.4M6

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 |
--- | --- | --- |

2. To upgrade to the latest release of SAS 9.4, see “Install and Configure a Software Update” on page 60.
Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Migrating To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>

To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:

- Quick Start Guides in the SAS Install Center
- SAS Intelligence Platform: Installation and Configuration Guide

For migration information, see these resources:

- SAS Intelligence Platform: Migration Guide
- the product documentation page for SAS/ACCESS

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 procedures 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**


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


• 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.
Chapter 16
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, and 8.2 for Microsoft Office run on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>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)</td>
<td></td>
<td>2. To upgrade to the latest release of SAS Add-In for Microsoft Office, see “Install and Configure a Software Update” on page 60.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4

SAS Add-In 7.1 for Microsoft Office and 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 new SAS 9.4 deployment.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8 (SAS 9.4M5); 8.1 and 8.2 (SAS 9.4M6)</td>
<td>3. To complete any post-configuration steps, see SAS Enterprise Guide 8.1 and SAS Add-In 8.1 for Microsoft Office: Administrator’s Guide.</td>
</tr>
<tr>
<td>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)</td>
<td>8.2 (SAS 9.4M6)</td>
<td>To migrate within the same release, see SAS 9.4 Intelligence Platform: Migration Guide.</td>
</tr>
</tbody>
</table>

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 8.2, 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


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 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 7.1 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 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 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**

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

SAS Add-In 8.2 for Microsoft Office shipped in November 2019. For more information, see the software product page for SAS Add-In for Microsoft Office.
Determining Your Update Path for SAS Anti-Money Laundering

Upgrading an Existing SAS 9.4 Deployment


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1, 6.1M1, 6.2, 6.2M1</td>
<td>6.3, 6.3M1 (SAS 9.4)</td>
<td>For more information about how to request this new release and the features that are available, contact your SAS account representative.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1, 5.1M1 (SAS 9.3)</td>
<td>7.1 (SAS 9.4)</td>
<td>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.</td>
</tr>
<tr>
<td>5.2M1 (SAS 9.3)</td>
<td>6.3, 6.3M1 (SAS 9.4)</td>
<td>For more information about how to request this new release and the features that are available, contact your SAS account representative.</td>
</tr>
<tr>
<td>6.1, 6.1M1, 6.2, 6.2M1, 6.3, 6.3M1 (SAS 9.4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

About SAS Anti-Money Laundering

SAS has shipped these releases of SAS Anti-Money Laundering:

- SAS Anti-Money Laundering 6.2 in April 2014.
- 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 18

SAS BI Dashboard

Determining Your Update Path for SAS BI Dashboard

Upgrading an Existing SAS 9.4 Deployment

Migrating to SAS 9.4

SAS BI Dashboard 4.4

SAS BI Dashboard 4.3

Updating Favorites in Your Web Browser

Determining Your Update Path for SAS BI Dashboard

Upgrading an Existing SAS 9.4 Deployment

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4 (SAS 9.4)</td>
<td>4.4M6 (SAS 9.4M6)</td>
<td>1. To upgrade to the latest release of SAS BI Dashboard 4.4, see “Install and Configure a Software Update” on page 60.</td>
</tr>
<tr>
<td>4.4M1 (SAS 9.4M1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4M2 (SAS 9.4M2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4M3 (SAS 9.4M3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4M4 (SAS 9.4M4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4M5 (SAS 9.4M5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4M6 (SAS 9.4M6)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Complete the post-configuration steps in “Updating Favorites in Your Web Browser” on page 111.
### 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.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.31, 4.31M1, 4.31M2 (SAS 9.3)</td>
<td>4.4</td>
<td>1. Before you migrate, see “SAS BI Dashboard 4.4” on page 110.</td>
</tr>
<tr>
<td>4.3 (SAS 9.2M3)</td>
<td>4.4M1 (SAS 9.4M1)</td>
<td>2. To migrate to the new release, see SAS 9.4 Intelligence Platform: Migration Guide. To create a new deployment, see SAS 9.4 Intelligence Platform: Installation and Configuration Guide.</td>
</tr>
<tr>
<td></td>
<td>4.4M3 (SAS 9.4M3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.4M4 (SAS 9.4M4)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.4M5 (SAS 9.4M5)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.4M6 (SAS 9.4M6)</td>
<td></td>
</tr>
<tr>
<td>4.4, 4.4M1, 4.4M2, 4.4M3, 4.4M4, 4.4M5</td>
<td>4.4</td>
<td>To migrate within the same SAS release, follow the steps in SAS 9.4 Intelligence Platform: Migration Guide.</td>
</tr>
<tr>
<td></td>
<td>4.4M1 (SAS 9.4M1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.4M2 (SAS 9.4M2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.4M3 (SAS 9.4M3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.4M4 (SAS 9.4M4)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.4M5 (SAS 9.4M5)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.4M6 (SAS 9.4M6)</td>
<td></td>
</tr>
<tr>
<td>4.4M6 (SAS 9.4)</td>
<td>4.4M6 (SAS 9.4)</td>
<td>To migrate within the same release, follow the steps in SAS 9.4 Intelligence Platform: Migration Guide.</td>
</tr>
</tbody>
</table>

### 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 101, “SAS Web Report Studio,” on page 365.

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.

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 19**

**SAS BI Portal**

Determining Your Update Path for SAS BI Portal

Upgrading an Existing SAS 9.4 Deployment

Migrating to SAS 9.4

SAS BI Portal 4.4

---

**Determining Your Update Path for SAS BI Portal**

*Upgrading an Existing SAS 9.4 Deployment*

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
**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.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.31, 4.31M1, 4.31M2 (SAS 9.3)</td>
<td>4.4, 4.4M1, 4.4M2, 4.4M3, 4.4M4, 4.4M5, 4.4M6 (SAS 9.4)</td>
<td>To migrate to a new release, see <a href="#">SAS 9.4 Intelligence Platform: Migration Guide</a>. To create a new deployment, see <a href="#">SAS 9.4 Intelligence Platform: Installation and Configuration Guide</a>.</td>
</tr>
<tr>
<td>4.3 (SAS 9.2M3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4, 4.4M1, 4.4M2, 4.4M3, 4.4M4, 4.4M5 (SAS 9.4)</td>
<td>4.4, 4.4M1, 4.4M2, 4.4M3, 4.4M4, 4.4M5, 4.4M6 (SAS 9.4)</td>
<td>To migrate within the same SAS release, follow the steps in <a href="#">SAS 9.4 Intelligence Platform: Migration Guide</a>.</td>
</tr>
<tr>
<td>4.4M6 (SAS 9.4)</td>
<td>4.4M6 (SAS 9.4)</td>
<td>To migrate within the same release, follow the steps in <a href="#">SAS 9.4 Intelligence Platform: Migration Guide</a>.</td>
</tr>
</tbody>
</table>

**SAS BI Portal 4.4**

SAS BI Portal 4.4 shipped in July 2013 and runs on SAS 9.4.
Chapter 20
SAS Business Data Network

Determining Your Update Path for SAS Business Data Network

Upgrading an Existing SAS 9.4 Deployment

Migrating to SAS 9.4

About SAS Business Data Network

Releases for SAS Business Data Network

Determining Your Update Path for SAS Business Data Network

Upgrading an Existing SAS 9.4 Deployment

SAS Business Data Network 3.1, 3.2, and 3.3 run on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 (SAS 9.4); 3.2 (SAS 9.4M4)</td>
<td>3.3 (SAS 9.4M6)</td>
<td>For more information about this release, see SAS Business Data Network: User’s Guide.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4

SAS Business Data Network is a new product that runs on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 (SAS 9.4); 3.2 (SAS 9.4M4)</td>
<td>3.3 (SAS 9.4M6)</td>
<td>For more information about migration, see SAS Business Data Network: User’s Guide.</td>
</tr>
<tr>
<td>3.3 (SAS 9.4M6)</td>
<td>3.3 (SAS 9.4M6)</td>
<td></td>
</tr>
</tbody>
</table>
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


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. For more information, see Chapter 8, “Reviewing Your Software Order,” on page 49.

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 78.
Determining Your Update Path for SAS Business Rules Manager

Upgrading an Existing SAS 9.4 Deployment

SAS Business Rules Manager 2.2 .................................. 118
SAS Business Rules Manager 3.1 ................................. 118
SAS Business Rules Manager 3.2 ................................. 119
SAS Business Rules Manager 3.3 ................................. 119

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.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2. To upgrade to the latest release of SAS Business Rules Manager, see “Install and Configure a Software Update” on page 60.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
2. To migrate to the new release, see SAS Business Rules Manager: Administrator’s Guide. To create a new deployment, see SAS 9.4 Intelligence Platform: Installation and Configuration Guide. |
| 3.3 (SAS 9.4M6)                          | 3.3 (SAS 9.4M6) | To migrate within the same release, see SAS Business Rules Manager: Administrator’s Guide. |

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 3.2M1 shipped in November 2018 and runs on SAS 9.4M6.

---

**SAS Business Rules 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 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](#).

For more information, see the software product page for [SAS Business Rules Manager](#).
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 | 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5 | 1. Before you upgrade, see “Maintenance Releases for SAS/CONNECT” on page 122.

2. To upgrade to the latest release of SAS/CONNECT 9.4, see “Install and Configure a Software Update” on page 60.
Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Migrating To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
2. Install and configure SAS 9.4. 
To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:  
• Quick Start Guides in the SAS Install Center  
• SAS Intelligence Platform: Installation and Configuration Guide  
For migration information, see these resources:  
• SAS Intelligence Platform: Migration Guide  
• the product documentation page for SAS/CONNECT |

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 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.
## Determining Your Update Path for SAS Contextual Analysis

### Upgrading an Existing SAS 9.4 Deployment


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
2. To upgrade to the latest release of SAS Contextual Analysis, see “Install and Configure a Software Update” on page 60. |
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.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.2 (SAS 9.4M2)</td>
<td>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)</td>
<td>For more information, contact your SAS account representative.</td>
</tr>
<tr>
<td>14.1, 14.1M1 (SAS 9.4M3); 14.2 (SAS 9.4M4); 14.3 (SAS 9.4M5)</td>
<td>14.1, 14.1M1 (SAS 9.4M3); 14.2 (SAS 9.4M4); 14.3 (SAS 9.4M5)</td>
<td></td>
</tr>
<tr>
<td>15.1 (SAS 9.4M6)</td>
<td>15.1 (SAS 9.4M6)</td>
<td></td>
</tr>
</tbody>
</table>

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.
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.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1, 8.1M1, 8.1M2, 8.1M4, 8.1M5, 8.1M6, 8.1M7 (SAS 9.4)</td>
<td>8.4 (SAS 9.4M6)</td>
<td>For more information about how to upgrade to the latest release, see <em>SAS Cost and Profitability Management: Installation, Migration, and Configuration Guide</em>.</td>
</tr>
</tbody>
</table>
Migrating to SAS 9.4

To run SAS Cost and Profitability Management 8.1 and 8.4, you must be running SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.2 (SAS 9.3)</td>
<td>8.1, 8.1M1, 8.1M2, 8.1M4, 8.1M5, 8.1M6, 8.1M7 (SAS 9.4), 8.4 (SAS 9.4M6)</td>
<td>For more information about how to migrate to this release, see SAS Cost and Profitability Management: Installation, Migration, and Configuration Guide.</td>
</tr>
<tr>
<td>8.1, 8.1M1, 8.1M2, 8.1M4, 8.1M5, 8.1M6, 8.1M7 (SAS 9.4)</td>
<td>8.4 (SAS 9.4M6)</td>
<td></td>
</tr>
<tr>
<td>8.4 (SAS 9.4M6)</td>
<td>8.4 (SAS 9.4M6)</td>
<td></td>
</tr>
</tbody>
</table>

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
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 25
SAS Credit Scoring for Banking

Determining Your Update Path for SAS Credit Scoring for Banking

Upgrading an Existing SAS 9.4 Deployment

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
--- | --- | ---
5.3 (SAS 9.4) | 5.4 (SAS 9.4) | For more information about how to upgrade to the latest release, see *SAS Credit Scoring for Banking: Upgrade and Migration Guide*.

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.
<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1, 5.2 (SAS 9.3)</td>
<td>5.3, 5.4 (SAS 9.4)</td>
<td>For more information, see <em>SAS Credit Scoring for Banking: Upgrade and Migration Guide</em>.</td>
</tr>
<tr>
<td>5.3 (SAS 9.4)</td>
<td>5.4 (SAS 9.4)</td>
<td></td>
</tr>
<tr>
<td>5.4 (SAS 9.4)</td>
<td>5.4 (SAS 9.4)</td>
<td></td>
</tr>
</tbody>
</table>

### 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

Determining Your Update Path for SAS Customer Due Diligence

Upgrading an Existing SAS 9.4 Deployment

Migrating to SAS 9.4

About SAS Customer Due Diligence

SAS Customer Due Diligence 6.1, 6.2, and 6.3 run on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1, 6.2, 6.3 (SAS 9.4)</td>
<td>6.3M1 (SAS 9.4)</td>
<td>For more information about how to request this new release and the features that are available, contact your SAS account representative.</td>
</tr>
</tbody>
</table>
Migrating to SAS 9.4

SAS Customer Due Diligence 6.1, 6.2, and 6.3 run on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1, 6.2, 6.3 (SAS 9.4)</td>
<td>6.3M1 (SAS 9.4)</td>
<td>For more information about how to migrate to the latest release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

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 79.
- 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

Determining Your Update Path for SAS Customer Intelligence

Upgrading an Existing SAS 9.4 Deployment

SAS Customer Intelligence includes these products:

- SAS Digital Marketing
- SAS Marketing Automation
- SAS Marketing Optimization
- SAS Real-Time Decision Manager

SAS Customer Intelligence 6.3, 6.4, and 6.5 run on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3, 6.4 (SAS 9.4)</td>
<td>6.4 (SAS 9.4); 6.5 (SAS 9.4M3)</td>
<td>For more information about this release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4

To run SAS Customer Intelligence 6.3, 6.4, or 6.5, 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
--- | --- | ---
6.1, 5.41 (SAS 9.3) | 6.3, 6.4 (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.
6.3, 6.4 (SAS 9.4) | 6.4 (SAS 9.4); 6.5 (SAS 9.4M3) | To migrate to SAS Customer Intelligence 6.4 or 6.5, contact your SAS account representative.
6.5 (SAS 9.4M3) | 6.5 (SAS 9.4M3) | 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

### 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

### 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

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.
Determined 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.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5, 5.6 (SAS 9.4)</td>
<td>5.6 (SAS 9.4), 6.5 (SAS 9.4M3)</td>
<td>For more information about how to request this new release and the features that are available, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5, 5.6 (SAS 9.4)</td>
<td>5.6 (SAS 9.4); 6.5 (SAS 9.4M3)</td>
<td>For more information about how to migrate to the latest release, contact your SAS account representative.</td>
</tr>
<tr>
<td>6.5 (SAS 9.4M3)</td>
<td>6.5 (SAS 9.4M3)</td>
<td></td>
</tr>
</tbody>
</table>
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 79.

• 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.
### About SAS and DataFlux

SAS has fully integrated the DataFlux suite of data quality, data integration, data governance, and master 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 master 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
- 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.

---

**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**

**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 ASExport procedure to export users and groups from the DataFlux Authentication Server to the SAS Metadata Server. However, to use the ASExport procedure, you must also be running SAS 9.4M3.

For more information about DataFlux Authentication Server 4.1M1 and the ASExport 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.
DataFlux Data Management Studio

**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 20, “SAS Business Data Network,” on page 115.

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 273.

**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 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 20, “SAS Business Data Network,” on page 115 and Chapter 71, “SAS Lineage,” on page 273.

- 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

Determining Your Update Path for SAS Data Integration Studio

Updating an Existing SAS 9.4 Deployment

SAS Data Integration Studio 4.7

SAS Data Integration Studio 4.7M1 and 4.8

SAS Data Integration Studio 4.7M* and 4.9*

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.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.7 (SAS 9.4)</td>
<td>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)</td>
<td>1. Before you upgrade, see “SAS Data Integration Studio 4.7M1 and 4.8” on page 150 and “SAS Data Integration Studio 4.7M* and 4.9*” on page 151 (if appropriate). 2. To upgrade to SAS Data Integration Studio 4.8 or 4.9, see “Install and Configure a Software Update” on page 60.</td>
</tr>
<tr>
<td>4.8 (SAS 9.4M1)</td>
<td>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)</td>
<td>1. Before you upgrade, see “SAS Data Integration Studio 4.7M* and 4.9*” on page 151. 2. To upgrade to SAS Data Integration Studio 4.9, see “Install and Configure a Software Update” on page 60.</td>
</tr>
</tbody>
</table>
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 new SAS 9.4 deployment.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>

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 273.

- 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.
Chapter 31

SAS Data Loader

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.
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.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.4, 2.5, 2.6, 2.7 (SAS 9.4)</td>
<td>2.5, 2.6, 2.7, 9.4 (SAS 9.4)</td>
<td>1. Before you upgrade, see “About SAS Data Quality Accelerator for Teradata” on page 156.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. To upgrade to the latest release of SAS Data Quality Accelerator for Teradata, see “Install and Configure a Software Update” on page 60.</td>
</tr>
</tbody>
</table>

**Migrating to SAS 9.4**

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.4, 2.5, 2.6, 2.7, 9.4 (SAS 9.4)</td>
<td>2.5, 2.6, 2.7, 9.4 (SAS 9.4)</td>
<td>To migrate within the same SAS release, see <em>SAS In-Database Products: Administrator’s Guide.</em></td>
</tr>
</tbody>
</table>
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.
Determining Your Update Path for SAS Data Quality Server

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 | 1. Before you upgrade, see “SAS 9.4 Data Quality Server” on page 158.
    |                                  | 2. To upgrade to the latest release of SAS 9.4, see “Install and Configure a Software Update” on page 60.
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.

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Migrating To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
2. Install and configure SAS 9.4.  
   To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:  
   • Quick Start Guides in the SAS Install Center  
   • SAS Intelligence Platform: Installation and Configuration Guide  
   For migration information, see these resources:  
   • SAS Intelligence Platform: Migration Guide  
   • the product documentation page for SAS Data Quality Server |

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
Chapter 34
SAS Data Remediation

Determining Your Update Path for SAS Data Remediation

Upgrading an Existing SAS 9.4 Deployment
SAS Data Remediation 2.1, 2.2, 2.3, and 2.4 run on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1, 2.1M1, 2.2, 2.4 (SAS 9.4)</td>
<td>2.4 (SAS 9.4)</td>
<td>For more information about this release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4
SAS Data Remediation 2.1 is a new product that runs on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1, 2.1M1, 2.2, 2.3 (SAS 9.4)</td>
<td>2.4 (SAS 9.4)</td>
<td>To migrate to SAS Data Remediation 2.4, see SAS MDM: Administrator’s Guide.</td>
</tr>
<tr>
<td>2.4 (SAS 9.4)</td>
<td>2.4 (SAS 9.4)</td>
<td>To migrate within the same release, see SAS MDM: Administrator’s Guide.</td>
</tr>
</tbody>
</table>
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.

For more information about these releases, contact your SAS account representative and see the product documentation page for SAS Data Remediation.
### 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.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>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)</td>
<td>3.3 (SAS 9.4M6)</td>
<td>1. Before you upgrade, see “About SAS Decision Manager” on page 162.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. To upgrade to the latest release of SAS Decision Manager, see “Install and Configure a Software Update” on page 60.</td>
</tr>
</tbody>
</table>
### Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>

### 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 77, “SAS Micro Analytic Services,” on page 287.

**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**

SAS Decision Manager 3.3 runs on the June 2019 release of 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.
### Determining Your Update Path for SAS Decision Services

**Upgrading an Existing SAS 9.4 Deployment**

SAS Decision Services 6.2, 6.3, and 6.5 run on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.2 6.3 (SAS 9.4)</td>
<td>6.3 (SAS 9.4); 6.5 (SAS 9.4M3)</td>
<td>For more information about how to request this new release and the features that are available, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

**Migrating to SAS 9.4**

To run SAS Decision Services 6.2, 6.3, or 6.5, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.6, 5.5, 5.5M1 (SAS 9.3)</td>
<td>6.3, 6.2 (SAS 9.4); 6.5 (SAS 9.4M3)</td>
<td>For more information about how to request this new release and the features that are available, contact your SAS account representative.</td>
</tr>
</tbody>
</table>
### About SAS Decision Services

SAS has shipped these releases of SAS Decision Services:

- SAS Decision Services 6.3 shipped in May 2014.
- SAS Decision Services 6.5 shipped in June 2016.

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.
Chapter 37
SAS Digital Marketing

Determining Your Update Path for SAS Digital Marketing

Upgrading an Existing SAS 9.4 Deployment

SAS Digital Marketing 6.3 and 6.4 run on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3, 6.4 (SAS 9.4)</td>
<td>6.4 (SAS 9.4); 6.5 (SAS 9.4M3)</td>
<td>For more information about this release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1, 5.41 (SAS 9.3)</td>
<td>6.3, 6.4 (SAS 9.4); 6.5 (SAS 9.4M3)</td>
<td>For more information about how to request this new release and the features that are available, contact your SAS account representative.</td>
</tr>
<tr>
<td>6.3, 6.4 (SAS 9.4)</td>
<td>6.5 (SAS 9.4M3)</td>
<td>To migrate to SAS Digital Marketing 6.5, contact your SAS account representative.</td>
</tr>
</tbody>
</table>
### 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.
Chapter 38
SAS Document Conversion Server

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 96, “SAS Text Miner,” on page 341.
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.

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Upgrading To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.3, 13.1, 13.2, 14.1, 14.2</td>
<td>14.3</td>
<td>For more information about how to request this new release and the features that are available, contact your SAS account representative. To upgrade to the latest release of SAS Document Conversion Server, see “About SAS Document Conversion Server” on page 170.</td>
</tr>
</tbody>
</table>

**Migrating to SAS 9.4**


<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Migrating To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.3, 13.1, 13.2, 14.1, 14.2 5.1M1</td>
<td>14.3</td>
<td>For more information about how to request this new release and the features that are available, contact your SAS account representative. To upgrade to the latest release of SAS Document Conversion Server, see “About SAS Document Conversion Server” on page 170.</td>
</tr>
</tbody>
</table>

**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.
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.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1, 3.2 (SAS 9.4)</td>
<td>4.1 (SAS 9.4M5)</td>
<td>For more information about this release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4

SAS Energy Forecasting is a new product that runs on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1, 3.2 (SAS 9.4)</td>
<td>4.1 (SAS 9.4M5)</td>
<td>To migrate within the same release, contact your SAS account representative.</td>
</tr>
<tr>
<td>4.1 (SAS 9.4M5)</td>
<td>4.1 (SAS 9.4M5)</td>
<td></td>
</tr>
</tbody>
</table>
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.
Determining Your Update Path for SAS Enterprise Case Management

Upgrading an Existing SAS 9.4 Deployment


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1, 6.1M1, 6.2, 6.2M2, 6.3 (SAS 9.4)</td>
<td>6.3M1 (SAS 9.4)</td>
<td>For more information about how to request this new release and the features that are available, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

Current Release at Your Site (SAS Release):

- 6.1, 6.1M1, 6.2, 6.2M2, 6.3 (SAS 9.4)

Release That You Are Upgrading To (SAS Release):

- 6.3M1 (SAS 9.4)
**Migrating to SAS 9.4**

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1, 6.1M1, 6.2, 6.2M2, 6.3 (SAS 9.4)</td>
<td>6.3M1 (SAS 9.4)</td>
<td>For more information about how to migrate to the latest release of SAS Enterprise Case Management, see <em>SAS Enterprise Case Management: Administrator’s Guide</em>.</td>
</tr>
<tr>
<td>3.2M1 (SAS 9.3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SAS Enterprise Case Management

SAS shipped these releases of SAS Enterprise Case Management:

- 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 79.
- 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.
Chapter 41
SAS Enterprise GRC

Determining Your Update Path for SAS Enterprise GRC

Updating an Existing SAS 9.4 Deployment

Migrating to SAS 9.4

SAS Enterprise GRC 6.1

SAS Enterprise GRC 6.1 is the first release on 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 shipped in October 2014. For more information about the new features in this release, see the software product page for SAS Enterprise GRC.
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SAS Enterprise Guide

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**Updating an Existing SAS 9.4 Deployment**

SAS Enterprise Guide 6.1, 7.1, 8.1, and 8.2 run on SAS 9.4.

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<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2. To upgrade to the latest release of SAS Enterprise Guide, see “Install and Configure a Software Update” on page 60.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> 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.</td>
</tr>
</tbody>
</table>

**Migrating to SAS 9.4**


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2. To migrate to the new release, see SAS 9.4 Intelligence Platform: Migration Guide. To create a new deployment, see SAS 9.4 Intelligence Platform: Installation and Configuration Guide.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. To complete any post-configuration steps, see SAS Enterprise Guide 8.2 and SAS Add-In 8.2 for Microsoft Office: Administrator’s Guide.</td>
</tr>
</tbody>
</table>
### 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

To migrate to SAS 9.4M6, see the SAS 9.4 Intelligence Platform: Migration Guide.
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.

---

**SAS Enterprise Guide 8.2**

SAS Enterprise Guide 8.2 shipped in November 2019. Support for SAS Viya was added in this release.

For more information, see the software product page for [SAS Enterprise Guide](https://support.sas.com/help/sas-enterprise-guide).
Chapter 43
SAS Enterprise Miner

Determining Your Update Path for SAS Enterprise Miner

Updating an Existing SAS 9.4 Deployment
Migrating to SAS 9.4

SAS Enterprise Miner 12.3
SAS Enterprise Miner 13.1 and Later Releases

Determining Your Update Path for SAS Enterprise Miner

Updating an Existing SAS 9.4 Deployment


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<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
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<th>High-Level Steps and Resources</th>
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**Migrating to SAS 9.4**


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.1 (SAS 9.4M6)</td>
<td>15.1 (SAS 9.4M6)</td>
<td>To migrate within the same release, follow the steps in SAS Enterprise Miner: Administration and Configuration Guide.</td>
</tr>
</tbody>
</table>

**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 in 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 in 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 in 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 78.

• 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.

For more information about SAS Enterprise Miner, see the software product page for SAS Enterprise Miner.
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 shipped with SAS 9.4M1. SAS Environment Manager 2.3 and 2.4 run on SAS 9.4M2. SAS Environment Manager 2.5 runs on SAS 9.4M3.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 (SAS 9.4, SAS 9.4M1)</td>
<td>2.6 (SAS 9.4M6)</td>
<td>1. Before you upgrade, see “SAS Environment Manager 2.1 (SAS 9.4M1)” on page 191, “SAS Environment Manager 2.3 and SAS Environment Manager 2.4” on page 191, and “SAS Environment Manager 2.5” on page 192 (if appropriate).</td>
</tr>
<tr>
<td>2.3 and 2.4 (SAS 9.4M2)</td>
<td></td>
<td>2. To upgrade to the latest release, see “Install and Configure a Software Update” on page 60.</td>
</tr>
<tr>
<td>2.5 (SAS 9.4M3, SAS 9.4M4, and SAS 9.4M5)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 (SAS 9.4, SAS 9.4M1)</td>
<td>2.6 (SAS 9.4M6)</td>
<td>To migrate within the same SAS release, see SAS 9.4 Intelligence Platform: Migration Guide.</td>
</tr>
<tr>
<td>2.3 and 2.4 (SAS 9.4M2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5 (SAS 9.4M3, SAS 9.4M4, and SAS 9.4M5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.6 (SAS 9.4M6)</td>
<td>2.6 (SAS 9.4M6)</td>
<td></td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Group Name in SAS Metadata</th>
<th>Role in SAS Environment Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS_EV_Super_User</td>
<td>Super User Role</td>
</tr>
<tr>
<td>SAS_EV_Guest</td>
<td>Guest Role</td>
</tr>
<tr>
<td>SAS_EV_AppServer_Tier</td>
<td>SAS App Tier Role</td>
</tr>
</tbody>
</table>

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/Lev/RWeb/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/Lev/RWeb/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/Lev/RWeb/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/Lev/RWeb/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 ugpinit 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 223.

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.

SAS Environment Manager 2.6

SAS Environment Manager 2.6 shipped in May 2019 and runs on SAS 9.4M6 and later releases. For more information about this release, see the software product page for SAS Environment Manager.
## Determining Your Update Path for SAS Episode Analytics

### Upgrading an Existing SAS 9.4 Deployment

SAS Episode Analytics 2.1, 2.2, and 3.1 run on SAS 9.4.

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<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
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<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1, 2.2 (SAS 9.4)</td>
<td>2.2, 3.1 (SAS 9.4)</td>
<td>For information about the new features and enhancements in this release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

### Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1, 2.2, 3.1 (SAS 9.4)</td>
<td>2.2, 3.1 (SAS 9.4)</td>
<td>To migrate within the same release, see the documentation for SAS Episode Analytics.</td>
</tr>
</tbody>
</table>
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.
Chapter 46

SAS/ETS

Determining Your Update Path for SAS/ETS

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About SAS/ETS

Determining Your Update Path for SAS/ETS

Upgrading Your Existing SAS 9.4 Deployment


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
2. To upgrade to the latest release of SAS/ETS, see “Install and Configure a Software Update” on page 60. |
## Migrating to SAS 9.4


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2. Install and configure SAS 9.4.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Quick Start Guides in the SAS Install Center</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• SAS Intelligence Platform: Installation and Configuration Guide</td>
</tr>
</tbody>
</table>

For migration information, see these resources:

- SAS Intelligence Platform: Migration Guide
- the product documentation page for SAS/ETS

## 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 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.
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SAS Event Stream Manager

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<tr>
<td>4.3 (SAS 9.4M4), 5.1 (SAS 9.4M5)</td>
<td>6.1 (SAS 9.4M6)</td>
<td>For more information about how to upgrade to the latest release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

**Migrating to SAS 9.4**

<table>
<thead>
<tr>
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<td>4.3 (SAS 9.4M4), 5.1 (SAS 9.4M5)</td>
<td>6.1 (SAS 9.4M6)</td>
<td>For more information about how to migrate to this release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>
About SAS Event Stream Manager

SAS shipped these releases of SAS Event Stream Manager:

- SAS Event Stream Manager 4.3 in May 2017, which supports SAS 9.4M4.
- SAS Event Stream Manager 5.1 in November 2017, which supports SAS 9.4M5.

One XML element and one attribute in SAS Event Stream Manager 5.2 job templates have changed since SAS Event Stream Manager 5.1. Opening a legacy job template in SAS Event Stream Manager 5.2 does not upgrade your XML code to the new format. You must manually replace the elements and attributes that differ. For more information, see SAS Event Stream Manager 5.2: What’s New in SAS Event Stream Manager: What’s New.

- SAS Event Stream Manager 6.1 in May 2019, which supports SAS 9.4M6.

SAS Event Stream Manager no longer uses agents to communicate with SAS Event Stream Processing. Instead, you can configure the esm.xml file in SAS Event Stream Processing to enable SAS Event Stream Processing to pass information about ESP servers to SAS Event Stream Manager.

For more information about these releases, contact your SAS account representative and see the product documentation page for SAS Event Stream Manager.
Chapter 48
SAS Event Stream Processing

Determining Your Update Path for SAS Event Stream Processing

Upgrading an Existing SAS 9.4 Deployment

Migrating to SAS 9.4

About SAS Event Stream Processing

Determining Your Update Path for SAS Event Stream Processing

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

2.1, 2.2, 2.3 (SAS 9.4) 6.1 (SAS 9.4M6) 2.1, 2.2, 2.3 (SAS 9.4) 6.1 (SAS 9.4M6)

For more information about how to upgrade to the latest release, contact your SAS account representative.
Migrating to SAS 9.4

<table>
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<td>6.1 (SAS 9.4M6)</td>
<td>For more information about how to migrate to this release, contact your SAS account representative.</td>
</tr>
<tr>
<td>3.1 (SAS 9.4M2); 3.2, 4.1 (SAS 9.4M3); 4.2 and 4.3 (SAS 9.4M4); 5.1 (SAS 9.4M5)</td>
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<tr>
<td>6.1 (SAS 9.4M6)</td>
<td>6.1 (SAS 9.4M6)</td>
<td></td>
</tr>
</tbody>
</table>

About SAS Event Stream Processing

SAS has shipped these releases of SAS Event Stream Processing:
- SAS Event Stream Processing Engine 2.2 in April 2014.
- SAS Event Stream Processing Engine 2.3 in November 2014.
- SAS Event Stream Processing 3.1 in May 2015. Starting with this release, the product name has changed to SAS Event Stream Processing.
- SAS Event Stream Processing 3.2 in November 2015.
- SAS Event Stream Processing 4.2 in September 2016.
- SAS Event Stream Processing 4.3 in May 2017.
- SAS Event Stream Processing 5.1 in December 2017.
- SAS Event Stream Processing 5.2 in June 2018.

For more information about these releases, contact your SAS account representative and see the product documentation page for SAS Event Stream Processing.

Note: The documentation for SAS Event Stream Processing is available only to customers who license this product.
Chapter 49
SAS Financial Crimes Monitor

Determining Your Update Path for SAS Financial Crimes Monitor
Upgrading an Existing SAS 9.4 Deployment
Migrating to SAS 9.4

About SAS Financial Crimes Monitor

Determining Your Update Path for SAS Financial Crimes Monitor

Upgrading an Existing SAS 9.4 Deployment

SAS Financial Crimes Monitor 6.2 and 6.3 run on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.2 (SAS 9.4)</td>
<td>6.3 (SAS 9.4)</td>
<td>For more information about how to request this new release and the features that are available, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1M1 (SAS 9.3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

About SAS Financial Crimes Monitor

SAS has shipped these releases of SAS Financial Crimes Monitor:


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.
Chapter 50
SAS Financial Management

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.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.4, 5.5 (SAS 9.4)</td>
<td>5.6 (SAS 9.4)</td>
<td>For more information about how to upgrade to this release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.4, 5.5 (SAS 9.4)</td>
<td>5.6 (SAS 9.4)</td>
<td>To migrate or create a new deployment, see <em>SAS Financial Management 5.6: Installation and Configuration Guide</em></td>
</tr>
<tr>
<td>5.3, 5.3M1 (SAS 9.3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### 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 79.

---

### SAS Financial Management 5.6


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 51
SAS Factory Miner

Determining Your Update Path for SAS Factory Miner

Updating an Existing SAS 9.4 Deployment
SAS Factory Miner 14.1 and 14.2 run on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1 (SAS 9.4M3)</td>
<td>14.2 (SAS 9.4M4)</td>
<td>To upgrade to the latest release of SAS Enterprise Miner, see “Install and Configure a Software Update” on page 60.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4
SAS Factory Miner is new for SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Release at Your Site (SAS Release)</td>
<td>Release That You Are Migrating To (SAS Release)</td>
<td>High-Level Steps and Resources</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>14.2 (SAS 9.4M4)</td>
<td>14.2 (SAS 9.4M4)</td>
<td>To migrate within the same release, follow the steps in <em>SAS Factory Miner 14.2: Administration and Configuration Guide.</em></td>
</tr>
</tbody>
</table>

**SAS Factory Miner 14.2**


For more information about SAS Factory Miner 14.2, see the software product page for SAS Factory Miner.
Chapter 52
SAS Firmwide Risk for Solvency II

Determining Your Update Path for SAS Firmwide Risk for Solvency II

Upgrading an Existing SAS 9.4 Deployment

To upgrade to a new release, see SAS Infrastructure for Risk Management: Administrator’s Guide.

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.

<table>
<thead>
<tr>
<th>Current SAS Release at Your Site</th>
<th>SAS Release That You Are Upgrading To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1, 3.2 (SAS 9.4)</td>
<td>3.3 (SAS 9.4)</td>
<td>To migrate to the new release or to create a new deployment, see SAS Infrastructure for Risk Management: Administrator’s Guide.</td>
</tr>
</tbody>
</table>
Chapter 53
SAS Forecast Analyst Workbench

Determining Your Update Path for SAS Forecast Analyst Workbench

Upgrading an Existing SAS 9.4 Deployment

Migrating to SAS 9.4

About SAS Forecast Analyst Workbench

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.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.2, 5.2M2, 5.3 (SAS 9.4)</td>
<td>5.2M2, 5.3, 5.3M1 (SAS 9.4)</td>
<td>For more information about how to upgrade to the latest release, see <em>SAS Forecast Analyst Workbench: Upgrade and Migration Guide</em>.</td>
</tr>
</tbody>
</table>
Migrating to SAS 9.4

To run SAS Forecast Analyst Workbench 5.2 and 5.3, you must be running SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 (SAS 9.3)</td>
<td>5.2, 5.2M2, 5.3, 5.3M1 (SAS 9.4)</td>
<td>For more information about how to migrate to this release, see <em>SAS Forecast Analyst Workbench: Upgrade and Migration Guide</em>.</td>
</tr>
<tr>
<td>5.2, 5.2M2 (SAS 9.4)</td>
<td>5.2M2, 5.3, 5.3M1 (SAS 9.4)</td>
<td></td>
</tr>
<tr>
<td>5.3, 5.3M1 (SAS 9.4)</td>
<td>5.3, 5.3M1 (SAS 9.4)</td>
<td></td>
</tr>
</tbody>
</table>

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 54

SAS Forecast Server

Determining Your Update Path for SAS Forecast Server

Upgrading an Existing SAS 9.4 Deployment

Migrating to SAS 9.4

About SAS Forecast Server

Determining Your Update Path for SAS Forecast Server

Upgrading an Existing SAS 9.4 Deployment


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
2. To upgrade to the latest release of SAS Forecast Server, see “Install and Configure a Software Update” on page 60. |
Migrating to SAS 9.4


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.1 (SAS 9.4M6)</td>
<td>To migrate within the same SAS release, see SAS Forecast Server: Migration Guide (for the release at your site).</td>
<td></td>
</tr>
</tbody>
</table>

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](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 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 15.1 in November 2018.

For more information about these releases, contact your SAS account representative and see the software product page for SAS Forecast Server.
Determining Your Update Path for SAS Fraud Management

Upgrading an Existing SAS 9.4 Deployment

SAS Fraud Management 4.1, 4.2, and 4.3 run on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Upgrading To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1, 4.2, 4.2M1</td>
<td>4.2, 4.2M1, 4.3</td>
<td>For more information about how to upgrade to the latest release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4

To run SAS Fraud Management 4.1, 4.2, or 4.3, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.
About SAS Fraud Management

SAS shipped these releases of SAS Fraud Management:

• SAS Fraud Management 4.1 in June 2014
• SAS Fraud Management 4.2 in July 2015
• SAS Fraud Management 4.2M1 in November 2015
• SAS Fraud Management 4.3 in May 2016

For more information about these releases, contact your SAS account representative and see the product documentation page for SAS Fraud Management.

Note: The documentation for SAS Fraud Management is available only to customers who license this product.
Determining Your Update Path for SAS/GRAPH

Upgrading an Existing SAS 9.4 Deployment

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Upgrading To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2. To upgrade to the latest release of SAS/GRAPH 9.4, see “Install and Configure a Software Update” on page 60.</td>
</tr>
</tbody>
</table>
### Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Migrating To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
2. Install and configure SAS 9.4.  
To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:  
• Quick Start Guides in the SAS Install Center  
• SAS Intelligence Platform: Installation and Configuration Guide  
For migration information, see these resources:  
• SAS Intelligence Platform: Migration Guide  
• the product documentation page for SAS/GRAPH |

### 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 filename, if generated.

  Note: For more information about significant changes that occurred in SAS 9.4, see “Base SAS 9.4” on page 83.

- 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 filename. 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 filename is the NAME= value specified and an underscore is no longer prepended. When the NAME= value is eight characters or less, the graphics output filename continues to be equivalent to the GRSEG entry name.


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.
Determining Your Update Path for SAS Grid Manager

Upgrading an Existing SAS 9.4 Deployment

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Upgrading To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
| SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5 | SAS 9.4M6 | 1. Before you upgrade, see “Releases of SAS Grid Manager” on page 224.  
2. To upgrade to the latest release for SAS 9.4, see “Install and Configure a Software Update” on page 60. |
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.

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Migrating To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Quick Start Guides in the SAS Install Center</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• SAS Intelligence Platform: Installation and Configuration Guide</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For migration information, see these resources:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• SAS Intelligence Platform: Migration Guide</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• the product documentation page for SAS Grid Manager</td>
</tr>
</tbody>
</table>

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 9.4M6 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.
Chapter 58
SAS High-Performance Analytics Infrastructure

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.

---

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

### Determining Your Update Path for SAS High-Performance Risk

#### Upgrading an Existing SAS 9.4 Deployment

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Upgrading To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1, 3.2, 3.2M1, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8 (SAS 9.4); 3.9 (SAS 9.4M5)</td>
<td>4.2 (SAS 9.4M6)</td>
<td>For more information about how to upgrade to the latest release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

### Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8 (SAS 9.4); 3.9 (SAS 9.4M5)</td>
<td>4.2 (SAS 9.4M6)</td>
<td>For more information about how to migrate to this release, contact your SAS account representative.</td>
</tr>
<tr>
<td>4.2 (SAS 9.4M6)</td>
<td>4.2 (SAS 9.4M6)</td>
<td></td>
</tr>
</tbody>
</table>
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 4.2 in June 2019.

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.
Determining Your Update Path for SAS/IML

Upgrading an Existing SAS 9.4 Deployment


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
2. To upgrade to the latest release of SAS/IML, see “Install and Configure a Software Update” on page 60. |
Migrating to SAS 9.4


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.1 (SAS 9.4M6)</td>
<td>15.1 (SAS 9.4M6)</td>
<td></td>
</tr>
</tbody>
</table>

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 15.1 shipped in November 2018. For more information about this release, see What's New in SAS/IML 15.1.
Determining Your Update Path for the SAS Information Delivery Portal

Upgrading an Existing SAS 9.4 Deployment

SAS Information Delivery Portal 4.4 runs on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4 (SAS 9.4)</td>
<td>4.4M1 (SAS 9.4M1), 4.4M2 (SAS 9.4M2)</td>
<td>1. To upgrade to the latest release of SAS Information Portal 4.4, see “Install and Configure a Software Update” on page 60.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Complete any post-configuration steps. For more information, see “Updating Favorites in Your Web Browser” on page 237.</td>
</tr>
</tbody>
</table>
**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.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.31, 4.31M1, 4.31M2 (SAS 9.3)</td>
<td>4.4, 4.4M1, 4.4M2 (SAS 9.4)</td>
<td>1. Before you migrate, see “SAS Information Delivery Portal 4.4” on page 236.</td>
</tr>
<tr>
<td>4.3 (SAS 9.2M3)</td>
<td></td>
<td>2. To migrate to the new release, see SAS 9.4 Intelligence Platform: Migration Guide. To create a new deployment, see SAS 9.4 Intelligence Platform: Installation and Configuration Guide.</td>
</tr>
<tr>
<td>4.2 (SAS 9.2)</td>
<td>4.4M2 (SAS 9.4)</td>
<td>1. Before you upgrade, see “SAS Information Delivery Portal 4.3” on page 237 and “SAS Information Delivery Portal 4.4” on page 236.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. To migrate to the new release, see SAS 9.4 Intelligence Platform: Migration Guide. To create a new deployment, see SAS 9.4 Intelligence Platform: Installation and Configuration Guide.</td>
</tr>
<tr>
<td>4.4 (SAS 9.4)</td>
<td>4.4, 4.4M1 (SAS 9.4)</td>
<td>To migrate within the same SAS release, follow the steps in SAS 9.4 Intelligence Platform: Migration Guide.</td>
</tr>
<tr>
<td>4.4M1 (SAS 9.4)</td>
<td>4.4M1 (SAS 9.4)</td>
<td>To migrate within the same release, follow the steps in SAS 9.4 Intelligence Platform: Migration Guide.</td>
</tr>
</tbody>
</table>

**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 101, “SAS Web Report Studio,” on page 365.

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.
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SAS Infrastructure for Risk Management

Determining Your Update Path for SAS Infrastructure for Risk Management

Upgrading an Existing SAS 9.4 Deployment

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Upgrading To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1, 3.2, 3.3, 3.4, 3.5 (SAS 9.4)</td>
<td>3.6 (SAS 9.4M6)</td>
<td>For more information about how to upgrade to the latest release, see <em>SAS Infrastructure for Risk Management: Administrator’s Guide</em></td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1, 3.2, 3.3, 3.4, 3.5</td>
<td>3.6 (SAS 9.4M6)</td>
<td>For more information about how to upgrade to the latest release, see <em>SAS Infrastructure for Risk Management: Administrator’s Guide</em></td>
</tr>
</tbody>
</table>
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

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

Determining Your Update Path for SAS In-Database Technologies

Upgrading an Existing SAS 9.4 Deployment
Migrating to SAS 9.4

About SAS In-Database Technologies
SAS 9.4 In-Database Technologies
SAS 9.4M1 In-Database Technologies
SAS 9.4M2 In-Database Technologies
SAS 9.4M3 In-Database Technologies
SAS 9.4M4 In-Database Technologies
SAS 9.4M5 In-Database Technologies
SAS 9.4M6 In-Database Technologies

Determining Your Update Path for SAS In-Database Technologies

Upgrading an Existing SAS 9.4 Deployment

1. Before you upgrade, see “About SAS In-Database Technologies” on page 242.
2. To upgrade to the latest release of SAS 9.4 In-Database Technologies, see “Install and Configure a Software Update” on page 60.

Migrating to SAS 9.4

You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.
Before you migrate, see “About SAS In-Database Technologies” on page 242.

1. Install and configure SAS 9.4.

To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:

- Quick Start Guides in the SAS Install Center
- SAS Intelligence Platform: Installation and Configuration Guide

For pre-installation and post-configuration information, see SAS 9.4 In-Database Products: Administrator’s Guide on the product documentation page for SAS In-Database Technology.

### 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 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**


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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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.

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Upgrading To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>

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
--- | --- | ---
2. To migrate to the new release, see SAS 9.4 Intelligence Platform: Migration Guide. To create a new deployment, see SAS 9.4 Intelligence Platform: Installation and Configuration Guide.
3. Complete the post-configuration steps in SAS 9.4 Intelligence Platform: Desktop Applications Guide

2. To migrate to the new release, see SAS 9.4 Intelligence Platform: Migration Guide. To create a new deployment, see SAS 9.4 Intelligence Platform: Installation and Configuration Guide.
3. Complete the post-configuration steps in SAS 9.4 Intelligence Platform: Desktop Applications Guide

4.4M6 (SAS 9.4M6) | 4.4M6 (SAS 9.4M6) | To migrate within the same release, see SAS 9.4 Intelligence Platform: Migration Guide.

---

**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.

<table>
<thead>
<tr>
<th>Release of SAS Information Map Studio</th>
<th>Release of SAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS Information Map Studio 4.4</td>
<td>SAS 9.4</td>
</tr>
<tr>
<td>SAS Information Map Studio 4.31</td>
<td>SAS 9.3</td>
</tr>
<tr>
<td>SAS Information Map Studio 4.2</td>
<td>SAS 9.2</td>
</tr>
</tbody>
</table>
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 101, “SAS Web Report Studio,” on page 365.

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.
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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) | For more information about how to upgrade to the latest release, see SAS Infrastructure for Risk Management: Administrator’s Guide

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 | 3.6 (SAS 9.4M6) | For more information about how to upgrade to the latest release, see SAS Infrastructure for Risk Management: Administrator’s Guide
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

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

Determining Your Update Path for SAS Integration Technologies

Upgrading an Existing SAS 9.4 Deployment

Determining Your Upgrade Path for SAS Integration Technologies

SAS 9.4 Integration Technologies

SAS Stored Processes
SAS BI Web Services
SAS Publishing Framework
SAS Foundation Services

Maintenance Releases for SAS Integration Technologies

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
---|---|---
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.

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Migrating To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
  
To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:  
  
- Quick Start Guides in the SAS Install Center  
- SAS Intelligence Platform: Installation and Configuration Guide  
  
For migration information, see these resources:  
  
- SAS Intelligence Platform: Migration Guide  
- the product documentation page for SAS Integration Technologies |

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:

<table>
<thead>
<tr>
<th>Suffix for SAS 9.3</th>
<th>Updated Suffix for SAS 9.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>/parameters/</td>
<td>/outputParameters/</td>
</tr>
</tbody>
</table>
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.

---

**Maintenance Releases for SAS Integration Technologies**

SAS has shipped these maintenance releases:

- SAS 9.4M1 Integration Technologies shipped in December 2013.

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 9.4M6 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.

For more information about these releases, see the software product page for SAS Integration Technologies.
## Chapter 67

### SAS Intelligence Platform

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<th>Page</th>
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<td>Upgrading an Existing SAS 9.4 Deployment</td>
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<td>SAS Intelligence Platform 9.4M2</td>
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<td>SAS Web Infrastructure Platform Data Server</td>
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</table>
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**Upgrading an Existing SAS 9.4 Deployment**

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<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Upgrading To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2. To upgrade to the latest release of SAS 9.4 Intelligence Platform, see “Install and Configure a Software Update” on page 60.</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Migrating To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5</td>
<td>SAS 9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5, 9.4M6</td>
<td>To migrate within the same SAS release, see <em>SAS Intelligence Platform: Installation and Configuration Guide</em>.</td>
</tr>
<tr>
<td>SAS 9.4M6</td>
<td>SAS 9.4M6</td>
<td>To migrate within the same SAS release, see <em>SAS Intelligence Platform: Installation and Configuration Guide</em>.</td>
</tr>
</tbody>
</table>
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. It is based on VMware vFabric tc Server. The middle tier includes SAS Web Server, an HTTP server that is based on VMware vFabric Web 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 189.

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.

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.

<table>
<thead>
<tr>
<th>Product</th>
<th>Release Number</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS BI Dashboard</td>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td>SAS Business Rules Manager</td>
<td>2.1</td>
<td>Support was added in SAS Business Rules Manager 2.2 and later releases.</td>
</tr>
<tr>
<td>Product</td>
<td>Release Number</td>
<td>Notes</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SAS Contextual Analysis</td>
<td>12.3</td>
<td>Support was added in SAS Contextual Analysis 13.2 and later releases.</td>
</tr>
<tr>
<td>SAS Cost and Profitability Management Mid-Tier</td>
<td>8.1</td>
<td>Support was added in SAS Cost Profitability Management Mid-Tier 8.1M3 and later releases.</td>
</tr>
<tr>
<td>SAS Decision Manager</td>
<td>2.1</td>
<td>Support was added in SAS Decision Manager 2.2 and later releases.</td>
</tr>
<tr>
<td>SAS Digital Marketing</td>
<td>6.3, 6.4, 6.5</td>
<td></td>
</tr>
<tr>
<td>SAS Enterprise Miner</td>
<td>12.3</td>
<td>Support was added in SAS Enterprise Miner 13.1 and later releases.</td>
</tr>
<tr>
<td>SAS Financial Management</td>
<td>5.4</td>
<td>SAS Financial Management 5.5 adds support for a secondary server setup for fail over. For more information, see the product documentation.</td>
</tr>
<tr>
<td>SAS Forecast Server</td>
<td>12.3</td>
<td>Support was added in SAS Forecast Server 13.1 and later releases.</td>
</tr>
<tr>
<td>SAS IT Resource Management</td>
<td>3.4, 3.5</td>
<td>Support was added in SAS IT Resource Management 3.6 and later releases.</td>
</tr>
<tr>
<td>SAS Model Manager</td>
<td>12.3</td>
<td>Support was added in SAS Model Manager 13.1 and later releases.</td>
</tr>
<tr>
<td>SAS Risk Management for Banking</td>
<td>3.2, 3.3, 3.4</td>
<td></td>
</tr>
<tr>
<td>SAS Security Intelligence Workbench</td>
<td>6.1</td>
<td></td>
</tr>
<tr>
<td>SAS Text Miner</td>
<td>12.3</td>
<td>Support was added in SAS Text Miner 13.1 and later releases.</td>
</tr>
<tr>
<td>SAS Time Series Studio</td>
<td>12.3</td>
<td>Support was added in SAS Time Series Studio 13.1 and later releases.</td>
</tr>
</tbody>
</table>
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/Levnen/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/Levnen 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/LevOn/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.
SAS Intelligence Platform 9.4M6

SAS Intelligence Platform 9.4M6 shipped in November 2018.
Determining Your Update Path for SAS/IntrNet

**Upgrading an Existing SAS 9.4 Deployment**

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Upgrading To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4</td>
<td>9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5</td>
<td>1. Before you upgrade, see “About SAS/IntrNet 9.4” on page 268. 2. To upgrade to the latest release of SAS/IntrNet 9.4, see “Install and Configure a Software Update” on page 60.</td>
</tr>
</tbody>
</table>

**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
---|---|---
2. Install and configure SAS 9.4.
To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:
• Quick Start Guides in the SAS Install Center
• SAS Intelligence Platform: Installation and Configuration Guide
For migration information, see these resources:
• SAS Intelligence Platform: Migration Guide
• the product documentation page for SAS/IntrNet

### 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 9.4M4 shipped in November 2016. SAS Application Dispatcher no longer supports the GWAPI version of the Application Broker.

For more information about this release, see the product documentation page for SAS/IntrNet software.
### Determining Your Update Path for SAS Inventory Optimization Workbench

#### Upgrading an Existing SAS 9.4 Deployment

SAS Inventory Optimization Workbench 5.2 and 5.3 run on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.2, 5.2M2, 5.3 (SAS 9.4)</td>
<td>5.2M2, 5.3, 5.3M1 (SAS 9.4)</td>
<td>For more information about how to upgrade to the latest release, see <em>SAS Inventory Optimization Workbench: Upgrade and Migration Guide</em>.</td>
</tr>
</tbody>
</table>
Migrating to SAS 9.4

To run SAS Inventory Optimization Workbench 5.2 and 5.3, you must be running SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 (SAS 9.3)</td>
<td>5.2, 5.2M2, 5.3, 5.3M1 (SAS 9.4)</td>
<td>For more information about how to migrate to this release, see SAS Inventory Optimization Workbench: Upgrade and Migration Guide.</td>
</tr>
<tr>
<td>5.2, 5.2M2, 5.3 (SAS 9.4)</td>
<td>5.3, 5.3M1 (SAS 9.4)</td>
<td></td>
</tr>
<tr>
<td>5.3, 5.3M1 (SAS 9.4)</td>
<td>5.3, 5.3M1 (SAS 9.4)</td>
<td></td>
</tr>
</tbody>
</table>

About SAS Inventory Optimization Workbench

SAS Inventory Optimization Workbench is an inventory optimization and planning module of the SAS Demand-Driven Planning and Optimization suite. SAS Inventory Optimization Workbench helps inventory analysts and buyers track, monitor, and predict the inventory for products. SAS Inventory Optimization Workbench 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.

SAS shipped these releases of SAS Inventory Optimization Workbench:

- 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

For more information about these releases, contact your SAS account representative and see the product documentation page for SAS Inventory Optimization Workbench.

Note: The documentation for SAS Inventory Optimization Workbench is available only to customers who license this product.
Chapter 70
SAS IT Resource Management

Determining Your Update Path for SAS IT Resource Management

Upgrading an Existing SAS 9.4 Deployment

Migrating to SAS 9.4

Determining Your Update Path for SAS IT Resource Management

Upgrading an Existing SAS 9.4 Deployment

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
---|---|---
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) | 1. Before you upgrade, see “About SAS IT Resource Management” on page 272.
2. To upgrade to the latest release of SAS IT Resource Management, see “Install and Configure a Software Update” on page 60.

Migrating to SAS 9.4


You can migrate to the latest release of SAS 9.4, or you can create a deployment.
<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
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</thead>
<tbody>
<tr>
<td>3.3, 3.21 (SAS 9.3)</td>
<td>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)</td>
<td>1. Before you migrate, see <em>What’s New in SAS IT Resource Management</em>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. To migrate to the new release, see <em>SAS IT Resource Management: Migration Guide</em>.</td>
</tr>
<tr>
<td>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)</td>
<td>3.10 (SAS 9.4M6)</td>
<td>To migrate to SAS IT Resource Management 3.10, see <em>SAS IT Resource Management 3.10: Migration Guide</em>.</td>
</tr>
</tbody>
</table>

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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

To view the documentation for this product, see the product documentation page for *SAS IT Resource Management*. 
Chapter 71
SAS Lineage

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.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1, 3.2 (SAS 9.4)</td>
<td>3.3 (SAS 9.4M6)</td>
<td>For more information about this release, see SAS Lineage: User’s Guide.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4
SAS Lineage is a new product that runs on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1, 3.2 (SAS 9.4)</td>
<td>3.3 (SAS 9.4M6)</td>
<td>For more information about migration, see SAS Lineage: User’s Guide.</td>
</tr>
<tr>
<td>3.3 (SAS 9.4M6)</td>
<td>3.3 (SAS 9.4M6)</td>
<td></td>
</tr>
</tbody>
</table>
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.

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 78.

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
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Migrating to SAS 9.4 ................................................................. 276
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Determining Your Update Path for SAS Management Console

Upgrading an Existing SAS 9.4 Deployment

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Upgrading To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.4</td>
<td>9.4M1, 9.4M2, 9.4M3, 9.4M4</td>
<td>1. Before you upgrade, see “SAS Management Console 9.4” on page 276.</td>
</tr>
<tr>
<td>9.4M1, 9.4M2, 9.4M3, 9.4M4</td>
<td>9.4M2, 9.4M3, 9.4M4</td>
<td>2. To upgrade to the latest release of SAS Management Console 9.4, see “Install and Configure a Software Update” on page 60.</td>
</tr>
<tr>
<td>9.4M2</td>
<td>9.4M3, 9.4M4</td>
<td></td>
</tr>
<tr>
<td>9.4M3</td>
<td>9.4M4</td>
<td></td>
</tr>
</tbody>
</table>
**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.

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Migrating To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.4, 9.4M1, 9.4M2, 9.4M3</td>
<td>9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4</td>
<td>To migrate within the same SAS release, see <em>SAS Intelligence Platform: Installation and Configuration Guide</em>.</td>
</tr>
<tr>
<td>9.4M4</td>
<td>9.4M4</td>
<td>To migrate within the same SAS release, see <em>SAS Intelligence Platform: Installation and Configuration Guide</em>.</td>
</tr>
</tbody>
</table>

**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

Determining Your Update Path for SAS Marketing Automation

Upgrading an Existing SAS 9.4 Deployment

SAS Marketing Automation 6.3 and 6.4 run on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3, 6.4 (SAS 9.4)</td>
<td>6.4 (SAS 9.4); 6.5 (SAS 9.4M3)</td>
<td>For more information about this release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1, 5.41 (SAS 9.3)</td>
<td>6.3, 6.4 (SAS 9.4); 6.5 (SAS 9.4M3)</td>
<td>For more information about how to request this new release and the features that are available, contact your SAS account representative.</td>
</tr>
<tr>
<td>6.3, 6.4 (SAS 9.4)</td>
<td>6.4 (SAS 9.4); 6.5 (SAS 9.4M3)</td>
<td>To migrate to SAS Marketing Automation 6.4 or 6.5, see SAS Marketing Automation: Migration Guide.</td>
</tr>
</tbody>
</table>
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 79.

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.

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.
Chapter 74
SAS Marketing Operations Management

Determining Your Update Path for SAS Marketing Operations Management

Upgrading an Existing SAS 9.4 Deployment

Migrating to SAS 9.4

About SAS Marketing Operations Management

Determining Your Update Path for SAS Marketing Operations Management

Upgrading an Existing SAS 9.4 Deployment

SAS Marketing Operations Management 6.3 and 6.4 run on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3 (SAS 9.4)</td>
<td>6.4 (SAS 9.4)</td>
<td>For more information about how to upgrade to the latest release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

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.
### 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.
Chapter 75
SAS Marketing Optimization

Determining Your Update Path for SAS Marketing Optimization

Upgrading an Existing SAS 9.4 Deployment

SAS Marketing Optimization 6.3, 6.4, and 6.5 run on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3, 6.4 (SAS 9.4)</td>
<td>6.4 (SAS 9.4); 6.5 (SAS 9.4M3)</td>
<td>For more information about this release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
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</thead>
<tbody>
<tr>
<td>6.1, 5.41 (SAS 9.3)</td>
<td>6.3, 6.4 (SAS 9.4); 6.5 (SAS 9.4M3)</td>
<td>For more information about how to request this new release and the features that are available, contact your SAS account representative.</td>
</tr>
<tr>
<td>6.3, 6.4 (SAS 9.4)</td>
<td>6.4 (SAS 9.4); 6.5 (SAS 9.4M3)</td>
<td>To migrate to SAS Marketing Optimization 6.4 or 6.5, see <em>SAS Marketing Optimization: Migration Guide</em>.</td>
</tr>
</tbody>
</table>
## 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 79.

  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.

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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<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.5 (SAS 9.4M3)</td>
<td>6.5 (SAS 9.4M3)</td>
<td>To migrate within the same SAS release, see <em>SAS Marketing Optimization: Migration Guide</em>.</td>
</tr>
</tbody>
</table>
Chapter 76
SAS MDM (Master Data Management)

Determining Your Update Path for SAS MDM

Upgrading an Existing SAS 9.4 Deployment

Migrating to SAS 9.4

About SAS MDM

Determining Your Update Path for SAS MDM

Upgrading an Existing SAS 9.4 Deployment

SAS MDM 4.1, 4.2, and 4.3 run on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1, 4.1M1, 4.2 (SAS 9.4)</td>
<td>4.3 (SAS 9.4)</td>
<td>For more information about this release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4

SAS MDM is a new product that runs on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1, 4.1M1, 4.2 (SAS 9.4)</td>
<td>4.3 (SAS 9.4)</td>
<td>To migrate to SAS MDM 4.2, see <em>SAS MDM: Administrator’s Guide</em>.</td>
</tr>
<tr>
<td>4.3 (SAS 9.4)</td>
<td>4.3 (SAS 9.4)</td>
<td>To migrate within the same release, see <em>SAS MDM: Administrator’s Guide</em>.</td>
</tr>
</tbody>
</table>
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.
Determining Your Update Path for SAS Micro Analytic Services

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
--- | --- | ---
1.2, 1.3 (SAS 9.4) | 2.2 (SAS 9.4M4) | For information about how to upgrade to this release, contact your SAS account representative and see SAS Micro Analytic Services: Programming and Administration Guide.
Migrating to SAS 9.4

SAS Micro Analytic Services is a new product for SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2, 1.3, 2.2 (SAS 9.4)</td>
<td>2.2 (SAS 9.4)</td>
<td>To migrate within the same release, see SAS Micro Analytic Services: Programming and Administration Guide.</td>
</tr>
</tbody>
</table>

SAS shipped these releases of SAS Micro Analytic Services:

- SAS Micro Analytic Services 1.2 shipped in July 2015.
- SAS Micro Analytic Services 1.3 shipped in March 2016.
- SAS Micro Analytic Services 2.2 shipped in November 2016.

*Note:* Currently, SAS Micro Analytic Services is available with SAS Decision Manager. For more information, see Chapter 35, “SAS Decision Manager,” on page 161.

For more information about these releases, contact your SAS account representative and see the product documentation page for SAS Micro Analytic Services.
Chapter 78
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 78.1 Upgrade SAS Model Implementation Platform

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.3, 2.4, 3.1 (SAS 9.4)</td>
<td>3.2 (SAS 9.4M6)</td>
<td>For more information about how to upgrade to the latest release, see <em>SAS Model Implementation Platform: Administrator’s Guide</em>.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4

Table 78.2 Migrate SAS Model Implementation Platform

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.3, 2.4, 3.1, 3.2 (SAS 9.4)</td>
<td>3.2 (SAS 9.4M6)</td>
<td>For more information about how to migrate to the latest release, see <em>SAS Model Implementation Platform: Administrator’s Guide</em>.</td>
</tr>
</tbody>
</table>
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.

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.
Determining Your Update Path for SAS Model Manager

Upgrading an Existing SAS 9.4 Deployment


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
2. To upgrade to the latest release of SAS Model Manager, see “Install and Configure a Software Update” on page 60.  
3. Complete the upgrade and post-upgrade steps in SAS Model Manager: Administrator’s Guide. |
Migrating to SAS 9.4


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2. To migrate to the new release, see SAS Model Manager: Migration Guide. To create a new deployment, see SAS 9.4 Intelligence Platform: Installation and Configuration Guide.</td>
</tr>
<tr>
<td>14.3 (SAS 9.4M6)</td>
<td>14.3 (SAS 9.4M6)</td>
<td>To migrate within the same release, see SAS Model Manager: Migration Guide.</td>
</tr>
</tbody>
</table>

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
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 runs on the June 2019 release of 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.

Here are some differences between SAS Model Manager 14.2 and 14.3:

• SAS Management Console replaces the Data category as the a 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.
• In the application bar, the name SAS Decision Manager has been changed to SAS Decision Management.

In addition, it is no longer possible to do the following:

• Adding 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 80
SAS Model Risk Management

### 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.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 (SAS 9.4)</td>
<td>7.1 (SAS 9.4M3), 7.2 (SAS 9.4M4), 7.3 (SAS 9.4M5)</td>
<td>For more information about this release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

#### Migrating to SAS 9.4
SAS Model Risk Management is new in SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
### 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

For more information about these releases, contact your SAS account representative and see the product documentation page for SAS Model Risk Management.
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
---|---|---
9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5 | 9.4M6 | 1. Before you upgrade, see “SAS 9.4 OLAP Server” on page 300.
2. To upgrade to the latest release of SAS 9.4 OLAP Server, see “Install and Configure a Software Update” on page 60.

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.
<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Migrating To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Quick Start Guides in the SAS Install Center</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <em>SAS Intelligence Platform: Installation and Configuration Guide</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>For migration information, see these resources:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <em>SAS Intelligence Platform: Migration Guide</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• the product documentation page for SAS OLAP Server</td>
</tr>
<tr>
<td>9.4</td>
<td>9.4, 9.4M1, 9.4M2,</td>
<td>To migrate within the same SAS release, see</td>
</tr>
<tr>
<td>9.4M6</td>
<td>9.4M6</td>
<td></td>
</tr>
</tbody>
</table>

**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.


For information about the new features and enhancements in these releases, see the product documentation for SAS OLAP Cube Studio and SAS OLAP Server.
Determining Your Update Path for SAS OpRisk VaR

Upgrading an Existing SAS 9.4 Deployment


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1, 6.1M1 (SAS 9.4)</td>
<td>6.1M2 (SAS 9.4)</td>
<td>For more information about how to upgrade to the latest release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>
Migrating to SAS 9.4

To run SAS OpRisk VaR 6.1, you must be running SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1, 4.21 (SAS 9.3)</td>
<td>6.1, 6.1M1, 6.2M2 (SAS 9.4)</td>
<td>For more information about how to migrate to this release, contact your SAS account representative.</td>
</tr>
<tr>
<td>6.1, 6.1M1, 6.1M2 (SAS 9.4)</td>
<td>6.1M2 (SAS 9.4)</td>
<td></td>
</tr>
</tbody>
</table>

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.
Chapter 83
SAS/OR

Determining Your Update Path for SAS/OR

Upgrading an Existing SAS 9.4 Deployment

Migrating to SAS 9.4

About SAS/OR

Determining Your Update Path for SAS/OR

Upgrading an Existing SAS 9.4 Deployment


<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Upgrading To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2. To upgrade to the latest release of SAS/OR, see “Install and Configure a Software Update” on page 60.</td>
</tr>
</tbody>
</table>
# Migrating to SAS 9.4


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
2. Install and configure SAS 9.4. To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:  
   - Quick Start Guides in the SAS Install Center  
   - SAS Intelligence Platform: Installation and Configuration Guide  
   For migration information, see these resources:  
   - SAS Intelligence Platform: Migration Guide  
   - the product documentation page for SAS/OR |
| 15.1 (SAS 9.4M6) | 15.1 (SAS 9.4M6) | |

# 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.
Determining Your Update Path for SAS/QC

Upgrading an Existing SAS 9.4 Deployment


<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Upgrading To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
2. To upgrade to the latest release of SAS/QC, see “Install and Configure a Software Update” on page 60. |
Migrating to SAS 9.4


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
2. Install and configure SAS 9.4.  
To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:
• Quick Start Guides in the SAS Install Center  
• SAS Intelligence Platform: Installation and Configuration Guide  
For migration information, see these resources:
• SAS Intelligence Platform: Migration Guide  
• the product documentation page for SAS/QC |
| 15.1 (SAS 9.4M6) | 15.1 (SAS 9.4M6) | |

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 14.2 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*.
Chapter 85
SAS Quality Analytic Suite

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.

Upgrading SAS Quality Analytic Suite

Determining Your Update Path for SAS Real-Time Decision Manager

Upgrading an Existing SAS 9.4 Deployment

SAS Real-Time Decision Manager 6.3, 6.4, and 6.5 run on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3, 6.4 (SAS 9.4)</td>
<td>6.4 (SAS 9.4); 6.5 (SAS 9.4M3)</td>
<td>For more information about this release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1, 5.41 (SAS 9.3)</td>
<td>6.3, 6.4 (SAS 9.4); 6.5 (SAS 9.4M3)</td>
<td>For more information about how to request this new release and the features that are available, contact your SAS account representative.</td>
</tr>
<tr>
<td>6.3, 6.4 (SAS 9.4)</td>
<td>6.4 (SAS 9.4); 6.5 (SAS 9.4M3)</td>
<td>To migrate to SAS Real-Time Decision Manager 6.4 or 6.5, contact your SAS account representative.</td>
</tr>
</tbody>
</table>
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 79.

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.

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.
Chapter 87
SAS Risk and Finance Workbench

Determining Your Update Path for SAS Risk and Finance Workbench

Upgrading an Existing SAS 9.4 Deployment

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2, 2.3, 3.1 (SAS 9.4)</td>
<td>3.2 (SAS 9.4M5)</td>
<td>For more information about how to upgrade to the latest release, see SAS Risk and Finance Workbench: Administrator's Guide.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2, 2.3, 3.1, 3.2 (SAS 9.4)</td>
<td>3.2 (SAS 9.4M5)</td>
<td>For more information about how to migrate to this release, see SAS Risk and Finance Workbench: Administrator's Guide.</td>
</tr>
</tbody>
</table>
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.
# Chapter 88

## SAS Risk Dimensions

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**Determining Your Update Path for SAS Risk Dimensions**

- Upgrading an Existing SAS 9.4 Deployment .......................... 317
- Migrating to SAS 9.4 .................................................. 318

**About SAS Risk Dimensions** ........................................... 318

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## Determining Your Update Path for SAS Risk Dimensions

### Upgrading an Existing SAS 9.4 Deployment

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<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 (SAS 9.4); 6.2 (SAS 9.4M1); 6.3, 6.4 (SAS 9.4M2); 6.5, 6.6 (SAS 9.4M3); 6.7, 6.8 (SAS 9.4M4); 6.9, 6.11 (SAS 9.4M5)</td>
<td>6.12 (SAS 9.4M6)</td>
<td>For more information about how to upgrade to the latest release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

For more information about how to upgrade to the latest release, contact your SAS account representative.
Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.4, 5.5 (SAS 9.3)</td>
<td>6.12 (SAS 9.4M5)</td>
<td>For more information about how to migrate to this release, contact your SAS account representative.</td>
</tr>
<tr>
<td>6.1 (SAS 9.4); 6.2 (SAS 9.4M1); 6.3, 6.4 (SAS 9.4M2); 6.5, 6.6 (SAS 9.4M3); 6.7, 6.8 (SAS 9.4M4); 6.9, 6.11 (SAS 9.4M5)</td>
<td>6.12 (SAS 9.4M6)</td>
<td></td>
</tr>
</tbody>
</table>

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

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 89

SAS Risk Management for Banking

Determining Your Update Path for SAS Risk Management for Banking

Upgrading an Existing SAS 9.4 Deployment

Migrating to SAS 9.4

About SAS Risk Management for Banking

Determining Your Update Path for SAS Risk Management for Banking

Upgrading an Existing SAS 9.4 Deployment

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2, 3.3 (SAS 9.4)</td>
<td>3.4 (SAS 9.4)</td>
<td>For more information about how to upgrade to the latest release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2, 3.3 (SAS 9.4)</td>
<td>3.4 (SAS 9.4)</td>
<td>For more information about how to migrate to this release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>
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.
Chapter 90
SAS/SECURE

Determining Your Update Path for SAS/SECURE

Upgrading an Existing SAS 9.4 Deployment

Migrating to SAS 9.4

About SAS/SECURE

SAS/SECURE 9.4

SAS/SECURE 9.4M1

SAS/SECURE 9.4M2

SAS/SECURE 9.4M3

SAS/SECURE 9.4M4

SAS/SECURE 9.4M5

Determining Your Update Path for SAS/SECURE

Upgrading an Existing SAS 9.4 Deployment

High-Level Steps and Resources

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<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Upgrading To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4</td>
<td>9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5</td>
<td>1. Before you upgrade, see “About SAS/SECURE” on page 322.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. To upgrade to the latest release of SAS/SECURE 9.4, see “Install and Configure a Software Update” on page 60.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Migrating To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
2. Install and configure SAS 9.4. To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:  
   • Quick Start Guides in the SAS Install Center  
   • SAS Intelligence Platform: Installation and Configuration Guide  
For migration information, see these resources:  
   • SAS Intelligence Platform: Migration Guide  
   • the product documentation page for SAS/SECURE |

About SAS/SECURE

SAS/SECURE 9.4

For software delivery purposes, SAS/SECURE is a product 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 NETENCRIPT system option or set the NETENCRALG= 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/SASecurityCertificateFramework/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**

Determining Your Update Path for SAS/SHARE

Upgrading to an Existing SAS 9.4 Deployment

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Upgrading To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.4, 9.4M1, 9.4M2, 9.4M3, 9.4M4</td>
<td>9.4M1, 9.4M2, 9.4M3, 9.4M4, 9.4M5</td>
<td>1. Before you upgrade, see “About SAS/SHARE” on page 326.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. To upgrade to the latest release of SAS/SHARE 9.4, see “Install and Configure a Software Update” on page 60.</td>
</tr>
</tbody>
</table>
## Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Migrating To</th>
<th>High-Level Steps and Resources</th>
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</table>
2. Install and configure SAS 9.4.  
To determine the steps for installing and configuring SAS 9.4 at your site, see the following resources:  
• Quick Start Guides in the SAS Install Center  
• *SAS Intelligence Platform: Installation and Configuration Guide*  
For migration information, see the following resources:  
• *SAS Intelligence Platform: Migration Guide*  
• the product documentation page for SAS/SHARE |

## About SAS/SHARE

SAS has shipped these releases:

- In September 2017, SAS shipped SAS 9.4M5.
### Determining Your Update Path for SAS Social Network Analysis Server

**Upgrading an Existing SAS 9.4 Deployment**

SAS Social Network Analysis Server 6.2 runs on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.2, 6.2M1, 6.2M2, 6.2M3 (SAS 9.4)</td>
<td>6.2M4 (SAS 9.4)</td>
<td>For more information about how to request this new release and the features that are available, contact your SAS account representative.</td>
</tr>
</tbody>
</table>
Migrating to SAS 9.4

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
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<tbody>
<tr>
<td>6.2, 6.2M1, 6.2M2, 6.2M3 (SAS 9.4)</td>
<td>6.2M4 (SAS 9.4)</td>
<td>For more information about how to migrate to the latest release of SAS Social Network Analysis Server, see <em>SAS Social Network Analysis Server: Installation and Configuration Guide</em>.</td>
</tr>
<tr>
<td>3.1M1 (SAS 9.3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

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.
Determining Your Update Path for SAS/STAT

Upgrading an Existing SAS 9.4 Deployment


<table>
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<th>High-Level Steps and Resources</th>
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<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>12.1 (SAS 9.3)</td>
<td>12.3 (SAS 9.4)</td>
<td>1. Before you migrate, see “About SAS/STAT” on page 330.</td>
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<tr>
<td></td>
<td></td>
<td>To determine the steps for installing and configuring SAS 9.4 at your site, see these resources:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Quick Start Guides in the SAS Install Center</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• SAS Intelligence Platform: Installation and Configuration Guide</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For migration information, see these resources:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• SAS Intelligence Platform: Migration Guide</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• the product documentation page for SAS/STAT</td>
</tr>
</tbody>
</table>


15.1 (SAS 9.4M6) 15.1 (SAS 9.4M6)

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 14.2 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.
Chapter 94
SAS Studio

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 System procedures 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 Studio 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 78.

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**

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
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<td>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)</td>
<td>3.8 (SAS 9.4M6)</td>
<td>1. Before you upgrade, see “Releases of SAS Studio” on page 335.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. To upgrade to the latest release of SAS Studio, see “Install and Configure a Software Update” on page 60.</td>
</tr>
</tbody>
</table>

**Migrating to SAS 9.4**

SAS Studio is new for SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To</th>
<th>High-Level Resources and Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.71, 3.8 (SAS 9.4)</td>
<td>3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.71, 3.8 (SAS 9.4)</td>
<td>To migrate within the same SAS release, see <em>SAS Intelligence Platform: Migration Guide</em>.</td>
</tr>
</tbody>
</table>
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 SAS Viya

SAS Studio 3.7 provides tighter integration with SAS Viya. SAS/CONNECT is no longer required to connect to a SAS Viya environment. 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 Viya Cloud Analytic Services group used SAS/CONNECT to connect to a Viya environment. 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 Viya Machine Learning. The tasks in this group were Connect to Viya, Factorization Machine, Forest, Gradient Boosting, Neural Network, and Support Vector Machine. The 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 Visual Data Mining and 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 SAS Viya license for SAS Optimization procedures.

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**.
Chapter 95
SAS Task Manager

Determining Your Update Path for SAS Task Manager

Upgrading an Existing SAS 9.4 Deployment

SAS Task Manager 2.1, 2.2, and 2.4 run on SAS 9.4.

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</tr>
</thead>
<tbody>
<tr>
<td>2.1, 2.1M1, 2.2 (SAS 9.4)</td>
<td>2.4 (SAS 9.4)</td>
<td>For more information about this release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4

SAS Task Manager 2.1 is a new product that runs on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1, 2.1M1, 2.2 (SAS 9.4)</td>
<td>2.4 (SAS 9.4)</td>
<td>To migrate to SAS Task Manager 2.4, see SAS MDM: Administrator’s Guide.</td>
</tr>
<tr>
<td>2.4 (SAS 9.4)</td>
<td>2.4 (SAS 9.4)</td>
<td>To migrate within the same release, see SAS MDM: Administrator’s Guide.</td>
</tr>
</tbody>
</table>
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.
Determining Your Update Path for SAS Text Miner

Upgrading an Existing SAS 9.4 Deployment


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
</table>
2. When you install and configure SAS Enterprise Miner, you can also install and configure SAS Text Miner. For more information, see SAS Enterprise Miner: Administration and Configuration Guide. |
Migrating to SAS 9.4


<table>
<thead>
<tr>
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<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.1, 12.1M1 (SAS 9.3)</td>
<td>12.3 (SAS 9.4)</td>
<td>1. Before you migrate, see “About SAS Text Miner” on page 342.</td>
</tr>
</tbody>
</table>

- To migrate within the same SAS release, see SAS Enterprise Miner 14.3: Administration and Configuration Guide.

| To migrate within the same release, see SAS Enterprise Miner 14.3: Administration and Configuration Guide. |

| 15.1 (SAS 9.4M6)                          | 15.1 (SAS 9.4M6)                              | To migrate within the same release, see SAS Enterprise Miner 14.3: Administration and Configuration Guide. |

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.

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 15.1 shipped in November 2018.

For more information about the new features and enhancements in SAS Text Miner, see the software product page for SAS Text Miner.
Chapter 97
SAS Visual Analytics

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Upgrading Your Existing SAS 9.4 Deployment


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<td>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)</td>
<td>2. To upgrade to the latest release of SAS Visual Analytics, see SAS Visual Analytics: Installation and Configuration Guide.</td>
</tr>
</tbody>
</table>

2. To upgrade to the latest release of SAS Visual Analytics, see SAS Visual Analytics: Installation and Configuration Guide.
### Migrating to SAS 9.4

To run SAS Visual Analytics 6.2, 6.3, 6.4, 7.1, 7.2, or 7.3, you must be running SAS 9.4. You can migrate to SAS 9.4, or you can create a new SAS 9.4 deployment.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.5 (SAS 9.4M4)</td>
<td>7.5 (SAS 9.4M4)</td>
<td>2. To migrate or create a new deployment, see SAS Visual Analytics: Installation and Configuration Guide.</td>
</tr>
</tbody>
</table>

To migrate within the same release, see SAS Visual Analytics: Installation and Configuration Guide.

### 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.

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.
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.

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.


- 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`.

### 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, a symbol 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.excludeCapability.users, blocks home page modification by anonymous users.

- A new property, home.allowAnonymousUser.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 autoload 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.
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


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.

SAS Visual Analytics 7.5

SAS Visual Analytics 7.5 shipped in May 2019 and supports SAS 9.4M6 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 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.

• 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.
Here are some differences between SAS Visual Statistics 7.4 and 7.5:

- 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.

- To enable the functionality on the HDFS tab, your deployment must meet the following criteria:
  - include co-located HDFS
  - include a middle-tier on Windows
  - be able to browse HDFS from within SAS Environment Manager Administration
Chapter 98

SAS Visual Process Orchestration

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.

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<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 (SAS 9.4)</td>
<td>2.2 (SAS 9.4)</td>
<td>For more information about this release, contact your SAS account representative.</td>
</tr>
</tbody>
</table>

Migrating to SAS 9.4

SAS Visual Process Orchestration 2.1 is a new product that runs on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 (SAS 9.4)</td>
<td>2.2 (SAS 9.4)</td>
<td>To migrate to SAS Visual Process Orchestration 2.2, see SAS MDM: Administrator’s Guide.</td>
</tr>
<tr>
<td>2.2 (SAS 9.4)</td>
<td>2.2 (SAS 9.4)</td>
<td>To migrate within the same release, see SAS MDM: Administrator’s Guide.</td>
</tr>
</tbody>
</table>
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.
Chapter 99

SAS Visual Scenario Designer

Determining Your Update Path for SAS Visual Scenario Designer

Upgrading an Existing SAS 9.4 Deployment

Migrating to SAS 9.4

About SAS Visual Scenario Designer


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.
Chapter 100
SAS Web Parts for Microsoft SharePoint

Determining Your Update Path for SAS Web Parts for Microsoft SharePoint

Upgrading an Existing SAS 9.4 Deployment

SAS Web Parts 6.1 for Microsoft SharePoint runs on SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>6.11, 6.12, 6.13</td>
<td>1. Before you upgrade, see “About SAS Web Parts for Microsoft SharePoint” on page 364.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. To upgrade to the latest release of SAS Web Parts for Microsoft SharePoint by using the SAS Deployment Wizard, see “Install and Configure a Software Update” on page 60.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6.11, 6.12</th>
<th>6.12, 6.13</th>
<th>1. Before you upgrade, see “About SAS Web Parts for Microsoft SharePoint” on page 364.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2. To upgrade to the latest release of SAS Web Parts for Microsoft SharePoint by using the SAS Deployment Wizard, see “Install and Configure a Software Update” on page 60.</td>
</tr>
</tbody>
</table>
Migrating to SAS 9.4

To run SAS Web Parts 6.1 for Microsoft SharePoint, you must be running SAS 9.4.

<table>
<thead>
<tr>
<th>Current Release at Your Site</th>
<th>Release That You Are Migrating To</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 (SAS 9.4)</td>
<td>6.1 (SAS 9.4); 6.11 (SAS 9.4M1); 6.12 and 6.13 (SAS 9.4M2)</td>
<td>To migrate within the same release, see <em>SAS Intelligence Platform: Installation and Configuration Guide</em></td>
</tr>
<tr>
<td>6.12 (SAS 9.4M2)</td>
<td>6.12 and 6.13 (SAS 9.4M2)</td>
<td></td>
</tr>
</tbody>
</table>

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*. 
Chapter 101
SAS Web Report Studio

Determining Your Update Path for SAS Web Report Studio

Upgrading an Existing SAS 9.4 Deployment

Migrating to SAS 9.4

SAS Web Report Studio 4.3

SAS Web Report Studio 4.4

Updating Favorites in Your Web Browser

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**Determining Your Update Path for SAS Web Report Studio**

**Upgrading an Existing SAS 9.4 Deployment**


<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Upgrading To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2. To upgrade to the latest release of SAS Web Report Studio 4.4, see “Install and Configure a Software Update” on page 60.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. To complete any post-configuration steps, see “Updating Favorites in Your Web Browser” on page 368.</td>
</tr>
</tbody>
</table>
### 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) vs. Release That You Are Migrating To (SAS Release)

<table>
<thead>
<tr>
<th>Current Release at Your Site (SAS Release)</th>
<th>Release That You Are Migrating To (SAS Release)</th>
<th>High-Level Steps and Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2. To migrate to the new release, see SAS 9.4 Intelligence Platform: Migration Guide. To create a new deployment, see SAS 9.4 Intelligence Platform: Installation and Configuration Guide.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. To complete any post-configuration steps, see “Updating Favorites in Your Web Browser” on page 237 and SAS 9.4 Intelligence Platform: Web Application Administration Guide.</td>
</tr>
</tbody>
</table>

To migrate within the same release, follow the steps in SAS 9.4 Intelligence Platform: Migration Guide.
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 dialog box for a percent of total no longer has a currency option.


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.
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`. 
Recommended Reading

Here is the recommended reading list for this title:

- *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*

For a complete list of SAS publications, go to [sas.com/store/books](http://sas.com/store/books). If you have questions about which titles you need, please contact a SAS Representative:

SAS Books
SAS Campus Drive
Cary, NC 27513-2414
Phone: 1-800-727-0025
Fax: 1-919-677-4444
Email: sasbook@sas.com
Web address: [sas.com/store/books](http://sas.com/store/books)
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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