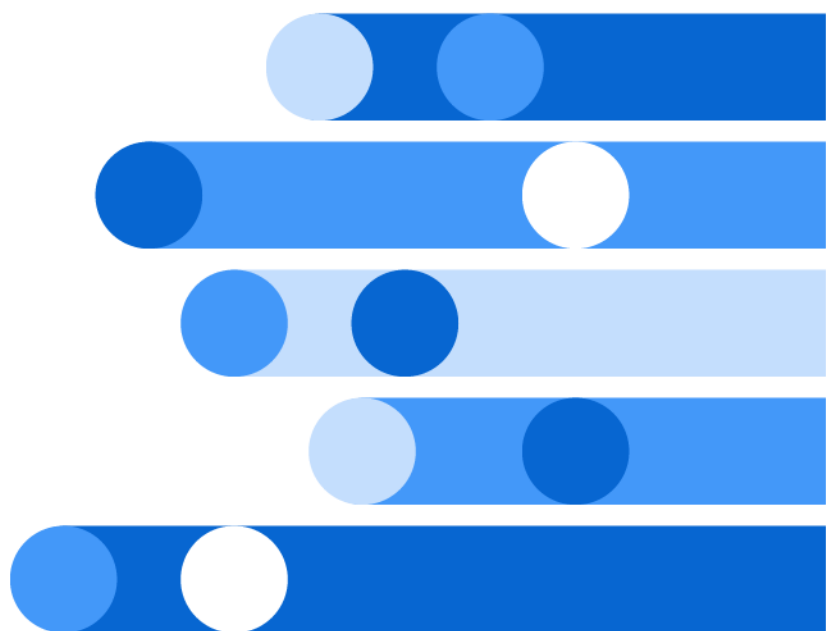




SAS[®] 9 Content Assessment

2026.09*



* This document might apply to additional versions of the software. Open this document in [SAS Help Center](#) and click on the version in the banner to see all available versions.



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SAS® 9 Content Assessment

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Overview

SAS 9 Content Assessment is a collection of applications designed to help you understand your SAS 9.4 deployment and content, gather and prepare SAS 9.4 content for migration, and import SAS 9.4 content. Specific applications are designed to thoroughly analyze SAS 9.4 content for compatibility, optimization, issues, and modification. Reports in SAS Visual Analytics help you review data from these applications.

Purpose

SAS Content Assessment delivers information that is critical to helping you upgrade to a newer version of SAS 9.4 or migrate to the SAS Viya platform. It provides a comprehensive view of content on your SAS 9.4 system, giving you invaluable transparency and knowledge. You determine issues before upgrading or migrating so that you can proactively address them with SAS Technical Support. Migrating to an updated or new system can be expensive and intimidating. With the work that SAS Content Assessment does before migration, you reduce downtime, you do not have to rewrite code, and you can have confidence in your new system. SAS Content Assessment makes upgrades and migration less expensive, safer, easier, and faster.

The SAS Viya platform and the cloud are the future. The SAS Viya platform is an automated AI, analytic, and data management platform that runs on the cloud. Its massively parallel processing delivers results in seconds, not hours. Its built-in governance makes your decisions repeatable, explainable, transparent, and trustworthy, no matter the scale of your data, users, and workloads. SAS Content Assessment determines the compatibility of your existing SAS 9.4 content on the SAS Viya platform so that you can thoroughly plan for your migration to the SAS Viya platform.

Users

You must use the account that you used to install and configure SAS software (**Installer user account**) to unpack and run all SAS Content Assessment applications. For the system evaluation application, you must also be able to read

all files in the specified SASHome and SAS configuration directory. For the code check and code dependencies applications, you must also be able to access and read all files in the directories specified for scanning.

Usage

The following presentation, demos, and site show you SAS Content Assessment in action and explain its relevance to your organization as you migrate.

- [SAS Content Assessment Overview](#)
- [SAS 9.4 System Evaluation](#)
- [Migrating to SAS Studio on SAS Viya](#)
- [Accelerate Your Migration to SAS Viya](#)
- [SAS Viya Migration of Enterprise Guide Project to SAS Studio Flows](#)
- [Using the modifySASCode Content Assessment Application](#)
- [Migrating SAS Data Integration Studio Jobs to SAS Studio Flows](#)
- [SAS Viya Migration: Migrating SAS Stored Processes to SAS Viya Jobs](#)

Results

With the exception of system evaluation, results from SAS 9 Content Assessment can be displayed as SAS Visual Analytics reports. Reports enable you to visualize and drill into the collected content and share knowledge with stakeholders.

System evaluation creates a Datamart directory and a Results directory. The Results directory contains HTML reports and archived information about the deployment for the evaluated machine. These HTML reports enable you to visualize these issues in a summarized manner.

SAS Content Assessment requires all SAS data sets to be created with UTF-8 encoding. SAS Content Assessment verifies that SAS is using UTF-8; if it is not, warnings are displayed. UTF-8 encoding enables SAS 9 Content Assessment reports to render correctly.

Applications

SAS Inventory

This application counts the various SAS objects and content on your system. This application can be run as needed on multiple SAS deployments. It creates a data mart for each SAS deployment that is inventoried. Here are the objects that are counted:

- users, groups, roles, logins, and capabilities
- SAS Metadata Server objects contained in SAS folders
- SAS Data and AI Studio Objects
- SAS Access Control Entries (ACEs)
- SAS Access Control Templates (ACTs)
- SAS servers and SAS Application Server contexts
- Content produced by SAS products located on the file system
- SAS Deployment Registry information
- SAS licensing status and information

SAS Profile

This application profiles specific SAS objects and content on your system. It takes a deeper dive, looking at the details of the attributes, such as levels, hierarchies, engine types, and so on. Here are objects and content that can be profiled:

- Content produced by SAS products in the SAS Metadata Server
 - users, groups, roles, logins, and capabilities
 - SAS libraries and tables
 - SAS stored processes, SAS prompts, and SAS prompt groups
 - SAS Data Integration jobs, transformations, generated transformations, and deployed flows
 - SAS Forecast Server projects
 - SAS information maps and SAS information map subqueries
 - SAS OLAP cubes
 - SAS Web Report Studio and SAS Visual Analytics reports

- SAS Access Control Templates (ACTs)
- SAS Enterprise Miner projects
- SAS Enterprise Guide projects
- SAS Grid servers and metadata
- SAS Real-Time Decision Manager campaigns
- SAS Application Server components
- SAS/CONNECT servers and metadata
- Various other SAS objects

This application can be run as needed on multiple SAS deployments. It creates a data mart for each SAS deployment that is profiled.

SAS Gather SAS Code

This application gathers SAS code from SAS objects, and then writes the code to an output location on the local file system for analysis. On the local file system, the code is copied into a file structure that matches its location on the source system. For objects on a SAS Metadata Server, the code is extracted into a file structure that matches its metadata folder location.

This application currently supports SAS stored processes, SAS catalogs, SAS Enterprise Guide projects, and SAS Data Integration Studio jobs. The profile application creates content that this application needs, so it must be run before you run this application. The output from the gather SAS code application can be used by the code check application to analyze code compatibility on the SAS Viya platform.

SAS Code Check

This application examines any SAS programs in the specified directory and determines compatibility with the SAS Viya platform. It reports any issues that it encounters, such as:

- SAS program elements that are not supported on the SAS Viya platform
- Hardcoded path names that might not be accessible by the SAS Viya platform

This application can be run as needed on multiple machines and on multiple SAS deployments. It creates one data mart for all SAS programs that it checks per deployment.

IMPORTANT For the code check application, you must also be able to access and read all files in the directories specified for validating.

SAS Code Check for Internationalization

This application attempts to find known internationalization issues in SAS programs. Internationalization (i18N) is a process by which a program is optimized so that it can be adapted to any language and region without needing to be rewritten.

It searches files for patterns that have been identified as not i18n-compatible in SAS Viya, such as:

- embedded strings
- concatenated text strings
- locale-sensitive SAS formats/informats
- SAS string functions
- SAS string macros
- column pointer controls in the PUT and INPUT statements in a UTF-8 SAS session

SAS Detect Duplicate SAS Content

The application finds duplicate SAS programs and data sets.

SAS Code Dependencies

This application specifies what input dependencies are needed for a SAS program to run successfully and any output dependencies that the SAS program creates. It informs the user of file dependencies.

SAS Summarize SAS Log Steps

This application analyzes SAS 9 logs and generates data in the form of a report to help you understand the real time and CPU time for each SAS program step. The SAS program steps with the longest running real times have the best opportunities for optimization. By specifying a real-time threshold, you can benchmark which engine on the SAS Viya platform is appropriate for each SAS program step—the compute server or the CAS server.

SAS Application Usage

The application counts the number of users for SAS applications on SAS Workspace Servers. It uses SAS Object Spawner logs to determine this information. The configuration directory must be specified on the command-line or it must be set in the `setenv.yaml` file.

A CSV file with application usage information is created in the `ASSESSMENT_RESULTS` directory. It includes application name, the time at which it was accessed, and users who accessed it.

SAS Create Enterprise Miner Batch Code

This application creates SAS Enterprise Miner batch code and data sets customized for each SAS Enterprise Miner project's encoding. Batch code and data sets are created in the project's unique encoding (for example, Shift JIS, WLATIN1, EUC-CN, and so on). A property named `ASSESSMENT_EM_BATCH_CODE_OUTPUT_LOCATION` in the `setenv.yaml` file controls where the batch code is created.

SAS Publish

This application aggregates the data marts and creates a single, unified data mart. It publishes one class of data marts at a time.

The data marts created can be secured with SAS Proprietary encoding or AES encryption. Personal identifiable information (PII) is obfuscated by default when publishing a data mart.

SAS Import SAS Content Assessment Data and Reports

This application imports SAS Content Assessment data and reports automatically to SAS Visual Analytics from a user-specified data mart. You can then view the reports directly in SAS Visual Analytics.

SAS Preview Assessed Content

This application queries published SAS data sets for specific data points. The SAS data sets are located in a data mart specific to the SAS Content Assessment application that you are querying. The application creates CSV files containing the results of the queries.

This application complements the SAS Content Assessment reports. The reports should be used to review detailed and thorough information. This application should be used to quickly preview assessed content, and it enables you to do so without importing to SAS Viya.

SAS Create FAR Packages

This application creates FAR packages for the specified SAS Forecast Server projects that you intend to migrate from SAS 9 to the SAS Viya platform. An input CSV file lists the projects to be migrated. This CSV file is exported from a SAS Visual Analytics report created by SAS Content Assessment.

SAS Create SAS Packages

This application creates SAS packages for SAS objects that you intend to migrate from SAS 9 to the SAS Viya platform. An input CSV file lists the objects to be migrated. This CSV file is exported from a SAS Visual Analytics report created by SAS Content Assessment. Each type of object requires a separate CSV file. For important information about how to create this CSV file, see [“Create SAS Packages”](#).

SAS Create SASXFER Packages

The application creates SAS Transfer (SASXFER) packages from SAS Content Assessment data.

The ability to share information from SAS Content Assessment applications with the Transfer Service enhances the migration process. The SASXFER format has been modified to support this ability. The SASXFER file can be uploaded directly to the Transfer Service using the Import page in SAS Environment Manager.

SAS Create SAS Grid Import Data

This application gathers SAS Grid Server metadata and formats it into JSON files that can be imported into SAS Viya 4. You must run the profile application first to gather this data. A property named `ASSESSMENT_GRID_PACKAGES_OUTPUT_LOCATION` in the `setenv.yaml` file controls where the grid data is created.

SAS Package SAS Content

The package SAS content application creates packages of SAS content for moving to SAS Viya.

SAS Modify SAS Code

Based on the `--scan-tag` option as a filter, the modify SAS code application identifies hardcoded paths that a user will probably need to modify when moving from SAS 9 to SAS Viya 4. Using the code check application's results, the modify SAS code application generates a mapping CSV file, which the user edits with new, modified paths for SAS program files that work in SAS Viya 4. It also uses the mapping CSV file to apply the new, modified paths to the SAS program files. It never updates the original SAS program files.

SAS Import EG Projects

This application imports SAS Enterprise Guide projects on the file system to SAS Viya 4.

SAS Import FAR Packages

This application imports FAR packages containing SAS Forecast Studio archives to SAS Viya 4.

SAS Import SAS Packages

This application imports SAS packages containing SAS Enterprise Guide projects and SAS Data Integration Studio jobs to SAS Viya 4.

SAS Import Grid Packages

This application imports the JSON packages (created by the create SAS grid import data application) onto the SAS Viya platform using the SAS Viya transfer plug-in.

SAS Import to SAS Migration Management

The migrationmanagement plug-in to the sas-viya CLI provides self-directed command-line migration from SAS 9.4 to SAS Viya 4. This application enables you to create a ZIP file of content to import to SAS Viya using the migrationmanagement plug-in. Currently, content from the inventory application is the only supported content for migration.

SAS System Evaluation

This application examines the specified SAS configuration directory and its corresponding metadata content and corresponding installation content in a SAS Metadata Server. It looks for possible issues that could adversely affect upgrading from one release of SAS 9.4 to another. This includes upgrading a SAS solution version to a later version or performing an entire SAS 9.4 upgrade. It reports issues found in various SAS objects, such as:

- Metadata objects and definitions in the Foundation repository only
- Critical configuration files
- Critical installation files

CAUTION

Using system evaluation does not guarantee that an upgrade will be without problems. System evaluation, its results, and supporting data are provided to assist in troubleshooting before or during an upgrade. SAS does not provide a guarantee as to the completeness of system evaluation data.

System evaluation has the application name *SAS 9 System Evaluation*, short name *system evaluation*, and the following executables:

- systemEvaluation.exe (Windows)
- systemEvaluation.ksh (AIX)
- systemEvaluation.ksh (Solaris)
- systemEvaluation (Linux)

Application Details

Table 1.1 Names

Application Legal Name	Short Name	Executable Name
SAS 9 Inventory	inventory	inventoryContent.exe (Windows) inventoryContent.ksh (AIX) inventoryContent.ksh (Solaris) inventoryContent (Linux)
SAS 9 Profile	profile	profileContent.exe (Windows) profileContent.ksh (AIX) profileContent.ksh (Solaris) profileContent (Linux)
SAS 9 Gather SAS Code	gather SAS code	gatherSASCode.exe (Windows) gatherSASCode.ksh (AIX) gatherSASCode.ksh (Solaris) gatherSASCode (Linux)
SAS 9 Code Check	code check	codeCheck.exe (Windows) codeCheck.ksh (AIX) codeCheck.ksh (Solaris) codeCheck (Linux)
SAS 9 Code Check for Internationalization	code check for i18n	i18nCodeCheck.exe (Windows) i18nCodeCheck.ksh (AIX) i18nCodeCheck.ksh (Solaris) i18nCodeCheck (Linux)

SAS 9 Detect Duplicate SAS Content	detect duplicate SAS content	detectDuplicateSASContent.exe (Windows) detectDuplicateSASContent (Linux)
SAS 9 Code Dependencies	code dependencies	codeDependencies.exe (Windows) codeDependencies.ksh (AIX) codeDependencies.ksh (Solaris) codeDependencies (Linux)
SAS 9 Summarize SAS Log Steps	summarize SAS log steps	summarizeSASLogSteps.exe (Windows) summarizeSASLogSteps.ksh (AIX) summarizeSASLogSteps.ksh (Solaris) summarizeSASLogSteps (Linux)
SAS 9 Application Usage	application usage	applicationUsage.exe (Windows) applicationUsage.ksh (AIX) applicationUsage.ksh (Solaris) applicationUsage (Linux)
SAS 9 Create Enterprise Miner Batch Code (Windows and Linux only)	create Enterprise Miner batch code	createEMBatchCode.exe (Windows) createEMBatchCode (Linux)
SAS 9 Publish	publish	publishAssessedContent.exe (Windows) publishAssessedContent.ksh (AIX) publishAssessedContent.ksh (Solaris) publishAssessedContent (Linux)
SAS 9 Import SAS Content Assessment Data and Reports (Windows and Linux only)	import SAS Content Assessment data and reports	importAssessedContent.exe (Windows) importAssessedContent (Linux)
SAS 9 Preview Assessed Content	preview assessed content	previewAssessedContent.exe (Windows) previewAssessedContent.ksh (AIX) previewAssessedContent.ksh (Solaris) previewAssessedContent (Linux)
SAS 9 Create FAR Packages (Windows and Linux only)	create FAR packages	createFARPackages.exe (Windows) createFARPackages.ksh (AIX) createFARPackages.ksh (Solaris)

		createFARPackages (Linux)
SAS 9 Create SAS Packages	create SAS packages	createSASPackages.exe (Windows) createSASPackages.ksh (AIX) createSASPackages.ksh (Solaris) createSASPackages (Linux)
SAS 9 Create SASXFER Packages	create SASXFER packages	createSASXFERPackages.exe (Windows) createSASXFERPackages.ksh (AIX) createSASXFERPackages.ksh (Solaris) createSASXFERPackages (Linux)
SAS 9 Create SAS Grid Import Data (Windows and Linux only)	create SAS grid import data	createSASGridImportData.exe (Windows) createSASGridImportData (Linux)
SAS 9 Package SAS Content	package SAS content	packageSASContent.exe (Windows) packageSASContent.ksh (AIX) packageSASContent.ksh (Solaris) packageSASContent (Linux)
SAS 9 Modify SAS Code	modify SAS code	modifySASCode.exe (Windows) modifySASCode.ksh (AIX) modifySASCode.ksh (Solaris) modifySASCode (Linux)
SAS 9 Import EG Projects (Windows and Linux only)	import EG projects	importEGProjects.exe (Windows) importEGProjects (Linux)
SAS 9 Import FAR Packages (Windows and Linux only)	import FAR packages	importFARPackages.exe (Windows) importFARPackages (Linux)
SAS 9 Import SAS Packages (Windows and Linux only)	import SAS packages	importSASPackages.exe (Windows) importSASPackages (Linux)
SAS 9 Import Grid Packages (Windows and Linux Only)	import grid packages	importSASGridPackages.exe (Windows) importSASGridPackages (Linux)
SAS 9 Import to SAS Migration Management	import to SAS migration management	importToSASMigrationManagement.exe (Windows)

		importToSASMigrationManagment (Linux)
SAS 9 System Evaluation	system evaluation	systemEvaluation.exe (Windows) systemEvaluation.ksh (AIX) systemEvaluation.ksh (Solaris) systemEvaluation (Linux)

Workflow

The following workflow for the applications is recommended:

plan ⇒ **review** ⇒ **prepare** ⇒ **migrate**

Plan

The SAS Content Assessment applications involved in planning for your migration to the SAS Viya platform include:

- [Inventory](#)
- [Profile](#)
- [Gather SAS Code](#)
- [Code Check](#)
- [Code Check for Internationalization](#)
- [Detect Duplicate SAS Content](#)
- [Code Dependencies](#)
- [Summarize SAS Log Steps](#)
- [Application Usage](#)
- [Create Enterprise Miner Batch Code](#)

Review

The SAS Content Assessment applications involved in reviewing for your migration to the SAS Viya platform include:

- [Publish](#)
- [Import SAS Content Assessment Data and Reports](#)

- [Preview Assessed Content](#)

Prepare

The SAS Content Assessment applications involved in preparing for migrating to the SAS Viya platform include:

- [Create FAR Packages](#)
- [Create SAS Packages](#)
- [Create SASXFER Packages](#)
- [Create SAS Grid Import Data](#)
- [Package SAS Content on page 119](#)
- [Modify SAS Code](#)

Migrate

The SAS Content Assessment applications involved in migrating to the SAS Viya platform include:

- [Import EG Projects](#)
- [Import FAR Packages](#)
- [Import SAS Packages](#)
- [Import SAS Grid Packages](#)
- [Import to SAS Migration Management](#)

Evaluate SAS 9.4

[System evaluation](#) examines the specified SAS configuration directory and its corresponding metadata content and corresponding installation content in a SAS Metadata Server. It looks for possible issues that could adversely affect upgrading from one release of SAS 9.4 to another. This includes upgrading a SAS solution version to a later version or performing an entire SAS 9.4 upgrade. It reports issues found in various SAS objects.

Quick Start

This document has an abundance of information about settings, customizations, publishing your results, and importing the data mart. But, maybe you want to get started immediately. Here's how:

- 1 Check the [“Prerequisites”](#).
- 2 [Download](#) the latest version of each application. The download is either a ZIP file (for Windows), a TGZ file (for Linux), or a TAR file (for AIX and Solaris) that contains a collection of applications.
- 3 Specify the required values in the [“setenv.yaml”](#) file.
- 4 Specify the required values in the [“metaparms.sas”](#) file.
- 5 Add path locations for all *.sas files; SAS Batch Server, SAS Stored Process Server, and SAS Workspace Server *.log files; *.sas7bdat files, and *.egp files to pathslst.txt [“PATHS_LIST_FILE” on page 47](#) (by default, this file is in the **assessment** directory). SAS Content Assessment scripts recursively read subpaths. Locations must be Read accessible by the user ID that is running SAS Content Assessment scripts.
- 6 If you want to run [gather SAS code](#), you must run [profile](#) first, and the SAS Enterprise Guide projects need to be on a file system to which you have Read access.
- 7 If you want to run code check, you must specify [“--scan-tag”](#) and either [“--sources-file”](#) or [“--source-location”](#).
- 8 If you want to run code check for internationalization, you must specify [“--scan-tag”](#) and either [“--sources-file”](#) or [“--source-location”](#).
- 9 If you want to run [create SAS grid import data](#), you must run [profile](#) first.
- 10 If you want to run [system evaluation](#), you must specify a valid --config-dir.

In addition, there are two quick starts available: see [SAS Content Assessment: Quick Start for Windows](#) and [SAS Content Assessment: Quick Start for Linux](#).

Visual Guide

A visual guide is available for a quick look and see. Take a look at [SAS Content Assessment: Visual Guide](#).

Examining the SAS Content Assessment Data Model

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Overview

SAS Content Assessment gathers information from various areas of a SAS 9 system. The data model consists of a set of tables per area and a report. For best compatibility, all data is UTF-8 encoded.

The following sections describe the data model for the inventory application. Other application data models will be provided in the future.

IMPORTANT The data model is intended for SAS customers only. It is not to be shared with anyone who is not a SAS customer.

Inventory Objects

The ALL_OBJECTS table is used by the inventory application and includes objects such as metadata, file system, and other items on a SAS 9 system. This information is obtained by submitting PROC CONTENTS on the ALL_OBJECTS table or by looking at the **Details** view for the table. This table has the following general attributes:

- Variables - 22
- Indexes - 0
- Observation Length - 4032

The ALL_OBJECTS table has the following columns:

Table 2.1 ALL_OBJECTS Table Columns

#	Name	Label	Type	Raw Length	Formatted Length	Format
1	SERVER_LABEL	METADATALABEL defined in metaparms.sas	char	60	60	
2	CUSTOMER_ID	METADATACUSTOMER defined in metaparms.sas	char	60	60	
3	Path	Path plus object name	char	1024	1024	
4	PathLocation	Path to the object	char	1024	1024	
5	Name	Name of an object	char	128	128	
6	Type	Well-known label for file system objects or the SAS object name as defined in the SAS Metadata Server	char	60	60	
7	TypeName	Non-abbreviated label for the type	char	60	60	

#	Name	Label	Type	Raw Length	Formatted Length	Format
8	Description	Description of the type	char	200	200	
9	StorageType	File system or metadata	char	16	16	
10	PlatformType	Linux or Windows	char	8	8	
11	CreatedBy	Author of an object	char	60	60	
12	CreatedOn	Time and date that an object was created	double	8	30	NLDATM
13	CreatedOnString	String representation of CreatedOn	char	40	40	
14	ModifiedBy	Author of the last modification made to an object	char	60	60	
15	ModifiedOn	Time and date an object was last modified	double	8	30	NLDATM
16	ModifiedOnString	String representation of ModifiedOn	char	40	40	
17	RawSize	Size in bytes of an object	double	8	12	
18	FormattedSize	Human-readable string representation of RawSize	char	60	60	
19	LastAccessedOn	Time and date that an object was last read	double	8	30	NLDATM
20	LastAccessedOnString	String representation of LastAccessedOn	char	40	40	
21	objectId	Unique id of an object	char	56	56	

When working with the ALL_OBJECTS table, here are important details to remember:

- The Path and PathLocation variables have separate namespaces, depending on the StorageType used. (For example, SAS Metadata Server paths do not blend easily with file system paths.)
- RawSize is typically available only for file-system-based objects.
- LastAccessed values might not be reliable, depending on the type of activity last performed. For example, profiling a SAS data set to determine its internal characteristics can result in an updated LastAccessed value.

There are many SAS 9 types that might not be recognizable by just their names. To facilitate grouping in reports, the ALL_OBJECTS table is joined with a reference table named SAS_9_TYPES_V5, which is distributed with SAS Content Assessment.

Table 2.2 SAS_9_TYPES_V5 Table

#	Name	Label	Type	Raw Length
1	Scannable	Indicates that SAS objects can be counted individually	char	13
2	Portfolio	SAS software division	char	22
3	Sellable-Offering	Sellable bundle of SAS products	char	44
4	DisplayName	Non-abbreviated label for the Public type	char	59
5	PublicType	Well-known label for file system objects or the SAS object name as defined in the SAS Metadata Server	char	49
6	Description	Description of the Public type	char	314
7	Object	Alternative label for the Public type	char	38
8	Product	SAS product	char	35
9	ProductLong	SAS legal name of a SAS product	char	60
10	ProductIncludesVAAR	Indicates whether a product requires SAS Visual Analytics Administration and Reporting as part of a customer order	char	3
11	Product12byte	Representation of a product that can be installed, configured, or ordered separately	char	12

#	Name	Label	Type	Raw Length
12	Grouping	More specific grouping within a sellable offering	char	25

SAS Content Assessment users need to know what files and directories could not be accessed when the inventory application was run. Users usually run the inventory application first and then update their pathslst.txt file.

Table 2.3 NOACCESSFILES Table Columns

#	Name	Label	Type	Raw Length	Formatted Length	Format
1	SERVER_LABEL	METADATALABEL defined in metaparms.sas	char	60	60	60
2	CUSTOMER_ID	METADATACUSTOMER defined in metaparms.sas	char	60	60	60
3	Path	Path plus object name	char	256	256	256
21	Error	User command and failure reason	char	60	60	60

Reporting on This Data

The join results in a table called Items, which has the following columns with typical cardinalities:

Table 2.4 Items Table Columns

Category	Cardinality
CUSTOMER_ID	1
ModifiedBy	2

Category	Cardinality
ModifiedOn	3.5K
ModifiedOnString	3.5K
Name	9.8K
Path	12K
PathLocation	1.9K
Portfolio	4
Product	10
Product Family	7
PublicType	67
Sellable_Offering	8
Server Definitions	4
SERVER_LABEL	1
SERVER_LABEL_COLOR	1
StorageType	1
Type	67
TypeName	68
Hierarchy	
Item Hierarchy	
Measure	
Frequency	
Parameter	
Aggregated Measure	
Frequency Percent	

Constructed values in the Items table include:

Server Definitions

a custom category that aggregates various detailed types of servers into a fixed and smaller number of categories.

Item Hierarchy

a column that facilitates grouping the possibly large number of SAS 9 object types, hierarchically grouped by **Portfolio**, drillable to **Sellable_Offering**, and then drillable to individual object type.

Deployment Information

Information about the inventoried system, such as version and applied fixes, are in the DEPLOYMENTINFO table, which has the following structure:

Table 2.5 DEPLOYMENTINFO Table

#	Name	Label	Type	Formatted Length
1	SERVER_LABEL	METADATALABEL defined in metaparms.sas	char	60
2	CUSTOMER_ID	METADATACUSTOMER defined in metaparms.sas	char	60
3	Platform	Representation of a host or operating system on which SAS software runs	char	60
4	ProductID	Representation of a product that can be installed, configured, or ordered separately	char	60
5	ProductName	Name of a SAS Product	char	256
6	Version	SAS product version	char	16
7	Hotfix_List	List of software updates that are based on customer reported defects and have a status of alert or high priority or updates that might affect a large number of customers	char	256
8	SERVER_LABEL_COLOR		char	7

Licensing

The applied license status is in the LICENSEINFO table:

Table 2.6 LICENSEINFO Table

#	Name	Label	Type	Formatted Length	Format
1	SERVER_LABEL	METADATALABEL defined in metaparms.sas	char	60	
1	CUSTOMER_ID	METADATACUSTOMER defined in metaparms.sas	char	60	
3	Product	Name of a SAS product	char	96	
4	Version	SAS product version	char	100	
5	Sitename	Description for the licensing order	char	100	
6	Expiration	Expiration date for the license	double	20	NLDATE
7	SERVER_LABEL_COLOR		char	7	

Doing Your Own Reporting

These tables are straightforward from a reporting and filtering perspective. You can aggregate or perform calculations on the data, remembering the important details about the ALL_OBJECTS table.

Preparing Your System

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Prerequisites

IMPORTANT With the exception of system evaluation, do not run SAS Content Assessment applications on production hosts, especially a production SAS Metadata Server host, if you are concerned about system performance. SAS Content Assessment provides a way to specify a specific SAS Metadata Server host remotely to avoid any performance impact. However, system evaluation needs to run on all hosts with SAS configuration directories.

SAS Content Assessment requires the following software and hardware:

- SAS Content Assessment executes on Windows, AIX, Linux, and Solaris operating systems. SAS Content Assessment is supported on the same host platforms on which SAS 9.4 is supported. For more information, see [SAS 9.4 Operating System Compatibility](#).
- Java Runtime Environment (JRE) 1.8 or higher is required on the machine where the SAS Content Assessment applications are executed. By default, the SAS Private JRE that exists on SAS is used and is highly recommended. Verify that it is 1.8 or higher. For more information, see [“Java Development Kit and JRE Requirements”](#).
- log4j files are replaced by a reload4j file.
- For best results, run SAS Content Assessment locally, not across network mounts.
- For the inventory application, SAS Visual Analytics 8.3 or higher on the SAS Viya platform is required.

- For the profile application, SAS Visual Analytics 8.3 or higher on the SAS Viya platform is required to view reports.
- For the code check and code dependencies applications, SAS Visual Analytics 8.3 or higher on the SAS Viya platform is required.
- The import SAS Content Assessment Data and Reports application requires at a minimum the 1.17.11 release of the [SAS Viya Command-Line Interface \(CLI\)](#) and use at a minimum the 1.20.0 release of the [transfer plug-in](#) and at a minimum the 1.13.37 release of the [CAS plug-in](#).
- The import EG projects application, the import SAS packages application, and the import SAS grid packages application require at a minimum the 1.17.11 release of the [SAS Viya Command-Line Interface \(CLI\)](#) and use at a minimum the 1.20.0 release of the [transfer plug-in](#).
- With the exception of system evaluation and the code check and code dependencies applications, SAS Intelligence Platform Object Framework 9.4 must be installed. By default, the SAS Intelligence Platform Object Framework is installed on every server and middle-tier machine. It resides in one of these directories:


```
$SASHOME/SASPlatformObjectFramework/9.4 (UNIX)
```

```
$SASHOME\SASPlatformObjectFramework\9.4 (Windows)
```
- With the exception of system evaluation, import EG projects, and import SAS packages, all SAS Content Assessment applications must be executed on a machine that has SAS 9.4 installed.
- With the exception of the code check and code dependencies applications, the SAS middle tier must be installed.
- With the exception of the code check and code dependencies applications, SAS Content Server must be installed.
- The system evaluation application expects a SAS middle tier present in any deployment it validates.
- System evaluation runs only against SAS deployments where configuration has occurred. Furthermore, system evaluation is intended to run only against the actual machines in a deployment where configuration has occurred.

Java Development Kit and JRE Requirements

SAS Content Assessment applications require a JDK with a JRE of 1.8 or higher. The SAS Private JRE shipped with SAS 9.4M6 and above meets this requirement, but prior releases of M5 and below require a separate install.

You can download and install the appropriate version of the JDK for your operating system using the links below. Note that this JDK does not need to become the

system default. Its path, ending with the directory that contains the Java executable, must be specified for use by SAS Content Assessment in your configured setenv.yaml file as SAS_JAVA_HOME. It can be removed when you are no longer running SAS Content Assessment.

For Windows and Linux, the download is available from Oracle at <https://www.oracle.com/java/technologies/javase/javase8-archive-downloads.html>.

For AIX, the download is available from IBM at <https://www.ibm.com/support/pages/java-sdk-downloads>.

For Solaris, the download is available from Oracle at https://docs.oracle.com/javase/8/docs/technotes/guides/install/solaris_jdk.html.

Using SAS Content Assessment

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Overview

SAS 9 Content Assessment is supported only for SAS 9.4 deployments. Not all SAS Content Assessment applications execute on the supported operating systems. If you do not have a planned deployment, there is SAS 9 Content Assessment for Windows PC Users and SAS 9 Content Assessment for Linux PC Users. For more information, see [SAS Content Assessment for Windows PC Users](#) and [SAS Content Assessment for Linux PC Users](#).

SAS 9 Content Assessment functions as follows:

- For security, the server that SAS Content Assessment uses to run is bound to the local machine.
- For security, in LIBNAME statements, user names, user IDs, URLs, and passwords are obfuscated when you publish.
- The environment to be evaluated is validated in terms of the existence of all required SAS products and applications, meeting all prerequisites, and acknowledging configuration settings. Any failure during validation causes SAS Content Assessment to terminate.
- SAS Content Assessment connects with the SAS Metadata Server in the deployment and gathers a list of SAS Metadata Server repositories. System evaluation performs additional validation steps, including the verification of critical installation and configuration files, provided credentials, and the account executing the application. Any failure causes SAS Content Assessment to terminate, and the failure must be addressed before it can be successfully run.
- SAS Content Assessment verifies all required directories and confirms that support files are in place before proceeding.
- SAS Content Assessment does not resolve symbolic links.

- SAS Content Assessment executes various SAS programs and tools to perform its analysis. Relevant actions and events are logged.

Note: To inventory a file system, the inventory application must be either executed on the physical machine that contains the file system to be searched or the file system must be accessible from the machine on which the application is executed. The user must be able to access and read all files in the directories specified for inventorying.

Note: To check code, the code check and code dependencies applications must be either executed on the physical machine that contains the SAS programs to be scanned or the file system must be accessible from the machine on which the application is executed. The user must be able to access and read all files in the directories specified for scanning.

Note: The profile application must be run before you run the gather SAS code application. The output from the gather SAS code application can be used by the code check and code dependencies applications to analyze code compatibility on the SAS Viya platform.

- System evaluation should run on each configured machine in a SAS deployment and will evaluate only products installed on each configured machine.
- After all SAS programs and tools are executed, data marts, results, and extracted SAS code are created for further analysis.
- SAS Content Assessment requires all SAS data sets to be created with UTF-8 encoding. SAS Content Assessment verifies that SAS is using UTF-8; if it is not, warnings are displayed. UTF-8 encoding enables SAS 9 Content Assessment reports to render correctly.

Getting Started

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Application Files

Depending on your operating system, you receive the following file (where *yyyy.mm* is the release value):

- SAS9ContentAssessment.yyyy.mm.aix.tar (AIX)
- SAS9ContentAssessment.yyyy.mm.lax.tgz (Linux)
- SAS9ContentAssessment.yyyy.mm.s64.tar (Solaris)
- SAS9ContentAssessment.yyyy.mm.win.zip (Windows)

IMPORTANT Using the Installer user account, you should unpack this file into a directory that does not contain existing SAS Content Assessment content. In this guide, SAS9ContentAssessment is used as an example directory. Values in the metaparms.sas file and the setenv.yaml file are subject to change when you unpack this file, so using an older version of either of these files can be problematic.

There is a consistent directory structure when a SAS Content Assessment file is unpacked. Two subdirectories could be created based on your operating system — an assessment directory and a migration directory. For example, Linux and

Windows have both the assessment and migration subdirectories and AIX and Solaris have just the assessment subdirectory. System evaluation has just the assessment directory.

Note: Each directory contains checksum text files containing the hash values for each executable. Provided content can be verified by calculating and comparing the hash values for the delivered executables.

AIX

Files are in the compressed TAR archive format (.tar). Determine where you want to store the content. Unpack the file.

CAUTION

It is not recommended to unpack the files in SASHome or in the specified SAS configuration directory.

For example, to unpack SAS Content Assessment, execute the following command:

```
tar xvf /path/SAS9ContentAssessment.yyyy.mm.aix.tar
```

Solaris

Files are in the compressed TAR archive format (.tar). Determine where you want to store the content. Unpack the file.

CAUTION

It is not recommended to unpack the files in SASHome or in the specified SAS configuration directory.

For example, to unpack SAS Content Assessment, execute the following command:

```
tar xvf /path/SAS9ContentAssessment.yyyy.mm.s64.tar
```

Linux

Files are in the compressed TAR archive format (.tgz). Determine where you want to store the content. Unpack the file.

CAUTION

It is not recommended to unpack the files in SASHome or in the specified SAS configuration directory.

For example, to unpack SAS Content Assessment, execute the following command:

```
tar zxvf /path/SAS9ContentAssessment.yyyy.mm.lax.tgz
```

Two text files are provided in the Assessment directory and Migration directory: checksums_md5.txt and checksums_sha3-224.txt. The values provided for each application file can be compared to the generated hash values to validate the provided content.

To generate the md5 hash value, issue the command: `md5sum executable file`
for MD5 calc

To generate the SHA3-224 value, issue the command: `openssl sha3-224`
executable file for SHA3-224 calc

Windows

Files are in the ZIP file format. Determine where you want to store the content. Unzip the file using either Windows Explorer or any other Windows software that supports ZIP files.

For example, you might want to unzip to the folder containing SAS Content Assessment:

```
C:\SAS9ContentAssessment
```

CAUTION

It is not recommended to unpack the files in SASHome or in the specified SAS configuration directory.

Two text files are provided in the Assessment directory and Migration directory: checksums_md5.txt and checksums_sha3-224.txt. The values provided for each application file can be compared to the generated hash values to validate the provided content.

To generate the md5 hash value, issue the command: `certutil -hashfile executable file for MD5 calc MD5`

To generate the SHA3-224 hash value, issue the command: `openssl sha3-224 executable file for SHA3-224 calc`

Contents

The directories and layout of any SAS Content Assessment application are the same, regardless of the operating system. The only difference between the contents is that a Windows executable file has an EXE extension, an AIX or Solaris executable has a KSH extension, and a Linux executable has no extension. When you unpacked the SAS Content Assessment file, you specified a directory that did not contain existing SAS Content Assessment content. In this guide, `SAS9ContentAssessment` is used as an example directory. In this directory, there is an assessment subdirectory and a migration subdirectory. In a subdirectory, there are specific contents (directories, executables, programs, reports, and files) that you might be interested in.

Assessment Subdirectory Contents

applications

Directory that contains SAS code for applications other than inventory and profile.

applicationUsage

Application that counts the number of users for SAS applications on SAS Workspace Servers.

checksums_md5.txt

File that lists all executables in that directory and an MD5 checksum for each of them. You can run your own MD5 checksum against each executable and the value should match what is in the text file.

checksums_sha3-224.txt

File that lists all executables in that directory and an SHA3-224 checksum for each of them. You can run your own SHA3-224 checksum against each executable and the value should match what is in the text file.

codeCheck

Application that checks SAS programs for SAS Viya incompatibilities.

codeDependencies

Application that specifies what input dependencies are needed for a SAS program to run successfully and any output dependencies that the SAS program creates. It informs the user of file dependencies.

createEMBatchCode

Application that creates SAS Enterprise Miner batch code and data sets customized for each SAS Enterprise Miner project's encoding.

createFARPackages

Application that creates SAS Forecast archives for specified SAS Forecast Server projects to be migrated to the SAS Viya platform.

createSASGridImportData

Application that gathers SAS Grid Server metadata and formats it into JSON files that can be imported to the SAS Viya 4 platform.

createSASPackages

Application that creates SAS packages for SAS objects that you intend to migrate from SAS 9 to the SAS Viya platform.

createSASXFERPackages

Application that creates SAS Transfer Packages (SASXFER) from assorted SAS 9 Content Assessment data.

data

Directory that contains static data used by SAS Content Assessment.

detectDuplicateSASContent

Application that finds duplicate SAS programs and data sets.

doc

Directory that contains SAS Content Assessment documentation.

gatherSASCode

Application that gathers SAS code associated with SAS objects.

i18nCodeCheck

Application that attempts to find known internationalization issues in SAS programs.

i18njavatools

Directory that contains the Java libraries for the i18nCodeCheck application.

importAssessedContent

Application that imports SAS Content Assessment data and reports automatically to SAS Visual Analytics from a user-specified data mart. You can then view the reports directly in SAS Visual Analytics.

inventoryContent

Application that inventories your SAS system's content.

javatools

Directory that contains the Java REST server used by SAS 9 Content Assessment.

maps

Directory that contains XML maps that are used by SAS Content Assessment.

metaparms.sas

File that contains the information to connect to the SAS Metadata Server. This file must be edited. It is recommended that you use an encoded password generated by PROC PWENCODE at the highest level of SAS encoding your system can support for any password or data set keys specified. See [Encryption in SAS](#) for more information.

migrationManagement

Application that enables you to upload SAS Content Assessment inventory content to the SAS Migration Management database.

modifySASCode

Application that identifies hardcoded paths that a user will probably need to modify when moving from SAS 9 to the SAS Viya 4 platform.

packages

Directory that contains the SAS Visual Analytics on SAS Viya report packages that you want to import.

packageSASContent

Application that creates packages of SAS content for moving to SAS Viya.

pathslist.txt

File that contains the list of paths that you want SAS Content Assessment applications to search. For more information, see [Chapter 6, “Specifying Required Settings”](#). The file is encoded in UTF-8 BOM by default to ensure the proper processing of text. This file should be used by all applications that require paths to be specified.

previewAssessedContent

Application that queries published SAS data sets for specific data points and creates CSV files with the results. The SAS data sets are located in a data mart specific to the SAS Content Assessment application that you are querying.

products

Directory that contains directories and SAS code for the SAS products that will be inventoried or profiled.

profileContent

Application that profiles your SAS system's content.

publishAssessedContent

Application that aggregates and publishes your data marts.

repos_exclusion_list.sas

File that contains the SAS Metadata Server repositories that will be excluded. This file can be edited to add repositories. Initially, only BILineage and REPOSMGR are listed.

setenv.yaml

YAML file that contains the environment settings that you must specify for SAS Content Assessment to execute.

summarizelogsjavatools

Directory that contains the Java libraries for the summarizeSASLogSteps application.

summarizeSASLogSteps

Application that analyzes SAS 9 logs and generates data in the form of a report to help you understand the real time and CPU time for each SAS program step.

systemEvaluation

Application that examines content for possible issues that could adversely affect upgrading from one release of SAS 9.4 to another.

utilities

Directory that contains infrastructure code and tools that facilitate the inventory or profile application.

Migration Subdirectory Contents

checksums_md5.txt

File that lists all executables in that directory and an MD5 checksum for each of them. You can run your own MD5 checksum against each executable and the value should match what is in the text file.

checksums_sha3-224.txt

File that lists all executables in that directory and an SHA3-224 checksum for each of them. You can run your own SHA3-224 checksum against each executable and the value should match what is in the text file.

doc

Directory that contains SAS Content Assessment documentation.

importEGProjects

Application that imports SAS Enterprise Guide projects on the file system to SAS Viya 4.

importFARPackages

Application that imports FAR packages on the file system to SAS Viya 4.

importSASPackages

Application that imports SAS packages that contain SAS Enterprise Guide projects and SAS Data Integration Studio jobs on the file system to SAS Viya 4.

importSASGridPackages

Application that imports the JSON packages (created by the create SAS grid import data application) onto the SAS Viya platform using the SAS Viya transfer plug-in.

Specifying Required Settings

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Files and Program

You must edit the following files:

- `setenv.yaml`
- `metaparms.sas`
- `pathlist.txt`

The `setenv.yaml` file and the `metaparms.sas` file provided with the most current release of SAS Content Assessment should be used instead of an existing version of either file.

(Optional) You can edit the `repos_exclusion_list.sas` file.

setenv.yaml

This file is shared among all applications. However, not all settings are applicable for every application. This file contains the environment settings required to assess your system. The required syntax is `Property: Value`. A single space between `Property:` and `Value` is required. Without it, the setting is invalid.

In the `setenv.yaml` file, certain properties must be set for specific applications. If a value is not currently or explicitly set, SAS Content Assessment fails.

SAS_HOME

all apps

This property does not have a default value and must be explicitly set.

One of the most important properties to set is `SAS_HOME`. Its value is the base installation location of all of the various SAS applications and tools that are part of SAS Content Assessment. Once this property is set in the file, it can be referred to as `$SAS_HOME`.

Only `SAS_HOME` is required to run the code check applications.

SAS_JAVA_HOME

all apps

SAS_JAVA_HOME specifies the location of Java for use by SAS Content Assessment. JRE 1.8 or higher is required. By default, the SAS Private JRE that exists on your SAS system is used. Verify that it is 1.8 or greater.

SAS_CODE_OUTPUT_LOCATION

Gather SAS Code

This property has a default value, but it might need to be modified.

SAS_CODE_OUTPUT_LOCATION specifies the location that output from the gather SAS code application is written to. Output is organized by SAS objects. For example, if you run the gather SAS code application to process SAS stored processes, **SASStoredProcesses** is a subdirectory in the output location. If you process SAS catalogs, **SASCatalogs** is a subdirectory. If you process SAS Enterprise Guide projects, **SASEGProjects** is a subdirectory.

An example value is **BASE_DIR/gatheredSASCode**.

In addition, the existence of one or more root directories under BASE_DIR is validated. If a root directory does not exist, it is created with both the application name and METADATALABEL subdirectory. If a root directory does exist, the METADATALABEL subdirectory is verified. If the METADATALABEL subdirectory exists, all of its contents are removed. If the METADATALABEL subdirectory does not exist, it is created.

ASSESSMENT_ARCHIVESDIR

Package SAS Content

The ASSESSMENT_ARCHIVESDIR is the location in which your resulting archive files are created, and only the content from the most current run is kept.

The default value is **\$BASE_DIR/archives**.

ASSESSMENT_BDN_XML_OUTPUTDIR

Profile

The `ASSESSMENT_BDN_XML_OUTPUTDIR` is the location in which gathered metadata associated with terms and term types in SAS Business Data Network is placed. The metadata is packaged as a `SASXFER` file. You must uncomment the `ASSESSMENT_BDN_XML_OUTPUTDIR` property, and then set it to the location in which you want to place the file.

The default value is `$BASE_DIR/BDNXMLOutput`.

ASSESSMENT_CONFIGDIR

System Evaluation

This property does not have a default value and must be explicitly set.

The system evaluation application examines the specified SAS configuration directory and its corresponding metadata content and corresponding installation content in a SAS Metadata Server. In the specified configuration directory, it looks for possible issues that could adversely affect upgrading from one release of SAS 9.4 to another. The `ASSESSMENT_CONFIGDIR` directory can be set in the `setenv.yaml` file or specified with the `--config-dir` option. The `--config-dir` option overrides any value in the `setenv.yaml` file. For example, on Windows, the `ASSESSMENT_CONFIGDIR` directory could be:

```
C:\SASConfig\Lev1
```

Or, on Linux, it could be:

```
/opt/sas/config/Lev1
```

ASSESSMENT_EM_BATCH_CODE_OUTPUT_LOCATION

Create Enterprise Miner Batch Code

The `ASSESSMENT_EM_BATCH_CODE_OUTPUT_LOCATION` is the location in which the batch code is created.

ASSESSMENT_FAR_PACKAGES_OUTPUT_LOCATION

Create FAR Packages

This property has a default value, but it might need to be modified.

The `ASSESSMENT_FAR_PACKAGES_OUTPUT_LOCATION` contains paths that are created for packages based on their metadata folder locations. A server label

directory is also created. The first element of a path is the name of the metadata repository from which the package's content comes. For example, `SASFARPackages/DemoCust/SASForecastServer/My_Folder`. In this example, `SASForecastServer` is a metadata repository.

The default value is `$BASE_DIR/SASPackages`.

ASSESSMENT_GRID_PACKAGES_OUTPUT_LOCATION

Create SAS Grid Import Data

The `ASSESSMENT_GRID_PACKAGES_OUTPUT_LOCATION` is the location in which the grid data is created.

ASSESSMENT_IBM_JEXPORT_XMLDIR

Profile

This property has a default value, but it might need to be modified.

`ASSESSMENT_IBM_JEXPORT_XMLDIR` is the location containing XML files in a flat structure created by the Platform Suite for SAS 10.1.x or higher `JEXPORT` command.

ASSESSMENT_JAVA_XMS_OPTION

all apps

The `ASSESSMENT_JAVA_XMS_OPTION` property specifies the initial heap size.

ASSESSMENT_JAVA_XMX_OPTION

all apps

The `ASSESSMENT_JAVA_XMX_OPTION` property specifies the maximum heap size.

ASSESSMENT_MIGRATION_MANAGEMENT_SUPPORT

import to SAS migration management

The ASSESSMENT_MIGRATION_MANAGEMENT_SUPPORT property enables the application when set to is TRUE. The default value is FALSE.

ASSESSMENT_MIGRATIONMANAGEMENTDIR

Import to SAS Migration Management

The ASSESSMENT_MIGRATIONMANAGEMENTDIR property specifies the location where you want the content to go. The default value is \$BASE_DIR/migrationManagement.

ASSESSMENT_OPT_OUT_OF_INVENTORY

Profile, Gather SAS Code, Code Check, Code Check for Internationalization, Create Enterprise Miner Batch Code

By default, the inventory application must be run before you run the profile, gather SAS code, code check, code check for internalization, or create Enterprise Miner batch code application. The ASSESSMENT_OPT_OUT_OF_INVENTORY option can be set to true to allow these applications to run without prior execution of the inventory application. Use caution when setting this option because the listed applications will change a file's last accessed time value to when the application was run, and the last accessed time cannot be reset to a prior value.

ASSESSMENT_PACKAGES_OUTPUT_LOCATION

Create SAS Packages

This property has a default value, but it might need to be modified.

The ASSESSMENT_PACKAGES_OUTPUT_LOCATION contains paths that are created for packages based on their metadata folder locations. A server label directory is also created. The first element of a path is the name of the metadata repository from which the package's content comes. For example, `SASPackages/DemoCust/Foundation/Users/ETLADM/My_Folder` or `SASPackages/DemoCust/`

Codegen/Pushdown_and_Validate. In these examples, **Foundation** and **Codegen** are metadata repositories.

The default value is `$BASE_DIR/SASPackages`.

ASSESSMENT_PORT

all apps

ASSESSMENT_PORT specifies the port to use to access the SAS 9 Content Assessment REST server. This server is accessible only through this port, and it is bound to the host on which SAS 9 Content Assessment is running. This server allows no remote execution. The default is 8889, but the port can be any valid and accessible port on the machine where SAS 9 Content Assessment is running.

ASSESSMENT_PREVIEWSDIR

Preview Assessed Content

This property has a default value, but it might need to be modified.

ASSESSMENT_PREVIEWSDIR is the location in which CSVs created by the preview assessed content application are located.

The default value is `$BASE_DIR/preview`.

ASSESSMENT_REVERSE_LEXICOGRAPHICAL_SORT_ORDER

Modify SAS Code

This property has a default value, but it might need to be modified.

In the mapping file for the modify SAS code application, the default sort is reverse lexicographical order, which means `/a/b/c/d` is sorted before `/a/b/c`. If ASSESSMENT_REVERSE_LEXICOGRAPHICAL_SORT_ORDER is set to false, `/a/b/c` is sorted before `/a/b/c/d`.

ASSESSMENT_RTDM_XML_OUTPUTDIR

Profile

This property has a default value, but it might need to be modified.

The ASSESSMENT_RTDM_XML_OUTPUTDIR is the location in which campaigns are extracted. You must uncomment the ASSESSMENT_RTDM_XML_OUTPUTDIR property, and then set it to the location in which you want to extract campaigns.

The default value is `$BASE_DIR/RTDMXMLOutput`.

ASSESSMENT_SAS_MEMSIZE_OPTION

all apps

This property has a default value, but it might need to be modified.

The ASSESSMENT_SAS_MEMSIZE_OPTION property represents the actual SAS system option MEMSIZE. It controls how SAS sessions launched from SAS 9 Content Assessment behave. If necessary, you can modify it.

ASSESSMENT_SAS_WORK_OPTION

all apps

The ASSESSMENT_SAS_WORK_OPTION property represents the actual SAS system option WORK. It controls how SAS sessions launched from SAS 9 Content Assessment behave. If necessary, you can modify it.

ASSESSMENT_SSL_CERT_FILE

all apps

This property has a default value, but it might need to be modified.

The ASSESSMENT_SSL_CERT_FILE property is needed when SAS Content Assessment runs on TLS-secured deployments. It specifies the location of the public certificates for trusted certificate authorities (CAs). The following default value is applicable to SAS 9.4M3 and higher:

`$SAS_HOME/SASSecurityCertificateFramework/1.1/cacerts/trustedcerts.pem`

For prior releases, you should specify the location of the public certificates.

ASSESSMENT_SWEEPER_FULL_MODE

System Evaluation

The `ASSESSMENT_SWEEPER_FULL_MODE` property specifies whether additional content is archived for system evaluation purposes. The property defaults to `TRUE`, which indicates that all applicable content to system evaluation is archived.

ASSESSMENT_USE_STRICT_PATH_PARSING

Modify SAS Code

This property has a default value, but it might need to be modified.

By using strict parsing rules, the modify SAS code application can create mappings with more precise and refined lists of paths associated with code. The default value is `FALSE`.

EXTRACTED_ENTERPRISE_GUIDE_PROJECTSDIR

Profile and Gather SAS Code

By default, this property is commented out. Uncomment it, and use this `EXTRACTED_ENTERPRISE_GUIDE_PROJECTSDIR` property to specify the path to the directory containing SAS Enterprise Guide projects extracted from a SAS Metadata Server. Make sure that there is enough disk space in this directory by considering the number of SAS Enterprise Guide projects that will be extracted. This property is set for a single machine only. This machine is the machine that you are profiling for the other SAS metadata objects (for example, libraries, tables, and so on).

PATHS_LIST_FILE

Inventory, Profile, Gather SAS Code

This property must be explicitly set.

`PATHS_LIST_FILE` specifies the list of paths that you want to search. These should be paths containing any content that you want to analyze. By default, its corresponding file (`pathslist.txt`) is empty, but it contains informative comments about path suggestions. Review this file for more information if you are not sure what to enter. The `pathslist.txt` file is encoded in UTF-8 BOM by default to ensure the proper processing of text. The `pathslist.txt` file should be used by all applications that require paths to be specified.

By default, this property is used by the inventory application, the profile application, and the gather SAS code application. The value for this property is strongly recommended to be used by the code check applications and summarize SAS log steps application. In previous releases of SAS Content Assessment, you could specify locations in which to search for SAS catalogs and SAS Enterprise

Guide projects in other properties. Those properties are deprecated, so you must exclusively specify paths in the PATHS_LIST_FILE.

For each path specified in this file, the path is recursively searched for SAS objects. Any path that you specify must be accessible from the system on which you are executing the application. Remember always use the metaparms.sas and setenv.yaml file that comes with this release of SAS Content Assessment

IMPORTANT Here are some details about the pathslst.txt file:

- If you do not specify paths in the pathslst.txt file, you get a warning.
- If you run the gather SAS code application, you must add the path specified for SAS_CODE_OUTPUT_LOCATION – as a fully qualified path without \$BASE_DIR – to the pathslst.txt file.
- If you ran the gather SAS code application earlier, the --source-location must point to SAS_CODE_OUTPUT_LOCATION in the code check application.
- This file can be used by the code check applications if it is specified in the --sources-file option.

PRINT_MATCHES_TO_SCREEN

Inventory

When set to TRUE, the PRINT_MATCHES_TO_SCREEN property specifies to spew the list of files and directories found during the inventory process to the console screen. In addition, It informs you of any inaccessible files and directories.

LOGGING_LEVEL

System Evaluation

The LOGGING_LEVEL property specifies the volume of logging. DEBUG specifies all information, such as logging details for all system functions. Any other value hides all information. The default value is OFF.

Other Directories

Other directories used by SAS Content Assessment are created by default in the directory from which an application is executed. The environment variable

BASE_DIR is defined by SAS Content Assessment and is the directory from which an application is executed. You can change the directory name if necessary.

ASSESSMENT_DATAMARTDIR

all apps

Root directory where all SAS data sets produced for reporting are placed. This directory also contains any CSV files produced for reporting.

ASSESSMENT_INFILES_DIR

Profile, Code Check, Gather SAS Code, Modify SAS Code, Create SAS Grid Import Data Applications

Root directory where some SAS Content Assessment applications store files that are generated for use downstream by other SAS Content Assessment applications.

ASSESSMENT_LOGDIR

all apps

Root directory where all application-created logs are placed. Subdirectories are created for each application.

ASSESSMENT_LISTDIR

all apps

Root directory where all SAS program listings are placed.

ASSESSMENT_OUTFILES_DIR

all apps

Root directory where all transient content and temporary content are placed.

ASSESSMENT_RESULTSDIR

Inventory, System Evaluation

For system evaluation, root directory where all issues that are encountered while evaluating a system for upgrading are placed. In this directory, any information about issues found during assessment is placed. This can include critical installation and configuration files, configuration logs, and configuration property files.

ASSESSMENT_UPLOADSDIR

all apps

Root directory where files are created when the --create-uploads option is specified on the publishAssessedContent command. A TGZ file (on UNIX) or a ZIP file (on Windows) and a SAS file are created here.

Each directory serves as a root location. As you assess content, a directory named for the application being executed is created in each directory. Furthermore, each time you execute an application, METADATALABEL is created as a subdirectory under the application subdirectory (with the exception of ASSESSMENT_UPLOADSDIR). This subdirectory represents the actual data mart resulting from the assessment. By default, in the metaparms.sas file (which is discussed in the next section), METADATALABEL is set to Server1. The format is similar to the following:

```
ASSESSMENT_RESULTSDIR/evaluation/METADATALABEL
```

```
ASSESSMENT_DATAMARTDIR/inventory/METADATALABEL
```

CAUTION

Each execution of the inventory, profile, or system evaluation application validates the existence of each root directory under BASE_DIR. If a root directory does not exist, it is created with both the application name and METADATALABEL subdirectory. If a root directory does exist, the METADATALABEL subdirectory is verified. If the METADATALABEL subdirectory exists, all of its contents are removed. If the METADATALABEL subdirectory does not exist, it is created.

metaparms.sas

Here are the contents of the metaparms.sas file with sample values:

```
/*
NOTE: AES encodings are recommended when generating passwords for data
security.

Specify SAS Metadata Server connection details and user credentials.
It is recommended to use an encoded password generated by PROC
PWENCODE at the highest level of SAS encoding your system can support.

See the following link for more details: https://go.documentation.sas.com/doc/en/pgmsascdc/9.4\_3.5/proc/p18zxcefav5k25n11ano9p2b71er.htm
*/

/*METADATACUSTOMER and METADATALABEL should not exceed 60 characters
in length. */

%let METADATACUSTOMER = CustomerName;
%let METADATALABEL = Server1;
%let METADATAHOSTNAME = metadata server host;
%let METADATAPORT = 8561;
%let METADATAUSER = sasadm@saspw;
%let METADATAUSERPASSWORD = sas encoded password;

/*
If SAS Proprietary encoding is used to encode the published
data mart, the specified value for SASENCRIPTIONPASSWORD must result
in a valid SAS name.

In other words, it must meet all of the following requirements:

It must be eight characters or less.
It must start with a letter (A-Z or a-z) or an underscore symbol.
All subsequent characters must be letters (A-Z or a-z), underscore
symbols, or digits (0-9).

If AES encryption is used to encrypt the published data mart, the
specified value for SASENCRIPTIONPASSWORD can be no more than 64
characters and is generated for you if no value is specified.
```

```

Please note: It is strongly recommended to use AES encryption to
protect the published data mart. SAS Proprietary encoding should only
be used if AES
encryption is not available.
*/
%let SASENCRIPTIONPASSWORD = password for encrypting published data
mart;*/

%let SASENCRIPTIONPASSWORD = password for encrypting published data
mart;

```

In the sample file above, you must replace the values in italic with the appropriate values for your environment.

If you need to comment out a line in the metaparms.sas file, the line must start with a `/*` and end with a `*/`. For example, here is how to comment out the value of `METADATAPORT` and use another value:

```

/* %let METADATAPORT = 8561; */
%let METADATAPORT = 8564;

```

This commenting style helps applications verify required values.

Failure to specify values results in SAS Content Assessment failing validation.

The SAS Metadata Server host name, port, and user credentials are required. It is recommended that you use an encrypted password at the highest level SAS supports on your system when specifying `METADATAUSERPASSWORD`. For more information, see [“Overview: PWENCODE Procedure” in Encryption in SAS](#).

`METADATACUSTOMER` identifies your site in the reports. Only alphanumeric characters are allowed. The value cannot be longer than 60 characters.

`METADATALABEL` identifies the deployment being assessed. This enables you to assess multiple deployments. The value is used as a directory name. A possible value can be the configuration level in a planned deployment. For example, if your deployment is at `c:\SASConfig\Lev1`, you could specify `Lev1`. Only alphanumeric characters are allowed. The value cannot be longer than 60 characters.

`METADATAHOSTNAME` is the name of the SAS Metadata Server host machine, regardless of tier being assessed. This should be a fully qualified domain host name. In a metadata cluster, this value should be the master node.

`METADATAPORT` is the port used to connect to the SAS Metadata Server, regardless of tier being assessed.

`METADATAUSER` is an unrestricted user who performs the assessment. This user should be the same user across all tiers.

`METADATAUSERPASSWORD` is the password for `METADATAUSER`. You must create the password; it is not generated by the system.

`SASENCRIPTIONPASSWORD` needs to be set only when executing the publish application to ensure protection of the resulting data. If you choose to use SAS Proprietary encoding to protect this value, you must specify it yourself and it must be a valid SAS name. If you choose to use AES encryption, the publish application will generate one if you do not specify a value to use. If you do specify a value for AES encryption, it is recommended that this value is encrypted at the highest level of encryption SAS supports on your system. To encrypt your password, see [Step 3](#)

for more information in “[Overview: PWENCODE Procedure](#)” in *Encryption in SAS*. To review what a valid SAS name is, see [Step 3](#).

IMPORTANT The `metaparms.sas` file contains user credentials and should be secured to prevent unauthorized access.

repos_exclusion_list.sas

This file specifies any SAS Metadata Server repositories that should be excluded when assessing content. By default, SAS suggests skipping two SAS Metadata Server repositories: BILineage and REPOSMGR. They are listed in this file. You can add additional SAS Metadata Server repositories. System evaluation evaluates the Foundation repository only, regardless of what is specified in this file.

Migrating SAS Financial Management Data

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Overview

SAS Financial Management is an advanced system for planning and reporting. It is designed to support the following financial management activities:

- data collection and retrieval
- currency translation
- management of dynamic hierarchical structures
- intercompany eliminations
- allocations and balancing entries
- ownership eliminations
- reporting

SAS Financial Management provides a download in SAS Content Assessment that supports migration from SAS 9.4 Financial Management releases 5.61, 5.62, or later, to SAS Financial Management 2025.09 or later on SAS Viya.

Migration

The content migration of SAS Financial Management consists of the following major steps:

- 1 Migrate the database.
- 2 Migrate the XML and binary files of the form sets.

For special instructions about how to migrate your SAS Financial Management data, see [“Migrating from SAS 9.4” in SAS Financial Management: Administrator’s Guide](#).

Supported Releases

SAS 9

SAS 9.4 Financial Management releases 5.61, 5.62, or later.

SAS Viya

SAS Financial Management 2025.09 or later. SAS Financial Management is within the SAS Intelligent Performance Management offering. This migration method runs on Long-Term Support (LTS) releases of SAS Financial Management within SAS Intelligent Performance Management.

Executing the Inventory Application

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Inventory

To run the inventory application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on AIX:

```
$ ./SAS9ContentAssessment/assessment/inventoryContent.ksh
```

Online Help for the inventory application can be obtained by executing the Help command. Here is an example of the command on AIX:

```
$ ./SAS9ContentAssessment/assessment/inventoryContent.ksh --help
```

From Help, you learn that this version of the inventory application is attempting to find known SAS objects on the file system and on the SAS Metadata Server.

Remember, SAS Content Assessment inventories SAS content. To complete this task, the inventory application performs the following actions:

- It determines what licensed products are installed.
- It examines the SAS Deployment Registry for various actions and items.
- It enumerates all file system content.
- It enumerates SAS metadata in the Foundation repository and custom repositories, such as:
 - SAS metadata objects contained in SAS folders
 - SAS server and SAS application server contexts
 - ACTs and ACEs

It does not look in project repositories.

- It creates a file named `noaccessfiles.csv` in the `ASSESSMENT_RESULTSDIR/inventory/METADATALABEL` directory for files or directories not accessible during the inventory.

To enhance your security, SAS Content Server is no longer inventoried and its contents are not enumerated. This does not affect any other products that are inventoried or whose contents are enumerated.

Once the inventory application completes these actions, it produces three SAS data sets. These data sets are located in the directory specified by `ASSESSMENT_DATAMARTDIR/inventory/METADATALABEL`.

- `all_objects.sas7bdat`
- `deploymentinfo.sas7bdat`
- `licenseinfo.sas7bdat`

Note: A connection profile is created automatically during this process. It is named `ContentAssessment_METADATALABEL`, where `METADATALABEL` is the subdirectory specified in the `metaparms.sas` file. This connection profile does not need to be edited. It is used only during the inventory process. For more information about connection profiles, see [“Administering Connection Profiles for Desktop Applications” in SAS Intelligence Platform: Desktop Application Administration Guide](#). This connection profile does contain the information specified in the `metaparms.sas` file, including the value specified for `METADATAUSERPASSWORD`. The `metaparms.sas` file should be secured to prevent unauthorized access. You should delete this connection profile once the inventory process is completed.

The inventory process can be executed for each 9.4 deployment that exists. The `METADATALABEL` value in the `metaparms.sas` file is used to differentiate deployments.

Note: If any part of the application is not successful (there were warnings or errors), the resulting data set is not copied to the data mart because there might be data integrity concerns. Please see any referenced logs if this happens. In addition, a log for the entire execution is located in `ASSESSMENT_LOGDIR/inventory/METADATALABEL`. The log is named using the following date and time format:

```
inventoryContent-yyyy-mm-dd-HH.MM.SS.log
```

Note: You can run `inventoryContent --metadata-server=false` to inventory only the file system. This is useful if you need to run the inventory application multiple times, but you do not want to inventory the metadata each time. For example, if you want to inventory multiple machines, you can run the inventory application on the first machine, and then use the `--metadata-server=false` option on additional runs to prevent the inventorying of metadata on subsequent machines.

Executing the Profile Application

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Profile

To run the profile application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> profileContent.exe
```

Online Help for the profile application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> profileContent.exe --help
```

SAS objects and content are profiled based on paths specified in the PATHS_LIST_FILE. Once the profile application completes, multiple SAS data sets

are created and located in the directory specified by ASSESSMENT_DATAMARTDIR/profile/METADATALABEL.

Note: If any part of the application is not successful (there were warnings or errors), the resulting data set is not copied to the data mart because there might be data integrity concerns. Please see any referenced logs if this happens. In addition, a log for the entire execution is located in ASSESSMENT_LOGDIR/profile/METADATALABEL. The log is named using the following date and time format:

```
profileContent-yyyy-mm-dd-HH.MM.SS.log
```

The profile process can be executed for each SAS 9.4 deployment that exists. The METADATALABEL value in the metaparms.sas file is used to differentiate deployments.

By default, all SAS objects are profiled when you run `profileContent`.

`profileContent` offers additional command-line options that enable you to control what SAS objects are profiled.

The `--generate-content-list` option creates a `contentToBeProfiled.yaml` file in the `BASE_DIR` directory. This YAML file lists each type of SAS object that `profileContent` is aware of. Running `profileContent --generate-content-list` does not actually profile any SAS objects.

If there are certain SAS objects that you do not want to profile or that have been problematic, edit the `contentToBeProfiled.yaml` file and remove them or comment them out. Otherwise, all SAS objects are profiled. There are two SAS object types – Platform Suite for SAS scheduled flows and SAS Real-Time Decision Manager campaigns – that require additional configuration steps for profiling and are skipped if not explicitly specified.

To use the `contentToBeProfiled.yaml` file to modify `profileContent` behavior, specify the `--use-content-list` option. When this option is specified, `profileContent` profiles only the SAS objects in the `contentToBeProfiled.yaml` file (in the `BASE_DIR` directory).

In general, `profileContent` is intended to run as is, profiling all SAS objects.

IMPORTANT If you have been using an existing `contentToBeProfiled.yaml` file, be sure to generate a new `contentToBeProfiled.yaml` file to retrieve updated SAS object names.

Releases prior to SAS 9.4M8, the following is a common error after running the profile application in a SAS Metadata Server (for Windows only):

```
ERROR: Error connecting to ::1:8889. (The connection was refused.)
ERROR: Unable to connect to Web server.
NOTE: PROCEDURE HTTP used (Total process time):
      real time 2.09 seconds
      cpu time 0.00 seconds
```

```
NOTE: 201 OK
```

This error message implies that a connection to the endpoint was unsuccessful. However, PROC HTTP did create the CSV file. This error occurs because when PROC HTTP resolves the host name to an IP address, there is an IPV6 address and an IPV4 address. On some systems (such as Windows), the IPV6 address is listed first, so PROC HTTP tries to connect to that address first. It fails and sends the error message to the log. Then, PROC HTTP connects to the IPV4 address, and it succeeds.

Profiling Relationships

Before running the application, determine whether your SAS 9.4 system has been building the Relationship database.

CAUTION

SAS relationships are profiled only on SAS 9.4M1 or higher. In releases prior to SAS 9.4M1, SAS relationships fail to profile, and an error message is displayed. This is because prior to SAS 9.4M1, the SAS Intelligence Platform Object Framework did not provide the necessary tooling.

If your SAS installation is earlier than SAS 9.4M3 or the Relationship Loader (sas-relationship-loader) has not been run recently, specify the `--load-relationships` option so that relationships are loaded for all content objects in the SAS Folders tree. This ensures that the Relationship Reporter (sas-relationship-reporter) has the information that it needs to produce accurate and complete reports. See [“Using the Batch Relationship Reporting Tools” in SAS Intelligence Platform: System Administration Guide](#) for more information.

CAUTION

The out-of-the-box settings for minimum memory used by the Relationship Loader might not be enough. To adjust these settings, edit the file. For example, on UNIX, the file is named: `SASHome/SASPlatformObjectFramework/9.4/tools/admin/sas-relationship-loader.ini`. On Windows, the file is named: `SASHome/SASPlatformObjectFramework/9.4/tools/admin/sas-relationship-loader.ini`. Modify the minimum and maximum Java heap settings using the following format:

```
JavaArgs_8=-Xms512m    JavaArgs_9=-Xmx1g
```

These are example values. You should use values that set reasonable limits for the system being profiled. The Relationship database can be large. If you have space issues, omit the `--load-relationships` option. If there is content in the Relationship database, profiling proceeds.

IMPORTANT You must also add the following line to the sas-relationship-reporter.ini file. The profile application checks for this line, and you get a warning if it is not found. This line instructs the Relationship Reporter to use UTF-8 encoding, which ensures that all data processed can be rendered in the reports.

```
JavaArgs_8=-Dfile.encoding="UTF-8"
```

A report is created for this content: SAS 9 Profile for SAS Key Relationships.

Profiling Platform Suite for SAS Objects

To profile flow definitions that are created by Platform Suite for SAS 10.1.x or higher, you must uncomment `ASSESSMENT_IBM_JEXPORT_XMLDIR` in the `setenv.yaml` file. For `ASSESSMENT_IBM_JEXPORT_XMLDIR`, you must specify a directory containing XML files in a flat structure created by the Platform Suite for SAS 10.1.x or higher JEXPORT command. For information about how to use the JEXPORT command, see [JEXPORT](#).

Profiling SAS Data Integration Studio Objects

You can determine what source tables a SAS Data Integration Studio job uses and what target tables it creates using the profile application. The profile application creates a SAS data set in `ASSESSMENT_DATAMARTDIR` and includes all init scripts.

Three reports are created for this content: SAS 9 Profile for SAS Data Integration, SAS 9 Profile for SAS Data Integration Scheduling, and SAS 9 Profile for SAS Data Integration Supplementary.

Prioritizing SAS Data Integration Studio Jobs for Migration

You can prioritize your SAS Data Integration Studio jobs for the migration process. After you run the profile application, an `infile/server_label/dis_job_priority.csv` file containing all jobs is created for each server label.

In this CSV file, each job's priority value is None by default. The priority value can be a valid SAS name no more than 32 characters long or a numerical value 1 to 10. After you define priorities, run `publishAssessedContent` for profile. The data for the SAS 9 Profile for SAS Data Integration report is created and includes the specified priorities.

In the SAS 9 Profile for SAS Data Integration report, on the Job Migration tab, use the **Select a job migration priority** menu to select a priority for viewing jobs. Priority values are ordered numerically and then alphabetically.

Profiling SAS Enterprise Miner Projects

SAS Enterprise Miner projects can be saved in almost any location, even across multiple machines. As a result, you might need to run the profile application on various machines.

IMPORTANT

- SAS must be installed on the same machine as SAS Enterprise Miner to perform profiling.
- The profile application must be able to physically access the SAS Enterprise Miner projects that it is profiling.

- On each machine containing SAS Enterprise Miner projects, unpack SAS Content Assessment.
- On each machine, edit the `metaparms.sas` file and `setenv.yaml` file, specifying all applicable values. For the `METADATALABEL` value in the `metaparms.sas` file, you must specifically set the deployment and machine on which you are executing the profile application.

- To create a file that lists all objects that can be profiled, execute the following command, depending on your operating system. For example, on AIX:

```
$ ./SAS9ContentAssessment/assessment/profileContent.ksh --generate-content-list
```

On Windows systems:

```
C:\SAS9ContentAssessment\assessment> profileContent.exe --generate-content-list
```

This command creates a file named `contentToBeProfiled.yaml`. This file contains a list of all SAS objects that can be profiled. If you are interested in only SAS Enterprise Miner projects, delete or comment out all other objects.

- Execute the following command, depending on your operating system. For example, on Linux:

```
$ ./SAS9ContentAssessment/assessment/profileContent --use-content-list
```

On Windows systems:

```
C:\SAS9ContentAssessment\assessment> profileContent.exe --use-content-list
```

- If you limited profiling to SAS Enterprise Miner projects, SAS Enterprise Miner projects are profiled on this specific deployment and machine. A data mart is created and has valid SAS data sets for SAS Enterprise Miner projects only. There are empty data sets for all other SAS objects. This is by design and

expected. Results are located in the following location, depending on your operating system. For example, on UNIX systems:

```
./SAS9ContentAssessment/assessment/datamart/profile/deployment-machine-EM
```

On Windows systems:

```
C:\SAS9ContentAssessment\assessment\datamart\profile\deployment-machine-EM
```

- The entire directory (for example, `deployment-machine-EM`) must be copied to the machine on which you intend to publish your profiling results. It needs to be copied into the data mart on that machine.
- When you publish your results, results from SAS Enterprise Miner projects from each deployment and machine are included.

This process must be repeated on each deployment and machine. Be sure to aggregate the results of each profile on the machine on which you intend to publish your profiling results.

A report is created for this content: SAS 9 Profile for SAS Enterprise Miner.

Profiling SAS Enterprise Guide Projects

SAS Enterprise Guide projects can be saved in almost any location, even across multiple machines. As a result, you might need to run the profile application on various machines. SAS must be installed on the same machine as SAS Enterprise Guide to perform profiling. The profile process must be repeated on each deployment and machine. Be sure to aggregate the results of each profile on the machine on which you intend to publish your profiling results. Here are the steps to begin profiling:

- On each machine containing SAS Enterprise Guide projects, unpack SAS Content Assessment.
- On each machine, edit the `metaparms.sas` file, `setenv.yaml` file, and `pathslst.txt` file, specifying all applicable values.
 - For the `METADATALABEL` value in the `metaparms.sas` file, you must specifically set the deployment and machine on which you are executing the profile application.
 - In the `setenv.yaml` file, by default, the `EXTRACTED_ENTERPRISE_GUIDE_PROJECTSDIR` property is commented out. Uncomment it, and use this property to specify the path to the directory containing SAS Enterprise Guide projects extracted from a SAS Metadata Server. Make sure that there is enough disk space in this directory by considering the number of SAS Enterprise Guide projects that will be extracted. This property is set for a single machine only. This machine is the machine that you are profiling for the other SAS metadata objects (for example, libraries, tables, and so on). If you use this property and profile SAS Enterprise Guide projects in metadata, you use this property again when you run the gather SAS code application.

- In the pathslst.txt file, specify the file system paths where SAS Enterprise Guide projects exist. For more information about specifying profile locations, review the instructions in the pathslst.txt file, which is found in your Assessment directory.
- To create a file that lists all objects that can be profiled, execute the following command, depending on your operating system. For example, on AIX:


```
$ ./SAS9ContentAssessment/assessment/profileContent.ksh --generate-content-list
```

On Windows systems:

```
C:\SAS9ContentAssessment\assessment> profileContent.exe --generate-content-list
```

This command creates a file named contentToBeProfiled.yaml. This file contains a list of all SAS objects that can be profiled. If you are interested in only SAS Enterprise Guide projects, delete or comment out all other objects.
- Execute the following command, depending on your operating system. For example, on Linux:


```
$ ./SAS9ContentAssessment/assessment/profileContent --use-content-list
```

On Windows systems:

```
C:\SAS9ContentAssessment\assessment> profileContent.exe --use-content-list
```
- If you limited profiling to SAS Enterprise Guide projects, SAS Enterprise Guide projects are profiled on this specific deployment and machine. A data mart is created and has valid SAS data sets for SAS Enterprise Guide projects only. There are empty data sets for all other SAS objects. This is by design and expected. Results are located in the following location, depending on your operating system. For example, on UNIX systems:


```
./SAS9ContentAssessment/assessment/datamart/profile/deployment-machine-EG
```

On Windows systems:

```
C:\SAS9ContentAssessment\assessment\datamart\profile\deployment-machine-EG
```
- The entire directory (for example, deployment-machine-EG) must be copied to the machine on which you intend to publish your profiling results. It needs to be copied into the data mart on that machine.
- When you publish your results, results from SAS Enterprise Guide projects from each deployment and machine are included.

Prioritizing SAS Enterprise Guide Projects for Migration

You can prioritize your SAS Enterprise Guide projects for the migration process. After you run the profile application, an `infiles/server_label/eg_projects_priority.csv` file containing all SAS Enterprise Guide projects is created for each server label.

In this CSV file, each project's priority value is None by default. The priority value can be a valid SAS name no more than 32 characters long or a numerical value 1 to 10. After you define priorities, run `publishAssessedContent` for profile.

In the SAS 9 Profile for SAS Enterprise Guide Migration report, on the Overall Project Migration tab, use the **Select a project migration priority** menu to select a priority for viewing projects. Priority values are ordered numerically and then alphabetically.

SAS Enterprise Guide Reports

Two reports are created for profile results.

The SAS 9 Profile for SAS Enterprise Guide Migration report provides information about SAS Enterprise Guide project details, migration details, migration concerns, conversion messages, and projects not profiled.

New with 2024.03, SAS Enterprise Guide integration is available. This integration enables you to execute the code in your SAS 9 Enterprise Guide project on either a SAS Viya 4 Compute server or on SAS 9. As with any integration from architecturally different products, some features might not be supported. The SAS 9 Profile for SAS Enterprise Guide Integration report identifies features within your SAS Enterprise Guide deployment that might not be compatible on a SAS Viya 4 Compute server. In SAS Enterprise Guide, you can specify the location for processing each node. With SAS Enterprise Guide integration, your SAS Enterprise Guide project can process nodes on both a SAS Viya 4 Compute server and on SAS 9. This enables you to get ideal processing for your code.

Profiling SAS Real-Time Decision Manager Campaigns

You can run the profile application to get specific information about SAS Real-Time Decision Manager campaigns. The results are written to SAS data sets in `ASSESSMENT_DATAMARTDIR`. You must uncomment the `ASSESSMENT_RTDM_XML_OUTPUTDIR` property in the `setenv.yaml` file, and then set it to the location in which you want to extract campaigns. The default setting for this property is `$BASE_DIR/RTDMXMLOutput`.

To profile campaigns, SAS Customer Intelligence Integration Utilities are required. The Integration Utilities are a set of client-side Java programs that are located outside of the application server used by SAS Customer Intelligence. They are installed when SAS Customer Intelligence is installed. SAS Content Assessment uses the Extract utility to extract each campaign.

Before profiling, SAS Content Assessment checks for issues that will make the profile application fail.

- SAS Content Assessment requires the location of the configuration directory on the machine on which it is running. This location is specified by `ASSESSMENT_CONFIGDIR` in the `setenv.yaml` file and has no default. The directory must include the configuration level designation. For example, on Windows, you might use `C:\SASConfig\Lev1`. On UNIX systems, you might use `/opt/sas/config/Lev1`.
- If SAS Content Assessment finds the `jws_jaxp` JAR file in the picklist for the SAS Customer Intelligence Integration Utilities Extract utility (Sasmaextract), profiling fails, and you will receive an error message with instructions to remove this file and rerun the profile application.
- If SAS Decision Services Design Mid-Tier is not installed on the machine SAS Content Assessment is profiling, profiling fails. For example, SAS Customer Intelligence Integration Utilities are located remotely from the SAS middle tier and SAS Decision Services Design Mid-Tier. Therefore, the `sas-environment.xml` file needs to be configured to support remote access. For information about modifying this file, see [“Configure the SAS Environment File” in SAS Intelligence Platform: Middle-Tier Administration Guide](#).

IMPORTANT The security model used by these Integration Utilities is the same as for other clients of SAS Customer Intelligence. Only data for which the user has at least Read permission is returned by the extract. The profile application uses the SAS unrestricted user. It is recommended that this specific user be a member of the SAS Customer Intelligence Administrator group on the SAS 9 system.

A report is created for this content: SAS 9 Profile for SAS Real-Time Decision Manager.

Profiling SAS Business Data Network

You can run the profile application to gather metadata associated with terms and term types in SAS Business Data Network. The metadata is packaged as a SASXFER file. You can then import the file into the glossary in SAS Data Governance.

You must uncomment the `ASSESSMENT_BDN_XML_OUTPUTDIR` property in the `setenv.yaml` file, and the file is written to the `ASSESSMENT_BDN_XML_OUTPUTDIR` directory.

For more information about how to import the SASXFER file, see [“Import SASXFER Files” in SAS Data Governance: Administrator’s Guide](#).

Profiling SAS Financial Management Data

SAS Financial Management supports the following financial management activities:

- data collection and retrieval
- currency translation
- management of dynamic hierarchical structures
- intercompany eliminations
- allocations and balancing entries
- ownership eliminations
- reporting

You can profile SAS Financial Management's database content and XML and binary files of the form sets. Then, you can migrate this content from SAS Financial Management 5.61 and later. For more information, see [Chapter 7, "Migrating SAS Financial Management Data"](#).

IMPORTANT The profile application must be run on the server on which SAS Financial Management is installed.

You must uncomment the `ASSESSMENT_FM_OUTPUTDIR` property in the `setenv.yaml` file, and the content is written to the `ASSESSMENT_FM_OUTPUTDIR` directory. Profile executes `pg_dump` using the password from the server on which SAS Financial Management data is run to collect all content.

Profiling SAS Servers

You can run the profile application to get specific information about SAS servers, with additional information about SAS/CONNECT servers, SAS/CONNECT spawners, and SAS Grid servers. Results are written to a SAS data set in `ASSESSMENT_DATAMARTDIR`. The data set includes applicable information for each server or spawner.

A report is created for this content: SAS 9 Profile for SAS Servers.

Profiling SAS Data Sets

You can run the profile application to get specific information about SAS data files (any file with a .sas7bdat extension), such as its file system characteristics, status, size, numbers of variables and observations, and so on. In addition, variable characteristics are provided, such as variable name, length, type, informat, format, and so on. Results are written to a SAS data set in ASSESSMENT_DATAMARTDIR.

Limited information is available for SAS data files that cannot be accessed, possibly because of permission or encryption.

A report is created for this content: SAS 9 Profile for SAS Data Sets.

Profiling Users, Groups, Roles, Logins, and Capabilities

You can run the profile application to get specific information about users, groups, roles, logins, and capabilities. By default, all values are obfuscated for security.

A report is created for this content: SAS 9 Profile for SAS Users and Groups.

Executing the Gather SAS Code Application

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Gather SAS Code

The gather SAS code application gathers SAS code from SAS objects, and then writes the code to an output location on the local file system for analysis. This creates a single central location in which all SAS code is gathered so that you can efficiently and effectively analyze it. Furthermore, the output from this application facilitates the work that the code check applications do to determine whether your SAS code is compatible on the SAS Viya platform.

IMPORTANT Before you can successfully run the gather SAS code application, you must run the profile application and profile SAS stored processes, SAS catalogs, SAS Enterprise Guide projects, SAS Enterprise Miner projects, or SAS Data Integration Studio jobs, transformations, and deployed flows (depending on your intent). The gather SAS code application requires input files and content created by the profile application. Otherwise, you might get error messages or not get the results that you expect.

To run the gather SAS code application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> gatherSASCode.exe
```

Online Help for the gather SAS code application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> gatherSASCode.exe --help
```

The application has the following options:

- stored-processes
Specifies to gather SAS code from SAS stored processes.
- sas-catalogs
Specifies to gather SAS code from SAS catalogs.
- eg-projects
Specifies to gather SAS code from SAS Enterprise Guide projects.
- em-projects
Specifies to gather SAS code from SAS Enterprise Miner projects.
- di-jobs
Specifies to gather SAS code from SAS Data Integration Studio jobs.
- all
Specifies to gather SAS code from all SAS objects supported by this application.

The application writes the code to an output location on the local file system for analysis. If a SAS code source file referenced in any SAS object cannot be found, a file named `externalFileNotFound.sas` is created. This file is helpful because it indicates that a source code issue exists that might need to be addressed before or after you migrate.

The output location is specified in the `setenv.yaml` file using the `SAS_CODE_OUTPUT_LOCATION` property. For more information, see [“setenv.yaml”](#).

Note: A log file is created. It is located in `ASSESSMENT_LOGDIR/gathersascode/METADATALABEL`. The log is named using the following date and time format:

```
gatherSASCode-yyyy-mm-dd-HH.MM.SS.log
```

Gather SAS Code Output Directory Structure

The original location of the object is where the object originated. This original location is useful because you might need to access the object before or after migration.

For an object gathered from metadata, the application re-creates the object's original path under the **Metadata** folder.

For an object gathered from the file system, the application re-creates the object's fully qualified path under the **FileSystem** folder.

SAS Stored Processes Details

The gather SAS code application displays some important information about SAS stored processes.

- It reports how many SAS stored processes were processed.
- It reports how many SAS stored processes use SAS code that lives in metadata.
- It reports how many SAS stored processes use SAS code that lives in file systems.
- It writes the SAS code to the output location specified in the setenv.yaml file.

The extracted SAS code is saved to a directory based on the fully qualified path of the stored process. For example:

```
gatheredSASCode/server_label/SASStoredProcesses/Metadata/Testing/DataSources/StoredProcesses/
examplestoredprocess/examplestoredprocess.sas
```

SAS Catalogs Details

When the `--sas-catalogs` option is set, SAS code is gathered from external SAS catalogs.

The extracted SAS code is saved to a directory based on the fully qualified path of the SAS catalog. For example:

```
gatheredSASCode/server label/SASCatalogs/FileSystem/install/SASServer/SASHome
/SASFoundation/9.4/samples/base/screen
```

SAS Enterprise Guide Projects Details

When the `--eg-projects` option is set, SAS code is gathered from SAS Enterprise Guide projects on disk. The gather SAS code application gathers SAS Enterprise Guide projects on all operating systems - Windows, AIX, Solaris, and Linux.

If you specified a location for the `EXTRACTED_ENTERPRISE_GUIDE_PROJECTSDIR` property in the `setenv.yaml` file during profiling, be aware that this location will also be searched for SAS Enterprise Guide projects to gather content from. If you do not want this to happen, re-comment out the line referencing the `EXTRACTED_ENTERPRISE_GUIDE_PROJECTSDIR` property in the `setenv.yaml` file.

Each directory is analyzed for SAS Enterprise Guide projects that have tasks that use SAS code.

The extracted SAS code is saved to a directory based on the fully qualified path of the SAS Enterprise Guide project. For example:

```
gatheredSASCode/server label/SASEGProjects/tmp/EGProject
```

Within that directory, a subdirectory is created for each task that contains SAS code. For example:

```
gatheredSASCode/server label/SASEGProjects/tmp/EG/EGProject/Bar_Chart_RuckBhgbbhIYld6E/
```

In this example, the SAS Enterprise Guide task that uses SAS code is a bar chart and the ID at the end of the name is used for uniqueness.

Within the task subdirectory, a file containing the SAS code is created. Various file names are supported, based on the task and how the SAS code was used. In general, SAS code embedded within the task is named `TaskCode.sas` or `Code.sas`. External files containing SAS code retain their names.

SAS Enterprise Miner Projects Details

When the `--em-projects` option is set, SAS code is gathered from SAS Enterprise Miner projects and their content.

IMPORTANT Not every SAS Enterprise Miner project has SAS code. If a SAS Enterprise Miner project has no SAS code, the gather SAS code application does not assess it.

The gather SAS code application requires that the profile application be run on SAS Enterprise Miner projects first.

Every SAS Enterprise Miner project that is profiled is analyzed for projects that use SAS code.

The extracted SAS code is saved to a directory based on the fully qualified path of the SAS Enterprise Miner project. For example:

```
gatheredSASCode/server_label/SASEMProjects/FileSystem/C_Drive/EM_Projects/EM14.3/user/myproject
```

If applicable, a more detailed directory is created based on the fully qualified path of the SAS Enterprise Miner project. For example, the following directory includes the workspace and node:

```
gatheredSASCode/server_label/SASEMProjects/FileSystem/C_Drive/EM_Projects/EM14.3/user/myproject2/WS1/CODE1
```

If a SAS code source file referenced in a SAS Enterprise Miner project cannot be found, a file named `externalFileNotFound.sas` is created. This file is helpful because it indicates that a source code issue exists that might need to be addressed before or after you migrate.

SAS Data Integration Studio Jobs Details

The gather SAS code application displays some important information about SAS Data Integration Studio jobs.

- It reports how many SAS Data Integration Studio jobs were processed.
- It writes the SAS code to the output location specified in the `setenv.yaml` file.

The extracted SAS code is saved to a directory based on the fully qualified path of the SAS Data Integration Studio job and any transforms. For example:

```
gatheredSASCode/server_label/SASDIJobs/Metadata/MyMetadataRepo/DataValidation/DataValidationJobs/AllTabsJobs/myjob
```

If a SAS code source file referenced in a SAS Data Integration Studio job cannot be found, a file named `externalFileNotFound.sas` is created. This file is helpful because it indicates that a source code issue exists that might need to be addressed before or after you migrate.

Executing the Code Check Application

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Code Check

IMPORTANT Code check results have been honed for all code gathered from the gather SAS code application. To properly check gathered code, the METADATALABEL in metaparms.sas must be set to the value used when the code was gathered.

To run the code check application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> codeCheck.exe
```

Online Help for the code check application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> codeCheck.exe --help
```

From Help, you learn that this version of the code check application is attempting to scan SAS programs on the file system.

The code check application has the same purpose and effect in AIX, Linux, Solaris, and Windows. However, the application on AIX and Solaris delivers fewer reports than Linux and Windows.

The application requires the following parameters:

--scan-tag

Refers to this invocation of the code check application. Because SAS code can be stored on many different machines and in different directories, multiple runs of the code check application might be required. If the same prefix is used for multiple runs, the output data sets are overwritten.

IMPORTANT This option must begin with a letter or underscore, can contain only alphanumeric and underscore characters, and cannot be longer than 24 characters.

--source-location

Refers to the directory in which the code check application begins. It scans that directory and all subdirectories under it. This option is mutually exclusive with the **--sources-file** option. You must specify either **--source-location** or **--sources-file**, but not both.

Note: When specifying a directory, escape special characters or enclose in quotation marks as necessary for your operating system.

--sources-file

Specifies a file containing a list of directories that code check searches for .sas files. The file can include only paths. For this value, you should use the `pathslst.txt` file delivered with SAS Content Assessment. This option is mutually exclusive with the **--source-location** option. You must specify either **--sources-file** or **--source-location**, but not both.

There is an optional **--use-gathered-path** option, which specifies to include the path of the code gathered by gather SAS code in your `pathslst` file. This must be used with **--sources-file**.

The application has the following optional parameters:

--show-progress

Shows what file of the total number of files is being processed. This can result in performance degradation.

--encoding

Specifies the encoding of SAS program files to be analyzed. Supported encodings are UTF-8 (default), LATIN1, WLATIN1, LATIN2, WLATIN2, and LATIN9.

Once the code check application completes these actions, it produces SAS data sets. These data sets are located in the directory specified by `ASSESSMENT_DATAMARTDIR/codeCheck`.

Note: The sizing of the resulting SAS data sets has been optimized.

Details

Here are some important details about using this application:

- It classifies any file in the starting directory and any subdirectories that have an extension of .SAS as SAS code. It adds it to the list of files to be scanned.
- It searches the files for keywords that have been identified as not compatible on the SAS Viya platform.
- It searches the files for hardcoded paths in statements such as LIBNAME, INFILE, FILENAME, %INC, and %INCLUDE. These occurrences might not cause errors, but they are gathered so that they can be validated.
- It detects SQL explicit pass-through so that a DBMS specified in PROC SQL is included in the code check reports.

Note: If any part of the application is not successful (there were warnings or errors), the resulting data set is not copied to the data mart because there might be data integrity concerns. Please see any referenced logs if this happens. In addition, a log for the entire execution is located in ASSESSMENT_LOGDIR/codecheck/METADATALABEL. The log is named using the following date and time format:

`codeCheck-yyyy-mm-dd-HH.MM.SS.log`

The code check application can be executed for any file system. The --scan-tag option in the invocation of the code check application is used to differentiate invocations.

Note: If you are code checking directories containing extracted SAS code from SAS Enterprise Guide projects, SAS Data Integration Studio jobs, or SAS stored processes, various SAS Viya reports provide information about whether your SAS code is compatible on the SAS Viya platform:

- SAS 9 Code Check for SAS Enterprise Guide Projects report
- SAS 9 Code Check for SAS Jobs report (SAS Data Integration Studio jobs)
- SAS 9 Code Check for SAS Stored Processes report
- SAS 9 Code Check for SAS Enterprise Miner Report (not available on AIX or Solaris)

Executing the SAS Code Check for Internationalization Application

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Code Check for Internationalization

The code check for internationalization application attempts to find known internationalization issues in SAS programs. Internationalization (i18N) is a process by which a program is optimized so that it can be adapted to any language and region without needing to be rewritten.

To run the code check for internationalization application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> i18nCodeCheck.exe
```

Online Help for the code check for internationalization application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> i18nCodeCheck.exe --help
```

From Help, you learn that this version of the code check for internationalization application is attempting to scan SAS programs on the file system.

The application requires the following parameters:

--scan-tag

Refers to this invocation of the code check for internationalization application. Because SAS internationalization code can be stored on many different machines and in different directories, multiple runs of the code check for

internationalization application might be required. If the same prefix is used for multiple runs, the output data sets are overwritten.

IMPORTANT This option must begin with a letter or underscore, can contain only alphanumeric and underscore characters, and cannot be longer than 24 characters.

--source-location

Refers to the directory in which the code check for internationalization application begins. It scans that directory and all subdirectories under it. This option is mutually exclusive with the --sources-file option. You must specify either --source-location or --sources-file, but not both.

Note: When specifying a directory, escape special characters or enclose in quotation marks as necessary for your operating system.

--sources-file

Specifies a file containing a list of directories code check for internationalization searches for .sas files. The file can include only paths. For this value, you should use the pathlist.txt file delivered with SAS Content Assessment. This option is mutually exclusive with the --source-location option. You must specify either --sources-file or --source-location, but not both.

There is an optional --use-gathered-path option, which specifies to include the path of the code gathered by gather SAS code in your pathlist file. This must be used with --sources-file.

The application has the following optional parameters:

--count-encodings

Specifies to display the total number of all possible encodings that are supported for SAS programs to be analyzed.

--encoding

Specifies the encoding of SAS programs to be analyzed. The default is UTF-8.

--filter

Returns encodings that match (case insensitive) only the pattern specified when used with any LIST encoding command.

--list-encodings

Specifies to display all possible encodings that are supported for SAS programs to be analyzed.

--list-lang-encodings

Specifies to display all possible java.lang encodings that are supported for SAS programs to be analyzed.

--list-nio-encodings

Specifies to display all possible java.nio encodings that are supported for SAS programs to be analyzed.

--list-sas-encodings

Specifies to display all possible SAS encodings that are supported for SAS programs to be analyzed.

--multiplier

Specifies the value used to expand the widths of SAS formats and informats or the lengths of SAS variables. The default value is 1.

--show-progress

Specifies to show what file of the total number of files is being processed. This can result in performance degradation.

Once the code check for internationalization application completes these actions, it produces one SAS data set—`scan-tag_results.sas7bdat`. This data set is located in the directory specified by `ASSESSMENT_DATAMARTDIR/i18n`.

Details

Here are some important details about using this application:

- It finds issues related to UTF-8 lengths, such as character variable lengths on the `LENGTH` and `ATTRIB` statements; informat lengths in the `INPUT` statement and other places; and format lengths in the `FORMAT` statement, `PUT` statement, and so on.
- It checks embedded text strings and flags them if non-ASCII characters are included.
- It classifies any file in the starting directory and any subdirectories that have an extension of SAS as SAS code. It adds these files to a list to be scanned.
- It searches files for patterns that have been identified as not internationalization-compatible on the SAS Viya platform, such as:
 - embedded strings
 - concatenated text strings
 - locale-sensitive SAS formats/informats
 - SAS string functions
 - SAS string macros
 - column pointer controls in the `PUT` and `INPUT` statements in a UTF-8 SAS session

These codes and explanations are provided on the **About This Report** page in the SAS 9 Code Check for Internationalization report.

- It creates an HTML report for immediate access to results. This HTML report is located in the directory specified by `ASSESSMENT_RESULTSDIR/i18n`.
- It provides several commands to list the encodings that it can use when scanning SAS programs. Three encoding families are supported—`java.nio`, `java.lang`, and `SAS`. You can use options to list encodings in each family and you can filter for a specific pattern. For example, to see all the encodings that involve UTF, execute the following command (on Linux):

```
$ ./SAS9ContentAssessment/assessment/i18nCodeCheck --list-encodings --filter UTF
```

Note: If any part of the application is not successful (there were warnings or errors), the resulting data set is not copied to the data mart because there might be data integrity concerns. Please see any referenced logs if this happens. In addition, a log for the entire execution is located in ASSESSMENT_LOGDIR/i18n/METADATALABEL. The log is named using the following date and time format:

i18nCodeCheck-yyyy-mm-dd-HH.MM.SS.log

Results from the code check for internationalization application are in an HTML file named using the following format:

SAS9_Code_Check_for_I18N_Results_scan_tag.html

Executing the Detect Duplicate SAS Content Application

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Detect Duplicate SAS Content

The detect duplicate SAS content application finds duplicate SAS programs and data sets.

To run the detect duplicate SAS content application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> detectDuplicateSASContent.exe
```

Online Help for the detect duplicate SAS content application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> detectDuplicateSASContent.exe --help
```

The application requires the following parameters:

--scan-tag

Specifies a scan tag to use for an output data set to differentiate multiple runs of the detect duplicate SAS content application.

IMPORTANT This option must begin with a letter or underscore, can contain only alphanumeric and underscore characters, and cannot be longer than 24 characters.

--source-location

Specifies the directory in which to search for SAS programs and data sets. It searches that directory and all subdirectories under it. This option is mutually

exclusive with the `--sources-file` option. You must specify either `--source-location` or `--sources-file`, but not both.

Note: When specifying a directory, escape special characters or enclose in quotation marks as necessary for your operating system.

--sources-file

Specifies a file containing a list of directories in which to search for SAS programs and data sets. The file can include only paths. For this value, you should use the `pathslst.txt` file delivered with SAS Content Assessment. This option is mutually exclusive with the `--source-location` option. You must specify either `--sources-file` or `--source-location`, but not both.

--show-details

Specifies to show the programs and data sets that are duplicates as they are found.

Once the detect duplicate SAS content application completes these actions, it produces SAS data sets. These data sets are located in the directory specified by `ASSESSMENT_DATAMARTDIR/duplication`. These data sets must be published before seeing them in the report. For more information, see [Chapter 17, “Executing the Publish Application”](#).

Results are displayed in the SAS 9 Detected Duplicates report.

Note: A log file is created. It is located in `ASSESSMENT_LOGDIR/duplication/METADATALABEL`. The log is named using the following date and time format:

`detectDuplicateSASContent-yyyy-mm-dd-HH.MM.SS.log`

Executing the Code Dependencies Application

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Code Dependencies

To run the code dependencies application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> codeDependencies.exe
```

Online Help for the code dependencies application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> codeDependencies.exe --help
```

From Help, you learn that this version of the code dependencies application is attempting to scan SAS programs on the file system.

The code dependencies application has the same purpose and effect in AIX, Linux, Solaris, and Windows.

The application requires the following parameters:

--scan-tag

Refers to this invocation of the code dependencies application. Because SAS code can be stored on many different machines and in different directories, multiple runs of the code dependencies application might be required. If the same prefix is used for multiple runs, the output data sets are overwritten.

IMPORTANT This option must begin with a letter or underscore, can contain only alphanumeric and underscore characters, and cannot be longer than 24 characters.

--source-location

Refers to the directory in which the code dependencies application begins. It scans that directory and all subdirectories under it. This option is mutually exclusive with the --sources-file option. You must specify either --source-location or --sources-file, but not both.

Note: When specifying a directory, escape special characters or enclose in quotation marks as necessary for your operating system.

--sources-file

Specifies a file containing a list of directories that code dependencies searches for .sas files. The file can include only paths. For this value, you should use the pathslst.txt file delivered with SAS Content Assessment. This option is mutually exclusive with the --source-location option. You must specify either --sources-file or --source-location, but not both.

There is an optional --encoding option, which specifies the encoding of SAS program files to be analyzed. Supported encodings are UTF-8 (default), LATIN1, WLATIN1, LATIN2, WLATIN2, and LATIN9.

Once the code dependencies application completes these actions, it produces SAS data sets. These data sets are located in the directory specified by ASSESSMENT_DATAMARTDIR/dependencies.

Note: The sizing of the resulting SAS data sets has been optimized.

Details

This application specifies what input dependencies are needed for a SAS program to run successfully and any output dependencies that the SAS program creates. It informs the user of file dependencies.

The code dependencies application creates a data set for each different scan tag in a data mart. When the data mart is published, all of the data sets in the data mart are merged into one data set. The published data set is obfuscated and can be AES encrypted or SAS encoded if the specific option is selected during publishing.

Input dependencies include:

- environment variables
- INCLUDE statements

- library names
- DATA steps
- SET statements (in DATA steps)
- PROC IMPORT statements
- PROC EXPORT statements
- PROC MAPIMPORT statements
- FILE statements
- FILENAME statements
- INFILE statements

Note: If any part of the application is not successful (there were warnings or errors), the resulting data set is not copied to the data mart because there might be data integrity concerns. Please see any referenced logs if this happens. In addition, a log for the entire execution is located in ASSESSMENT_LOGDIR/dependencies/METADATALABEL/SCANTAG. The log is named using the following date and time format:

dependencies-*HOSTNAME*_*yyyy*.log

The code dependencies application can be executed for any file system. The --scan-tag option in the invocation of the code dependencies application is used to differentiate invocations.

A report is created for this content: SAS 9 Code Dependencies for SAS Viya.

Executing the Summarize SAS Log Steps Application

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Summarize SAS Log Steps

To run the summarize SAS log steps application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on AIX:

```
$ ./SAS9ContentAssessment/assessment/summarizeSASLogSteps.ksh
```

Online Help for the summarize SAS log steps application can be obtained by executing the Help command. Here is an example of the command on AIX:

```
$ ./SAS9ContentAssessment/assessment/summarizeSASLogSteps.ksh --help
```

From Help, you learn that this version of the summarize SAS log steps application is analyzing SAS 9 logs and looking for opportunities to optimize SAS program steps.

The summarize SAS log steps application performs the following actions:

- Analyzes SAS 9 logs and generates data to help understand the real time and CPU time for each SAS program step.
- Determines which steps exceed the configurable threshold.
- Determines where you need to look and to run code to compare execution times in the compute server versus CAS server.
- Creates a SAS 9 Summarize SAS Log Steps report with results.

The summarize SAS log steps application has the following options:

--encoding

Specifies the encoding of SAS program log files to analyze. The default is UTF-8.

--scan-tag

Specifies the scan tag to use for the output data sets. This option differentiates the various runs of this application.

--source-location

Specifies the directory in which the application searches for SAS log files.

--sources-file

Specifies a file that contains a list of directories for which the application searches for SAS log files.

The summarize SAS log steps application can be executed for any file system. The --scan-tag option in the invocation of the summarize SAS log steps application is used to differentiate invocations.

Note: A log file is created. It is located in ASSESSMENT_LOGDIR/summarizelogs/METADATALABEL. The log is named using the following date and time format:

summarizeSASLogSteps-*yyyy-mm-dd-HH.MM.SS*.log

Details

- Unless specified not to, summarize SAS log steps obfuscation is performed by the publish application.
- The application reads SAS Batch Server, SAS Stored Process Server, and SAS Workspace Server logs, as well as other SAS program logs. The data is summarized by scanning for SAS log entries. For example:

```
NOTE: PROCEDURE SGPLOT used (Total process time):
      real time          2.79 seconds
      cpu time           0.08 seconds
```

- CPU-bound steps are good candidates for optimization. A CPU-bound step is a step where the CPU time is equal or nearly equal to the real time for that step. Generally, CPU bound means the rate at which a task progresses is limited by the speed of the CPU.

Next Steps

To determine that CAS is the optimal server, remember that for the CAS server to process data, all data must be in CAS tables and the step must be coded using CAS-enabled steps.

In the report created by the application, you see the steps with the longest running times. Using this information:

- You can determine which steps to consider optimizing.
- You can determine where the source code is by using the log file specified in the report.

With your steps and source code:

- You can move the code to SAS Viya.
- You can convert the steps to be CAS-enabled steps.

After you convert the steps:

- You can benchmark the CAS execution of the converted steps.
- You can compare the CAS execution times with the SAS 9 Summarize SAS Log Steps reported execution times to determine which is the optimal server for processing on the SAS Viya platform.

Executing the SAS 9 Application Usage Application

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SAS 9 Application Usage

Application usage counts the number of users of SAS applications via SAS Workspace Servers. It uses SAS Object Spawner logs to determine this information.

There are several considerations when counting users:

- Matching user IDs that differ only by letter casing are treated as separate users. For example, BOB, Bob, and bob are counted as three users. As a result, count might appear elevated.
- This behavior is intentional and aligned with obfuscation processing.
- User name normalization is not performed because obfuscation treats each value as a distinct identity. Normalizing user names would create discrepancies between assessment findings and obfuscated results.

To run application usage, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Linux:

```
$ ./SAS9ContentAssessment/assessment> applicationUsage
```

Online Help for application usage can be obtained by executing the Help command. Here is an example of the command on Linux:

```
$ ./SAS9ContentAssessment/assessment> applicationUsage --help
```

The application has the following options:

- sources-file
Specifies a CSV file of processed SAS Object Spawners, including its full path.

--source-location

Specifies a directory containing SAS Object Spawner logs.

IMPORTANT Do not use the --sources-file option with a CSV file that is generated from the --source-location option. The --source-location option is intended for processing logs that were offloaded to a separate location. The CSV will not contain usable paths.

Details

- Unless specified not to, application usage obfuscation is performed by the publish application.
- SAS Object Spawner logs are used to provide application usage data. The spawner's Logs directory is determined by a user-configurable field in logconfig.xml. All subdirectories of this directory are assessed.
- A CSV file with application usage information is created in the ASSESSMENT_OUTFILES_DIR directory. It includes application name, the time at which it was accessed, and users who accessed it.
- A CSV file of processed SAS Object Spawners and their status is created in the ASSESSMENT_RESULTSDIR directory.
- Results are displayed in the SAS 9 Application Usage report.
- If the host name of your machine does not match the host name in the log files, use the --source-location option to provide the path to your log directory. This enables the application usage application to process the logs without the need to match the host name. Log files from multiple object spawners can be processed from the same directory using the --source-location option.

Note: A log file is created. It is located in ASSESSMENT_LOGDIR/applicationusage/METADATALABEL. The log is named using the following date and time format:

applicationUsage-yyyy-mm-dd-HH.MM.SS.log

Executing the Publish Application

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Publish

IMPORTANT The publish application does not apply to system evaluation, import EG projects, import SAS packages, and create SAS packages.

To run the publish application, execute a command from the directory in which you unpacked or unzipped the file.

IMPORTANT If the profile, inventory, code check, code check for internationalization, or summarize SAS log steps application was run on more than one machine, a separate data mart was created on each machine. Before you execute the publishAssessedContent command, each data mart must be moved to the directory in which you unpacked or unzipped the file.

If you want to publish your data mart, the data mart type must be specified. Here is a Linux example for the code check application:

```
$ ./SAS9ContentAssessment/assessment/publishAssessedContent --datamart-type codecheck
```

Here is a Windows example for the code check application:

```
C:\SAS9ContentAssessment\assessment> publishAssessedContent.exe --datamart-type codecheck
```

Here is an AIX example for the profile application:

```
$ ./SAS9ContentAssessment/assessment/publishAssessedContent.ksh --datamart-type profile
```

Here is an AIX example for the code check for internationalization application:

```
$ ./SAS9ContentAssessment/assessment/publishAssessedContent.ksh --datamart-type i18n
```

When an inventory, application usage, summarize SAS log steps, code check, or code check for i18n data mart is published, sensitive or personal identifiable information (PII) is hashed with SHA3-224, with the obfuscated SHA3-224 strings mapped to actual values. By obfuscating user references, users, identities, portal pages, and paths are obfuscated. (This includes only paths from profile for SAS Data Integration Studio and SAS Enterprise Guide and from code check.) A mapping CSV file is created to enable an authorized user to securely find the actual values for the obfuscated items to perform statistics.

IMPORTANT For security, in LIBNAME statements, user names, user IDs, URLs, and passwords are obfuscated when you publish.

Online Help for the publish application can be obtained by executing the Help command. Here is an example of the command on Linux:

```
$ ./SAS9Content/assessment/publishAssessedContent --help
```

What Does Publish Mean?

SAS Content Assessment supports running against multiple deployments, one deployment per run. As a result, you need to consolidate data. So, publishing is a required process for all SAS Content Assessment actions. Resulting data sets are tagged to indicate what deployment they are associated with.

Protecting the Data

SAS takes data security seriously. Although applications are run within a user's environment and security infrastructure, you might want to share the data. SAS Content Assessment users can share results to help define and determine the future. In this case, data protection is required.

The publish application supports Advanced Encryption Standard (AES) encryption and SAS Proprietary encoding of its data files. It is strongly recommended that you use AES encryption to encrypt the published data mart. SAS Proprietary encoding

should be used only if AES encryption is not available. See [“About Encryption on SAS Data Files” in SAS Language Reference: Concepts](#) for more information.

To protect the published data mart, perform the following steps:

- 1 Execute the publish application with either of the following options:
 - `--encrypt-aes`
encrypts the published data mart
 - `--encode-sas`
encodes the published data mart

- 2 When requesting AES encryption, a key is discovered or generated as follows by the publish application:

- If an encoded password exists in the `metaparms.sas` file, that value is used as the key.
- Otherwise, a key is generated. For example, a generated key might look like the following:

```
d20d34cc7a612c0abf6da6467acb186c004276427e8e8517b7cac104f585c533
```

- The key is encrypted.

- 3 An encoded password must be specified in the `metaparms.sas` file. You should use an encoded password generated by PROC PWENCODE at the highest level of SAS encoding that your system can support.

Note: If you use SAS Proprietary to encode the published data mart, the value for `SASENCRIPTIONPASSWORD` must be a valid SAS name. In other words, it must meet the following requirements:

- It must be eight characters or less.
- It must start with a letter (A-Z or a-z) or an underscore.
- All subsequent characters are letters (A-Z or a-z), underscore symbols, or digits (0-9).

If you use AES to encrypt the published data mart, the value for `SASENCRIPTIONPASSWORD` can be no longer than 64 characters. It is generated for you if no value for `SASENCRIPTIONPASSWORD` is specified.

- 4 For either protection method, the key is written out to a file name based on the data mart to be published and it is encrypted. For example: `data-mart-type-assessment-key.sas.enc`. Valid values for *data mart* are profile, inventory, codecheck, i18n, summarizeLogs, embatchcode, and appusage.

Note: On AIX, Solaris, or Linux, only the user that runs the publish application can read the file. On Windows systems, it is recommended that the file be secured.

Note: The file is used throughout the rest of the publishing process. The file must be referenced whenever the resulting data sets are directly accessed (for example, when the data sets are imported for reporting purposes).

- 5 SAS code verifies the protection method.
 - If verification is successful, publishing proceeds. The resulting data sets are merged and protected when they are written to the directory specified by `ASSESSMENT_DATAMARTDIR`.
 - If verification is not successful, the publishing process terminates.

Merging and Publishing

At this point, the publishing process proceeds to merge the data sets from each data mart into a single set of data sets. (A data mart is created each time a deployment is inventoried, profiled, code is checked, or SAS log steps are summarized.) For the code check applications, a single set exists at the root of the directory specified by `ASSESSMENT_DATAMARTDIR`, under a subdirectory named `codecheck`. For the profile application, if you have different hosts in your SAS 9.4 environment, the data sets resulting from the profiling of each host cannot be properly merged into a single data mart and published. Only data sets with the same host can be merged and published together.

The data can now be imported. For more information about importing the data, see [Chapter 33, “Importing the Data Mart”](#).

Note: When publishing a data mart for the code check applications, the publishing process produces a third SAS data set, named `codechk_keywords.sas7bdat`, that needs to be imported.

A log for the entire publish application execution is located in `ASSESSMENT_LOGDIR`. The log is named using the following date and time format:

```
publishAssessedContent-yyyy-mm-dd-HH.MM.SS.log
```

Sharing Your Results with SAS

It might be necessary for you to share your published data marts with SAS to facilitate creating a migration proposal and roadmap.

If a file to be shared is larger than 3 GB, it is split into 3 GB chunks automatically. For example, the `Customer1_inventory_abc.tgz` file is larger than 3 GB. The file is

split into 1 GB files, named `Customer1_inventory_abc_partnnnnn`, where `nnnnn` starts at 00000. If the chunks are successfully created, the original file is deleted from the `ASSESSMENT_UPLOADSDIR` directory.

The `--create-uploads` option on the `publishAssessedContent` command creates a TGZ file (on Linux), a TAR file (on Solaris and AIX), or a ZIP file (on Windows) in the `ASSESSMENT_UPLOADSDIR` directory. This directory contains your published data mart results for uploading to SAS and the reports applicable to that data mart. In addition, it creates a SAS file containing an access key that is encrypted.

The file is named based on the following formats:

customer-name_data-mart-type_short-host-name

customer-name_data-mart-type_short-host-name_assessment-key.sas.enc

customer-name_data-mart-type_short-host-name_reports.tgz

For example, these are valid file names:

`OURCustomer_profile_abcdef03470.tgz`

`OURCustomer_profile_abcdef03470_assessment-key.sas.enc`

`OURCustomer_profile_abcdef03470_reports.tgz`

IMPORTANT This option works only if the `--datamart-type` option and the `--encrypt-aes` option or `--encode-sas` option are also set. And, you cannot turn off personal identifiable information (PII) substitution (for example, you cannot specify the `--no-pii-substitution` option).

IMPORTANT When creating archives to be uploaded to SAS, all data sets are compressed using SAS data set compression. This is done automatically to save space and does not require user interaction. For more information about SAS data set compression, review information about the `COMPRESS=DATA` step option from [Programming Documentation for SAS 9.4 and SAS Viya 3.5](#).

Here is an example of a valid command on Linux:

```
$ ./SAS9ContentAssessment/assessment/publishAssessedContent --create-uploads
--datamart-type profile --encrypt-aes
```

For instructions about how to send your data mart and access key to SAS, see [Chapter 34, “Sending Results to SAS for Analysis”](#).

Executing the Import SAS Content Assessment Data and Reports Application

<i>Import SAS Content Assessment Data and Reports</i>	101
<i>Details</i>	102

Import SAS Content Assessment Data and Reports

The import SAS Content Assessment data and reports application imports SAS Content Assessment data and reports automatically to SAS Visual Analytics from a user-specified data mart. You can then view the reports directly in SAS Visual Analytics.

To run the import SAS Content Assessment data and reports application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> importAssessedContent.exe
```

Online Help for the import SAS Content Assessment data and reports application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> importAssessedContent.exe --help
```

You can use either the sas-viya CLI if you are a SAS Viya 4 user or the sas-admin CLI if you are a SAS Viya 3.5 user. They are mutually exclusive and set by specifying either --sas-viya-path or --sas-admin-path.

For both CLIs, you must download at a minimum the 1.17.11 release of the CLI and use at a minimum the 1.20.0 release of the [transfer plug-in](#) and at a minimum the 1.13.37 release of the [CAS plug-in](#). The CLI and plug-ins are required to create a profile and authenticate. For more information about working with profiles, see “[Command and Global Option: Profile](#)” in *SAS Viya Platform: Using the Command-Line Interface*. For more information about how long your CLI login token lasts, see “[Global Command: Authenticate](#)” in *SAS Viya Platform: Using the Command-Line Interface*.

The application has the following options:

- `--create-profile`
Specifies to create a SAS Viya command-line interface profile. This option cannot be used with single sign-on and Kerberos authentication patterns.

Prompting for required values and credentials occurs.
- `--profile`
Specifies to use a specific SAS Viya command-line interface profile during import. This profile must already be created. The user must have authenticated to SAS Viya using any valid authentication pattern.

Prompting for credentials does not occur.
- `--sas-viya-path`
Specifies the fully qualified path to the sas-viya CLI. Specify this option when importing to SAS Viya 4.
- `--sas-admin-path`
Specifies the full -qualified path to the sas-admin CLI. Specify this option when importing to SAS Viya 3.
- `--datamart-type`
Specifies what type of data mart to import. Valid values are profile, inventory, codecheck, i18n, summarizeLogs, embatchcode, appusage, dependencies, and duplication.
- `--caslib`
Specifies the destination CAS library. The default value is public.
- `--server`
Specifies the destination CAS server. The default value is cas-shared-default.
- `--version`
Displays the application's version.

Details

Here are some important details about using the import SAS Content Assessment data and reports application:

- Unless specified not to, import SAS Content Assessment data and reports obfuscation is performed by the publish application.

- You can review the data and reports directly in SAS Visual Analytics.
- The application overwrites any existing SAS Content Assessment data and reports.

Note: A log file is created. It is located in `ASSESSMENT_LOGDIR/specified-data-mart`. The *specified-data-mart* is the data mart type that is selected for importing. The log is named using the following date and time format:

`importAssessedContent-yyyy-mm-dd-HH.MM.SS.log`

Executing the Preview Assessed Content Application

<i>Preview Assessed Content Application</i>	105
<i>Details</i>	106

Preview Assessed Content Application

The preview assessed content application queries published SAS data sets for specific data points. The SAS data sets are located in a data mart specific to the SAS Content Assessment application that you are querying. The application creates CSV files containing the results of the queries. This application complements the SAS Content Assessment reports. The reports should be used to review detailed and thorough information. This application should be used to quickly preview assessed content, and it enables you to do so without importing to SAS Viya.

To run the preview assessed content application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Linux:

```
$ ./SAS9ContentAssessment/assessment> previewAssessedContent
```

Online Help for the preview assessed content application can be obtained by executing the Help command. Here is an example of the command on Linux:

```
$ ./SAS9ContentAssessment/assessment> previewAssessedContent --help
```

The application has a `--datamart-type` option, which specifies what type of data mart on which to run the preview assessed content application. Currently, valid values are `codecheck` and `inventory`.

Details

- The publish application must be run first.
- CSV files are created in the ASSESSMENT_PREVIEWSDIR*datamart-type*\CSVs directory.
- Unless specified not to, preview assessed content obfuscation is performed by the publish application.

Note: A log file is created. It is located in `assessment/logs/preview/datamart-type`. The log is named using the following date and time format:

`previewAssessedContent_localhostname_yyyy-mm-dd-HH.MM.SS.log`

Executing the Create Enterprise Miner Batch Code Application

<i>Create Enterprise Miner Batch Code</i>	107
<i>Details</i>	108

Create Enterprise Miner Batch Code

The create Enterprise Miner batch code application creates SAS Enterprise Miner batch code customized for each SAS Enterprise Miner project's encoding. Batch code is created in the project's unique encoding (for example, Shift JIS, WLATIN1, EUC-CN, and so on). A new property named `ASSESSMENT_EM_BATCH_CODE_OUTPUT_LOCATION` in the `setenv.yaml` file controls where the batch code is created. The application has the following requirements:

- SAS must be installed on the same machine as SAS Enterprise Miner to run this application.
- This application must be able to physically access the SAS Enterprise Miner projects that it is processing.
- SAS Enterprise Miner must be profiled before this application can be used.

To run the create Enterprise Miner batch code application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> createEMBatchCode.exe
```

Online Help for the create Enterprise Miner batch code application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> createEMBatchCode.exe --help
```

The application has a `VERSION` option, which displays the application's version.

Details

Here are some important details about using this application:

- For applicable SAS Enterprise Miner projects, SAS code is created to define basic project and model definitions on the SAS Viya platform.
- The application uses a `setenv.yaml` property named `ASSESSMENT_EM_BATCH_CODE_OUTPUT_LOCATION`. This property specifies where the batch code is created.
- A new data mart type of `EMBATCHCODE` is created.
- Results are displayed in the SAS 9 Enterprise Miner Batch Code Status report.

Note: A log file is created. It is located in `ASSESSMENT_LOGDIR/embatchcode/METADATALABEL`. The log is named using the following date and time format:

`createEMBatchCode-yyyy-mm-dd-HH.MM.SS.log`

Executing the Create FAR Packages Application

<i>Create FAR Packages</i>	109
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Create FAR Packages

The create FAR packages application creates SAS Forecast archives for specified SAS Forecast Server projects to be migrated to the SAS Viya platform.

To run the create FAR packages application, execute the following command from the directory in which you unpacked or unzipped the file. This needs to be on an application server context system. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> createFARPackages.exe
```

Online Help for the create FAR packages application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> createFARPackages.exe --help
```

The application has the following options:

--source-file

Specifies the location of the CSV file containing the SAS Forecast Server projects to create a SAS package for.

--version

Displays the application's version.

For more information, see [“Creating Multiple Project Archives from SAS Forecast Studio”](#) in *SAS Visual Forecasting: User's Guide*.

Details

Here are some important details about using this application:

- The application uses a CSV file to determine what can be migrated. A CSV file should not be edited except to delete projects so that they will not be packaged. Each project requires a separate CSV file.
 - To create a CSV file for SAS Forecast Server projects, in the SAS 9 Profile for SAS Forecast Server report, select the **Projects** tab. In a table, right-click, and select **Export data**. In the Export Data window, make sure that **Detailed data** is not selected and that the **File type** is **Comma-separated values (*.csv)**.
- The application uses a setenv.yaml property named ASSESSMENT_FAR_PACKAGES_OUTPUT_LOCATION. This location contains paths that are created for packages based on their metadata folder locations. A server label directory is also created. The first element of the path is the name of the metadata repository from which the package's content comes. For example, `SASFARPackages/DemoCust/SASForecastServer/My_Folder`. In this example, `SASForecastServer` is a metadata repository. A server label directory is also created. The default value for ASSESSMENT_FAR_PACKAGES_OUTPUT_LOCATION is `$BASE_DIR/SASFARPackages`.
- A FAR package is named based on its content. If a FAR package contains a SAS Forecast Server project named MyForecasts, the FAR package is named MyForecasts.spk.
- A log file for each package's creation is included in the value specified for ASSESSMENT_FAR_PACKAGES_OUTPUT_LOCATION. For example, for the MyForecasts FAR package, there is a MyForecasts_ExportPackage.log file.
- If the metadata path of a project or the name of the project contains an unsupported character for its file system, the unsupported character is substituted.

Note: A log file is created. It is located in ASSESSMENT_LOGDIR/createfars/METADATALABEL. The log is named using the following date and time format:

```
createFARPackages-yyyy-mm-dd-HH.MM.SS.log
```

Executing the Create SAS Packages Application

<i>Create SAS Packages</i>	111
<i>Details</i>	112
<i>SAS Stored Processes Packaging</i>	113

Create SAS Packages

The create SAS packages application creates SAS packages for the specified SAS metadata objects. SAS stored processes and SAS Data Integration Studio jobs are supported for packaging.

To run the create SAS packages application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> createSASPackages.exe
```

Online Help for the create SAS packages application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> createSASPackages.exe --help
```

The application has the following options:

--source-file

Specifies the location of the CSV file containing the SAS metadata objects to create SAS packages for.

--version

Displays the application's version.

Details

Here are some important details about using this application:

- The application uses a CSV file to determine what can be migrated. A CSV file should not be edited except to delete objects so that they will not be packaged. Each type of object requires a separate CSV file.
- To create a CSV file for SAS Data Integration Studio jobs, transformations, and deployed flows, in the SAS 9 Profile for SAS Data Integration report, select the **Job Migration** tab. In a table, right-click, and select **Export data**. In the Export Data window, make sure that **Detailed data** is not selected and that the **File type** is **Comma-separated values (*.csv)**. Only jobs that use user-written transforms are included in this CSV file.

IMPORTANT If the SAS 9 Profile for SAS Data Integration report includes data from multiple deployments, you can filter the report for a specific deployment before you export the data.

- To create a CSV file for SAS stored processes, in the SAS 9 Code Check for SAS Stored Processes report, select the **Compatible Stored Processes** tab. In the list, right-click, and select **Export data**. In the Export Data window, make sure that the **File type** is **Comma-separated values (*.csv)**.
- The application uses a setenv.yaml property named `ASSESSMENT_PACKAGES_OUTPUT_LOCATION`. This location contains paths that are created for packages based on their metadata folder locations. The first element of the path is the name of the metadata repository from which the package's content comes. For example, `SASPackages/DemoCust/Foundation/Users/ETLADM/My_Folder` or `SASPackages/DemoCust/Codegen/Pushdown_and_Validate`. In these examples, `Foundation` and `Codegen` are metadata repositories. A server label directory is also created. The default value for `ASSESSMENT_PACKAGES_OUTPUT_LOCATION` is `$BASE_DIR/SASPackages`.
- A SAS package is named based on its object. If a SAS package contains a SAS Data Integration Studio job named `MyJob`, the SAS package is named `MyJob.spk`. If a SAS package contains a SAS stored process named `MyStoredProcess`, the SAS package is named `MyStoredProcess.spk`.
- A log file for each package's creation is included in the value specified for `ASSESSMENT_PACKAGES_OUTPUT_LOCATION`. For example, for the `MyJob` SAS package, there is a `MyJob_ExportPackage.log` file. For the `MyStoredProcess` SAS package, there is a `MyStoredProcess_ExportPackage.log` file.
- If the metadata path of an artifact or the name of the artifact contains an unsupported character for its file system, the unsupported character is substituted.

Note: A log file is created. It is located in ASSESSMENT_LOGDIR/createspks/METADATALABEL. The log is named using the following date and time format:

```
createSASPackages-yyyy-mm-dd-HH.MM.SS.log
```

SAS Stored Processes Packaging

Inventorying, profiling, gathering, and code checking, which are completed before you create a SAS package, are typically performed using the sasadm@saspw account (or any other unrestricted user account). However, to create a package for a stored process that uses external source code, you must use an external account associated with a host account. This account has to have access to both the stored process and the external source code file if the source code is external. Because this account is used for all stored processes in the CSV file, it must have access to all the stored processes and any external source code files. For more information about this external account requirement, see [“Requirements for Accessing a Standard Workspace Server” in SAS Intelligence Platform: System Administration Guide](#).

IMPORTANT You must specify the external account in “metaparms.sas”.

IMPORTANT If you use an internal account (for example, the sasadm@saspw account that you have used up to this point), you will receive a warning, and any stored process that references external code will not work after it is imported to the SAS Viya platform. The resulting package appears usable, but it does not have the external code.

TIP You can add the external account to the SAS Administrators group to grant access to all stored processes. However, the external account must also have access to all external source code files to be packaged.

A log file for each package’s creation is included in the value specified for ASSESSMENT_PACKAGES_OUTPUT_LOCATION. For example, for the MyJob SAS package, there is a MyJob_ExportPackage.log file. For the MyStoredProcess SAS package, there is a MyStoredProcess_ExportPackage.log file.

Executing the Create SASXFER Packages Application

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Create SASXFER Packages

The create SASXFER packages application creates SAS Transfer (SASXFER) packages from SAS Content Assessment data.

The ability to share information from SAS Content Assessment applications with the Transfer Service enhances the migration process. The SASXFER format has been modified to support this ability. The SASXFER file can be uploaded directly to the Transfer Service using the Import page in SAS Environment Manager.

For example, you run profile and then the gather SAS code application to gather code from SAS Data Integration Studio jobs. You can then run code check against the gathered SAS code path or on a file system to find hardcoded paths. Using either of these results, you run modify SAS code with the same scan-tag using the --generate-map option to create a mapping CSV file. You edit the mapping CSV file and specify new file paths on the target system. You can merge multiple mapping CSV files into one. Now, you can run create SASXFER packages and use the -modifysascode command. It has an option called --map-file that you use to include the CSV file that you edited. This creates a SASXFER package that can be imported in SAS Environment Manager as a mapping set.

To run the create SASXFER packages application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> createSASXFERPackages.exe
```

Online Help for the create SASXFER packages application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> createSASXFERPackages.exe --help
```

The application has the following commands and options:

`modifysascode`

Creates a SAS Transfer (SASXFER) package for the modify SAS code application's edited mapping CSV file.

`--map-file`

Specifies the fully qualified path to the modify SAS code application's edited mapping CSV file. It is strongly recommended that this mapping file be the amalgamation of all mapping files created during the execution of the modify SAS code application.

`--version`

Displays the application's version.

Note: A log file is created. It is located in `ASSESSMENT_LOGDIR/createspks/METADATALABEL`. The log is named using the following date and time format:

`createSASXFERPackages-yyyymm-dd-HH.MM.SS.log`

Executing the Create SAS Grid Import Data Application

<i>Create SAS Grid Import Data</i>	117
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Create SAS Grid Import Data

The create SAS grid import data application gathers SAS Grid server metadata and formats it into JSON files that can be imported onto the SAS Viya 4 platform. You must run the profile application first to gather this data.

It creates several files:

- For each SAS Grid server, a batch context and a launcher context are made. For each corresponding SAS/CONNECT server, a SAS/CONNECT server context and a SAS/CONNECT launcher server context are made. These contexts are used with the SAS Viya launcher and batch command-line plug-ins. Each context file is named for its respective SAS Grid server or SAS/CONNECT server.
- A YAML file of grid data is created for reference.
- Grid option sets are created, but currently unusable.

To run the create SAS grid import data application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> createSASGridImportData.exe
```

Online Help for the create SAS grid import data application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> createSASGridImportData.exe --help
```

The application has the following options:

--source-file

Specifies the location of the CSV file that contains the SAS metadata artifacts to create packages. This file can be created from the SAS 9 Profile for SAS Servers report.

--version

Displays the application's version.

Details

Here are some important details about using this application:

- The application uses a `setenv.yaml` property named `ASSESSMENT_GRID_PACKAGES_OUTPUT_LOCATION`. This property specifies where the grid data is created.
- SAS Grid server option sets are imported, but are not currently used.
- The application can use a CSV file to select which SAS Grid server and SAS/CONNECT server pairs are migrated. To create this CSV file, in the SAS 9 Profile for SAS Servers report, select the **Migration Status** tab. Filter the table for migration selection. In the table, right-click, and select **Export data**. In the Export Data window, ensure that **Detailed data** is not selected and that **File type** is **Comma-separated values (*.csv)**. Use the resulting CSV file location as the value for the `--source-file` option.
- A log file is created in `ASSESSMENT_LOGDIR/createSASGridImportData`. The log is named using the following date and time format:

`createSASGridImportData-yyyy-mm-dd-HH.MM.SS.log`

Executing the Package SAS Content Application

<i>Package SAS Content</i>	119
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Package SAS Content

The package SAS content application creates packages of SAS content for moving to SAS Viya.

To run the package SAS content application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> packageSASContent.exe
```

Online Help for the package SAS content application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> packageSASContent.exe --help
```

The application has the following commands and options:

datasets

Creates a package of SAS content for movement to SAS Viya.

--version

Displays the application's version.

Details

Here are some important details about using this application:

- The application uses a CSV file to determine what can be migrated. A CSV file should not be edited except to delete content so that it will not be packaged. Each type of content requires a separate CSV file.
 - To create a CSV file for data sets, in the SAS 9 Profile for SAS Data sets report, select the **SAS Data Set Details** tab. In the table, right-click, and select **Export** ⇒ **Data**.
 - In the Export Data window, make sure that **Detailed data** is not selected and that the **File type** is **Comma separated values (*.csv)**.
- The application uses a setenv.yaml property named ASSESSMENT_ARCHIVESDIR. Your resulting archive files are created in this location, and only the content from the most current run is kept. The default value for ASSESSMENT_ARCHIVESDIR is `$BASE_DIR/archives`. You can specify a different location to avoid overwriting files.
- A file is named based on its content. For example, files are named with the convention SASDatasetsArchive00001.tgz, SASDatasetsArchive00002.tgz, and so on, to accommodate your content and requested archive size. The DATASETS command has two options:
 - `--csv-file`, which specifies the CSV file exported from the report.
 - `--archive-size`, which specifies the size in gigabytes (GB) for each package created. The default size is 1 GB. It can be set to any positive integer to specify the size to fragment the resulting archives.

You might want to copy your archive files to a new location and rename them to retain them if you plan on multiple runs of the application. Each run overwrites the entire output location, and archive files use the same naming convention.

- Obfuscated paths from when the content was published are not included in the packaged content. This can be avoided by publishing with `--NO-PII-SUBSTITUTION` option.
- The path of a data set must be accessible from the machine running the package SAS content application.

Note: A log file is created. It is located in `ASSESSMENT_LOGDIR/archives`. The log is named using the following date and time format:

`packageSASContent-hostname_yyyy-mm-dd-HH.MM.SS.log`

Executing the Modify SAS Code Application

<i>Modify SAS Code</i>	121
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Modify SAS Code

IMPORTANT The Modify SAS Code application requires that the SAS Code Check application be run first.

To run the modify SAS code application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> modifySASCode.exe
```

Online Help for the modify SAS code application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> modifySASCode.exe --help
```

From Help, you learn that this version of the modify SAS code application is attempting to modify paths of SAS program files.

The application has the following options:

--generate-map

Specifies the name of the mapping file that will be generated with the mapping of old paths to new paths, based on code check results associated with the specified --scan-tag option. This option is mutually exclusive with --map-file.

--map-file

Specifies the mapping file of old paths to new paths, based on code check results associated with the specified **--scan-tag** option. This option is mutually exclusive with **--generate-map**.

--output-location

Specifies the directory to which to write the updated SAS program files.

--scan-tag

Specifies the scan tag to use that corresponds to the code check results to process. This option is case-sensitive. You must specify the exact same value (including same casing) for **--scan-tag** as you did for code check.

Details

Here are some important details about using this application:

- Code check results are copied to the `ASSESSMENT_INFILES` directory. The modify SAS code application uses these results to generate a mapping file using the comma-separated values (CSV) format in a specified output location. When you specify the file name with the **--generate-map** option, the file is created as a CSV file, regardless of whether an extension of `.csv` is specified. You edit the mapping CSV file with new paths that work on the SAS Viya platform. When you edit the file, be sure to save it as a CSV file. Failure to do so causes issues for the modify SAS Code application when using the mapping file.
- The modify SAS code application uses the mapping CSV file to apply the new, modified paths to the SAS program files.
- It makes all updates in new copies of the SAS program files in the specified output location. It does not update any original SAS program files.
- For each update, comments for the update are written to the new SAS program files. Comments are written using a `%* . . . . ;` format.
- You can delete an entry in the mapping CSV file if you do not need it or it is wrong. You do not need to rerun the modify SAS code application.
- You can edit mapping data in the mapping CSV file at any time. You do not need to rerun the modify SAS code application.

Note: A log file is created. It is located in `ASSESSMENT_LOGDIR/modifysascode/METADATALABEL`. The log is named using the following date and time format:

```
modifySASCode-yyyy-mm-dd-HH.MM.SS.log
```

The modify SAS code application can be executed for any file system.

Executing the Import EG Projects Application

<i>Import EG Projects</i>	123
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<i>Sample Output</i>	125
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Import EG Projects

The import EG projects application imports SAS Enterprise Guide projects on the file system to the SAS Viya 4 platform. This application is located in the migration subdirectory.

You can manually run the application or you can generate a script that runs separate invocations of the application in parallel. To generate a script, the `--generate-import-script` option must be specified. The option's value is the number of times the application is invoked in parallel. For example, if you have 1050 SAS Enterprise Guide projects, and you specify 10 as the value, 10 parallel invocations of the application will process 105 SAS Enterprise Guide projects each. It is important that you carefully consider both the number of SAS Enterprise Guide projects and the option's value because parallel invocations of the application processing a large number of SAS Enterprise Guide projects can dramatically degrade performance. The script creates unique log files for each run.

To run the import EG projects application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\migration> importEGProjects.exe
```

Online Help for the import EG projects application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\migration> importEGProjects.exe --help
```

In addition, you must download at a minimum the 1.17.11 release of the [SAS Viya Command-Line Interface \(CLI\)](#) and use at a minimum the 1.20.0 release of the [transfer plug-in](#). The CLI and plug-in are required to create a profile and authenticate. For more information about working with profiles, see “[Command and Global Option: Profile](#)” in *SAS Viya Platform: Using the Command-Line Interface*. For more information about how long your CLI login token lasts, see “[Global Command: Authenticate](#)” in *SAS Viya Platform: Using the Command-Line Interface*.

The application has the following options:

--create-profile

Specifies to create a SAS Viya command-line interface profile. This option cannot be used with single sign-on and Kerberos authentication patterns. This option cannot be used with the --generate-import-script option.

Prompting for required values and credentials occurs, such as a service endpoint and a fully qualified path to the trusted certificate if the system is configured for TLS through HTTPS.

--generate-import-script

Specifies to generate a script that invokes this application in parallel. The value that you specify is the number of times this application is invoked in parallel. Each invocation specifies a CSV that includes a subset of the SAS Enterprise Guide projects in the source location. Use this option cautiously as too many parallel invocations can cause performance issues. If a value is not provided, the default value of 0 is used, and a script is not generated.

--profile

Specifies to use a specific SAS Viya command-line interface profile during import. This profile must already be created. The user must have authenticated to SAS Viya using any valid authentication pattern.

Prompting for credentials does not occur.

--root-folder

Specifies the folder to use as the starting point for all folders created during the import process. The default is ConvertedEGProjects.

--sas-viya-path

Specifies the fully qualified path to the sas-viya CLI.

--source-file

Specifies the fully qualified path to the CSV file containing a list of SAS Enterprise Guide projects. Either this option or the --source-location option is required and both are mutually exclusive.

--source-location

Specifies the path to a directory containing SAS Enterprise Guide projects. Either this option or the --source-file option is required and both are mutually exclusive.

--version

Displays the application's version.

Details

Here are some important details about using this application:

- You can bulk-import SAS Enterprise Guide project (EGP) files.
- Only authorized users can import EGP files.
- A CSV file for importing SAS Enterprise Guide projects can be created from the SAS 9 Code Check for SAS Enterprise Guide Projects report. Select **Compatible Projects**, and set any filters for your table. Once your table shows the projects that you want to migrate, right-click on the table, and select **Export** ⇒ **Data**. In the Export Data window, make sure that **File type** is **Comma separated values (*.csv)**.
- A CSV file for importing SAS Enterprise Guide projects can be created from the SAS 9 Profile for SAS Enterprise Guide Migration report. Select **Overall Project Migration**, and set any filters for your table, such as level of fit or priority. Once your table shows the projects that you want to migrate, right-click on the table, and select **Export** ⇒ **Data**. In the Export Data window, make sure that **Detailed data** is not selected and that **File type** is **Comma separated values (*.csv)**.
- You can specify the root folder to use as the starting point for all folders created during the import process. The default folder is ConvertedEGProjects.
- Each converted SAS Enterprise Guide project is located under the root folder in a folder structure that matches its file system's folder structure.
- When importing large volumes of EGP files, the import can be broken down into multiple imports to best manage performance and troubleshooting.

Note: A log file is created in the location from which the application is run. The log is named using the following date and time format:

```
importEGProjects-yyyy-mm-dd-HH.MM.SS.log
```

Sample Output

Here is some sample output from the importEGProjects command:

```
Validating the specified settings
Validating the specified settings: SUCCESS

Creating a SAS Viya command-line interface profile.
Enter the Service Endpoint:
```

Enter the Service Endpoint: http://test2.ingress-type.ab12-c2.end.company.openstack.abc.com
 The SAS Viya command-line interface profile "ImportEGProjectsProfile" has been created and will be used.
 Creating a SAS Viya command-line interface profile: SUCCESS

Authenticating to SAS Viya.
 Enter credentials for http://test2.ingress-type.ab12-c2.end.company.openstack.abc.com:

Userid: youradm
 Password:
 Authenticating to SAS Viya: SUCCESS

Enumerating SAS Enterprise Guide projects to import.
 Processing SAS Enterprise Guide project 6 of 6 from /u/janedoe/EGPs/EG.
 Enumerating SAS Enterprise Guide projects to import: SUCCESS

Importing the specified SAS Enterprise Guide projects.
 Processing 1 of 6 SAS Enterprise Guide project(s): /u/janedoe/EGPs/EG/project1.egg
 The project was uploaded successfully with the ID: ee7ba743-b383-4e47-9691-c02c666992fa.
 The project import was successful.

Processing 2 of 6 SAS Enterprise Guide project(s): /u/janedoe/EGPs/EG/project2.egg
 The project was uploaded successfully with the ID: 7814d805-97d3-4f1a-9b8b-60c9d85b99a3.
 The project import was successful.

Processing 3 of 6 SAS Enterprise Guide project(s): /u/janedoe/EGPs/EG/project3.egg
 The project was uploaded successfully with the ID: 72a59e0f-6792-43db-a971-9fe95fbd1b04.
 The project import was successful.

Processing 4 of 6 SAS Enterprise Guide project(s): /u/janedoe/EGPs/EG/project4.egg
 The project was uploaded successfully with the ID: 8f4aaad3-e409-49ae-9773-357029d22077.
 The project import was successful.

Processing 5 of 6 SAS Enterprise Guide project(s): /u/janedoe/EGPs/EG/project5.egg
 The project was uploaded successfully with the ID: c0d06c2d-9069-4202-9b5f-f248643c8e35.
 The project import was successful.

Processing 6 of 6 SAS Enterprise Guide project(s): /u/janedoe/EGPs/EG/project6.egg
 The project was uploaded successfully with the ID: 597fd18c-559d-4138-a30a-d0a79f7284f3.
 The project import was successful.

Importing the specified SAS Enterprise Guide projects: SUCCESS

6 SAS Enterprise Guide project(s) imported successfully.
 0 SAS Enterprise Guide project(s) failed to import.
 0 SAS Enterprise Guide project(s) were skipped.

Results

To understand the results of your import, extract the import history from your target SAS Viya 4 system using the [transfer plug-in](#) of the [SAS Viya Command-Line Interface \(CLI\)](#). For example:

```
sas-viya.exe transfer import-history --all -f importHist.csv
```

Now, import and load the CSV file into CAS. For example:

```
sas-viya.exe cas tables import csv --server cas-shared-default --caslib  
SystemData --contains-header-row --scan-rows 99999 --replace --force --table  
ImportedItems --source-file ./importHist.csv --superuser
```

```
sas-viya.exe cas tables load --server cas-shared-default --caslib  
SystemData --table ImportedItems --superuser
```

Also, review your report. The Migration Summary Report contains valuable information about the resources that you migrated. Select the Content  page in SAS Environment Manager. Navigate to the folder **SAS Content** ⇒ **Products** ⇒ **SAS Environment Manager** ⇒ **Dashboard Items**.

Executing the Import FAR Packages Application

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<i>Results</i>	130

Import FAR Packages

The import FAR packages application imports FAR packages containing SAS Forecast Studio archives to the SAS Viya 4 platform.

To run the import FAR packages application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\migration> importFARPackages.exe
```

Online Help for the import FAR packages application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\migration> importFARPackages.exe --help
```

In addition, you must download at a minimum the 1.17.11 release of the [SAS Viya Command-Line Interface \(CLI\)](#) and use at a minimum the 1.0.0 release of the [visual forecasting plug-in](#). The CLI and plug-in are required to create a profile and authenticate. For more information about working with profiles, see “[Command and Global Option: Profile](#)” in *SAS Viya Platform: Using the Command-Line Interface*. For more information about how long your CLI login token lasts, see “[Global Command: Authenticate](#)” in *SAS Viya Platform: Using the Command-Line Interface*.

The application has the following options:

- `--create-profile`
Specifies to create a SAS Viya command-line interface profile. This option cannot be used with single sign-on and Kerberos authentication patterns.

Prompting for required values and credentials occurs.
- `--profile`
Specifies to use a specific SAS Viya command-line interface profile during import. This profile must already be created. The user must have authenticated to SAS Viya using any valid authentication pattern.

Prompting for credentials does not occur.
- `--sas-viya-path`
Specifies the fully qualified path to the sas-viya CLI.
- `--source-location`
Specifies the path to a directory containing FAR packages.
- `--version`
Displays the application's version.

Details

Here are some important details about using the import SAS Packages application:

- Only authorized users can import FAR packages.
- When importing large volumes of FAR packages, the import can be broken down into multiple imports to best manage performance and troubleshooting.

Note: A log file is created in the location from which the application is run. The log is named using the following date and time format:

`importFARPackages-yyyy-mm-dd-HH.MM.SS.log`

Results

To understand the results of your import, see [“Importing Projects from SAS Forecast Server” in SAS Visual Forecasting: User's Guide](#).

Executing the Import SAS Packages Application

<i>Import SAS Packages</i>	131
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Import SAS Packages

The import SAS packages application imports SAS packages (SPKs) containing SAS Data Integration Studio jobs and SAS stored processes to SAS Viya 4.

You can manually run the application or you can generate a script that runs separate invocations of the application in parallel. To generate a script, the `--generate-import-script` option must be specified. The option's value is the number of times the application is invoked in parallel. For example, if you have 1050 SPKs, and you specify 10 as the value, 10 parallel invocations of the application will process 105 SPKs each. It is important that you carefully consider both the number of SPKs and the option's value because parallel invocations of the application processing a large number of SPKs can dramatically degrade performance. The script creates unique log files for each run.

To run the import SAS packages application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\migration> importSASPackages.exe
```

Online Help for the import SAS packages application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\migration> importSASPackages.exe --help
```

In addition, you must download at a minimum the 1.17.11 release of the [SAS Viya Command-Line Interface \(CLI\)](#) and use at a minimum the 1.20.0 release of the

[transfer plug-in](#). The CLI and plug-in are required to create a profile and authenticate. For more information about working with profiles, see [“Command and Global Option: Profile” in SAS Viya Platform: Using the Command-Line Interface](#). For more information about how long your CLI login token lasts, see [“Global Command: Authenticate” in SAS Viya Platform: Using the Command-Line Interface](#).

The application has the following options:

- `--create-profile`
Specifies to create a SAS Viya command-line interface profile. This option cannot be used with single sign-on and Kerberos authentication patterns.

Prompting for required values and credentials occurs.
- `--generate-import-script`
Specifies to generate a script that invokes this application in parallel. The value that you specify is the number of times this application is invoked in parallel. Each invocation specifies a CSV that includes a subset of the SAS packages in the source location. Use this option cautiously as too many parallel invocations can cause performance issues. If a value is not provided, the default value of 0 is used, and a script is not generated.
- `--profile`
Specifies to use a specific SAS Viya command-line interface profile during import. This profile must already be created. The user must have authenticated to SAS Viya using any valid authentication pattern.

Prompting for credentials does not occur.
- `--sas-viya-path`
Specifies the fully qualified path to the sas-viya CLI.
- `--source-location`
Specifies the path to a directory containing SAS packages.
- `--version`
Displays the application's version.

Details

Here are some important details about using the import SAS Packages application:

- Only authorized users can import SAS packages.
- When importing large volumes of SAS packages, the import can be broken down into multiple imports to best manage performance and troubleshooting.
- The import SAS packages application no longer stops when it cannot read a file or directory. Now, it skips the file or directory, informs the user of read failures, and continues.

Note: A log file is created in the location from which the application is run. The log is named using the following date and time format:

```
importSASPackages-yyyy-mm-dd-HH.MM.SS.log
```

.....

Results

To understand the results of your import, extract the import history from your target SAS Viya 4 system using the [transfer plug-in](#) of the [SAS Viya Command-Line Interface \(CLI\)](#). For example:

```
sas-viya.exe transfer import-history --all -f importHist.csv
```

Now, import and load the CSV file into CAS. For example:

```
sas-viya.exe cas tables import csv --server cas-shared-default --caslib
  SystemData --contains-header-row --scan-rows 99999 --replace --force --table
  ImportedItems --source-file ./importHist.csv --super-user
```

```
sas-viya.exe cas tables load --server cas-shared-default --caslib
  SystemData --table ImportedItems --super-user
```

Also, review your report. The Migration Summary Report contains valuable information about the resources that you migrated. Select the Content  page in SAS Environment Manager. Navigate to the folder **SAS Content** ⇒ **Products** ⇒ **SAS Environment Manager** ⇒ **Dashboard Items**.

Executing the Import SAS Grid Packages Application

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Import SAS Grid Packages

The import SAS grid packages application imports SAS Viya transfer packages containing SAS grid data to SAS Viya 4.

To run the import SAS grid packages application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\migration> importSASGridPackages.exe
```

Online Help for the import SAS grid packages application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\migration> importSASGridPackages.exe --help
```

In addition, you must download at a minimum the 1.17.11 release of the [SAS Viya Command-Line Interface \(CLI\)](#) and use at a minimum the 1.20.0 release of the [transfer plug-in](#). The CLI and plug-in are required to create a profile and authenticate. For more information about working with profiles, see “[Command and Global Option: Profile](#)” in *SAS Viya Platform: Using the Command-Line Interface*. For more information about how long your CLI login token lasts, see “[Global Command: Authenticate](#)” in *SAS Viya Platform: Using the Command-Line Interface*.

IMPORTANT Only authorized users can import SAS grid transfer packages.

The application has the following options:

--create-profile

Specifies to create a SAS Viya command-line interface profile. This option cannot be used with single sign-on and Kerberos authentication patterns.

Prompting for required values and credentials occurs.

--profile

Specifies to use a specific SAS Viya command-line interface profile during import. This profile must already be created. The user must have authenticated to SAS Viya using any valid authentication pattern.

Prompting for credentials does not occur.

--sas-viya-path

Specifies the fully qualified path to the sas-viya CLI.

--source-location

Specifies the directory containing SAS grid transfer packages for the SAS Grid servers configured on a single SAS Metadata Server. For example, `...\assessment\gridImportData\server_label`.

--version

Displays the application's version.

Note: A log file is created in the location from which the application is run. The log is named using the following date and time format:

```
importSASGridImportData-yyyy-mm-dd-HH.MM.SS.log
```

Results

To understand the results of your import, extract the import history from your target SAS Viya 4 system using the [transfer plug-in](#) of the [SAS Viya Command-Line Interface \(CLI\)](#). For example:

```
sas-viya.exe transfer import-history --all -f importHist.csv
```

Now, import and load the CSV file into CAS. For example:

```
sas-viya.exe cas tables import csv --server cas-shared-default --caslib
  SystemData --contains-header-row --scan-rows 99999 --replace --force --table
  ImportedItems --source-file ./importHist.csv --superuser
```

```
sas-viya.exe cas tables load --server cas-shared-default --caslib
  SystemData --table ImportedItems --superuser
```

Also, review your report. The Migration Summary Report contains valuable information about the resources that you migrated. Select the Content  page in SAS Environment Manager. Navigate to the folder **SAS Content** ⇒ **Products** ⇒ **SAS Environment Manager** ⇒ **Dashboard Items**.

Executing the Import to SAS Migration Management Application

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Import to SAS Migration Management

The SAS Viya Command-Line Interface (CLI) has a *migrationmanagement* plug-in that manages your data from a run of the SAS Content Assessment inventory application. For more information, see [“Using the migrationmanagement Plug-in” in SAS Viya Platform: Content Migration From SAS 9.4](#).

SAS Content Assessment has an *Import to SAS Migration Management* application that enables you to upload inventory data that was created by the Inventory application in SAS Content Assessment. This application uses the *migrationmanagement* plug-in to upload to the SAS Migration Management database.

To prepare content for the Import to SAS Migration Management application, run SAS Content Assessment with `ASSESSMENT_MIGRATION_MANAGEMENT_SUPPORT` set to `TRUE` and an output location specified in `ASSESSMENT_MIGRATION_MANAGEMENTDIR`. Then, after you run the inventory application, the output location will contain a folder. That folder contains one ZIP file for each run of SAS Content Assessment. There is also a YAML file that acts like a log for the ZIP files in the folder. It contains specific information about each file. Do not edit this file.

The YAML file shows the status of each file. There are three statuses:

- Ready - ready to be uploaded to the file system.
- Uploaded - has been uploaded to the file system already.
- Deleted - has been deleted from the file system.

Submit the LIST command to search and change statuses in real time.

To run the import to SAS migration management application, execute the following command from the directory in which you unpacked or unzipped the file. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> importToSASMigrationManagement.exe
```

Online Help for the import to SAS migration management application can be obtained by executing the Help command. Here is an example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> importToSASMigrationManagement.exe --help
```

In addition, you must download at a minimum the 1.17.11 release of the [SAS Viya Command-Line Interface \(CLI\)](#) and the 3.1.27 release of the [migrationmanagement plug-in](#). For more information about working with profiles, see “[Command and Global Option: Profile](#)” in *SAS Viya Platform: Using the Command-Line Interface*. For more information about how long your CLI login token lasts, see “[Global Command: Authenticate](#)” in *SAS Viya Platform: Using the Command-Line Interface*.

The application has the following commands:

upload

Uploads SAS Content Assessment content to SAS Migration Management. Global options are required.

update

Updates existing content in SAS Migration Management. Global options are required.

delete

Deletes unwanted content on the file system.

list

Lists content on the file system and changes statuses as needed.

The application has the following options:

--create-profile

Specifies to create a SAS Viya command-line interface profile. This option cannot be used with single sign-on and Kerberos authentication patterns. Prompting for required values and credentials occurs.

--profile

Specifies a specific SAS Viya command-line interface profile to use during upload. This profile must already be created. The user must have authenticated to SAS Viya using any valid authentication pattern. Prompting for credentials does not occur.

--sas-viya-path

Specifies the fully qualified path to the SAS Viya CLI. Specify this option when uploading to SAS Viya 4.

--metadata-label

Specifies the metadata label to use during upload. The default value is the metadata label defined in `metaparms.sas`. The specified value must match a metadata label for which inventory application data has already been collected.

--version

Displays the application's version.

Details

Here are some important details about using the import to SAS migration management application:

- Make sure that the appropriate values have been set in the `metaparms.sas` file.
- You must set two properties in the `setenv.yaml` file before you run the inventory application to invoke and set up the import to SAS migration management application.
 - Set `ASSESSMENT_MIGRATION_MANAGEMENT_SUPPORT` to true to interact with the application. The default value is false.
 - Set `ASSESSMENT_MIGRATION_MANAGEMENTDIR` to the location where you want the content to go. The default value is `$BASE_DIR/migrationManagement`.
- After you run the inventory application with the properties set, a ZIP file is created and placed in the `ASSESSMENT_MIGRATION_MANAGEMENTDIR` location.
- The ZIP file created by the inventory application includes only the data types that are relevant to the migration process.
- Set the output location to a location outside of where you installed SAS Content Assessment for both inventory and create SAS packages.ion is run. You can reuse this output location across SAS Content Assessment installations.

The migrationmanagement Plug-in

For the migration process, the migrationmanagement plug-in enables:

- planning migration
- tracking each item's progress and successful migration
- facilitating movement of items

For more information about the plug-in and how to use it, see [“Using the migrationmanagement Plug-in”](#) in *SAS Viya Platform: Content Migration From SAS 9.4*.

Executing the System Evaluation Application

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System Evaluation

IMPORTANT To run the system evaluation application, you must be the Installer user account or a user capable of reading all files in the specified SASHome and SAS configuration directory. System evaluation works only on a machine where there is a SAS configuration. You must specify a valid --config-dir or the application fails. System evaluation must be run on each configured machine in a SAS deployment and it expects a SAS middle tier present in each deployment that it validates. On a multi-tier SAS deployment, you must use a different METADATALABEL value for each tier to avoid overwriting results.

Execute the following command from the directory in which you unpacked or unzipped the file. Here is the example of the command in Linux:

```
$ ./SAS9ContentAssessment/assessment/systemEvaluation
```

Here is the example of the command on Windows:

```
C:\SAS9ContentAssessment\assessment> systemEvaluation.exe
```

Online Help for system evaluation can be obtained by executing the Help command. Here is an example of the command in Linux:

```
$ ./SAS9ContentAssessment/assessment/systemEvaluation --help
```

The system evaluation application has the same purpose and effect in AIX, Linux, Solaris, and Windows. However, the way in which the application interacts with the system it is evaluating is different in AIX and Solaris.

For SAS 9.4, starting with SAS 9.4M9 (TS1M9), SAS Foundation is not available on Oracle Solaris. To move forward to SAS 9.4M9, you can promote your content to SAS 9.4M9 installed on one of the available operating environments, or you can migrate to SAS 9.4M9 installed on a machine that is running an available operating system in the same family. For the UNIX operating system family, options such as Red Hat Enterprise Linux are available. Consult the corresponding [SAS Foundation System Requirements and Configuration Guide](#) for the operating system that you select. For more information, see [Knowledge Base Article KB0039398](#).

The application requires one parameter. `--config-dir` specifies the SAS configuration directory to evaluate. This parameter can be set in the `setenv.yaml` file.

An optional command-line argument is `--sweeper-only`. If this argument is specified, the application does not run any tests. Instead, it collects content and archives it. For more information, see [“Results”](#).

System evaluation supports SAS Metadata Servers configured for various algorithms, including SAS Proprietary and Advanced Encryption Standard (AES). System evaluation also supports SAS deployments configured for Transport Layer Security (TLS) usage. If your system is configured for TLS, you should specify the location of the public certificates for trusted certificate authorities (CAs) when providing the required settings.

System evaluation performs many checks. Here are some of the more important ones:

- It searches SAS metadata for errors and issues based on the products associated with the specified SAS configuration directory.
- It validates SAS configuration and installation files.
 - The SAS Deployment Registry is validated against all software in the system. If you installed SAS software from the SAS Customer Support site, system evaluation validates this software only if it was installed in the primary SAS installation directory on the current machine.
 - Potential issues are reported.
- It validates SAS configuration log files and reports potential issues.
- It searches for any retired SAS software configuration. If one is found, you are informed of the name of the product associated with the SAS software configuration and encouraged to remove this product's configuration. For more information, see [“Removing a SAS Configuration” in SAS Intelligence Platform: Installation and Configuration Guide](#).
- Any differences in how the user connects to the SAS Metadata Server, as well as its host and port values, are logged for the user to investigate.
- It looks in the `security_hotfix.properties` file to see whether any security updates are available.

IMPORTANT System evaluation checks for security updates in SAS 9.4M6 and higher releases.

Product-Specific Evaluation

System evaluation checks the values for the maximum connections and maximum prepared transactions in the SAS Web Infrastructure Platform Data Server. The SAS Web Infrastructure Platform Data Server is often deployed with both maximum connections and maximum prepared transactions set to 256. The values of maximum connections and maximum prepared transactions must be equal. SAS recommends a setting of at least 1024 to ensure success during SAS software upgrades. A value of 1024 or higher is not required for day-to-day operations, unless your site differs. After a SAS software upgrade, the value can be reset to 256.

For more information, see [“Tuning the PostgreSQL Data Server” in SAS Web Applications: Tuning for Performance and Scalability](#).

System evaluation checks assorted configuration settings for the SAS Cache Locator. If recommended settings are missing or not set to the recommended value, the user is informed and referred to [Problem Note 64098: SAS Cache Locator failures during heap-dump collection](#). For more information about these configuration properties, see [“Configure JVM Options for the Cache Locator” in SAS Intelligence Platform: Middle-Tier Administration Guide](#) and [“Understanding SAS Web Application Server Configuration” in SAS Intelligence Platform: Middle-Tier Administration Guide](#).

Some products require special handling. System evaluation searches for these products and informs the user if any are found with instructions to contact SAS Technical Support for more information.

For example, if SAS Federation Server Manager 4.1 is installed on your system, you must remove it before performing an upgrade in place. SAS Federation Server Manager 4.2 or higher includes significant SAS Deployment Topology changes. After the upgrade in place has completed, you can install SAS Federation Server Manager 4.2 or higher.

Results

Once system evaluation is completed, it can create up to two directories: ASSESSMENT_DATAMARTDIR and ASSESSMENT_RESULTSDIR.

It creates an ASSESSMENT_DATAMARTDIR directory of comma-separated values (CSV) files for each machine. It contains content discovered and derived during the evaluation.

A compressed archive file is created in the ASSESSMENT_RESULTSDIR directory on each machine that is evaluated. Because this file contains all SAS configuration logs and other relevant files, make sure you have enough disk space. A way to estimate disk space is to make sure you have enough for the log files you currently have.

The file is named using the following format:

```
CollectedResults_short-host-name_config-level.tgz
```

Its content is controlled by the ASSESSMENT_SWEEPER_FULL_MODE setting, specified in the [setenv.yaml](#) file. Because the default setting for this property is TRUE, the following content is included:

- SAS Deployment Registry content
- SAS Deployment Wizard logs, setup information, and deployment plans
- SAS metadata extracts¹
- SAS configuration data, logs, utility files, and property files
- SAS Web Application Server logs, environment, configuration, and scripts¹
- SAS Cache Locator logs¹
- SAS JMS Broker logs¹
- System evaluation logs and summary and topology reports

If ASSESSMENT_SWEEPER_FULL_MODE is set to FALSE, the following subset of content is included:

- SAS Deployment Registry content
- SAS Deployment Wizard deployment plans
- SAS metadata extracts¹
- SAS configuration data, logs, and utility files
- System evaluation logs and summary and topology reports

IMPORTANT In either case, because this archive contains a lot of content, make sure that you have enough disk space. A way to estimate disk space is to make sure you have enough for the configuration log files you currently have as well as your SAS web application logs.

In the ASSESSMENT_RESULTSDIR directory, a SystemEvaluationResults.properties file is created. This file provides properties, errors, and an error count.

In addition, a log file is created. It details the results of the evaluated system and is named using the following format:

1. Not all content is archived on all machines and is dependent on the SAS products installed and configured.

```
.../evaluation/deployment_name/systemEvaluation_short-host-name_
config-level_yyyy-mm-dd-HH.MM.SS.log
```

The log file uses specific wording to enable easier searching and better communication with SAS Technical Support. Wording is summarized at the end of the log file and uses the following form:

SAS9CASE- ISSUE

For example, suppose your log file has the following content:

```
SAS9CASE-LOGCHECK
SAS9CASE-STATUSXMLMULTIORDERS
```

LOGCHECK indicates that one or more configuration logs in the specified configuration directory contained issues. All logs are archived in ASSESSMENT_RESULTSDIR, so this information can be provided to SAS Technical Support. Based on this content, an issue or warning occurred. If this issue is not resolved, a future SAS software upgrade could experience challenges.

STATUSXMLMULTIORDERS indicates that multiple SAS software orders are in the SAS installation directory (SASHome) as well as in the specified configuration directory. This scenario does not usually cause problems. However, if you experience issues upgrading your software, it is important to provide this information to SAS Technical Support.

Details are provided for each issue to help diagnose potential problems.

System evaluation produces HTML reports as a part of its execution. These reports are in the subdirectory SummaryReports in ASSESSMENT_RESULTSDIR. Some are created on each machine where system evaluation is run. Required support content is provided in the SummaryReports subdirectory.

Two reports are created:

- SummaryReport_short-host-name_config-level.html
- TopologyReport_short-host-name_config-level.html

The summary report is always created on each machine where system evaluation is run. It contains system configuration settings relevant to the SAS deployment, helpful documentation links, a table detailing the tests executed, and the total number of issues found. If issues are found or a warning is necessary, the table contains additional information about what failed and what you should do.

The topology report is created only on the SAS Metadata Server tier. It contains an HTML rendition of the deployment topology of all SAS products that are configured. The report describes each machine in the deployment and the products that are configured.

If you need to copy the content of these reports, be sure to copy the entire SummaryReports subdirectory and its contents.

Immediate Failures

The system evaluation application immediately fails if certain checks determine critical problems in your deployment. The application stops, and an error message provides information and, in some cases, steps to address the critical problem.

The application fails if a valid `--config-dir` is not specified. The application works only on a machine where there is a SAS configuration.

The application fails if certain critical installation or configuration files are missing or empty. There are two primary files that are validated. The `status.xml` file is in the specified SAS configuration directory. For example, on Linux:

```
/opt/sas/config/Lev1/ConfigData
```

Or, on Windows:

```
C:\SASConfig\Lev1\ConfigData
```

The SAS Deployment Registry file, `registry.xml`, is in the following directory on Linux:

```
/opt/sas/SASHome/deploymentreg
```

Or, on Windows:

```
C:\Program Files\SASHome\deplymntreg
```

If you receive an error message, verify that these files exist, that they are not empty, and that they are accessible by the user running system evaluation. Other critical files are validated, but they do not cause the application to fail.

The application fails if the `METADATAHOSTNAME` and `METADATAUSER` values in the `metaparms.sas` file and the `metadata.connection.properties` do not match. The `metadata.connection.properties` file is in the specified SAS configuration directory. For example, on Linux:

```
/opt/sas/config/Lev1/Utilities
```

Or, on Windows:

```
C:\SASConfig\Lev1\Utilities
```

The application fails if invalid credentials are discovered. Credentials provided in the `metadata.sas` file are validated, depending on the deployment tier being evaluated. On a tier with SAS installed, invalid credentials cause system evaluation to fail as it tries to determine SAS metadata repositories. On a tier without SAS installed, system evaluation fails when communicating with the SAS Metadata Server to determine middle-tier connection information.

The application fails on Linux if the user running it is not the user who installed and configured the SAS software on the machine. On Windows, system evaluation does not fail if the user running it is not the user who installed and configured the SAS software on the machine, but it warns you that problems might occur during the evaluation.

The application validates whether the user is authorized to view results before a specific scan begins. If the user is not authorized, the application fails immediately before the scan.

Importing the Data Mart

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Overview

Data marts for profile, inventory, codecheck, i18n, summarizeLogs, embatchcode, and appusage can be imported for review.

Import SAS Content Assessment Data into CAS

The import SAS Content Assessment data and reports application imports SAS Content Assessment data and reports automatically to SAS Visual Analytics from a user-specified data mart. You can then view the reports directly in SAS Visual Analytics. For more information, see [“Import SAS Content Assessment Data and Reports”](#).

You can also use SAS Environment Manager. From the SAS Viya 3.x or SAS Viya 4 system, click  in SAS Environment Manager to import the resulting data sets or CSV files into a caslib. For example, you might choose `Public`, which is the default caslib. For the CSV file created by the import EG projects application, you must use the SystemData caslib and name the table `ImportedItems`. See [“Importing Local Files”](#) in *SAS Data Hub: User's Guide* for more information.

If data set security was requested during the publishing process, the password key in the `assessment-key.sas` file must be used. When using AES, enter the key in the **Encryption key** field in SAS Data Explorer under **File Specifications**. When using SAS Proprietary, enter the key in the **Password** field under **File Specifications**.

Note: If the local file system is accessible, the SAS data sets might be copied directly to the source location (physical path) of the caslib. See [“Caslibs” in SAS Cloud Analytic Services: Fundamentals](#) for more information.

Import a SAS Content Assessment Report onto the SAS Viya Platform

As an administrator on the SAS Viya 3.x or SAS Viya 4 system, click  in SAS Environment Manager to import a SAS Visual Analytics report onto the SAS Viya platform. Reports can be found in the following locations:

- `assessment/packages/appusage`
- `assessment/packages/codeCheck`
- `assessment/packages/dependencies`
- `assessment/packages/duplication`
- `assessment/packages/embatchcode`
- `assessment/packages/i18n`
- `assessment/packages/inventory`
- `assessment/packages/profile`
- `assessment/packages/summarizelogs`

For more information, see [“Migrate Using SAS Environment Manager” in SAS Viya Platform: Content Migration From SAS 9.4](#).

- In this scenario, an individual JSON file is a report package.
- If a version of the report already exists, it is overwritten.
- Values such as the caslib containing the imported data can be changed.

After the import, reports are located in the following directory:

```
/Public/SAS Content Assessment
```

Viewing SAS Content Assessment Reports on the SAS Viya Platform

To view reports in SAS Viya 3.x or SAS Viya 4, navigate to the following directory and appropriate application subdirectory:

`/Public/SAS Content Assessment`

From this location, you can open a report with SAS Visual Analytics. See [SAS Visual Analytics: Overview](#) for more information.

Sending Results to SAS for Analysis

SAS Can Help 153

SAS Can Help

You can send your SAS Content Assessment results to SAS using one of the following methods:

Method 1

Through your SAS Account Team (preferred and most common)

Contact your SAS Account Team, Account Executive, or Technical Advisor to initiate the secure upload process. SAS Sales and Customer Advisory staff will guide you through each step of the process.

Method 2

Through the SAS Submission Form

If you are unsure who your SAS Account Team is, complete [this form](#) to be connected with the appropriate SAS representative.

After you are connected to a SAS Account Team, follow these steps:

- Ensure that your data mart is published, secured, and available in ASSESSMENT_UPLOADSDIR.
- The SAS Account Team will send a link to a secure staging area where you can upload the data mart files.
- Upload all files from the published and secured data mart using the link provided.
- The SAS Account Team will confirm receipt of the files, analyze the results, and schedule a review with your team. Contact your SAS Account Team to understand the expected timeline for results review and next steps in your organization's SAS Viya migration.

Regardless of which method you use to connect with SAS, your organization will receive tailored feedback based on the results of SAS Content Assessment. SAS Account Teams evaluate your environment's migration readiness for SAS Viya and develop a customized migration roadmap.

Note: Sharing your data mart with SAS helps inform future migration development priorities. The data mart is encrypted and secured using a unique encryption key when published. Upon receipt, SAS uses this key to safely decrypt and process the data in a secure environment.

Reference

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Overview

This section contains information that might be helpful as you run the SAS Content Assessment applications.

Gather SAS Code Output

Here is an example of output from the `gatherSASCode` command:

```
843 record(s) were read from /ABC_testing/users/abcsas/assessment/infiles
/Sample/StoredProcessCode.csv.
Processing SAS Stored Process 843 of 843.
A total of 843 SAS Stored Processes were processed: 803 succeeded 40 failed.
24 SAS Stored Processes utilize SAS code embedded in SAS metadata.
Of those, 24 were written to the selected output location.
819 SAS Stored Processes utilize SAS code externalized in the file system.
Of these SAS Stored Processes, 449 unique external files are used.
Of those, 430 were written to the selected output location.
See the application log for details on the failed SAS Stored Processes.
In general, failures in the extraction of external files usually result from the inability
to access them on the current host.
The SAS code gathered from each successfully processed SAS stored process was output to
/ABC_testing/users/abcsas/assessment/gatheredSASCode/SASStoredProcesses.
The SAS Stored Process code is organized by its original defined location.
```

Here is what the output means:

- 843 records were read from the CSV file and all were processed.
- The total of 843 processed equals 803 successful + 40 failed.
- There are 24 embedded and 819 external, which equals 843 total.
- 819 external stored processes used 449 unique SAS program files on the file system based on metadata. Some SAS program files were reused.
- Of the 449 unique SAS program files, only 430 of them existed or were reachable.
- 24 embedded SAS stored processes were written to the selected output location.
- 430 external SAS stored processes were written to the selected output location.

Gather SAS Code Failures

If the gather SAS code application fails to process one or more SAS stored processes, you can search the gatherSASCode log file located in the `logs/gathersascode/metadataLabel` directory. For example, if you navigate to the `logs/gathersascode/metadataLabel` directory, it contains the log file `gatherSASCode_machine_2021-01-20-09.20.34.log`. In this file, submit the following command:

```
grep "Unable to copy" gatherSASCode_machine_2021-01-20-09.20.34.log
```

You get results similar to the following:

```
Unable to copy SAS code to the specified location: open /install/SASServer/config/Lev1
/SASApp/Data/CDD/storedprocesses/myCode.sas: no such file or directory
```

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Summary of 2021.1.2

- SAS 9 Content Assessment now follows SAS Viya release numbering.
- A new application—create SAS packages—creates SAS packages for content migration to the SAS Viya platform. Currently, using the profile application, you can create packages for SAS Data Integration Studio jobs only.
- Using the profile application, you can see additional SAS Data Integration Studio transforms that can be migrated.
- Inventorying file system paths now recognizes variables in the setenv.yaml file and pathslst.txt file.
- SAS code in SAS Data Integration Studio jobs can be gathered in Windows and Linux environments.
- The gather SAS code application now uses an intuitive output directory structure. The new structure reflects the original location of the SAS object that contains SAS code. There are new top-level **Metadata** and **FileSystem** directories.
- A new SAS 9 Code Check for SAS Jobs report is available for SAS code gathered from SAS Data Integration Studio jobs.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2021.1.3

- You must add a line to the sas-relationship-loader.ini file. The profile application checks for this line, and you get a warning if it is not found. This line instructs the Relationship Reporter to use UTF-8 encoding, which ensures that all data processed can be rendered in the reports.
- After prompts are profiled in a SAS Metadata Server, you might receive an error message in the log (for Windows only). This error message implies that a connection to the endpoint was unsuccessful. However, PROC HTTP did create the CSV file.
- On the **Incompatible** tab in the SAS 9 Code Check for SAS Viya report, hardcoded paths are no longer listed. There is a new tab, **Hard-Coded Path**, that shows this information.
- Using the profile application, you can see additional SAS Data Integration Studio transforms that can be migrated.

- Customers viewing the SAS 9 Code Check for SAS Enterprise Guide Projects report using SAS Visual Analytics on SAS Viya 3.4 can now see updates, including results from code check for SAS Enterprise Guide projects.
- The code check application no longer stops when it cannot read a file or directory.
- The profile application for SAS Enterprise Guide projects no longer stops when it cannot read a file or directory.
- The system evaluation application no longer stops when it cannot read a file or directory.
- Ensure that all SAS Data Integration objects are profiled together.
- The gather SAS code application on AIX also gathers SAS code from SAS Data Integration Studio jobs.
- The data model for the code check application more accurately reports a path issue versus a compatibility issue.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2021.1.4

- The import EG projects application no longer stops when it cannot read a file or directory.
- The import SAS packages application no longer stops when it cannot read a file or directory.
- The code check application's performance has been significantly enhanced on AIX.
- A redesign of reports showing code check results delivers answers in a common layout. This uniform design makes the reports cleaner and easier to work with. Results from code check appear in the SAS 9 Code Check for SAS Enterprise Guide Projects report, the SAS 9 Code Check for SAS Jobs report, and the SAS 9 Code Check for SAS Viya report.
- The publish application now obfuscates email addresses.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2021.1.5

- The data model for the inventory application has been refactored for optimized sizes. The inventory process now creates smaller data sets.
- In the SAS 9 Profile for SAS Enterprise Guide report, SAS Enterprise Guide projects that contain prompts or control links are identified as concerns in the section on migration.
- The system evaluation application has been modified to more accurately test for the presence of multiple JVM_OPTIONS entries.
- When using the SAS Visual Analytics 7.5 reports, publishing has been modified so that all tables that have already been published to the SAS LASR Analytic Server are replaced.
- When creating archives to be uploaded to SAS, all data sets are now compressed using SAS data set compression. This is done automatically to save space and does not require user interaction.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2021.1.6

- In the SAS 9 Profile for SAS Enterprise Guide report, SAS Enterprise Guide projects that contain conditional processing, information maps, or OLAP cubes are identified as concerns in the section on migration.
- A new SAS 9 Code Check for SAS Stored Processes report is available for SAS code gathered from SAS stored processes.
- The SAS 9 Code Check for SAS Viya report includes SAS Enterprise Miner projects results.
- The gather SAS code application gathers SAS Enterprise Miner projects.
- The code check application checks SAS Enterprise Miner projects.
- The create SAS packages application creates SAS packages for SAS stored processes.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2021.2.1

- The profile application profiles SAS Access Control Templates (ACTs).
- The data model for the profile application, specifically SAS Enterprise Guide projects, has been refactored for optimized sizes. The profile process now creates smaller data sets for SAS Enterprise Guide content.
- The create SAS packages application has improved. During package creation, an unsupported character in a metadata path or in a package name is substituted.
- The data model for the code check application has added content to preserve original paths and object names.
- A new SAS 9 Code Check for SAS Enterprise Miner Projects report is available for SAS code gathered from SAS Enterprise Miner projects.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2021.2.2

- A new application—code check for internationalization—attempts to find known internationalization issues in SAS programs on Windows and Linux.
- The data model for the profile application, specifically prompts, has been refactored for optimized sizes.
- Profiling SAS Enterprise Guide projects has been enhanced.
- Profiling libraries has been enhanced to include more information.
- The code check applications do not require that you run the gather SAS code application.
- New PII patterns are supported.
- A new SAS 9 Code Check for Internationalization report is available for SASinternationalization code gathered from SAS programs.
- The value for the --scan-tag parameter must be a valid SAS name and comply with all requirements.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2021.2.3

- The code check for internationalization application is supported on AIX.
- Code check data set size has been optimized.
- The pathslst.txt file is encoded in UTF-8 BOM by default to ensure the proper processing of text.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2021.2.3 – Update 1

Digital signatures of SAS Content Assessment Windows applications have been updated.

Summary of 2021.2.4

- The inventory application inventories SAS Risk Model Implementation Platform.
- The size of the data model for SAS Web Report Studio reports has been reduced.
- Performance has significantly improved in profiling SAS artifacts.
- Performance has significantly improved in gathering SAS code from SAS artifacts.
- Performance has improved and data set size has been optimized in code check applications.
- In various applications, there is improved error handling and standardization of return code.
- A new SAS 9 Profile for SAS Libraries and Tables report is available.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2021.2.5

- A new application—summarize SAS log steps—analyzes SAS 9 logs and generates data in the form of a report to help you understand the real time and CPU time for each SAS program step. The SAS program steps with the longest running real times have the best opportunities for optimization.
- A new application—modify SAS code—identifies hardcoded paths that a user will probably need to modify when moving from SAS 9 to SAS Viya 4.
- The SAS 9 Code Check for Internationalization report has been enhanced.
- The code check application finds FILE statements with path issues and adds them to the Issues data set.
- The code check application detects grid functions. Here are the relevant grid functions:
 - grdsvc_enable
 - grdsvc_getaddr
 - grdsvc_getinfo
 - grdsvc_getname
 - grdsvc_hostlist
 - grdsvc_nnodes
 - grdsvc_optsets
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2021.2.6

- SAS Forecast Server is now being profiled. A new report, SAS 9 Profile for SAS Forecast Server, is available to display the profile results.
- A new application—create FAR packages—creates SAS Forecast archives for SAS Forecast Server projects to be migrated to the SAS Viya platform.
- Profiling SAS information maps has been refactored, and it no longer includes profiling expressions. This has significantly improved the time required to profile SAS information maps.

- The SAS Visual Analytics report—SAS 9 Profile for SAS OLAP Cubes and SAS Information Maps—has been split into two new reports—SAS 9 Profile for SAS Information Maps and SAS 9 Profile for SAS OLAP Cubes.
- A progress counter is now available for the code check applications, via the command-line option --SHOW-PROGRESS, that counts SAS files being scanned.
- The summarize SAS log steps application has been enhanced to handle more SAS log formats. The summarize SAS log steps application now supports all the encodings that SAS code check for internationalization supports.
- The profile report SAS 9 Profile for SAS Data Integration has been refactored for performance and is now capable of handling larger data sets.
- On Windows and Linux, the code check applications now scan for SAS options specific to those operating systems and flags them accordingly.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2022.1.1

- The code check applications no longer identify ODBC LIBNAME statements as incompatible.
- The inventory application now inventories SAS Data and AI Studio Objects.
- The profile application profiles SAS Grid servers and metadata.
- The modify SAS code application is supported on AIX.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2022.1.2

- The code check applications calculate the frequency of SAS 9 program steps by SCAN TAG per deployment.
- Whether a SAS Data Integration Join transformation is migrated as a SAS Query Step or SAS Program node is determined.
- System evaluation has enhanced analysis and more detailed logging.
- The code check applications check more SAS statements, functions, and procedures.

- 1 A new tab named **Review: Warnings** is in all code check reports. It shows SAS statements, functions, and procedures that need evaluation before migration.
 - 2 The code check applications have recategorized several incompatibilities that need evaluation before migration.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2022.1.3

- The create FAR packages application is supported on AIX.
- The profile application profiles SAS Application Server components.
- The profile application profiles SAS Data Integration Studio deployed flows.
- The profile application profiles source tables, target tables, and transformations in SAS Data Integration Studio jobs.
- A new report is created for profiled content for SAS Data Integration: SAS 9 Profile for SAS Data Integration Supplementary.
- In the code check applications, if either PROC IMPORT or PROC MAPIMPORT includes the DATAFILE= option, the procedure is flagged as a path restriction. If PROC EXPORT includes the OUTFILE= option, the procedure is flagged as a path restriction.
- A new application—SAS 9 application usage—counts the number of users for SAS applications on SAS Workspace Servers. It uses SAS Object Spawner logs to determine this information. The configuration directory must be specified on the command-line or it must be set in the setenv.yaml file.
- A new application—import FAR packages—imports FAR packages containing SAS Forecast Studio archives to SAS Viya 4.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2022.1.4

- A new application—create Enterprise Miner batch code—creates SAS Enterprise Miner batch code and data sets customized for each SAS Enterprise Miner project's encoding.

- The SAS 9 Profile for SAS Data Integration report has been significantly enhanced. On the **Migration Status** tab, the new **Job Migration Status** tab and the **Transform Migration Status** tab provide elaborate information about whether transforms and jobs are migratable.
- The code check applications support all case combinations of .sas when searching. For example, .**Sas**, .**SAs**, and so on, are searched.
- The summarize SAS log steps application supports all case combinations of .log when searching. For example, .**Log**, .**lOg**, and so on, are searched.
- The inventory application supports all case combinations when searching for specific extensions. For example, for the extension **ddf**, **Ddf**, **DDF**, **dDf**, and so on, are searched.
- The SAS 9 Profile for SAS Libraries and Tables report shows library options that are not supported during migration. It also shows whether a library is supported by CAS or Compute or both.
- The modify SAS code application has a new option named **ASSESSMENT_USE_STRICT_PATH_PARSING**. This option enables the modify SAS code application to create mappings with more precise and refined lists of paths associated with code.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2022.09

- Beginning with this release, SAS 9 Content Assessment follows the new SAS Viya release numbering.
- There are two new reports available: the SAS 9 Enterprise Miner Batch Code Status report and the SAS 9 Application Usage report.
- Error handling has improved in the summarize SAS log steps application.
- Error handling has improved in the create Enterprise Miner batch code application.
- Obfuscation has been significantly enhanced in the SAS 9 application usage application. In addition, user IDs are always obfuscated and a mapping file of obfuscated user ID to original user ID is provided.
- SAS 9 application usage runs on AIX.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2022.10

- A new application—import SAS content assessment data and reports—imports SAS Content Assessment data and reports automatically to SAS Visual Analytics from a user-specified data mart. You can then view the reports directly in SAS Visual Analytics.
- Profiling SAS Data Integration jobs no longer flags two or more input tables as an issue for Join transformations to migrate successfully.
- Profiling SAS Data Integration jobs has been updated to handle jobs with commas in their names.
- JVM options have been added to the `setenv.yaml` file to handle specifying Java `XXMX` and `XXMS` options. For more information, see [“setenv.yaml”](#).
- When publishing with secured data, the import SAS Content Assessment data and reports application uses the name of the data mart being published in the file name for the assessment key. For example, if a profile data mart is published, the key file produced is `profile-assessment-key.sas`.
- If a SAS Enterprise Guide project that is migrated to the SAS Viya platform needs certain code nodes run before proceeding, it is now identified.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2022.11

- Two new applications—create SAS grid import data and import SAS grid packages—are provided with this release. The former uses data created by profiling SAS Grid Servers and creates JSON packages representing the profiled data. The latter imports the JSON packages onto the SAS Viya platform using the SAS Viya transfer plug-in.
- More metadata from profiling libraries is gathered. Specifically, Library Connection Id, Library Connection Name, Server Component, and database library paths are gathered.
- For profile data marts, all `assessment-http.log` files are copied to the Uploads directory during the publish process if uploads were requested.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2022.12

- SAS Data Integration Studio generated transforms migrate as custom steps in SAS Viya 4.
- There is no restriction on the number of lines in the setenv.yaml file.
- There is a new **Review: SAS Grid Keywords** tab on each code check report.
- SAS grid keywords are no longer considered incompatible. Instead, they are classified as needing attention before being used with SAS Viya 4.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2023.01

- A new application—preview assessed content—is provided in this release. This application queries published SAS data sets for specific data points and creates CSV files containing the results of the queries. This application currently supports only code check data marts.
- A copyright date is on each SAS Content Assessment report.
- The SAS 9 Profile for SAS Data Integration report's Deployed Flows page is enhanced. It enables you to filter by event conditions, search tables using a search field, determine which deployed flows are scheduled, and view dependencies.
- Code check checks for explicit SQL pass-through.
- Code check's performance is improved. You should use `ASSESSMENT_SAS_WORK_OPTION` when a large amount of SAS programs are scanned.
- Code check for internationalization has a Show Progress flag, the same flag used in code check.
- System evaluation checks for all retired SAS products and provides instructions for what to do.
- System evaluation checks whether SAS Remote Deployment Agent credentials need to be regenerated.
- System evaluation prompts you to verify whether your operating system version is supported in specific releases of SAS.

- System evaluation checks whether SAS Remote Services is running and alerts users that it is not supported in SAS 9.4M8.
- In code check for internationalization, the Embedded String (EMS) issue's status is changed from Error to Info.
- System evaluation warns you that the `gemfire.member-timeout` property is removed if you upgrade to SAS 9.4M8.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2023.02

- Certain SAS Data Integration Studio Join transformations that use macros in WHERE clauses can migrate to Query steps.
- Certain SAS Data Integration Studio Join transformations with explicit pass-through to Oracle can migrate to Query steps.
- Certain SAS Data Integration Studio Sort transformations can migrate to Sort steps.
- The preview assessed content application supports previewing an inventory data mart. The application is now supported on AIX.
- The modify SAS code application supports modifying SAS statements that span more than one line of code.
- The gather SAS code application supports gathering code from SAS Enterprise Guide projects on AIX.
- The profile application supports profiling SAS Enterprise Guide projects on AIX.
- You can specify an existing SAS Viya command-line interface profile when using applicable SAS Content Assessment applications.
- The import applications support a `--profile` option that enables you to use an existing profile.
- The profile application profiles SAS/CONNECT servers and spawners and provides specific results such as the internal attributes, standard aggregations, and usage patterns of these servers and spawners.
- The SAS 9 Profile for SAS Enterprise Miner report includes information about the SAS program files found in each SAS Enterprise Miner project, the number of program files found, how many projects contain these files, and the number of SAS program files in a specific path.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2023.03

- The inventory application inventories portal pages.
- For SAS Credit Scoring users, system evaluation checks whether there are unsupported databases. The only supported database is SAS.
- System evaluation runs on SAS 9.4 on Solaris.
- The system evaluation check "SAS Analytical Data Set Builder Server 6.4 or later only supports SAS as its DBMS type" is not applicable to AIX or Solaris.
- Perl and Curl are no longer required for AIX.
- SAS Data Integration Studio profiling determines whether File Writer transformations can become Export steps and whether File Reader transforms can become Import steps.
- SAS Data Integration Studio profiling no longer flags an implicit join transformation as a reason to not become a Query step.
- Setting the **Create as view** option for an output table no longer prevents an Extract transformation or a Join transformation from becoming a Query step.
- The create SAS grid import data application and the import SAS grid packages application handle the migration of SAS/CONNECT servers to facilitate SAS Grid server migration.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2023.04

- When profiling SAS Data Integration Studio, in the File Reader transformation, File Writer transformation, Extract transformation, and Join transformation, user-written pre-code and post-code no longer require a SAS Data and AI Studio Program step.
- You can profile SAS data files (any file with a sas7bdat extension). A report is created for this content: SAS 9 Profile for SAS Data Sets.
- The ability to publish reports on SAS 9.4 using SAS Visual Analytics 7.5 has been removed. You can use the preview assessed content application instead.
- You can profile flow definitions that are created by Platform Suite for SAS 10.1.x or higher.

- You can run the profile application to get specific information about a SAS/CONNECT server, SAS/CONNECT spawner, or SAS Grid server. A report is created for this content: SAS 9 Profile for SAS Servers.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2023.05

- The SAS 9 Profile for SAS Data Sets report has been enhanced with additional insights and more filtering capability.
- In the SAS 9 Summarize SAS Log Steps report, information about what data sets, observations, and variables were created from SAS programs is provided. CPU time, real time, and total runtime are provided. And, any code errors and warnings from SAS programs are provided.
- The setenv.yaml properties SAS_CATALOGSDIR and ENTERPRISE_GUIDE_PROJECTSDIR are deprecated. The PATHS_LIST_FILE should be used exclusively for specifying paths.
- The setenv.yaml file and the metaparms.sas file provided with the most current release of SAS Content Assessment should be used instead of an existing version of either file.
- The profile application performs more checks for SAS Data Integration Studio File Writer, Splitter, Sort, and generated transformations to determine how they will migrate.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2023.06

- There is a new report available: the SAS 9 Profile for SAS Data Integration Scheduling report. It includes metrics about scheduling flows.
- The inventory application provides object size and last accessed time in the SAS 9 Inventory report. This information is also included in the inventory preview results in the objects.csv file.
- The profile application provides the file size in bytes for each SAS Enterprise Guide project in the SAS 9 Profile for SAS Enterprise Guide report.
- The profile application provides formatted size and size in bytes for each SAS data set in the SAS 9 Profile for SAS Data Sets report.

- The profile application performs more checks for SAS Data Integration Studio File Writer, File Reader, Splitter, and Sort to determine how they will migrate.
- Any log4j files have been removed from SAS Content Assessment and reload4j is used. Although they never posed a security threat in SAS Content Assessment, they have been removed to alleviate any concern.
- External model catalogs in SAS Forecast Studio are included and migrate using the Import FAR Packages application.
- SAS Content Assessment checks for duplicate entries in the pathslst.txt file.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2023.07

- SAS Content Assessment checks SAS Data Integration Studio Extract transformations for SELECT clauses, calculation columns, Order By, Group By , etc.
- SAS Content Assessment checks SAS Data Integration Studio Create Table transformations for SELECT clauses, calculation columns, Order By, Group By , etc.
- The SAS 9 Profile for SAS Enterprise Guide report includes information about incompatible SAS Enterprise Guide projects that will not migrate.
- The SAS 9 Profile for SAS Data Integration report is enhanced and modernized.
- The SAS 9 Code Check for SAS Viya Report is enhanced and modernized.
- SAS Content Assessment applications that import content into SAS Viya are enhanced to work with SAS Viya command-line interface profiles that have been authenticated prior to usage.
- Obfuscation of personal identifiable information (PII) continues to be added where applicable and appropriate.
- The SAS 9 Summarize SAS Log Steps report is enhanced.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2023.08

- The application usage application supports SHA3-256 obfuscation.
- All code check reports have been enhanced.

- The code check application no longer searches for SAS grid keywords, and they are not referenced in the corresponding code check reports. They are fully supported in SAS Viya.
- For SAS 9 Application Usage and SAS Enterprise Session Monitor users on AIX deployments, a file named UTL_reconcileUserIDs.sas is provided to build a common set of user-to-obfuscated-user data.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2023.09

- The SAS 9 Code Check for Internationalization report has been enhanced.
- The code check for internationalization application checks for ULN (UTF-8 length).
- The profile application no longer looks at GROUPBY and ORDERBY options when determining SAS Data Integration Studio job migration status.
- The profile application stops evaluating a SAS Data Integration Studio transformation for additional migration issues if the user-written flag is set.
- SAS Data Integration Studio jobs can be prioritized for migration.
- The sas-admin CLI can be used with importAssessedContent to import results to SAS Viya 3.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2023.10

- The SAS 9 Profile for SAS Enterprise Guide report includes more details about the migration of your SAS Enterprise Guide projects into SAS Viya.
- The SAS 9 Profile for SAS Data Integration report has been enhanced for clarity.
- System evaluation checks whether you are running SAS 9.4M8. If so, it determines whether all available security updates for the system have been applied.
- The gather SAS code application does not gather orphaned code.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2023.11

- There is a new section about the inventory application's data model.
- The code check application checks for reserved keywords that are used by PROC FORMAT and flags them as incompatible.
- Performance when profiling SAS Enterprise Guide projects and reporting on project migration are improved and more reliable.
- The SAS 9 Profile for SAS Enterprise Guide report includes older projects and skipped projects that could not be assessed.
- The profile application offers an option to prioritize your SAS Enterprise Guide projects.
- The profile application assesses the fit of SPD Server Table Loader transformations for migration.
- A job reference within a SAS Data Integration Studio job is assessed as an Ideal Fit and converts to a SAS Data and AI Studio subflow. The migration status of the job that is referenced is independent of this assessment and it must be looked at separately.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2023.12

- The code check application updated its checks for SAS library engines.
- The code check for internationalization application checks SAS program files for use of MBCS data.
- The code check application provides an --encoding option to support some forms of extended ASCII.
- The SAS 9 Code Check for Internationalization report is enhanced.
- The profile application is enhanced and now classifies partial fit for job reference transformations and SPD Server Table Loader transformations with a load type of Update. The SAS 9 Profile for SAS Data Integration report is enhanced to reflect this new information.
- The eg_projects_summary data set is no longer used in the SAS 9 Profile for SAS Enterprise Guide report.
- The SAS 9 Profile for SAS Libraries and Tables report is enhanced.

- The SAS 9 Profile for SAS Enterprise Guide report is enhanced.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2024.01

- The inventory application inventories additional file types for SPD Server files.
- The profile application no longer checks for Join transformations using subqueries.
- The profile application profiles SAS Real-Time Decision Manager campaigns and creates a SAS 9 Profile for SAS Real-Time Decision Manager report with results.
- SAS 9 Content Assessment for Linux PC Users supports the gather SAS code application and includes gathered code when running the code check application.
- SAS 9 Content Assessment for Windows PC Users supports the gather SAS code application and includes gathered code when running the code check application.
- The SAS 9 Profile for SAS Servers report has been enhanced. A Migration Status tab shows server migration statuses for SAS Grid server and SAS/CONNECT server pairs.
- The create SAS grid import data application has been enhanced. It can accept input of a CSV file containing SAS Grid server and SAS/CONNECT server pairs to migrate.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2024.02

- The SAS 9 Profile for SAS Enterprise Guide report has been enhanced. A new column displays process flows. SAS Enterprise Guide projects with multiple process flows are flagged as potential migration concerns.
- The SAS 9 Profile for SAS Real-Time Decision Manager report includes campaigns that were unable to be profiled.
- The profile application evaluates when a SAS Enterprise Guide Stack Columns task can migrate to a SAS Data and AI Studio Stack Columns step.

- A SAS Data Integration Studio Table Loader transformation with indexes, constraints, or SPD Server as the target table is flagged by the profile application as a partial fit.
- A SAS Data Integration Studio Splitter transformation is evaluated for more conditions to become a SAS Data and AI Studio Manage Columns step.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2024.03

- The SAS 9 Profile for SAS Enterprise Guide report has been enhanced and renamed. It detects SAS Enterprise Guide projects that have not been run before migration, and it is renamed the SAS 9 Profile for SAS Enterprise Guide Migration report.
- A new report named SAS 9 Profile for SAS Enterprise Guide Integration is provided. It explains what happens to SAS Enterprise Guide projects when they connect SAS Enterprise Guide on SAS 9.4 to SAS Viya 4, such as what prompts work.
- The SAS 9 Code Check for Internationalization report has been enhanced. It includes SAS programs that could not be processed and relevant information.
- The profile application checks for requirements for successful SAS Real-Time Decision Manager profiling.
- Profiling SAS Data Integration Studio jobs detects jobs that are fully customized. A fully customized job and each associated transformation all convert to a single SAS Program node as an ideal fit.
- The code check application detects some of the aliases in the EXPORT, IMPORT, and MAPIMPORT procedures.
- Assorted SAS Data Integration Studio transformation profiling rules have been updated.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2024.04

- The SAS 9 Code Check report has been enhanced. It includes SAS programs that could not be processed and relevant information.

- The profile application gathers metadata associated with terms and term types in SAS Business Data Network to use them in the glossary in SAS Data Governance.
- The profile application detects invalid characters that cannot be processed in SAS Enterprise Guide projects. These projects cannot be migrated.
- The code check application checks whether DDE is used with the FILENAME statement and if it is, the code is marked as incompatible.
- The application usage application on AIX supports SHA3-256 obfuscation.
- A SAS Data Integration Studio SCD Type 2 transformation is evaluated for some conditions to become a SAS Data and AI Studio SCD step.
- A SAS Enterprise Guide Append task with certain conditions migrates to a Union Rows step and a Bar-Line Chart task migrates to a Bar-Line Chart step in SAS Viya. The SAS 9 Profile for SAS Enterprise Guide Migration report includes these supported migrations.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2024.05

- The CommonRootPath variable has been removed from the SAS Content Assessment data model.
- For the publish application, the --encrypt-sas option has been renamed --encode-sas for clarity.
- A variable named objectId was added to the SAS Content Assessment data model.
- The application usage application now supports SHA3-224 obfuscation.
- The summarize SAS log steps application can process SAS Workspace Server and SAS Stored Process Server logs. The user IDs that executed the SAS code in these logs are provided, and these IDs are obfuscated using SHA3-224 encryption. The obfuscated user IDs are mapped to the original user IDs in the ASSESSMENT_RESULTSDIR directory, which is specified in the setenv.yaml file.
- SAS Enterprise Miner project IDs are added to the CSV file used by the gather SAS code application.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2024.06

- The application usage application checks multiple SAS Object Spawners.
- New keywords have been added to the code check application.
- The SAS 9 Profile for SAS Enterprise Guide Migration report includes migration information about Partial Fit items and detailed information about stored processes, information maps, and OLAP cubes.
- The SAS 9 Code Check for SAS Viya report has been enhanced.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2024.07

- If a file to be shared is larger than 3 GB, the publish application splits it into 1 GB chunks automatically. If the chunks are successfully created, the original file is deleted from the ASSESSMENT_UPLOADSDIR directory.
- All code check reports include a new column named **Product** on the Advanced: Explore Details tab. The **Product** column shows the products that own SAS procedures.
- The SAS 9 Inventory report includes a new Inaccessible Directory tab. This tab shows inaccessible files, paths, and the reasons for inaccessibility.
- For the inventory application, SAS application usage application, and summarize SAS log steps application, a mapping CSV file of obfuscated values is created to enable an authorized user to securely find the actual values for the obfuscated items to perform statistics.
- The code check application recognizes SAS V9 engine support in SAS Viya.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2024.08

- The application usage application no longer obfuscates. Obfuscation is performed by the publish application. You can specify the `--no-pii-substitution` option when you publish if you want to see user IDs in the report.
- The publish application's performance when obfuscating the inventory data mart has been improved.
- Code check checks the compatibility of PROC IML.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2024.09

- System evaluation looks in the `security_hotfix.properties` file to see whether the hot fix version value is less than 17.0. If it is, you are alerted and provided a link for more information. As security updates become available, the hot fix check is updated for the current value.
- The import EG projects application provides an option, `--generate-import-script`, that specifies to generate a script that invokes this application in parallel. Each invocation specifies a CSV that includes a subset of the SAS Enterprise Guide projects in the source location.
- The import SAS packages application provides an option, `--generate-import-script`, that specifies to generate a script that invokes this application in parallel. Each invocation specifies a CSV that includes a subset of the SAS packages in the source location.
- Unless specified not to, all obfuscation is performed by the publish application.
- If a file to be shared is larger than 3 GB, the publish application splits it into 3 GB chunks automatically. If the chunks are successfully created, the original file is deleted from the `ASSESSMENT_UPLOADSDIR` directory.
- New keywords have been added to the code check application.
- The SAS 9 application usage application identifies load-balanced object spawners and provides guidance to ensure all logs across machines are analyzed.
- The SAS 9 Inventory report includes items User, UserGroup, Role, and Login and their Frequencies.

- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2024.10

- System evaluation checks whether the encoding in the SAS Deployment Registry matches the encoding in the SAS shell script. If there is a mismatch, it shows what encodings are used and displays an error message.
- Most SAS Content Assessment applications are supported on Solaris.
- The rules determining migration fitness for the Create Table transformation and Join transformation have been modified.
- The profile application provides insight into the SAS Data and AI Studio license required to use SAS Data and AI Studio steps when migrating SAS Enterprise Guide projects and SAS Data Integration Studio transformations.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2024.11

- The SAS 9 Inventory report has been enhanced.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2024.12

- A new application—import to SAS migration management—is provided in this release. This application enables you to upload inventory data that was created by the SAS Content Assessment inventory application. This application uses the migrationmanagement plug-in to upload to the SAS Migration Management database. Currently, content from the inventory application is the only supported content for uploading.
- The profile application profiles users, groups, roles, and logins. A new report, the SAS 9 Profile for SAS Users and Groups report, is provided.

- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2025.01

Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2025.02

- The SAS Profile for SAS Users and Groups report specifies whether SAS supplied the users, groups, or roles.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2025.03

- New keywords and product mappings have been added to and updated in the code check application.
- System evaluation checks the net encryption algorithm. If it is scheduled to be deprecated in a future SAS 9.4 release, a message is displayed. Information about the TLS protocol is provided and the Summary Report is updated.
- System evaluation checks whether SAS Customer Intelligence products were found and alerts users that they are not supported in SAS 9.4M8 but will be available in later releases of SAS 9.4.
- The SAS Profile for SAS Libraries and Tables report has been updated and enhanced.
- The SAS application usage application has a --source-location option that enables you to specify a directory containing SAS Object Spawner logs.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2025.04

- The SAS 9 Profile for SAS Users and Groups report includes information about capabilities by role, application, and user.
- SAS 9 Profile for SAS Libraries and Tables report has been updated and enhanced.
- The import EG projects application can handle longer project names with multiple commas.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2025.05

- Code check checks PROC PRINTTO for hardcoded paths in its usage.
- System evaluation adds the sasenv_local.csh, sasenv_local.ksh, and the sasenv_local files to the CollectedResults archive on UNIX.
- By default, the inventory application must be run before you run the profile, gather SAS code, code check, code check for internalization, or create Enterprise Miner batch code application. The ASSESSMENT_OPT_OUT_OF_INVENTORY option can be set to true to allow the listed applications to run without prior execution of the inventory application.
- The SAS 9 Profile for SAS Libraries and Tables report has been enhanced.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2025.06

- The SAS 9 Profile report has been removed. Its information is covered in other reports.
- The SAS 9 Profile for SAS Data Sets report marks tables coming from the Secured Library.

- A new report, the SAS 9 Profile for SAS Key Relationships, is provided.
- System evaluation checks for and reports about several retired products in SAS 9.4M9.
- For SAS 9.4, starting with SAS 9.4M9 (TS1M9), SAS Foundation is not available on Oracle Solaris.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2025.07

- How the modify SAS code application normalizes slashes in paths is improved.
- System evaluation validates the presence and contents of the Web/Staging directory, alerting if the directory is not found, is empty, or is missing needed content.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2025.08

- A new application—code dependencies—is provided in this release. This application specifies what input dependencies are needed for a SAS program to run successfully and any output dependencies that the SAS program creates. It informs the user of file dependencies.
- Several new engines have been added as compatible to the code check application.
- The SAS 9 Inventory report includes a **Potential File Duplicates** page identifying potential duplicate files. You can determine actual duplicate files to clean up before migration, which leads to less storage use and lower maintenance.
- The SAS 9 Inventory report has two new pages showing the number and distribution of Hot, Warm, and Cold files, which indicates how recently the file was accessed and modified. This value is based on thresholds that you set.
- SAS 9 Content Assessment for Linux PC Users and SAS 9 Content Assessment for Windows PC Users provide information in an HTML report about Hot, Warm, and Cold files based on default threshold values.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2025.09

- SAS Code Dependencies handles more scenarios.
- Profiling SAS Data Integration Studio objects includes more checks to determine the fitness of SAS Data Integration transformations for migration to SAS Viya.
- Profiling SAS Enterprise Guide projects detects circular dependencies in SAS Enterprise Guide projects. These projects are tagged as migration concerns.
- System evaluation informs you whether SAS Security Bulletins and Updates are available for your system.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2025.10

- A new application—detect duplicate SAS content—is provided in this release. This application finds duplicate SAS programs and data sets.
- A new application—create SASXFER packages —is provided in this release. This application creates SAS Transfer (SASXFER) packages from SAS Content Assessment data.
- The SAS 9 Inventory report has been enhanced. It includes SAS Content Assessment release information and application execution times.
- System evaluation collects SAS configuration files in its results for SAS Technical Support analysis.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2025.11

- The SAS 9 Application Usage report and the profile application reports have been enhanced. They include SAS Content Assessment release information and application execution times.

- The SAS 9 Profile for SAS Data Integration report and the SAS 9 Profile for SAS Data Integration Supplementary report have been enhanced. They include information about the migration of status handling conditions.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2025.12

- To provide consolidated information, the SAS 9 Profile report is available.
- The SAS 9 Summarize SAS Log Steps report has been enhanced. It includes SAS Content Assessment release information and application execution times.
- SAS Financial Management data can be migrated to SAS Viya 4.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2026.01

- The SAS 9 Detected Duplicates report includes Last Accessed Date and Last Modified Date.
- The SAS 9 Profile for SAS Enterprise Guide Migration report no longer uses the SUMVAR condition in evaluating migration fitness.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2026.02

- All SAS 9 Code Check reports have been enhanced. They include SAS Content Assessment release information and application execution times.
- The SAS 9 Code Check for Internationalization report has been enhanced. It includes SAS Content Assessment release information and application execution times.

- The SAS 9 Enterprise Miner Batch Code Status report has been enhanced. It includes SAS Content Assessment release information and application execution times.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2026.03

- In application usage, do not use the --sources-file option with a CSV file that is generated from the --source-location option. The --source-location option is intended for processing logs that were offloaded to a separate location. The CSV will not contain usable paths.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2026.04

- A new application—package SAS content—is provided in this release. This application creates packages of SAS content for moving to SAS Viya.
- The SAS 9 Inventory report has been enhanced. It has a new page named **SAS System Options** that shows the output of PROC OPTIONS.
- The SAS 9 Code Dependencies for SAS Viya report has been enhanced. It includes runtime metrics.
- The SAS 9 Detected Duplicates report has been enhanced. It includes runtime metrics.
- The SAS 9 Detect Duplicate SAS Content application has been improved to continue processing when certain data set attributes create warnings.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2026.05

- The profile application no longer reports a SAS Data Integration Studio transformation that is marked **Exclude from run** as an issue because the **Exclude from run** status is now supported in SAS Data and AI Studio.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2026.06

- The inventory application has improved how it formats execution metrics such as runtime start and stop.
- As of 2026.06, SAS Studio is renamed SAS Data and AI Studio.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2026.07

- On the **Incompatible Projects** page of all code check reports, a **Frequency** column shows the number of incompatible statements in each file and the total number of statements across all files. An information box with an incompatible count was added to the upper right of the page.
- Code check was enhanced to include SAS file information. As a result, all code check reports include a **Steps By Project** tab under **Advanced: Explore Details** that provides step types associated with each scanned SAS file.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2026.08

- The System Evaluation report has been enhanced. It includes the UNIX OS version.
- Code check and code check for internationalization was enhanced. They include a `--use-gathered-path` option, which specifies to include the path of the code gathered by gather SAS code in your pathslst file.
- The SAS 9 Profile for SAS Enterprise Guide Migration report specifies any prompts that migrate to flow parameters and do not need additional steps after migration. This information is on the Project Item Conversion Messages tab.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

Summary of 2026.09

- Fitness checks for the SAS Enterprise Guide Correlations task have been enhanced.
- SAS Enterprise Guide projects with ordered lists are considered project-level concerns.
- SAS Data Integration jobs with cross joins and natural joins do not affect fitness checks.
- Enhancements have been made, performance has improved, and issues have been addressed across the applications.

