



CHAPTER

1

Overview of Migrating Content to SAS 9.2

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Approaches for Upgrading to SAS 9.2

You have several approaches for upgrading to SAS 9.2. You can do one of the following:

- Promote—install SAS 9.2 and upgrade *portions* of your current SAS content.
- Migrate—install SAS 9.2 and upgrade *all* your current SAS content.
- Use a combination of migration and promotion.

The terms “promotion” and “migration” are explained in the following sections. This subject is discussed in more depth in “Choosing an Approach for Upgrading to SAS 9.2” on page 8.

What is Promotion?

Promotion is the movement of selected content from a source system to an already configured target system. Sometimes called “partial promotion,” promotion of metadata content is typically used to support movement across development, test, and production environments.

Promotion capabilities in SAS 9.2 are embedded within the SAS folder structure. The ability of SAS 9.2 to import SAS 9.1.3 content means that partial promotion can be leveraged as part of a strategy for upgrading content from SAS 9.1.3 to SAS 9.2.

Some important enhancements have been made to support promotion in SAS 9.2. These enhancements include the ability to do the following:

- promote more types of metadata objects
- target particular metadata objects to promote incremental changes
- schedule batch promotions

Promotion supports the following:

- movement of selected content
- cross-platform movement of content

Promotion does not support the following:

- some types of SAS content
- configuration (either in metadata or in files)

Promotion Tools

There are two methods for promoting metadata content:

- Partial promotion is used in an ongoing manner in support of project-level changes over time. The Export SAS Package and Import SAS Package wizards support partial promotion.
- Full repository promotion is used to stage a baseline system or promote a wide-range of changes over an existing deployment on a scheduled basis. The SAS Replication Wizard supports full repository promotion.

Note: Full repository promotion between SAS 9.1.3 and SAS 9.2 is not supported. \triangle

For more information, see “Using the Promotion Tools” in *SAS Intelligence Platform: System Administration Guide*.

What Can Be Promoted?

The following list enumerates the type of SAS 9.1.3 content that you can migrate using the promotion tools. (In SAS 9.2, a larger number of object types can be imported and exported.)

- data explorations
- documents
- external files
- folders

- generated transformations
- information maps
- job flows
- jobs
- libraries
- mining results
- notes
- reports
- scheduled jobs
- stored processes
- tables

Special Considerations for Promoting Metadata From SAS 9.1.3 to SAS 9.2

About Promoting Metadata From SAS 9.1.3 to SAS 9.2

You can export a package from a SAS 9.1.3 metadata server and import it to a SAS 9.2 metadata server. This feature is useful in the following situations:

- You are upgrading from SAS 9.1.3 to SAS 9.2, but you chose not to use the SAS Migration Utility.
- You are running SAS 9.1.3 and SAS 9.2 in parallel, and you want to update your SAS 9.2 system with new content that you created in SAS 9.1.3.

The following topics outline the special considerations for promoting metadata from SAS 9.1.3 to SAS 9.2.

Types of Objects That Can Be Promoted from SAS 9.1.3 to SAS 9.2

In SAS 9.1.3, only the following types of objects can be exported: data explorations, deployed jobs, documents, external files, folders, generated transformations, information maps, jobs, jobs flows, libraries, mining results, notes, reports, stored processes, and tables. (In SAS 9.2, a larger number of object types can be imported and exported.)

Ensuring the Correct Software Version When Exporting from SAS 9.1.3

If you use BI Manager in SAS Management Console to perform the export, then the SAS 9.1.3 environment must have SAS Foundation Services 1.4. To check for this version:

- On Windows, go to **Settings ► Control Panel ► Add or Remove Programs** and find the entry for SAS Foundation Services 1.4.
- On UNIX machines, go the home directory of the user who maintains the SAS installation. Enter the following command:

```
more vpd.properties | grep Foundation
```

The following string should be present in the output that is displayed:

```
SAS Foundation Services 1.4
```

If you use SAS Data Integration Studio to perform the export, then you must have SAS Data Integration Studio 3.4. To check the version, click **Help ► About SAS Data Integration Studio**, and make sure that **version=3.4** is displayed in the window.

Moving SAS 9.1.3 Tables and Libraries to Folders

If you use SAS Management Console to export tables and libraries from a SAS 9.1.3 system, the tables and libraries must be in folders. To move them to folders, right-click the **BI Manager** node and select **Collect Ungrouped Library Metadata**. BI Manager places pointers to the libraries and tables in a folder called **Shared Data**, from which you can perform the export.

Special Considerations for Promoting Prompts from SAS 9.1.3

When you import a prompt from a SAS 9.1.3 system, the following special considerations apply:

- The default values for multiple-value prompts are saved in reverse order.
- If the prompt's static (custom) list of values contains a row that is invalid in SAS 9.2 (for example, if a row contains blank or null unformatted values), then the row is deleted.
- If the prompt's static (custom) list of values contains duplicate formatted values, then each formatted value is appended with its corresponding unformatted value, which is enclosed in square brackets ([]).

Promoting OLAP Cubes from SAS 9.1.3

To promote OLAP cubes from SAS 9.1.3, follow these steps in the order shown:

- 1 Export the cube-related metadata from the SAS 9.1.3 metadata server by creating two separate packages, as follows:
 - a First, export the relational objects (including libraries, tables, information maps, reports, and stored processes) that are associated with your cubes. Use BI Manager in SAS Management Console 9.1.3 to export these objects to a package called `RelationalObjects.spk`.
When you select the tables, you can choose to include or exclude the associated physical data for the input tables. If you exclude the physical data, you will need to move it in a separate step. You might want to exclude the physical data from the package in the following situations:
 - The target metadata server has a different operating system environment than the source metadata server.
 - The tables contain non-English data.
 - b Next, export your OLAP objects (including information maps, reports, and data explorations). Use BI Manager in SAS Management Console 9.1.3 to export these objects to a package called `OLAPObjects.spk`
- 2 If you did not include physical table data in the first package that you created (`RelationalObjects.spk`), use the `CPORT` and `CIMPORT` procedures to move the data to the SAS 9.2 environment. For instructions, see the *Base SAS Procedures Guide*.
- 3 In SAS OLAP Cube Studio 9.1, use the Save PROC OLAP Code function to export your PROC OLAP code. For instructions, see the SAS OLAP Cube Studio Help.

- 4 Update the exported PROC OLAP code to incorporate changes that are needed for the SAS 9.2 environment. You might need to change metadata server connection information, OLAP schema names, physical paths to cube file storage, and temporary work locations.
- 5 Perform the following steps on the SAS 9.2 system:
 - a Import the package that contains your SAS 9.1.3 relational objects (RelationalObjects.spk). This is the package that you created in step 1.a. To perform the import, you can use the Import SAS Package wizard in SAS Management Console 9.2, SAS Data Integration Studio 4.2, or SAS OLAP Cube Studio 4.2.
 - b Execute the PROC OLAP code that you updated in step 4. The code accesses the metadata that you imported in step 5.a and builds your SAS 9.2 cubes.
 - c Apply the appropriate permissions to your OLAP-based objects (including information maps, reports, and cubes). This step ensures that your reports and data explorations can access the OLAP cube data.
 - d Import the package that contains your SAS 9.1.3 OLAP objects (OLAPObjets.spk). This is the package that you created in step 1.b. To perform the import, you can use the Import SAS Package wizard in SAS Management Console 9.2, SAS Data Integration Studio 4.2, or SAS OLAP Cube Studio 4.2.
 - e Validate your OLAP cube content by running OLAP reports and data explorations.

Using the Batch Import Tool to Import Metadata from SAS 9.1.3

You can use the batch import and export tools only with a SAS 9.2 metadata server. You can use the batch import tool to import a package that was created in SAS 9.1.3. For details, see “Tool to Import a Package that Was Created in SAS 9.1.3” in the *SAS Intelligence Platform: System Administration Guide*.

What is Migration?

Migration is a process in which your SAS content and configuration from an earlier SAS release is upgraded to run in a later SAS release. When performed successfully, migration attempts to preserve as much of your current content and configuration as possible, reduce the number of manual migration tasks, and minimize system downtime. This document discusses migrating only from SAS 9.1.3 to SAS 9.2.

Comparing Promotion and Migration

The following table summarizes the differences between promotion and migration:

Table 1.1 Migration and Promotion Comparison

	Migration	Promotion
What is acted on?	A SAS system (content and configuration)	Selected SAS content ¹ (content only)
When is it performed?	During SAS 9.2 deployment One time only	After SAS 9.2 deployment Repeatable
Topology constraints	Same hardware grouping	No constraints
Platform constraints	Same operating systems ²	No constraints
SAS versions supported	SAS 9.1.3 SP4 and later	SAS 9.1.3 SP4 and later

1 SAS Information Delivery Portal content cannot be promoted. It can only be migrated.

2 The SAS automated migration tools support migrating from Windows 32-bit to Windows 64-bit systems.

Migration Tools

SAS provides tools to automate most of the tasks necessary to migrate to SAS 9.2. These tools are:

- SAS Migration Utility
- SAS Deployment Wizard

The SAS Migration Utility is a cross-platform framework and set of SAS product extensions whose primary purpose is to output a package of SAS 9.1.3 content and configuration that the SAS Deployment Wizard will use when it installs and configures SAS 9.2.

The SAS Deployment Wizard is a cross-platform utility that installs and initially configures SAS 9.2 products. Using a SAS installation data file and a deployment plan for its initial input, the wizard is designed to prompt the customer for all the remaining input at the start of the session so that the customer does not have to monitor an entire deployment. During a migration, the wizard reads migration packages created by the SAS Migration Utility and upgrades SAS content and configuration to run in SAS 9.2.

What Can Be Migrated?

SAS migrates SAS 9.1.3 configuration and content.

SAS 9.1.3 configuration includes the following:

- metadata for servers, users, groups, ACTs
- configuration files, adminusers.txt, trustedusers.txt
- Web application deployment properties and configuration files

Note: The following *cannot* be migrated using the SAS automated migration tools:

- custom portlet code
 - Changes to the SAS 9.2 Intelligence Platform and clients require custom portlets to be manually ported to the SAS 9.2 system. For more information, see in *Developing Portlets for the SAS Information Delivery Portal*.
- certain SAS application server configuration files
 - Autoexec files (appserver_autoexec.sas) and sasv9.cfg files are not migrated.

△

SAS 9.1.3 content is generally anything stored in SAS metadata or WebDAV. Examples include the following:

- libraries
- reports
- stored processes
- jobs
- information maps
- data explorations

High-Level SAS Migration Requirements

Migrating SAS 9.1.3 to SAS 9.2, requires the following:

- full system migration all at the same time. All your SAS 9.1.3 content and configuration is migrated to SAS 9.2 at the same time.
- the same configuration level. You cannot change deployment levels when migrating.
 - For example, you can migrate from Lev1 to Lev1 or Lev 2 to Lev2. You cannot migrate from Lev0 to Lev2.
- the same topology. Your SAS architecture must continue to be distributed across physical machines in the same fashion. When migrating to SAS 9.2, you must continue to group your SAS components on the same physical machine (or a corresponding machine) as you did in SAS 9.1.3.
- the same middle tier. Your SAS middle tier must stay essentially the same. However, you can change your Web application server vendor. In fact, when you migrate, the SAS Deployment Wizard makes the following replacements:
 - The JBoss Application Server replaces Apache Tomcat.
 - The SAS Content Server replaces Xythos and Apache HTTP WebDAV servers.
- The same operating system. Your SAS 9.2 components must run on the same operating system as they did in SAS 9.1.3.

Note: On UNIX, SAS 9.2 should be installed on a file system that supports large files. (Files that are greater than two GB in size.) △

Operating system upgrades are supported. For example, you can upgrade from Windows 2000 to Windows 2003 Server.

Note: The SAS automated migration tools *do* support migrating from Windows 32-bit operating systems to Windows 64-bit operating systems. For more information, see the white paper available at the Migration Focus Area: <http://support.sas.com/migration/>. △

- baseline SAS maintenance level: 9.1.3, SP4

Xyθος must be at 4.0.48 or later.

For additional information about specific SAS offerings, refer to: <http://support.sas.com/migration/utilitynotes>.

Later in this document, you will be instructed to create a migration analysis report for each tier of your SAS 9.1.3 deployment. The major purpose of this report is to help you to identify those SAS components that must be upgraded before you can migrate to SAS 9.2. For more information, see “Inventorying Your Current SAS Deployment” on page 13.

Choosing an Approach for Upgrading to SAS 9.2

You should review your goals for upgrading and develop an upgrade plan that best fits your enterprise environment. Selecting the approach might require trade-offs. You will have to balance the benefits and challenges of the upgrade options with your goals and priorities. Below is a discussion of several approaches for upgrading to SAS 9.2.

- Promote—install SAS 9.2 and upgrade *portions* of your current SAS content.

Using the Export and Import SAS Package wizards provides you with a great deal of flexibility. Unlike the SAS migration tools, you have to bring down the SAS Metadata Server for a brief amount of time, as you are moving only a portion of your SAS content (unlike migration where you are moving everything at once). Promotion enables you to move gradually to SAS 9.2 if you have additional hardware on which to run SAS 9.2 separate from SAS 9.1.3. Consider using promotion to upgrade to SAS 9.2 when you:

- want to change your SAS topology or operating systems
- have made minimal configuration changes to your SAS 9.1.3 deployment
- want to move only selected SAS 9.1.3 content

- Migrate—install SAS 9.2 and upgrade *all* your current SAS content.

Using the SAS Migration Utility with the SAS Deployment Wizard to migrate to SAS 9.2 has some definite advantages, as you will achieve the most automation as possible using this method. The drawback is that the metadata server must be off-line for a longer period, including time required to validate your migrated deployment. Consider using migration to upgrade to SAS 9.2 when you:

- want to retain your SAS topology
- have made significant configuration changes to your SAS 9.1.3 deployment (such as customizations to users and groups, ACTs, or server configurations)
- want to move all SAS 9.1.3 content

- Use a combination of migration and promotion.

Migration and promotion are not mutually exclusive. You might choose to migrate to a 9.2 deployment and run it in parallel with 9.1.3 and periodically refresh the 9.2 content through partial promotion. This enables you to continue to use SAS 9.1.3 in production while you validate your migrated SAS content and become familiar with the new features of SAS 9.2.

What Is Covered in This Document?

This document describes the migration approach for upgrading your SAS 9.1.3 content and configuration to SAS 9.2. It describes the various phases of design, execution, and validation of your migration using the SAS migration tools.

For more information about promotion, see “Using the Promotion Tools” in *SAS Intelligence Platform: System Administration Guide*.

Migrating SAS Content to SAS 9.2

A High-Level View of Migration

The following list summarizes the steps required to install SAS 9.2 and migrate SAS 9.1.3 content on a single machine or in a distributed, heterogeneous environment:

1. Design your migration.
2. Perform pre-migration tasks.
3. Install SAS 9.2 and migrate your SAS 9.1.3 content.
4. Perform post-migration tasks.
5. Validate your migration.

The sections that follow provide brief descriptions of each of these tasks. Subsequent chapters in the guide provide the step-by-step instructions that you will need to perform them.

Step 1: Design Your Migration

Designing your migration means reviewing the SAS 9.2 requirements (hardware, software, and migration) against your current SAS 9.1.3 deployment, and developing a plan for how to get your SAS 9.1.3 content—your data and configuration—integrated into a SAS 9.2 system.

One of the migration tools that SAS provides, the SAS Migration Utility, generates a migration analysis report. Using this report, you can analyze every machine in your SAS 9.1.3 deployment to answer these crucial design questions:

- Which SAS 9.1.3 products reside on each machine?
- Are all my SAS 9.1.3 products at the correct maintenance level?
- What SAS content will I have to manually migrate?

Step 2: Perform Pre-migration Tasks

Looking at your migration design, you might have identified some of your SAS 9.1.3 products that require maintenance before you can migrate them. Also, some of your hardware might need to be upgraded or operating systems patched and third-party software updated.

During the pre-migration task phase, you will create a migration package that contains your SAS 9.1.3 data and configuration to use the SAS Migration Utility. The other major SAS migration tool, the SAS Deployment Wizard, uses your migration package as input to move your SAS 9.1.3 content successfully to SAS 9.2.

In addition to the SAS 9.1.3 migration package, the wizard also relies on the presence of another package—SAS Software Depot—that contains SAS 9.2 installation

files. You create a SAS Software Depot when you download your SAS 9.2 order, or from removable media that you receive directly from SAS.

Step 3: Install SAS 9.2 and Migrate Your SAS Content

Step three is when you use the SAS Deployment Wizard to install SAS 9.2 and to migrate your SAS 9.1.3 content and configuration that you packaged using the SAS Migration Utility in step two.

Step 4: Perform Post-migration Tasks

Step four consists of performing manual tasks like running authorization differences reports and moving content that the migration utility did not migrate.

Step 5: Validate Your Migration

An important final step in migration is validating that your SAS 9.2 servers, clients, middle tier, and Web clients are functioning and can use migrated SAS 9.1.3 content.

For a discussion of functionality changes in SAS 9.2, see *Special Considerations for Customers Upgrading to SAS 9.2*.

Accessibility Features in the SAS Intelligence Platform Products

For information about accessibility for any of the products mentioned in this book, see the documentation for that product. If you have questions or concerns about the accessibility of SAS products, send e-mail to accessibility@sas.com.