



SAS[®] 9 Content Assessment

2023.04*

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SAS® 9 Content Assessment

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Understanding SAS Content Assessment

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What Does It Do?

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.

Why?

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.

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.

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.

Who Can Run It?

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 application, you must also be able to access and read all files in the directories specified for scanning.

How?

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

[SAS Administration: SAS 9 Content Assessment Applications](#)

[SAS 9 Content Assessment YouTube Video](#)

[System Evaluation: A SAS 9 Content Assessment Tool YouTube Video](#)

[Migrating to SAS Studio on SAS Viya](#)

[Accelerate Your Migration to SAS Viya](#)

What Do I Get?

SAS 9 Content Assessment includes the following applications:

Table 1.1 Applications

Application Name	Short Name	Executable Name
SAS 9 Inventory	inventory	inventoryContent.exe (Windows)
		inventoryContent.ksh (AIX)
		inventoryContent (Linux)
SAS 9 Profile	profile	profileContent.exe (Windows)
		profileContent.ksh (AIX)
		profileContent (Linux)

SAS 9 Gather SAS Code	gather SAS code	gatherSASCode.exe (Windows) gatherSASCode.ksh (AIX) gatherSASCode (Linux)
SAS 9 Code Check	code check	codeCheck.exe (Windows) codeCheck.ksh (AIX) codeCheck (Linux)
SAS 9 Code Check for Internationalization	code check for i18n	i18nCodeCheck.exe (Windows) i18nCodeCheck.ksh (AIX) i18nCodeCheck (Linux)
SAS 9 Summarize SAS Log Steps	summarize SAS log steps	summarizeSASLogSteps.exe (Windows) summarizeSASLogSteps.ksh (AIX) summarizeSASLogSteps (Linux)
SAS 9 Application Usage	application usage	applicationUsage.exe (Windows) applicationUsage.ksh (AIX) 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 (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 (Linux)
SAS 9 Create FAR Packages (Windows and Linux only)	create FAR packages	createFARPackages.exe (Windows) createFARPackages.ksh (AIX) createFARPackages (Linux)

SAS 9 Create SAS Packages	create SAS packages	createSASPackages.exe (Windows) createSASPackages.ksh (AIX) createSASPackages (Linux)
SAS 9 Create SAS Grid Import Data (Windows and Linux only)	create SAS grid import data	createSASGridImportData.exe (Windows) createSASGridImportData (Linux)
SAS 9 Modify SAS Code	modify SAS code	modifySASCode.exe (Windows) modifySASCode.ksh (AIX) 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 System Evaluation	system evaluation	systemEvaluation.exe (Windows) systemEvaluation.ksh (AIX) systemEvaluation.ksh (Solaris) systemEvaluation (Linux)

SAS 9 Inventory

This application counts the various SAS objects and content on your system. Here are the objects that are counted:

- SAS Metadata Server objects contained in SAS folders
- SAS 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

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

SAS 9 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
 - 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 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 9 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 9 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 9 Code Check for I18N

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 9 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 9 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 9 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 9 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 encrypted with either SAS Proprietary or AES encryption. Personal identifiable information (PII) is removed by default when publishing a data mart.

SAS 9 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 9 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 allows you to do so without importing to SAS Viya.

SAS 9 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 9 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 9 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 9 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 9 Import EG Projects

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

SAS 9 Import FAR Packages

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

SAS 9 Import SAS Packages

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

SAS 9 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 9 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.

What Does It Tell Me?

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.

Which Application Should I Run First?

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](#)
- [SAS Code Check for Internationalization](#)
- [Summarize SAS Log Steps](#)
- [SAS 9 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 SAS Grid Import Data](#)
- [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](#)

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.

Can't Wait?

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) 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 If you want to run [gather SAS code](#), you must run [profile](#) first, you need to know where your SAS Enterprise Guide projects are, and you need access to the [“Command-Line Interface: Preliminary Instructions”](#) in *SAS Viya Platform: Using the Command-Line Interface*.
- 6 If you want to run code check, you must specify [“--scan-tag”](#) and either [“--sources-file”](#) or [“--source-location”](#).
- 7 If you want to run code check for i18n, you must specify [“--scan-tag”](#) and either [“--sources-file”](#) or [“--source-location”](#).
- 8 If you want to run [create SAS grid import data](#), you must run [profile](#) first, and you need access to the [“Command-Line Interface: Preliminary Instructions”](#) in *SAS Viya Platform: Using the Command-Line Interface*.
- 9 If you want to run [system evaluation](#), you must specify a valid `--config-dir`.

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 (System Evaluation only) operating systems. SAS Content Assessment is supported on the same host platforms on which SAS 9.4 is supported. For more information, see <https://support.sas.com/supportos/list>.
- JRE 1.7.0 or greater 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 1.7.0 or greater.
- 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 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 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 applications, the SAS middle tier must be installed.
- With the exception of the code check 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.

Using SAS Content Assessment

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Overview

SAS 9 Content Assessment functions as follows:

- 1 For security, the server that SAS Content Assessment uses to run is bound to the local machine.
- 2 For security, in LIBNAME statements, user names, user IDs, URLs, and passwords are obfuscated when you publish.
- 3 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.
- 4 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.
- 5 SAS Content Assessment verifies all required directories and confirms that support files are in place before proceeding.
- 6 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 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 applications to analyze code compatibility on the SAS Viya platform.

- 7 System evaluation should run on each configured machine in a SAS deployment and will evaluate only products installed on each configured machine.
- 8 After all SAS programs and tools are executed, data marts, results, and extracted SAS code are created for further analysis.
- 9 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:

- SAS9ContentAssessment.2023.04.aix.tar (AIX)
- SAS9ContentAssessment.2023.04.lax.tgz (Linux)
- SAS9SystemEvaluation.2023.04.s64.tar (Solaris)
- SAS9ContentAssessment.2023.04.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 are created — assessment and migration — based on the operating system and what it supports. For example, Linux and Windows

have both the assessment and migration subdirectories and AIX has just the assessment subdirectory.

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.2023.04.aix.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.2023.04.lax.tgz
```

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 System Evaluation for Solaris 64, execute the following command:

```
tar zxvf /path/SAS9SystemEvaluation.2023.04.s64.tar
```

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.

Contents

IMPORTANT This information pertains to the SAS Content Assessment file, not the System Evaluation for Solaris 64 file.

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 are two subdirectories — assessment and migration. Here are some specific contents (directories, executables, programs, reports, and files) within those subdirectories that you might be interested in. These are explained in more detail in subsequent sections.

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.

codeCheck

Application that checks SAS programs for SAS Viya incompatibilities.

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.

data

Directory that contains static data used by SAS Content Assessment.

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 sas002–encoded passwords. See [Encryption in SAS](#) for more information.

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.

pathslist.txt

File that contains the list of paths that you want SAS Content Assessment applications to search. For more information, see [“setenv.yaml 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

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.

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Files and Program

You must edit the following files:

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

(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. A property marked with an `*` does not have a default value and must be explicitly set by you. A property marked with a `+` has a default value, but it might need to be modified. Here is an example of a property on a Windows system with a sample value: `SAS_HOME: C:\Program Files\SASHome`

setenv.yaml Settings

```
*SAS_HOME
SAS_JAVA_HOME
ASSESSMENT_PORT
ASSESSMENT_DATAMARTDIR
ASSESSMENT_LOGDIR
ASSESSMENT_LISTDIR
ASSESSMENT_OUTFILES DIR
ASSESSMENT_UPLOADSDIR
+ASSESSMENT_SSL_CERT_FILE
+ASSESSMENT_SAS_MEMSIZE_OPTION
ASSESSMENT_SAS_WORK_OPTION
ASSESSMENT_JAVA_XMX_OPTION
ASSESSMENT_JAVA_XMS_OPTION
LOGGING_LEVEL

+SAS_CODE_OUTPUT_LOCATION
*SAS_CATALOGSDIR
```

```

+ASSESSMENT_PACKAGES_OUTPUT_LOCATION
+ASSESSMENT_FAR_PACKAGES_OUTPUT_LOCATION
ASSESSMENT_EM_BATCH_CODE_OUTPUT_LOCATION
ASSESSMENT_GRID_PACKAGES_OUTPUT_LOCATION
ASSESSMENT_INFILESDIR
+ASSESSMENT_PREVIEWSDIR
+ASSESSMENT_IBM_JEXPORT_XMLDIR
*ENTERPRISE_GUIDE_PROJECTSDIR
EXTRACTED_ENTERPRISE_GUIDE_PROJECTSDIR
PATHS_LIST_FILE
PRINT_MATCHES_TO_SCREEN
+ASSESSMENT_REVERSE_LEXIGRAPHICAL_SORT_ORDER
+ASSESSMENT_USE_STRICT_PATH_PARSING

*ASSESSMENT_CONFIGDIR
ASSESSMENT_RESULTSDIR
ASSESSMENT_SWEEPER_FULL_MODE

```

SAS_HOME

All Applications

This property 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 Applications

SAS_JAVA_HOME specifies the location of Java for use by SAS Content Assessment. JRE 1.7.0 or higher is required. By default, the SAS Private JRE that exists on your SAS system is used. Verify that it is 1.7.0 or greater.

SAS_CODE_OUTPUT_LOCATION

Gather SAS Code

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.

SAS_CATALOGSDIR

Gather SAS Code and Inventory

This property must be explicitly set if you intend to gather SAS code from SAS catalogs.

`SAS_CATALOGSDIR` specifies the directories containing SAS catalogs to process. SAS catalogs outside of these directories are not processed. If there are multiple paths, each path must be on a separate line, and each line must start with `-`.

This property specifies directories for the inventory application to search.

IMPORTANT You can also specify directories for the inventory application to search in the `PATHS_LIST_FILE` and `ENTERPRISE_GUIDE_PROJECTSDIR` property in the `setenv.yaml` file. Setting `PATHS_LIST_FILE`, `ENTERPRISE_GUIDE_PROJECTSDIR`, or `SAS_CATALOGSDIR` is supported.

ASSESSMENT_PORT

All Applications

`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_CONFIGDIR

System Evaluation

This property 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_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_SSL_CERT_FILE

All Applications

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_PACKAGES_OUTPUT_LOCATION

Create SAS Packages

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_FAR_PACKAGES_OUTPUT_LOCATION

Create FAR Packages

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_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_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_PREVIEWSDIR

Preview Assessed Content

`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_IBM_JEXPORT_XMLDIR Profile

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_SAS_MEMSIZE_OPTION

All Applications

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 Applications

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_JAVA_XMX_OPTION All Applications

The ASSESSMENT_JAVA_XMX_OPTION property specifies the maximum heap size.

ASSESSMENT_JAVA_XMS_OPTION All Applications

The ASSESSMENT_JAVA_XMS_OPTION property specifies the initial heap size.

ENTERPRISE_GUIDE_PROJECTSDIR

Inventory, Profile, and Gather SAS Code

This property must be explicitly set.

The `ENTERPRISE_GUIDE_PROJECTSDIR` property specifies the paths to one or more directories containing SAS Enterprise Guide projects to be searched. Projects outside of these directories are not searched. If there are multiple paths, each path must be on a separate line, and each line must start with `-`. For example:

```
- /opt/sas/folder1
- /opt/sas/folder2
- /opt/sas/folder3
```

Each specified path is recursively searched for SAS Enterprise Guide projects. This property needs to be set only if SAS Enterprise Guide projects are to be profiled.

IMPORTANT You can also specify directories for the inventory application to search in the `PATHS_LIST_FILE` and `SAS_CATALOGSDIR` property in the `setenv.yaml` file. Setting `PATHS_LIST_FILE`, `ENTERPRISE_GUIDE_PROJECTSDIR`, or `SAS_CATALOGSDIR` is supported.

EXTRACTED_ENTERPRISE_GUIDE_PROJECTS DIR

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).

IMPORTANT The `EXTRACTED_ENTERPRISE_GUIDE_PROJECTSDIR` value cannot be listed in `ENTERPRISE_GUIDE_PROJECTSDIR` because errors might occur.

PATHS_LIST_FILE

Inventory, Code Check, Code Check for I18N

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 pathlist.txt file is encoded in UTF-8 BOM by default to ensure the proper processing of text. The pathlist.txt file should be used by all applications that require paths to be specified.

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.

Note: If you do not specify paths in the pathlist.txt file, you get a warning.

IMPORTANT You can specify directories for the inventory application to search in the [SAS_CATALOGSDIR](#) and [ENTERPRISE_GUIDE_PROJECTSDIR](#) properties in the setenv.yaml file. Setting PATHS_LIST_FILE, ENTERPRISE_GUIDE_PROJECTSDIR, or SAS_CATALOGSDIR is supported.

In addition, 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.

ASSESSMENT_REVERSE_LEXICOGRAPHICAL_SORT_ORDER

Modify SAS Code

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_USE_STRICT_PATH_PARSING

Modify SAS Code

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.

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 Applications

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

ASSESSMENT_LOGDIR All Applications

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

ASSESSMENT_LISTDIR All Applications

Root directory where all SAS program listings are placed.

ASSESSMENT_INFILES DIR Profile, Code Check, Gather SAS Code, Modify SAS Code, and 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_OUTFILES DIR All Applications

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

ASSESSMENT_UPLOADS DIR Publish Application

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.

ASSESSMENT_RESULTSDIR Inventory and 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.

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:

```
/* Specify SAS Metadata Server connection details and encryption
password. It is recommended to use an encrypted password
such as SAS002 for all password values.
*/
%let METADATACUSTOMER = CustomerName;
%let METADATALABEL = Server1;
%let METADATAHOSTNAME = SAS Metadata Server host;
%let METADATAPORT = 8561;
%let METADATAUSER = sasadm@saspw;
%let METADATAUSERPASSWORD = sas002-encrypted password;
/* If SAS proprietary encryption is going to be used to encrypt the
published
data mart, the specified value must result in a valid SAS name.
*/

%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 a sas002-encrypted password 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.

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 encryption of the resulting data. You must create the password; it is not generated by the system. To encrypt your password, see [Step 3](#) for more information in [“Overview: PWENCODE Procedure” in *Encryption in SAS*](#).

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.

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, such as:
 - SAS metadata objects contained in SAS folders
 - SAS server and SAS application server contexts
 - ACTs and ACEs

- 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. 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. Instead, when you run `profileContent --generate-content-list` against an existing directory, it removes any profiled content in that directory.

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.

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 For the 2023.03 release and then again for the 2023.04 release, 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.

Profiling SAS 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/sas-relationship-loader.ini`. On Windows, the file is named `SASHome/SASPlatformObjectFramework/9.4/tools/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"
```

Profiling Flow Definitions

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 with this information, including all init scripts and the following:

- Job name
- Job ID
- Transform name
- Transform ID
- Library name
- Library ID
- Table name
- Table ID
- Table type
- Table metadata type

Two reports are created for this content: SAS 9 Profile for SAS Data Integration and SAS 9 Profile for SAS Data Integration Supplementary.

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.

IMPORTANT SAS must be installed on the same machine as SAS Enterprise Guide to perform profiling.

- On each machine containing SAS Enterprise Guide 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.

- In the `setenv.yaml` file, the `ENTERPRISE_GUIDE_PROJECTSDIR` property specifies the paths to one or more directories containing SAS Enterprise Guide projects to be profiled. Projects outside of these directories are not profiled. If there are multiple paths, each path must be on a separate line, and each line must start with `-`. Each specified path is recursively searched for SAS Enterprise Guide projects.
- 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.

- 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.

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 Guide.

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_OUTFILES. 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 and size. Results are written to a SAS data set in ASSESSMENT_OUTFILES.

- Name
- Formatted Size
- Raw Size
- Folder Path
- Full Path
- Customer ID
- Server Label
- Public Type
- Observations
- Variables
- Encrypted
- Compressed
- Data Representation
- Encoding
- Engine
- Sorted
- Accessible

SAS data files that cannot be accessed, possibly because of permission or encryption, are not profiled.

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

Troubleshooting

After prompts are profiled in a SAS Metadata Server, you might receive the following error message in the log (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.

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 `SAS_CATALOGSDIR` property must be set. It specifies the directories containing SAS catalogs from which to gather SAS code. If there are multiple paths, each path must be on a separate line, and each line must start with `-`. Each specified path is recursively searched for 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, and Linux.

The `ENTERPRISE_GUIDE_PROJECTSDIR` property must be set. It specifies the paths to one or more directories containing SAS Enterprise Guide projects to be searched. If there are multiple paths, each path must be on a separate line, and each line must start with `-`. Each specified path is recursively searched for SAS Enterprise Guide projects. In addition, 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 automatically be added to the list of directories containing 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 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, and Windows. However, the application on AIX delivers two reports instead of three.

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 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.

In addition, there is an optional --show-progress option, which shows what file of the total number of files is being processed. This can result in performance degradation.

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 (not available on AIX)
 - 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)
-

Executing the SAS Code Check for Internationalization Application

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Code Check for I18N

The code check for i18n 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 i18n 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 i18n 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 i18n 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 i18n application. Because SAS i18n code can be stored on many different machines and in different directories,

multiple runs of the code check for i18n 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 i18n 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 i18n 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.

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.

--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 i18n 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 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 i18n-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
- 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 i18n application are in an HTML file named using the following format:

```
SAS9_Code_Check_for_I18N_Results_scan_tag.html
```


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.

Details

- In order 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.
- 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
```

In the report created by the application, you see the steps with the longest running times. With this information, you can do the following:

- ☐ Determine which steps to consider optimizing.
- ☐ Determine where the source code is.
- ☐ Convert the steps to be CAS-enabled steps.
- ☐ Benchmark the CAS execution of the steps.
- ☐ Compare the CAS execution times with the SAS 9 Summarize SAS Log Steps report to determine which is the optimal server for processing on the SAS Viya platform.
- 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.

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
```

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.

Executing the SAS 9 Application Usage Application

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SAS 9 Application Usage

Application usage counts the number of users for SAS applications on SAS Workspace Servers and obfuscates all user IDs in the results. 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.

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:

`--config-dir`

Specifies the SAS configuration directory that contains a SAS Object Spawner.

`--details`

Specifies to display additional information, including user IDs not yet obfuscated..

Details

- Any data sent to SAS as feedback is obfuscated.
- 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.
- There are 62^{15} possible combinations of obfuscation. The available runes have been modified to include digits 0-9, and the length of the obfuscated user name has been increased to 15 characters.
- 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.
- A mapping of obfuscated user names to non-obfuscated user names is in ASSESSMENT_RESULTSDIR.
- Results are displayed in the *SAS 9 Application Usage* report.

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 Create Enterprise Miner Batch Code Application

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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 Publish Application

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Publish

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

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 i18n, 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 i18n application:

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

The publish application supports an option to not mask (obfuscate) personal identifiable information (PII). The default is to mask (obfuscate) PII. Specify the `--no-pii-substitution` option to reveal PII.

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 encryption is necessary.

The publish application supports Advanced Encryption Standard (AES) and SAS Proprietary encryption of its data files. See [“About Encryption on SAS Data Files” in SAS Language Reference: Concepts](#) for more information.

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

- 1 Execute the publish application with either of the following options:
 - `--encrypt-aes`
 - `--encrypt-sas`
- 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
```

- 3 An encoded password must be specified in the `metaparms.sas` file.

Note: If you use SAS Proprietary encryption to encrypt the published data mart, the value for `SASENCRYPTIONPASSWORD` 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 encryption to encrypt the published data mart, the value for `SASENCRYPTIONPASSWORD` can be no longer than 64 characters. It is generated for you if no value for `SASENCRYPTIONPASSWORD` is specified.

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

Note: On AIX 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 encryption method.
 - If verification is successful, publishing proceeds. The resulting data sets are merged and encrypted 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 26, “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.

The `--create-uploads` option on the `publishAssessedContent` command creates a TGZ file (on Linux 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 encryption key.

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

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
```

```
OURCustomer_profile_abcdef03470_reports.tgz
```

IMPORTANT This option works only if the `--datamart-type` option and the `--encrypt-aes` option or `--encrypt-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 encryption key to SAS, see [Chapter 27, “Sending Results to SAS for Analysis”](#).

Executing the Import SAS Content Assessment Data and Reports Application

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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
```

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](#) 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 [“Global Command: 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 prompt the user to create a SAS Viya command-line interface profile to use during import. It also prompts for required values.
- profile
Specifies an existing SAS Viya command-line interface profile to use during import. It also prompts for required values.
- sas-viya-path
Specifies the fully qualified path to the SAS Viya CLI.
- datamart-type
Specifies what type of data mart to import. Valid values are profile, inventory, codecheck, i18n, summarizeLogs, embatchcode, and appusage.
- 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:

- The application performs any required or optional preparatory steps such as obfuscating PII (personal identifiable information).
- 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

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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 allows 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

Here are some important details about using the preview assessed content application:

- The publish application must be run first.
- The application creates CSV files in the ASSESSMENT_PREVIEWSDIR \datamart-type\CSVs directory.

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_hostname_yyyy-mm-dd-HH.MM.SS.log

Executing the Create FAR Packages Application

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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

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<i>SAS Stored Processes Packaging</i>	81

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 **Migration Status** 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.
 - 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 **Detailed data** is not selected and 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 SAS Grid Import Data Application

<i>Create SAS Grid Import Data</i>	83
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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 SAS Batch server context and a SAS Launcher server context is made. For each corresponding SAS/CONNECT server, a SAS/CONNECT server context and a SAS/CONNECT Launcher server context is 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 a VERSION option, which 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.
- 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 Modify SAS Code Application

<i>Modify SAS Code</i>	85
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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 CSV file in a specified output location. You edit the mapping CSV file with new paths that work on the SAS Viya platform.
- 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

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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.

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 “[Global Command: 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 prompt the user to create a SAS Viya command-line interface profile to use during import. It also prompts for required values, such as a service endpoint and a fully qualified path to the trusted certificate if the system is configured for TLS through HTTPS.
- `--profile`
Specifies an existing SAS Viya command-line interface profile to use during import. It also prompts for required values.
- `--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.
- The SAS 9 Code Check for SAS Enterprise Guide Projects report has a table at the top of the overview page. There are instructions about how to export this table, which contains a list of SAS Enterprise Guide projects that are migration candidates. In this list of projects, you can order the items in the import to ensure that dependent items are imported in the correct sequence.
- 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-nginx.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-nginx.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 --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 FAR Packages Application

<i>Import FAR Packages</i>	91
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<i>Results</i>	92

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 “[Global Command: 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 prompt the user to create a SAS Viya command-line interface profile to use during import. It also prompts for required values.
- profile
Specifies an existing SAS Viya command-line interface profile to use during import. It also prompts for required values.
- 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>	93
<i>Details</i>	94
<i>Results</i>	94

Import SAS Packages

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

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 “[Global Command: 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 prompt the user to create a SAS Viya command-line interface profile to use during import. It also prompts for required values.
- `--profile`
Specifies an existing SAS Viya command-line interface profile to use during import. It also prompts for required values.
- `--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

<i>Import SAS Grid Packages</i>	97
<i>Results</i>	98

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 “[Global Command: 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 prompt the user to create a SAS Viya command-line interface profile to use during import. It also prompts for required values.
- `--profile`
Specifies an existing SAS Viya command-line interface profile to use during import. It also prompts for required values.
- `--sas-viya-path`
Specifies the fully qualified path to the SAS Viya CLI.
- `--source-location`
Specifies the directory containing SAS grid transfer packages.
- `--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 --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 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.

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 encryption 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.
- System evaluation 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.

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 “[Understand the Cache Locator Configuration](#)” 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

1. Not all content is archived on all machines and is dependent on the SAS products installed and configured.

- 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:

```
.../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\deploymntreg
```

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 the 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, use the **Data** icon 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 Explorer: User’s Guide* for more information.

If encryption was requested during the publishing process, the password key in the assessment-key.sas file must be used. When using AES encryption, enter the key in the **Encryption key** field in SAS Data Explorer under **File Specifications**. When using SAS Proprietary encryption, 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, use the **Import** icon in SAS Environment Manager to import a SAS Visual Analytics report onto the SAS Viya platform.

- assessment/packages/inventory/SAS_9_Inventory.json
- assessment/packages/profile/SAS_9_CA_Profile_for_SAS_Data_Integration.json
- assessment/packages/profile/SAS_9_CA_Profile_for_SAS_Data_Integration_Sup.json
- assessment/packages/profile/SAS_9_CA_Profile_for_SAS_Prompts.json
- assessment/packages/profile/SAS_9_CA_Profile_for_SAS_Reports.json
- assessment/packages/profile/SAS_9_Content_Assessment_Profile.json
- assessment/packages/profile/SAS_9_CA_Profile_for_SAS_VisualDataBuilder.json
- assessment/packages/profile/SAS_9_CA_Profile_for_Info_Maps.json
- assessment/packages/profile/SAS_9_CA_Profile_for_OLAP_Cubes.json
- assessment/packages/profile/SAS_9_CA_Profile_for_SAS_Enterprise_Miner.json
- assessment/packages/profile/SAS_9_CA_Profile_for_SAS_Enterprise_Guide.json
- assessment/packages/profile/SAS_9_CA_Profile_for_SAS_Stored_Processes.json
- assessment/packages/profile/SAS_9_CA_Profile_for_SAS_Libraries_Tables.json
- assessment/packages/profile/SAS_9_CA_Profile_for_SAS_Forecast_Server.json
- assessment/packages/profile/SAS_9_CA_Profile_for_SAS_Servers.json
- assessment/packages/profile/SAS_9_CA_Profile_for_SAS_Data_Sets.json

- `assessment/packages/codeCheck/SAS_9_Code_Check_for_SAS_Viya.json`
- `assessment/packages/codeCheck/SAS_9_Code_Check_for_EG_Projects.json`
- `assessment/packages/codeCheck/SAS_9_Code_Check_for_EM_Projects.json`
- `assessment/packages/codeCheck/SAS_9_Code_Check_for_DI_Jobs.json`
- `assessment/packages/codeCheck/SAS_9_Code_Check_for_Stored_Processes.json`
- `assessment/packages/i18n/SAS_9_Code_Check_for_Internationalization.json`
- `assessment/packages/summarizelogs/SAS_9_Summarize_Log_Steps.json`
- `assessment/packages/appusage/SAS_9_Application_Usage.json`
- `assessment/packages/embatchcode/SAS_9_CA_Batch_Code_for_SAS_Enterprise_Miner.json`

For more information, see [“Import Using SAS Environment Manager” in SAS Viya Platform: Content Migration from SAS Viya](#).

- 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, here are the folders where reports are located:

- `/Public/SAS Content Assessment/Application Usage`
- `/Public/SAS Content Assessment/Code Check`
- `/Public/SAS Content Assessment/SAS Enterprise Miner Batch Code`
- `/Public/SAS Content Assessment/Inventory`
- `/Public/SAS Content Assessment/Profile`
- `/Public/SAS Content Assessment/Summarize Logs`

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 folders:

- `/Public/SAS Content Assessment/Application Usage`
- `/Public/SAS Content Assessment/Code Check`
- `/Public/SAS Content Assessment/SAS Enterprise Miner Batch Code`
- `/Public/SAS Content Assessment/Inventory`
- `/Public/SAS Content Assessment/Profile`
- `/Public/SAS Content Assessment/Summarize Logs`

From these locations, 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 109

SAS Can Help

You can send your SAS Content Assessment data mart to SAS. Sharing your results with SAS influences future migration development priority.

A SAS Account Team is assigned to analyze your data mart and help you develop a SAS Viya migration proposal and roadmap.

Here are the steps:

- 1 Ensure that your data mart is published, encrypted, and present in [ASSESSMENT_UPLOADSDIR](#).
- 2 Complete [this form](#).
- 3 Upload the published and encrypted data mart using the link provided in the email. Upload the encryption key. For more information, see ["Protecting the Data"](#).
- 4 Ensure that you receive an email back from the SAS Account Team that it received your data mart and encryption key. If you do not hear from the team within five business days, please send an email to SAS9ContentAssessment@SASOffice365.onmicrosoft.com.

The SAS Account Team looks at each object type to determine how much content can be converted to the SAS Viya platform. The team researches whether equivalent objects are available on the SAS Viya platform. In some cases, the team can share SAS Viya product release cycles that are beneficial to you. The SAS account team and you jointly develop a migration proposal and roadmap so that you can start your move to the SAS Viya platform!

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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 i18n—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 SAS i18n 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 i18n 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_CA_Profile_for_SAS_Forecast_Server.json, 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_CA_Profile_for_OLAP_Cubes_Info_Maps.json—has been split into two new reports—SAS_9_CA_Profile_for_Info_Maps.json and SAS_9_CA_Profile_for_OLAP_Cubes.json
- 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 I18N supports.
- The profile report SAS_9_CA_Profile_for_SAS_Data_Integration.json 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 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—SAS 9 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, .SA\$, 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—SAS 9 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 XMX and XMS options. For more information, see “[setenv.yaml](#)”.
- When publishing with encryption, 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 are available with this release—SAS 9 Create SAS Grid Import Data and SAS 9 Import SAS Grid Packages. 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

- There is a new application in this release—SAS 9 Preview Assessed Content. 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 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.