



SAS[®] 9.4 Intelligence Platform: Migration Guide, Second Edition

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SAS® 9.4 Intelligence Platform: Migration Guide, Second Edition

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Using This Book

Audience

The information in this document can be used by a SAS administrator to migrate SAS Intelligence Platform to SAS Intelligence Platform 9.4 on one or more machines.

Documentation Conventions

SAS Installation Directory

The phrase *SAS installation directory* refers to a host path. (The SAS installation directory is sometimes referred to as SAS Home.) For example, **C:\Program Files\SASHome**.

SAS Configuration Directory

The phrase *SAS configuration directory* refers to a host path that includes a configuration name and level. For example, **C:\SAS\Config\Lev1**.

For more information, see “[Overview of the Configuration Directory Structure](#)” in *SAS Intelligence Platform: System Administration Guide*.

Style Conventions for SAS Migration Utility Syntax

The style conventions that are used in documenting SAS Migration Utility syntax include bold and italic:

Bold

identifies SAS Migration Utility keywords such as the names of arguments.

In this example, the keyword **-sasconfigdir** is written in bold:

-sasconfigdir *path*

Italic

identifies arguments or values that you supply.

In this example, you provide a path to the properties file:

-properties *pathname*

Special Characters for SAS Migration Utility Syntax

Special characters that are used in SAS Migration Utility syntax denote the following:

--

Two hyphens are required by the migration utility when running on UNIX and z/OS.

Two hyphens (--) without any space between them are placed immediately after the migration utility command.

In this example, the user is migrating from SAS 9.4 on UNIX:

```
./smu94 -- -sasconfigdir /opt/SAS/config/Levl
-sasproductdir /opt/SASHome -profile mdl234
-outputdir "/home/sas/smu_packages" -tier server_tier
-replace -analyze
```

-

One hyphen is required before each option.

In this example, the user is migrating from SAS 9.4 on a 32-bit Windows system:

```
smu94_32 -profile mdl234 -sasconfigdir C:\SAS\BIServer\Levl
-sasproductdir "C:\Program Files\SASHome"
-outputdir "C:\SMU_packages" -tier server_tier -replace
```

"

Double quotation marks are used to enclose any paths containing spaces.

In this example, **-sasexedir** identifies the path to the SAS executable on Windows:

```
-sasexedir "C:\Program Files\SASHome\SASFoundation\9.4"
```

Note: A backslash immediately followed by a double quotation marks (") is not allowed in the migration utility command line. Avoid ending Windows paths with a trailing backslash on the command line. (This limitation does not apply to migration utility property files.)

|

A vertical bar in syntax diagrams indicates that you can choose one value from a group of values. Values that are separated by the vertical bar are mutually exclusive.

<>

Angle brackets in syntax diagrams identify optional arguments. A required argument is not enclosed in angle brackets. In this example, **-metadatahost** *host-name* is required and its port is optional:

```
-metadatahost host-name <-metadataport port>
```

What's New in Migration for the SAS 9.4 Intelligence Platform

Overview

The *SAS 9.4 Intelligence Platform: Migration Guide* describes the migration approach for upgrading your SAS Intelligence Platform content and configuration to SAS 9.4. It describes the various phases of design, execution, and validation of your migration using the SAS migration tools.

Changes in SAS 9.4M9 regarding migration include the following:

- The SAS 9.4 M9 Migration Utility requires Java 21. For more information, see [“SAS Migration Utility Requirements”](#).
- SAS no longer delivers the SAS Platform on Solaris, (on SPARC S64 or Intel SAX hardware). The absence of Java 17 for Solaris in SAS 9.4M9 means that existing SAS 9 Customers on Solaris need to do one of the following:
 - Promote your content to a SAS 9.4M9 deployment that is on a supported operating environment.
 - Migrate to a SAS 9.4M9 deployment that is installed on a machine that is running a supported operating system in the same family. For the UNIX operating system family, options such as Red Hat Enterprise Linux, Oracle Linux, SUSE Linux, and AIX are available. Consult the corresponding SAS Foundation System Requirements for the operating system that you select.

Changes in SAS 9.4M8 regarding migration include the following:

- The SAS 9.4 M8 Migration Utility requires Java 11. For more information, see [“SAS Migration Utility Requirements”](#).
- Several products are retired in SAS 9.4M8. For more information, see [“What's New in Installation and Configuration for the SAS 9.4 Intelligence Platform”](#) in *SAS Intelligence Platform: Installation and Configuration Guide*.
- When you perform a SAS 9.4M8 deployment and your SAS middle tier is installed with multiple SAS Web Application Server instances with no clustering, and one of the instances is on a different host, you might need to perform an additional step after deployment in order to access your web applications. For more information, see [“Troubleshooting SAS Web Applications”](#) in *SAS Intelligence Platform: Installation and Configuration Guide*.
- A new appendix contains an archive of analysis report messages and suggested resolutions. The documentation was previously located on the SAS support site. Note that some messages are specific to earlier versions of the SAS Migration Utility, and they might contradict the current instructions. For the most recent information, see the main contents of this document and other guides.

Changes in SAS 9.4M7 regarding migration include the following:

- SAS Content Assessment helps you inventory your current SAS 9.4 content to prepare for migration. See [“Inventorying Your Current SAS Deployment”](#).
- You can export a package from a SAS 9.2 or SAS 9.3 SAS Metadata Server and import it to a SAS 9.4 Metadata Server. Using the SAS Migration Utility to migrate from SAS 9.1 to SAS 9.4 is not an option. Promotion of content might be supported, but you should contact SAS Technical Support before performing any action.
- Old SAS Job Monitor content is considered transient and is not migrated. You must redeploy jobs and scheduled flows after migration.

Changes in the May 2019 release of SAS 9.4M6 regarding migration include the following:

- A new SAS Content Server migration utility property, `SMU.scs.tempdir`, has been added. See [“SAS Content Server Properties”](#).
- A new SAS Content Server migration utility property, `SMU.scs.maxmemory`, has been added. See [“SAS Content Server Properties”](#).
- With SAS 9.4, there are different versions of the SAS Migration Utility. You should use the SAS Migration Utility version that matches your source system. You should choose the matching version from your new SAS Software Depot even if you already have a matching version in your existing SAS Software Depot.

See [“The SAS Migration Utility Version”](#).

Changes in SAS 9.4M4 regarding migration include the following:

- [new migration utility property for SAS Content Server](#)

Changes in SAS 9.4M3 regarding migration include the following:

- [enhanced password management in the migration utility](#)

Changes in SAS 9.4M2 regarding migration include the following:

- [new migration utility properties for SAS Contextual Analysis](#)
- [enhanced migration analysis report](#)
- [copying of server usermod files](#)

Changes in 9.4 M1 regarding migration include the following:

- [addition of version analysis to the migration analysis report](#)

Changes in SAS 9.4 regarding migration include the following:

- [MSI-based packages for SAS Enterprise Guide and SAS Add-In for Microsoft Office](#)
- [support for certificate-based communication](#)
- [SAS Deployment Agent](#)
- [support for metadata server clustering](#)
- [Locale Setup Manager task](#)
- [new migration utility properties for SAS Content Server](#)
- [new migration utility properties for SAS Model Manager](#)
- [new migration utility properties for SAS Visual Analytics](#)

New Migration Utility Property for SAS Content Server

In SAS 9.4M4, a new migration utility property enables you to increase the Java heap size for the SAS Content Server repository.

For more information, see [Table A3.3](#).

Enhanced Password Management in the Migration Utility

In SAS 9.4M3, password protection enhancements have been added to the SAS Migration Utility.

For more information, see [“How the Migration Utility Manages Passwords”](#).

New Migration Utility Properties for SAS Contextual Analysis

In SAS 9.4M2, there are two new unique properties for SAS Contextual Analysis that the SAS Migration Utility uses when creating a migration analysis report, or later in the process when the utility builds a migration package.

For more information, see [“SAS Contextual Analysis Properties”](#).

Enhanced Migration Analysis Report

In SAS 9.4M2, a hyperlink and lines to delineate the migration matrix have been added to the migration analysis report. For more information, see [Figure 2.2](#).

Copying of Server Usermod Files

In SAS 9.4M2, the SAS Migration Utility makes a copy of your server user modification files. For more information, see [“Update SAS Server Configuration Files”](#).

Addition of Version Analysis to the Migration Analysis Report

In the 9.4 M1, a new feature has been added that identifies those versions of SAS offerings that cannot be directly migrated to SAS 9.4 with the SAS Migration Utility. This information lets you know which products to update in order to prepare them for migration.

For more information, see [“View and Analyze Your Migration Analysis Report”](#).

MSI-Based Packages for SAS Enterprise Guide and SAS Add-In for Microsoft Office

In SAS 9.4, there is another installation option for SAS Enterprise Guide and SAS Add-In for Microsoft Office. This additional option consists of packages based on Microsoft Installer (MSI) that are much smaller in size than the SAS Software Depot. These MSI-based packages enable administrators to install these two SAS products over a distributed deployment using software provisioning tools such as Microsoft System Center Configuration Manager (SCCM). This new installation option is available only on Windows.

For more information, see [SAS Deployment Wizard and SAS Deployment Manager 9.4: User's Guide](#).

Support for Certificate-Based Communication

In SAS 9.4, the SAS Deployment Wizard prompts for Transport Security Layer, certificate-based communication. For more information, refer to [SAS Intelligence Platform: Middle-Tier Administration Guide](#).

SAS Deployment Agent

The SAS Deployment Agent is required for deployments that run remote processes. SAS uses the agent to copy content and to perform configuration management operations associated with creating new servers and clustering. It is also used for server administration tasks such as deployment backups. For more information, [SAS Deployment Wizard and SAS Deployment Manager 9.4: User's Guide](#).

Support for Metadata Server Clustering

SAS 9.4 supports clustering of SAS Metadata Servers. This feature provides redundancy and high availability of the metadata server, which is a core component of the SAS infrastructure. Clustering ensures that the server continues to operate if a server host machine fails. You can implement clustering during deployment or at a later time. For more information, see [“Metadata Server Clustering”](#).

Locale Setup Manager Task

On Windows and UNIX machines, you can use the Locale Setup Manager task in the SAS Deployment Manager to configure the language and region for SAS Foundation and certain SAS applications. For more information, see [“Change Locale for SAS”](#) in *SAS Intelligence Platform: Installation and Configuration Guide*.

New Migration Utility Properties for SAS Content Server

There are two new unique properties for SAS Content Server that the SAS Migration Utility uses when creating a migration analysis report, or later in the process when the utility builds a migration package.

For more information, see [“SAS Content Server Properties”](#).

New Migration Utility Properties for SAS Model Manager

There are six new unique properties for SAS Model Manager that the SAS Migration Utility uses when creating a migration analysis report, or later in the process when the utility builds a migration package.

For more information, see [“SAS Model Manager Properties”](#).

New Migration Utility Properties for SAS Visual Analytics

There are four new unique properties for SAS Visual Analytics that the SAS Migration Utility uses when creating a migration analysis report, or later in the process when the utility builds a migration package.

For more information, see [“SAS Visual Analytics Properties”](#).

Chapter 1

Introduction to Migrating SAS Software

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Upgrading Your SAS 9.4 Software Using 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. This process is automated to reduce the number of manual migration tasks and to minimize system downtime. The following tools are used:

- SAS Migration Utility, which packages SAS metadata, configurations, content, and certain applications.
- SAS Deployment Wizard, which installs and configures SAS 9.4 software and migrates the package into the deployment.

You can use promotion tools as an alternative to using the SAS Migration Utility. Promotion tools create packages of SAS metadata content and copy them within and between planned deployments of SAS software. This is sometimes referred to as *partial* promotion, as only SAS metadata and some physical content can be promoted.

Promotion of metadata content is typically used to support movement across development, test, and production environments. For information about promotion, see [“Promotion Tools Overview”](#) in *SAS Intelligence Platform: System Administration Guide*.

To help in deciding the best approach for your situation, see [“Choosing an Approach for Moving Content to SAS 9.4”](#) on page 3.

Note: SAS recommends that you upgrade to the latest release of SAS 9.4 software.

SAS is currently shipping SAS 9.4M9. With a new installation of SAS 9.4M9, you can automate multifactor authentication (MFA) configuration for SAS Logon Manager and TLS configuration for all of the middle-tier servers. This eliminates numerous manual steps.

There are other methods for updating your SAS 9.4 software depending on your situation and what you are trying to accomplish. For information on these methods, review the following tables:

Perform an In-Place Upgrade in SAS 9.4.

An in-place upgrade of SAS software modifies an existing deployment rather than creating a new deployment. Typically, an in-place upgrade is the simplest upgrade path for a SAS deployment.

You can deploy newer versions of SAS products that are already deployed in your environment (for example, you can upgrade SAS Visual Analytics 7.4 to 7.5). Or, deploy both a maintenance release and newer versions of SAS products.

Note: For an in-place upgrade, the operating system on which SAS is currently deployed must also be supported for the newer SAS release to which the SAS deployment is being updated. That operating system must also be supported by the version of Java and other SAS third-party requirements associated with the newer SAS release. Otherwise, a migration is required.

For more information on performing an in-place upgrade and a comprehensive understanding of SAS software updates, see [“Understanding SAS Software Updates”](#) in *SAS Guide to Software Updates and Product Changes*.

Apply Hot Fixes or Security Updates in SAS 9.4

Apply hot fixes or security updates to a SAS product that is already deployed in your environment. Note that you can add hot fixes and apply SAS security updates without a new software order from SAS.

For more information, see [“Managing Security Updates and Hot Fixes”](#) in *SAS Guide to Software Updates and Product Changes*.

Migrate SAS 9.4 to the SAS Viya platform

As a SAS 9.4 user, you are encouraged to move to the SAS Viya platform, which leverages the value and benefits of the SAS 9.4 platform from the past 40+ years and provides many new, modern benefits. To go from SAS 9.4 to the SAS Viya platform, you must first run SAS Content Assessment. Full-system migration is not supported for this scenario, but content migration is.

Migrate SAS 9.4 to the SAS Viya platform

For more information, see “[Migrating from SAS 9.4](#)” in *SAS Viya Platform: Content Migration From SAS 9.4*.

What is covered in this document?

This document describes the migration approach for upgrading earlier SAS 9.4 content and configuration to a later release of SAS 9.4. It describes the various phases of design, execution, and validation of your migration using the SAS migration tools.

If your site is running SAS 9.1.3, 9.2, or 9.3, there are special considerations regarding upgrading to SAS 9.4. For more information, see “[Special Considerations for Moving Content to SAS 9.4 from an Earlier SAS Version](#)” on page 10.

For more information about same-version migration, see [Copying an Existing SAS 9.4 Deployment](#).

Choosing an Approach for Moving Content to SAS 9.4

You should review your goals for upgrading, and then develop an upgrade plan that best fits your enterprise environment. Selecting the approach might require trade-offs. You need to balance the benefits and challenges of the upgrade options with your goals and priorities. After you have deployed a SAS 9.4 environment, you can migrate packages that you created with SAS Migration Utility, import packages that you created with promotion tools, or a combination of both. Here are the comparisons:

Table 1.1 *Promote Content*

Use SAS Deployment Wizard to install a later release of SAS 9.4 and promote portions of your current SAS content.

Use promotion tools to copy *portions* of your current SAS content within and between planned deployments of SAS software.

Promotion, or sometimes referred to as *partial promotion*, is the process of copying selected metadata and associated physical content within or between planned deployments of SAS software. Here are key points about promoting SAS content:

- Promotion of metadata content is typically used to support movement across development, test, and production environments.
 - Content can be promoted across disparate operating systems. As an example, you can promote content from a SAS 9.4 Windows environment to a SAS 9.4 UNIX environment. Regardless of the operating system, the SAS 9.4 target system must already be configured.
 - The ability of SAS 9.4 to import earlier versions of SAS content means that partial promotion can be leveraged as part of a strategy for upgrading content from earlier versions of SAS to SAS 9.4.
 - Promotion is required if you want to continue using a product or solution that does not support migration or in-place upgrade to a newer maintenance release.
 - Some types of SAS content are not supported, such as configuration (either in metadata or in files).
-

Use SAS Deployment Wizard to install a later release of SAS 9.4 and promote portions of your current SAS content.

- Consider using promotion to upgrade to SAS 9.4 in the following cases:
 - You want to change your SAS topology or operating systems.
 - You have made minimal configuration changes to your earlier SAS deployment.
 - You want to move only selected content from your earlier SAS version.
 - Promotion enables you to move gradually to SAS 9.4 if you have additional hardware on which to run SAS 9.4 separate from earlier SAS versions.

Promotion tools include the following:

- The Export SAS Package and Import SAS Package wizards, which are available in the **Folders** tab of SAS Management Console. The same wizards are also available in SAS Data Integration Studio and SAS OLAP Cube Studio.
- The batch import tool and the batch export tool, which enable you to perform promotions on a scheduled or repeatable basis. These tools provide most of the same capabilities as the Export SAS Package and Import SAS Package wizards.

The process of using promotion tools is not covered in this document. For more information on using these tools, see [“Promotion Tools Overview” in SAS Intelligence Platform: System Administration Guide](#).

You can export a package from a SAS 9.2 or SAS 9.3 SAS Metadata Server and import it to a SAS 9.4 Metadata Server. Promotion of content might be supported from SAS 9.1, but you should contact SAS Technical Support before performing any action.

For more information on promoting content from an earlier SAS version to SAS 9.4, see [“Special Considerations for Promoting Content to SAS 9.4 from an Earlier SAS Version” in SAS Intelligence Platform: System Administration Guide](#).

Table 1.2 *Migrate Content*

Use SAS Deployment Wizard to install a later release of SAS 9.4 and migrate content.

Migration is a process in which your SAS content and configuration from an earlier SAS 9.4 release is upgraded to run in a later SAS 9.4 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.

(Contact Technical Support if your site is running SAS 9.1.3, 9.2, or 9.3 for assistance in migration.)

Consider using migration to upgrade from one SAS 9.4 release to another in the following cases:

- You want to retain your SAS topology.
- You have made significant configuration changes to your earlier SAS 9.4 deployment (such as customizations to users and groups, ACTs, or server configurations).
- You want to move all content from your earlier SAS 9.4 release.

Use SAS Deployment Wizard to install a later release of SAS 9.4 and migrate content.

Use SAS Deployment Wizard and SAS Migration Utility to automate most of the tasks necessary to migrate to a later release SAS 9.4.

- The SAS Migration Utility is a cross-platform framework and set of SAS product extensions whose primary purpose is to create a package of content from an existing SAS configuration.
- The SAS Deployment Wizard is a cross-platform utility that installs and initially configures SAS 9.4 products. During the installation process, it uses the migration package of content to include in the deployment.

Migration is required in the following situations:

- Change hardware or add or remove machines from the deployment.
- Upgrade from an older version of the operating system where SAS is hosted to a newer major version of that operating system.

You can use the SAS Migration Utility and the SAS Deployment Wizard to create a second SAS 9.4 deployment that contains the same SAS content and the same configuration as an existing SAS 9.4 deployment. For information, see [Copying an Existing SAS 9.4 Deployment on page 125](#).

For a list of the content and configuration that can be migrated, see [“What Can Be Migrated?” on page 6](#)

Table 1.3 *Migrate Content and Promote Content*

Use SAS Deployment Wizard to install a later release of SAS 9.4 and use a combination of migration and promotion.

Migration and promotion are not mutually exclusive. You might choose to migrate to a new SAS 9.4 deployment from an earlier SAS 9.4 deployment, run them in parallel, and then periodically refresh the new SAS deployment through partial promotion. This enables you to continue to use your earlier SAS 9.4 deployment in production while you validate your promoted SAS content and become familiar with the features of the new SAS 9.4 release.

The following table summarizes the differences between promotion and migration.

Table 1.4 Comparison of Migration and Promotion

	Migration	Promotion
What is acted on?	A SAS system (content and configuration) See “What Can Be Migrated?” on page 6	Selected SAS content that is stored in metadata (content only) • cubes, documents, external files, folders, generated transformations, information maps, job flows, jobs, libraries, mining results, notes, reports, scheduled jobs, stored processes, tables, portal content (For portal content, see “Promoting Portal Content” in <i>SAS Intelligence Platform: Web Application Administration Guide</i>.)
When is it performed?	During SAS 9.4 deployment One time only	After SAS 9.4 deployment Repeatable
Topology constraints	Same logical machine grouping*	No constraints
Platform constraints	Same operating system family**	No constraints
SAS versions supported	SAS 9.4 and later	SAS 9.4 and later

* For more information, see “the same topology”.

** The SAS automated migration tools support migrating within families of operating systems. You can migrate within the Windows family (for example, Windows 32-bit to Windows 64-bit) or migrate within the UNIX family (for example, Solaris or AIX to Linux). Note that starting in SAS 9.4M9, SAS Foundation is not available on Solaris, so you must migrate to another UNIX operation system in the same family.

What Can Be Migrated?

The SAS automated migration tools migrate the following content and configuration from an existing SAS 9.4 configuration that resides under the SAS configuration directory:

- content stored in metadata
(such as libraries, reports, jobs, information maps, data explorations, and so on)
- content in the WebDAV repository
(such as report definitions and documents)
- configuration stored in metadata
(such as for servers, users, groups, ACTs, and so on)
- certain server configuration files

(such as `adminusers.txt` and `trustedusers.txt`)

- usermods files for servers configured through the SAS Deployment Wizard

The migration utility creates a `sourceusermods` folder in the configuration directory on the target system that contains all the usermods files from the source configuration directory. For more information, see [“Update SAS Server Configuration Files”](#).

- web application configuration

(such as deployment properties and configuration files)

- Starting in SAS 9.4M4, Transport Layer Security (TLS) configurations

Any configuration of TLS (also known as SSL) made to your SAS system is migrated, starting in SAS 9.4M4. Verify that this is true after you migrate your SAS system. There might be an environment file for SAS Web Server that needs to be updated..

For information, see [“Configure TLS for SAS Web Server Manually”](#) in *SAS Intelligence Platform: Middle-Tier Administration Guide* and [“Configure TLS for SAS Web Application Server Manually”](#) in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

The SAS automated migration tools do not migrate the following SAS content and configuration:

- SAS Job Monitor content

Old SAS Job Monitor content is considered transient and is not migrated. You must redeploy jobs and scheduled flows after migration.

- certain SAS Application Server configuration files

autoexec files (`appserver_autoexec.sas`) and `sasv9.cfg` files are not migrated.

Usermods files are not migrated for servers that are created with SAS Management Console or by means other than the SAS Deployment Wizard. For more information, see [“Update SAS Server Configuration Files”](#).

- SAS middle-tier configuration information

For more information, see [“Review the SAS Middle-Tier Configuration”](#).

- custom portlet code

For more information, see [Developing Portlets for the SAS Information Delivery Portal](#).

- custom metadata

A custom metadata definition is a metadata definition that you create using the SAS Open Metadata Interface, SAS Java Metadata Interface, or SAS metadata DATA step functions. (Custom metadata is not created when using SAS Management Console wizards and wizards provided by other SAS 9.4 products and solutions.)

High-Level SAS Migration Requirements

Using the SAS automated migration tools, migrating requires the following:

specific versions of SAS

The SAS automated migration tools support migration for the following version of SAS:

- SAS 9.4 to SAS 9.4

For more information about the use cases for SAS 9.4 to SAS 9.4 migration, see [“Copying an Existing SAS 9.4 Deployment”](#).

- SAS 9.2 and SAS 9.3 to SAS 9.4

The SAS automated migration tools support migration from SAS 9.2 and SAS 9.3. However, please contact SAS Technical Support to receive the utility and for guidance on migration from these releases.

Later in this document, you are instructed to create a migration analysis report for each tier of your SAS deployment. One purpose of this report is to help you identify those SAS components that must be upgraded before you can migrate to SAS 9.4. For more information, see [“Create a Migration Analysis Report”](#).

full system migration all at the same time

All your content and configuration from your earlier SAS 9.4 version is migrated to the later SAS 9.4 version at the same time.

the same topology

SAS must continue to be distributed across logical machines in the same way. Because a logical machine corresponds to a single SAS configuration directory, this directory can be relocated to a different physical machine during migration.

Redistributing logical machines on different physical machines increases the level of complexity for your migration. Common issues involve port conflicts and physical files residing outside of the configuration directory tree. Understand this complexity and plan for it when designing your migration.

Note: You can add new SAS 9.4 products during a migration. Make sure the new product components are contained in your SAS order and deployment plan file.

the same middle tier

When you migrate to SAS 9.4, the SAS Deployment Wizard replaces your current SAS Web Application Server with an updated version of the SAS Web Application Server.

the same operating system family

Your SAS 9.4 components must run on the same operating system family as they did in your earlier SAS release.

You can migrate within the Windows family (for example, Windows 32-bit to Windows 64-bit) or migrate within the UNIX family (for example, Solaris or AIX to Linux).

Note: Starting at SAS 9.4M9, SAS no longer delivers the SAS Platform on Solaris, (on SPARC S64 or Intel SAX hardware). Migrate to a SAS 9.4M9 deployment that is installed on a machine that is running a supported operating system in the same family. For the UNIX operating system family, options such as Red Hat Enterprise Linux, Oracle Linux, SUSE Linux, and AIX are available.

Note: Starting at SAS 9.4M8, SAS no longer delivers the SAS Platform on HP-UX. For the UNIX operating system family, options such as Red Hat Enterprise Linux, Oracle Linux, SUSE Linux, and AIX are available.

For more information on compatible operating systems for SAS, see [SAS 9.4 Operating System Compatibility](#).

The SAS Migration Utility uses the CPORT and CIMPORT procedures to change file formats when migrating within operating system families. For more information, see [“MIGRATE Procedure” in *Base SAS Procedures Guide*](#), [“CPORT Procedure” in *Base SAS Procedures Guide*](#) and [“CIMPORT Procedure” in *Base SAS Procedures Guide*](#).

For more information about post-migration tasks when migrating from one version of an operating system to another, see [“Overview of Performing Post-migration Tasks”](#).

Note: On UNIX, SAS 9.4 should be installed on a file system that supports large files. (Large files are files that are greater than 2GB in size.)

High-Level Steps for Migrating SAS Content in SAS 9.4

SAS 9.4 migration is an automated upgrade process that moves your entire SAS environment — content, configuration, and metadata — from an older SAS release into a newer SAS 9.4 deployment with minimal disruption. For SAS solutions, see the product's documentation for additional information about migration and promotion.

Step 1: Assess Your Current Environment

Before planning any migration tasks, gather a complete inventory. Review SAS 9.4 requirements (hardware, software, and migration) against your current SAS deployment and developing a plan for how to get your SAS content—your data and configuration—integrated into a SAS 9.4 system.

The SAS Migration Utility, generates a migration analysis report. Using this report, you can analyze every machine in your current SAS deployment to answer these crucial design questions:

- Which SAS products currently reside on each machine?
- What SAS version(s) are currently installed?
- What SAS content will I have to manually migrate?
- Should I use internal SAS accounts where I can?
- What server tiers exist (metadata, mid-tier, compute, grid, etc.)?
- Which SAS products, solutions, and hot fixes are in use?
- What customizations exist (web apps, configuration files, autoexecs, stored processes)? What external dependencies are required (databases, LDAP/AD, certificates, third-party tools)?

This is part of the design phase. For more information about the generating the report, see [“Inventorying Your Current SAS Deployment” on page 17](#).

Step 2: Plan the Target SAS 9.4 Architecture

Define your “to-be” state: Select the appropriate SAS 9.4 maintenance level. Choose new hardware/VMs or validate the existing infrastructure. Plan for updated OS versions and dependencies. Decide on architecture changes (e.g., adding load balancers, moving to multi-tier, restructuring metadata folders). Plan for TLS/certificate updates, as SAS

9.4 has stricter security defaults. Output: Architecture diagram, capacity planning, OS/resource requirements.

Step 3: Perform Pre-migration Tasks

Looking at your migration design, you might have identified some of your hardware that might need to be upgraded, operating systems that need to be patched, and third-party software that needs to be updated.

During the pre-migration task phase, you create a migration package that contains your current SAS 9.4 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 earlier SAS 9.4 content successfully to a later SAS 9.4 release.

In addition to the SAS migration package, the wizard relies on another package—SAS Software Depot—that contains SAS 9.4 installation files. You create a SAS Software Depot when you download your SAS 9.4 order.

Step 4: Install SAS 9.4 and Migrate Your SAS Content

Use the SAS Deployment Wizard to install SAS 9.4 and to migrate your current SAS 9.4 content and configuration that you packaged using the SAS Migration Utility.

Step 5: Perform Post-migration Tasks

Perform manual tasks such as running authorization differences reports and moving content that the migration utility did not migrate.

Step 6: Validate Your Migration

Make sure that your SAS 9.4 servers, clients, middle tier, and web clients are functioning and can use migrated content from your earlier SAS 9.4 version.

For a discussion of functionality changes in the SAS 9.4 release that you are migrating to, see [SAS Guide to Software Updates and Product Changes](#).

Special Considerations for Moving Content to SAS 9.4 from an Earlier SAS Version

Review the following notes regarding moving content from SAS 9.1, 9.2 or 9.3 to a later release of SAS 9.4:

- You can export a package from a SAS 9.2 or SAS 9.3 SAS Metadata Server and import it to a SAS 9.4 Metadata Server. For more information, see “[Special Considerations for Promoting Content to SAS 9.4 from an Earlier SAS Version](#)” in *SAS Intelligence Platform: System Administration Guide*.
- Using the SAS Migration Utility to migrate from SAS 9.1 to SAS 9.4 is not an option.
- Refer to the following report for specific messages when using SAS Migration Utility: [Appendix 4, “Archive: Analysis Report Messages,”](#) on page 161.

If your site is running SAS 9.1.3, 9.2, or 9.3, then please contact SAS Technical Support for assistance.

Migrating SAS Enterprise Miner

If you are migrating SAS Enterprise Miner to a later release, then you should also consult [SAS Enterprise Miner Documentation](#).

Migrating SAS Model Manager

If you are migrating SAS Model Manager to a later release, then you should also consult [SAS Model Manager Documentation](#).

Migrating SAS Solutions

As a part of the migration design step, consult the migration documents specific to any SAS solutions that you are running. The following list is a sampling of some of the migration documents available. For a complete listing, consult [SAS Documentation](#).

- *SAS IT Resource Management: Migration Guide*
- *SAS Detail Data Store for Insurance: Upgrade and Migration Guide*, available at [SAS Detail Data Store Documentation](#)
- *SAS Credit Scoring: Upgrade and Migration Guide*, available at [SAS Credit Scoring Documentation](#)
- *SAS Customer Analytics for Banking: Migration Guide*, available at [SAS Customer Analytics for Banking Documentation](#)

Chapter 2

Designing Your Migration

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Overview of Designing Your Migration

Designing your migration is the first of five steps required to install SAS 9.4 and migrate your current SAS 9.4 content.

Designing your migration means reviewing the SAS 9.4 requirements (hardware, software, and migration) against your current SAS 9.4 deployment, and developing a plan for how to get your earlier SAS 9.4 content (your data and configuration) integrated into a newer SAS 9.4 system. Depending on your SAS deployment, you might find these documents helpful:

- For a discussion of functionality changes in SAS 9.4, see [SAS Guide to Software Updates and Product Changes](#).
- For SAS solutions, see the product's documentation for additional information about migration and promotion. For more information, see “[Migrating SAS Solutions](#)”.
- If you are migrating to SAS Enterprise Miner, then you should also consult [SAS Enterprise Miner Documentation](#).
- If you are migrating to SAS Model Manager, then you should also consult [SAS Model Manager Documentation](#).

The SAS Migration Utility generates a migration analysis report. Using this report, you can analyze every machine in your current SAS deployment to answer this crucial design question: “Which SAS products reside on each machine?” It is essential for your SAS representative to know exactly which products and versions reside on which machines in order to provide you with the correct SAS 9.4 deployment plan (required to install SAS 9.4).

At the end of the migration design phase, you will have accomplished the following:

Table 2.1 *Migration Design Goals and Actions*

Migration Design Goals	Actions
Understand the high-level SAS migration requirements.	Review “ High-Level SAS Migration Requirements ”. Determine the proper time for you to migrate to SAS 9.4.
Understand migration requirements and processes specific to your SAS solutions.	See “ Migrating SAS Solutions ”. Read the migration guide for your SAS solutions.
Ensure that your hardware and third-party software meet the SAS 9.4 system requirements.	See “ Assess Your Hardware and Third-Party Software ”. Plan to address hardware and software gaps as necessary.
Determine which SAS products reside on each machine.	Create a SAS migration analysis report. For more information, see “ Inventorying Your Current SAS Deployment ”.

Migration Design Goals	Actions
Consider how to migrate your middle tier.	Review “Middle-Tier Considerations”. Automatic configuration of the SAS Web Server and SAS Web Application Servers is highly recommended during the migration process. After these servers are automatically configured, you can later reconfigure them manually if necessary by using the scripting tool information in the <i>SAS Intelligence Platform: Middle-Tier Administration Guide</i>. In SAS 9.4, it is possible to create a clustered middle tier using additional middle-tier machines during the migration process.
Obtain a SAS 9.4 deployment plan.	With a recent migration analysis report, contact your SAS representative to obtain a valid SAS 9.4 deployment plan that represents your current SAS deployment. For more information, see “Obtain a Valid SAS 9.4 Deployment Plan”.
Plan SAS user downtime at your site.	You need to schedule time when your SAS deployment is down in order to install and configure SAS 9.4 and migrate your SAS content.

Review High-Level SAS Migration Requirements

Review the SAS migration requirements that are listed in [“High-Level SAS Migration Requirements”](#).

If the SAS migration requirements are not in sync with your site's needs, consider the partial promotion alternative. For more information, [“Promotion Tools Overview”](#) in *SAS Intelligence Platform: System Administration Guide*.

Assess Your Hardware and Third-Party Software

Part of designing your migration is to evaluate how your hardware and third-party software match the requirements for SAS 9.4.

Migration from any version of SAS requires additional disk space equal to at least twice the amount of disk space that you currently use for your metadata repositories and WebDAV content. For example, if your current SAS metadata repositories and WebDAV content occupy 2GB of disk space, you need at a minimum an additional 4GB of disk space to migrate to SAS 9.4.

The SAS 9.4 middle tier no longer supports 32-bit operating systems. Therefore, your site must plan for using a 64-bit machine for hosting the SAS middle tier.

In SAS 9.4, a new metadata backup facility was added. For SAS 9.4 Windows systems that back up metadata to a non-local drive, temporary space is needed on the SAS 9.4 target machine to copy the migrated metadata from the migration package to a local directory and recover using that local directory. The local directory is created specifically for the purpose of recovering and is deleted when recovery is complete. For this reason, you should plan on making available additional disk space on the metadata server machine during your migration.

Consult the following websites for the latest SAS 9.4 system requirements and any alert-level SAS Notes:

- [SAS System Requirements](#)
- [SAS Installation Notes](#)

Memory Requirement on z/OS

The user account under which the SAS Migration Utility and SAS Deployment Wizard run needs to have sufficient memory allocation.

The value for the z/OS MEMLIMIT and ASSIZEMAX options should be 2GB, respectively.

Avoiding Path Conflicts with the SAS Application Server Configuration

There is a path conflict when SAS data package directories share the same configuration path as the current SAS Application Server.

To avoid a situation where SAS Application Server configuration files such as sasv9.cfg are inadvertently overwritten, the SAS Migration Utility does not migrate directories that have path conflicts. Check the migration utility and the migration analysis report for any path conflicts, and manually resolve these issues. For more information, see [Appendix 4, “Archive: Analysis Report Messages,” on page 161](#).

Location for the SAS Content Server Repository

In SAS 9.4, you have the option of storing your SAS Content Server repository data in the database configured for the SAS Web Infrastructure Platform. (When running the SAS Deployment Wizard, you select whether to use the SAS Web Infrastructure Platform Data Server for this data on the SAS Web Infrastructure Platform Database: Data Server wizard page. If you do not choose to use the database configured for the SAS Web Infrastructure Platform, you select your SAS Web Infrastructure Platform database type on the SAS Web Infrastructure Platform: Database Type wizard page.)

To access this SAS Deployment Wizard option during migration, be sure to choose either the Typical or Custom prompting levels. For more information, see [“Administer the SAS Content Server” in SAS Intelligence Platform: Middle-Tier Administration Guide](#).

Dataflux Data Management Server Consideration

Dataflux Data Management Server deploys differently than SAS products.

Dataflux Data Management Server writes its configuration to a subdirectory under SAS Home. Most SAS 9.4 products write their configurations to a directory outside of SAS Home. (For example, `C:\SAS\Config`.)

Therefore, if you plan to have different deployments of Dataflux Data Management Server on the same machine, you must specify a new SAS Home for each instance.

Migration of SASMeta Server Components

If your SAS 9.4 deployment includes either of the following SASMeta SAS Application Server components, they do not migrate:

- SAS Workspace Server
- SAS DATA Step Batch Server

Contact SAS Technical Support to identify what manual steps might be required to migrate your system.

Inventorying Your Current SAS Deployment

The SAS 9.4M9 Migration Utility requires Java 21. The SAS 9.4M8 Migration Utility requires Java 11. For more information, see “[SAS Migration Utility Requirements](#)”.

Overview of Inventorying Your Current SAS 9.4 Deployment

A key to successfully migrating your SAS 9.4 content—data and configuration—is knowing exactly what SAS products you are running on each machine at your site. SAS provides a tool to help you do just that. The SAS Migration Utility sweeps a machine to locate your current SAS 9.4 content, and then determines whether the content can be migrated to another SAS 9.4 deployment. During this analyze phase, the migration utility generates a migration analysis report. Using this report, you can determine which SAS products are eligible for automatic migration with the SAS Deployment Wizard.

Note: You can also use SAS 9 Content Assessment. SAS 9 Content Assessment is a collection of applications designed to help you understand various characteristics of your SAS 9.4 deployment. SAS Content Assessment delivers information that is critical to helping you upgrade to a newer version of SAS 9.4 or migrate to SAS Viya. 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. Download [SAS Content Assessment](#) to get started.

You can get the SAS Migration Utility in two ways: by downloading it from support.sas.com/downloads or by locating the version that is shipped with your SAS 9.4 order. Later, when you are instructed to build a migration package, make sure that you use the version of the migration utility that is shipped with the SAS 9.4 order containing

the version that you are migrating to. For more information, see [“Create the Migration Package”](#).

Here are the steps for inventorying your current SAS deployment:

1. [“Complete a Migration Utility Checklist”](#)
2. [“Check Backups in SAS 9.4 or SAS 9.4_M1”](#)
3. [“Prepare Your Metadata Repositories”](#)
4. [“SAS Migration Utility Requirements”](#)
5. [“Download the SAS Migration Utility”](#)
6. [“Develop a Common SAS Migration Utility Properties File”](#)
7. [“Review Product-Specific SAS Migration Utility Properties”](#)
8. [“Create a Migration Analysis Report”](#)
9. [“View and Analyze Your Migration Analysis Report”](#)
10. [“View and Analyze the Migration Log”](#)

Complete a Migration Utility Checklist

The SAS Migration Utility relies on a set of input values, such as where you have installed SAS and SAS Metadata Server connection information. You should compile a list of the necessary input values before you run the migration utility.

Note: If you have not installed SAS in the same directory on each machine, then complete the following table for every machine in your current SAS deployment.

Table 2.2 SAS Migration Utility Checklist

Migration Utility Input	Default Value	Actual Value
Absolute path to the SAS configuration directory	C:\SAS\configuration-name /users/sas/SAS/configuration-name	
Absolute path to the SAS executable	C:\Program Files\SASHome SASFoundation\9.4 /users/sas/SASHome/SASFoundation	
Absolute path to the top-level directory where SAS products are installed	C:\Program Files\SASHome /users/sas/SASHome	
Metadata server connection profile path name*	C:\Documents and Settings\user-ID Application Data\SAS MetadataServerProfiles myprofile.swa \$HOME/ MetadataServerProfiles/ myprofile.swa	information
Metadata server name	No default value	

Migration Utility Input	Default Value	Actual Value
Metadata server port	8561	
Unrestricted user ID and its password	sasadm	
Product-specific properties For more information, see the sections in “ Review Product-Specific SAS Migration Utility Properties ”.	Not applicable	
JDBC connection credentials for the Shared Services database** For more information, see SMU.webinfpltfm.dbms.userid .	SharedServices	
SMU.isMultipleTierMachine=true Set this property to true when multiple SAS tiers are deployed on the same machine. For more information, see SMU.isMultipleTierMachine .	To set property to true: SMU.isMultipleTierMachine=true	

* You can use a connection profile or provide the equivalent metadata server information on the migration utility command line or in a utility properties file.

** (In SAS 9.4, this is referred to as the SAS Web Infrastructure Platform database.)

Note: The connection profile that you use should access the SAS Metadata Server using a fully qualified host name or an IP address. Do not refer to the metadata server as **localhost** or its IP equivalent (127.0.0.1) unless all of the machines in your SAS deployment are able to connect to the server using that host name.

Check Backups in SAS 9.4 or SAS 9.4_M1

In SAS 9.4 and SAS 9.4M1, there is a defect with the Deployment Backup and Recovery Tool that involves multiple instances of the tool. Before you create your migration package, check for multiple instances of the web archive file, `sas.svcs.admin.backup.war`, under your SAS Web Application Servers. If you find multiple instances, then contact SAS Technical Support before attempting your migration. By default, web application backup WAR files are located under **`SAS-configuration-directory/Web/WebAppServer/SASServer1_n/sas_webapps`**.

Prepare Your Metadata Repositories

Before you migrate your metadata repositories, prepare for migration by performing the following steps:

1. Before you begin preparing your metadata repositories, back them up.

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

Note: If you are using the %OMABAKUP macro, do not specify the REORG option.

2. In SAS Data Integration Studio, check in all objects from project repositories.

For more information, see “Administering SAS Data Integration Studio” in *SAS Intelligence Platform: Desktop Application Administration Guide*.

3. Delete any unused directory objects such as libraries, stored processes, and deployed jobs.
4. Delete any servers or spawner definitions that are not being used.
5. Remove user directories for users that no longer exist.
6. If you imported user definitions from an enterprise source using the import macros, rerun these macros and reconcile new and deleted users.
7. Back up your metadata repository again.

Note: If you are using the %OMABAKUP macro, specify the REORG option.

8. Delete any orphaned metadata objects.

The migration analysis report on your metadata tier helps you identify orphaned objects. You might want to perform this step later, after reviewing the report.

9. Document any custom values in your metadata, such as the following:
 - additional users and group profiles in your Foundation Services deployments
 - server start-up commands
 - configuration values for servers

Note: The migration utility ignores metadata repositories with a state of OFFLINE or READONLY.

SAS Migration Utility Requirements

Here are the requirements for installing and running the SAS Migration Utility:

- The SAS 9.4M9 Migration Utility requires Java 21. The SAS 9.4M9 Migration Utility will not continue if Java 21 is not provided.

The SAS 9.4M8 Migration Utility requires Java 11. The SAS 9.4M8 Migration Utility will not continue if Java 11 is not provided.

Note: If you are migrating from a SAS installation on an operating system that does not support the necessary version of Java, and you want to use the SAS Migration Utility to migrate to a more recent SAS 9.4 maintenance release, then you must first migrate your SAS installation to a machine that is running an operating system that supports the necessary version of Java and that is in the same family as your SAS installation's operating system. This migration requires the use of the SAS Migration Utility that corresponds to the SAS installation.

Note: Solaris operating system is not supported on SAS 9.4M9. If you are running on this operating system and you want to migrate, you must migrate to an operating system that is supported on SAS 9.4M9 and that is in the same operating system family.

Perform the following steps to capture a migration package from a SAS system prior to SAS 9.4M9 for migrating to SAS 9.4M9:

Migrating to SAS 9.4M9:

1. SAS recommends using the Java 21 that came with your SAS 9.4M9 order. You can find the Java 21 in your SAS Software Depot containing your SAS 9.4M9 order by navigating to the **Products** directory, and then the **privatejre** directory that matches the operating system on which you are running the SAS 9.4M9 Migration Utility. For example, products\privatejre__99584__lax__xx__sp0__1.

Table 2.3 Operating Systems and Directories

Operating System	Directory Name
Windows	win
Microsoft Windows for x64	wx6
Linux for x64	lax
64-bit Enabled AIX	r64

Note: The HP-UX IPF operating system is not supported on SAS 9.4M9. If you are running on this operating system and you want to migrate, you must migrate to an operating system that is supported on SAS 9.4M9 and that is in the same operating system family.

Note: Starting at SAS 9.4M9, z/OS 64-bit (z64) requires Java 21. You need to install Java 21 SDK directly from IBM.

2. Using your preferred extraction tool, extract the contents of the archive file to a directory on which you are able to run the JRE.
 - a. Before running the SAS 9.4M9 Migration Utility on UNIX, in the shell in which the migration utility will be invoked, set the environment variable SMU_JAVA to the path where Java 21 was extracted. For example, if you extracted the privatejre archive into a folder named JRE21, you would set the option like this:


```
export SMU_JAVA=/install/JRE21/jre
```
 - b. When running the SAS 9.4M9 Migration Utility on Windows, set the -JREHOME option to the path where Java 21 was extracted. This option must be the first option on the command line. For example, if you extracted the privatejre archive into a folder named JRE21, you would set the option like this:


```
./smu94_x64.exe -jrehome  
c:\deploy\JRE21\jre -properties c:\deploy\SMU\smu.properties -analyze
```
3. If your source SAS system on which you intend to capture a migration package does not support Java 21 or is no longer supported in SAS 9.4M9, you must do one of the following:
 - a. Upgrade your operating system to a version that supports Java 21. Then, create a migration package.

- b. Migrate your source SAS installation to a new machine with an operating system that supports Java 21. Then, upgrade this new SAS installation to SAS 9.4M9.
- c. Perform a new installation of SAS 9.4M9 on an operating system version that is supported by SAS 9.4M9. Then, promote content from your source SAS installation to the newly installed SAS 9.4M9 system. Depending on the SAS software that you have installed, there are restrictions to what content can be promoted. For more information, see [“Content That Migrates and Migration Issues”](#) in *SAS Viya Platform: Content Migration From SAS 9.4*.

Perform the following steps to successfully capture a migration package from a SAS system prior to **SAS 9.4M8** for migrating to **SAS 9.4M8**:

Migrating to SAS 9.4M8:

1. SAS recommends using the Java 11 that came with your SAS 9.4M8 order. You can find the Java 11 in your SAS Software Depot containing your SAS 9.4M8 order by navigating to the **Products** directory, and then the **privatejre** directory that matches the operating system on which you are running the SAS 9.4M8 Migration Utility. For example, products\privatejre__99584__**lax**__xx__sp0__1.

Table 2.4 Operating Systems and Directories

Operating System	Directory Name
Windows	win
Microsoft Windows for x64	wx6
Linux for x64	lax
64-bit Enabled Solaris	s64
Solaris on x64	sax
64-bit Enabled AIX	r64

Note: The HP-UX IPF operating system is not supported on SAS 9.4M8. If you are running on this operating system and you want to migrate, you must migrate to an operating system that is supported on SAS 9.4M8 and that is in the same operating system family. You must get Java 11 for HP-UX IPF from the vendor's website because SAS does not provide it.

Note: SAS 9.4M8, z/OS 64-bit (z64) requires IBM Java 8. (It does not require Java 11.)

2. Using your favorite extraction tool, extract the contents of the archive file to a directory on which you are able to run the JRE.
 - a. Before running the SAS 9.4M8 Migration Utility on UNIX, in the shell in which the migration utility will be invoked, set the environment variable SMU_JAVA to the path where Java 11 was extracted. For example, if you extracted the privatejre archive into a folder named JRE11, you would set the option like this:

```
export SMU_JAVA=/install/JRE11/jre
```

- b. When running the SAS 9.4M8 Migration Utility on Windows, set the -JREHOME option to the path where Java 11 was extracted. This option must be the first option on the command line. For example, if you extracted the privatejre archive into a folder named JRE11, you would set the option like this:

```
./smu94_x64.exe -jrehome
c:\deploy\JRE11\jre -properties c:\deploy\SMU\smu.properties -analyze
```

3. If your source SAS system on which you intend to capture a migration package does not support Java 11, you must do one of the following:
 - a. Upgrade your operating system to a version that supports Java 11. Then, create a migration package.
 - b. Migrate your source SAS installation to a new machine with an operating system that supports Java 11. Then, upgrade this new SAS installation to SAS 9.4M8.
 - c. Perform a new installation of SAS 9.4M8 on an operating system version that is supported by SAS 9.4M8. Then, promote content from your source SAS installation to the newly installed SAS 9.4M8 system. Depending on the SAS software that you have installed, there are restrictions to what content can be promoted. For more information, see [“Content That Migrates and Migration Issues” in SAS Viya Platform: Content Migration From SAS 9.4.](#)
- The migration utility must be run on every machine that is running the current version of the SAS Intelligence Platform. (Run the migration utility on machines that contain the SAS server tier or middle tier only. Do not run the migration utility on middle-tier horizontal cluster machines and machines that contain SAS clients only.)

For SAS multi-machine deployments, you should copy the utility to shared network storage that is accessible from every SAS machine to avoid having to copy the migration utility separately on each machine. You can then log on to each machine and execute the utility from this shared network storage location.

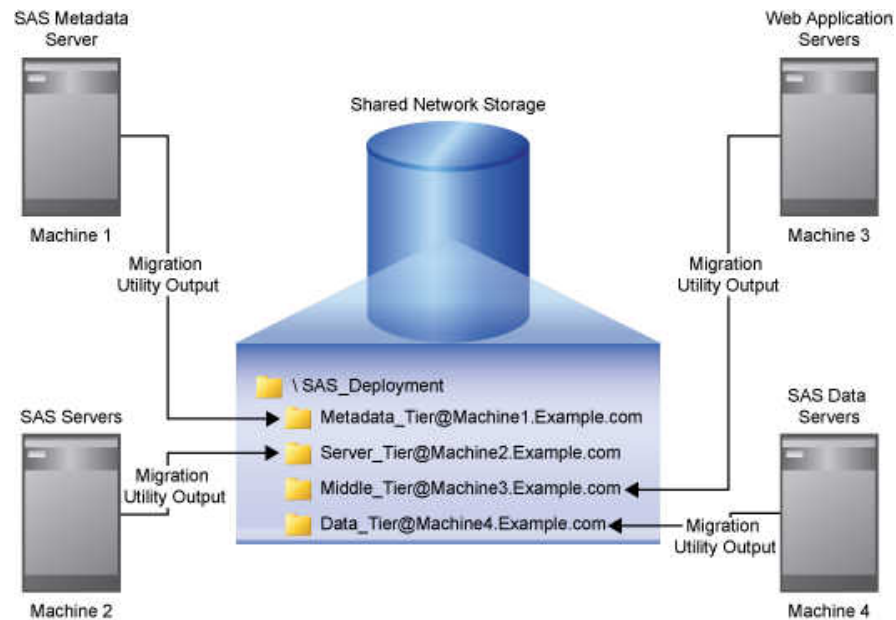
- On SAS multiple machine deployments, run the migration utility first on the machine hosting the SAS Metadata Server.
- On SAS deployments that use clustered metadata servers, run the migration utility on the first metadata server node. For more information, see [“Packaging SAS Content on a Metadata Server Cluster”](#).
- The user account with which you run the migration utility (the SAS Installer account) must have Read access to all directories in the current SAS configuration directory for each machine.

CAUTION:

To avoid unauthorized access to sensitive information, the location where the migration utility writes package information (SMU.Output.Dir) should be properly secured with file access permissions and readable by the migration utility user and SAS Installer user only.

- On SAS multi-machine deployments, the migration utility must be able to write to (and read from) its output directory.

The utility output directory should be on shared network storage accessible to every SAS machine in the deployment. For an example, see the following figure:

Figure 2.1 Sample Migration Utility Directory Structure

If no shared storage is available, then you must copy the migration package to each successive machine to cause the migration utility to add the machine's content to the migration package. (The metadata server must be packaged first.) If you use File Transport Protocol (FTP) to copy the migration package, make sure that you set the file transfer type to binary.

- The SAS Content Server on Windows runs, by default, under the LOCALSYSTEM account, which does not have network privileges. If you are writing the SAS Content Server package to shared storage, then see “[Packaging SAS Content Server on Windows](#)”.
- SAS Foundation and certain SAS client applications require the use of a Java Runtime Environment (JRE). Starting with SAS 9.4, a private JRE is provided by SAS and installed by the SAS Deployment Wizard on all platforms other than z/OS. For information about the JRE required by SAS on z/OS, see [Third-Party Software Requirements](#).

The migration utility requires the JRE and uses the JRE that your SAS deployment uses. The migration utility locates the JRE using the `SMU.SASHOME` property or the `sasproductdir` command-line option.

Download the SAS Migration Utility

You do not have to wait for your SAS 9.4 order to arrive to begin using the SAS Migration Utility. Simply go to the SAS product download site to download the migration utility.

1. Ensure that you have met the requirements listed in “[SAS Migration Utility Requirements](#)”.
2. On a machine that has internet access, point a web browser to the following URL:
<http://www.sas.com/apps/demosdownloads/setupintro.jsp>
3. Search for *SAS Migration Utility*.

Note: SAS provides a migration utility template file (`smu.properties.template`) that includes examples for how to use various properties. You can find the template file at the same URL where you download the [SAS Migration Utility](#).

4. After you have downloaded the migration utility, move the utility to a storage location that is accessible to your current SAS deployment (such as a shared network drive).

There is a unique SAS Migration Utility for each supported operating system family. If your current SAS deployment is a multi-platform deployment, you need to download the appropriate migration utility for the operating systems on which you have deployed SAS: Windows, UNIX, and z/OS.

Note: This version of the SAS Migration Utility is provided for users who have not yet received their SAS 9.4 software and are interested in assessing the scope of migration for their currently installed products. When you receive your SAS 9.4 software, you should use the version of the SAS Migration Utility that is included with the order to perform the migration, guaranteeing compatibility with the versions of the products ordered.

5. On UNIX and z/OS, remember to assign Execute permissions before running the downloaded file.

For more information, refer to your UNIX or z/OS documentation.

Develop a Common SAS Migration Utility Properties File

As the SAS Migration Utility is run from an operating system prompt or command line, entering a set of invocation options can be error prone. If you deployed SAS in a similar way across multiple machines, you can benefit from creating a common migration utility properties file and reduce the amount of input that you must enter on the migration utility command line.

Note: SAS has a migration utility template file (`smu.properties.template`) that provides examples for how to use various properties. You can find the template file at the same URL where you download the [SAS Migration Utility](#). SAS provides a template with the SAS Software Depot in the `smu94` subdirectory under `utilities`. For more information, see [“Running the Migration Utility Using a Properties File”](#).

Follow these steps to create a common migration utility properties file:

1. Complete a migration utility checklist using [“Complete a Migration Utility Checklist”](#).
2. Add any necessary product-specific migration utility properties. (See [“Review Product-Specific SAS Migration Utility Properties”](#).)
3. Make sure that you have Write access to a migration utility executable directory that is network-shared and accessible from each machine on which you are running SAS.
4. Referring to your completed migration utility checklist and to the following table, use a text editor to add the required migration utility properties to your properties file.

CAUTION:

You should encode any passwords used in a migration utility properties file or specified on the command line. The migration utility accepts passwords that are encoded using PROC PWENCODE. The location where the migration utility writes package information should be properly secured

with file access permissions readable by the migration utility user and SAS Installer user only.

5. Save your properties file in the migration utility executable directory.

Table 2.5 Required SAS Migration Utility Properties

Required Migration Utility Property	Example
SMU.config.dir	SMU.config.dir=C:\SAS\BIServer\Lev1 SMU.config.dir=/users/sas/SAS/biserver/Lev1 SMU.config.dir=/usr/lpp/SASConfig/Lev1
SMU.SASROOT	SMU.SASROOT=C:\Program Files\SASHome\SASFoundation\9.4 SMU.SASROOT=/users/sas/SAS/SASFoundation/9.4 SMU.SASROOT=/usr/lpp/SASHome/SASFoundation/9.4
SMU.SASHOME*	SMU.SASHOME=C:\Program Files\SAS SMU.SASHOME=/users/sas/ SMU.SASHOME=/usr/lpp/SASHome
SMU.Output.Dir	SMU.Output.Dir=C:\SMU\94_Deployment SMU.Output.Dir=/smu/94_deployment SMU.Output.Dir=/u/user-ID/SMU/SMU_Package
SMU.webinfpltfm.dbms.userid	SMU.webinfpltfm.dbms.userid=myDatabaseUserID
SMU.webinfpltfm.dbms.password	SMU.webinfpltfm.dbms.password={SAS002}DBC C571245AD0B31433834F80BD2B99E16B3C969
SMU.isMultipleTierMachine**	SMU.isMultipleTierMachine=true

* Paths containing spaces in properties files do not require double quotation marks.

** Required when multiple SAS tiers are deployed on the same machine.

CAUTION:

To avoid unauthorized access to sensitive information, the location where the migration utility writes package information (SMU.Output.Dir) should be properly secured with file access permissions and readable by the migration utility user and the SAS Installer user only.

Review Product-Specific SAS Migration Utility Properties

Some SAS products have unique properties that the SAS Migration Utility uses when creating a migration analysis report, or later in the process when the utility builds a migration package. For more information, see [“Product-Specific SAS Migration Utility Properties Overview”](#).

Create a Migration Analysis Report

The SAS Migration Utility has two execution modes: an analyze mode and a package mode. Before creating a migration package that the SAS Deployment Wizard uses to perform the actual migration, you should run the migration utility in analyze mode to create a migration analysis report. This report is useful in helping you determine exactly which SAS products are deployed on each machine in your current SAS system.

Figure 2.2 Sample Migration Analysis Report

SAS Migration Utility


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Version 9.4.4.200

Migration Analysis for rdcesx01215.race.sas.com

Tue Aug 03 10:47:59 EDT 2021

Status	Action
✓	No action required
●	An issue was detected. Review the Details for this item. Manual steps may be required for migration.
✗	A problem was encountered. Review the Details for this item. Remediation steps or repackaging may be required.

See <http://support.sas.com/migration/utilitynotes> for more migration information.

Migration Version Analysis

The migration version analysis of this machine detected potential issues with the following product versions. If you intend to migrate to one of the product versions listed in the "Versions Not Supported" column, then migration is not supported for any of the machines in your environment. This restriction is true even if migration version analysis on other machines did not detect unsupported versions. Please contact your SAS representative for assistance.

Note: The SAS Deployment Wizard will prevent unsupported migrations listed in the table below.

Otherwise, review the remaining product sections of this Migration Analysis report to determine if there are other migration issues that must be considered. If you are unsure of the version of the software to which you are migrating, review your Order Summary, available in your SAS Software Depot at <depot location>/install_doc/<order number>/ordersummary.html.

	Product Name	Version Configured (Source)	Versions Not Supported (Target)
✗	Search Interface to SAS Content	3.4	1.55

See <http://support.sas.com/migration/utilitynotes> for more migration information.

Product: SAS Content Server

Status	Item name	Classification	Item type	Version	System location	Package location	Details
✓	SAS Content Server	Product		9.4	/install/cfgsas1/ja214/SASConfig/Lev1/AppData/SASContentServer/Repository		Migration is supported for this version.

Follow these steps to create a migration analysis report:

1. Review the migration utility requirements.
For more information, see [“SAS Migration Utility Requirements”](#).
2. If you have not already, complete a migration utility checklist.
For more information, see [“Complete a Migration Utility Checklist”](#).
3. Verify that the SAS Metadata Server is running.
4. If you are creating a migration package on a middle-tier machine, verify that all data servers in your SAS environment, including the SAS Web Infrastructure Platform Database, are running on the middle-tier.
5. Log on to the SAS machine (the source machine) that you want to inventory.

Note: On SAS multi-machine deployments, run the migration utility first on the machine hosting the SAS Metadata Server. You can run the migration utility on the remaining tiers in any order. Do not run the migration utility on middle-tier cluster machines and machines that contain SAS clients only.

6. If the version of the migration utility that you are using has changed from one that you have used previously, then be sure to delete the migration utility's output directory. (For example, in the past, you might have downloaded and run an earlier version of the migration utility to create a migration analysis report. If so, delete the output created by the older migration utility.)
7. Change to the SAS Migration Utility executable directory. By default, this is a subdirectory under the **utilities** directory in your SAS Software Depot.
8. Review [“smu Command Notes”](#).
9. Use the common migration utility properties file and the common connection profile that you have developed, unless the source machine requires any special modifications (for example, SAS is installed on a machine-specific path).

For more information, see [“Develop a Common SAS Migration Utility Properties File”](#).

10. Add any necessary product-specific migration utility properties to your properties file. (See [“Review Product-Specific SAS Migration Utility Properties”](#).)
11. Invoke the migration utility to run in analyze mode, using the following command from an operating system prompt or command line:

SAS 9.4 on Windows 32-bit

```
smu94_32 -analyze -properties absolute pathname to
property file -replace
```

SAS 9.4 on Windows 64-bit

```
smu94_x64 -analyze -properties absolute pathname to
property file -replace
```

SAS 9.4 on UNIX

```
./smu94 - -analyze -properties absolute pathname to
property file -replace
```

SAS 9.4 on z/OS

```
./smu94.zos - -analyze -properties absolute pathname to
property file -replace
```

For more information about migration utility commands, see [“SAS Migration Utility Overview”](#).

Note: If you are including WebDAV content in your migration package, it does not matter where the WebDAV store is located in your current SAS environment. The migration utility copies WebDAV content to the configured WebDAV location in your SAS 9.4 environment. In a default SAS 9.4 configuration, that WebDAV location is the SAS Content Server.

12. The migration utility writes the report (FullReport.html) to the **AnalysisReport** subdirectory under the output directory that you specified in the migration utility properties file.
13. To verify that the report successfully completed, open the migration utility log file, and scroll to the very end of the log. (The migrate.log file is in the top-level directory of your migration utility output directory.)

If you see output similar to the following, then the migration utility finished executing the report:

```
10:52:55,719 [INFO ] SMU Product analyses completed: 61
10:52:55,720 [INFO ] SMU No packaging was performed due to
the mode setting.
```

If you do not see output lines similar to these, then the migration utility was unable to complete. A common cause can be lack of available disk space.

14. If you have a multi-tier SAS deployment, you need to create a migration analysis report for each machine. There are specific options depending on the tier (for example, `-daviertier`). For more information, see [“SAS Migration Utility Overview”](#).

Note: You cannot run the migration utility on more than one machine simultaneously because the migration schema might be updated by more than one process at the same time.

View and Analyze Your Migration Analysis Report

With your migration analysis report, you and your SAS representative can determine what, if any, further maintenance must be applied to your current SAS products in order for your system to be eligible for automatic migration with the SAS Deployment Wizard.

To view your migration analysis report, open FullReport.html in your web browser. (FullReport.html is in the **AnalysisReport** subdirectory in the output directory that you specified when you last ran the SAS Migration Utility.)

Using the report, answer these questions:

- Has the SAS Migration Utility identified any SAS products that are not eligible for automatic migration to SAS 9.4?
- Are my SAS products deployed on the machines where I expected them?

The migration analysis report also generates a list of all the SAS products configured in your deployment.

Figure 2.3 List of Configured Products in Your Current SAS Deployment

The following configured components were found:

Product Code	Product Name
bidashmid	SAS BI Dashboard
biddata	SAS BI Dashboard Configuration Data
bidwipxpoli	SAS Web Infrastructure Platform Extensions for BI Dashboard
bitschedule	SAS BI Lineage Scheduling Server
biportlets	SAS BI Portlets
birepserv	SAS BI Report Services
birepws	SAS BI Report Services Workspace Configuration
biservmid	SAS Shared Services
cfgwizard	SAS Deployment Manager
citationweb	SAS Web Report Studio
clientconfig	SAS Client Connection Profile Configuration
connectsrv	SAS/CONNECT Server Configuration
databuildata	SAS Data Integration Studio Server Data

This list of configured products can be helpful in creating a SAS 9.4 deployment plan to use with the SAS Deployment Wizard during the installation and migration task of your SAS 9.4 migration.

Starting in SAS 9.4M1, the migration analysis report offers version analysis. The SAS Migration Utility compares the versions of SAS offerings on your source deployment with a product migration matrix, and then lists all versions of SAS offerings that are unable to be directly migrated to SAS 9.4.

Figure 2.4 Migration Analysis Report Showing Migration Version Analysis

Migration Version Analysis

The migration version analysis of this machine detected potential issues with the following product versions. If you intend to migrate to one of these product versions, then migration is not supported for any of the machines in your environment. This restriction is true even if migration version analysis on other machines did not detect unsupported versions. Please contact your SAS representative for assistance.

If you intend to migrate to a supported version of the products listed in this section, review the remaining product sections of this Migration Analysis report to determine if there are other migration issues that must be considered.

	Product Name	Version Configured	Versions not supported
✗	SAS BI Server	4.2	4.4, 4.4W1
✗	SAS Enterprise BI Server	4.2	4.4W1, 4.4
✗	SAS Information Delivery Portal	4.2	4.4, 4.4W1

See <http://support.sas.com/migration/utilitynotes> for more migration information.

Using this information, you can review your SAS Software Summary (ordersummary.html) to determine whether the products in your order are supported for automated migration to SAS 9.4. The software summary resides in your SAS Software Depot in `install_doc/order-number/ordersummary.html`.

Figure 2.5 SAS Software Summary

 **sas**
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SAS Software Summary for Order 09DGTD

The following is a list of the software that comprises your order. Unlike the SAS Order Information sheet, which only lists the software you have specifically ordered, this document also describes the included software that supports your order. If you have located this document without first consulting your Software Order E-mail, please find that e-mail and follow the procedure described there for installing your software.

The Java Runtime Environments (JREs) included in your order are part of this order summary. If there is more than one JRE listed, it is because you have client and/or middle tier software that may be installed on more than one host. The SAS Deployment Wizard will help you determine which JRE needs to be installed for your software order.

- Advanced Analytics Common Components 12.3
- Advanced Programming for SAS LASR Analytic Server 2.1
- BASE Infrastructure to support Hadoop 9.4
- Base SAS 9.4
- Base SAS Help and Documentation 9.4
- Base SAS JAR Files 9.4
- Base SAS Statistical Procedures 12.3
- Base SAS Statistical threaded kernel extensions 12.3
- Base SAS User Interface 9.4
- Cluster Tier components 9.4
- Common Content MVA product Help and Documentation 9.4
- Common Content product - vertical Help and Documentation 9.4
- Core TKTS Components for FEDSQL and DS2 standalone 9.4
- DATA Step to DS2 Translator 3.1

TIP When considering version analysis, carefully choose which version of the SAS Migration Utility to run. As a planning exercise, you can download and run the migration utility from support.sas.com to determine whether you are ready to place your SAS software order. However, new product updates after you place your order might include support for migration. Therefore, running the migration utility that accompanies your order ensures accurate version analysis in your migration analysis report.

View and Analyze the Migration Log

In addition to studying your migration analysis report, the log file produced by the SAS Migration Utility can detect possible problems with your content. The migration utility

creates a login the output directory for each machine on which it is run (for example, `C:\migration_package\web_tier\migrate.log`).

A Note about SAS Tables Stored under the SAS Configuration Directory

Even though the SAS automated migration tools migrate SAS tables that are in the current SAS configuration directory and in a **SASEnvironment** or **Data** folder, the best practice is to store your SAS tables outside the SAS configuration directory. Migrating large amounts of data encountered under the configuration directory slows migration utility performance.

Middle-Tier Considerations

Support for 64-Bit Middle Tier Only

The SAS 9.4 middle tier is supported on 64-bit operating systems only.

Automatically Configure Your SAS Web Application Server

The SAS Deployment Wizard defaults to automatically building and configuring the SAS web applications and configuring a SAS Web Application Server for use with SAS 9.4.

By default, when the SAS Deployment Wizard configures the SAS 9.4 middle tier, it automatically creates and configures one or more instances of a SAS Web Application Server to host the SAS web applications. The wizard creates a series of configuration files that enable you to run an instance of your SAS Web Application Server with the SAS web applications.

Some of the configuration tasks performed by the SAS Deployment Wizard include setting options such as the following:

- HTTP ports
- optimized JVM options
- a mail session
- JAAS login modules for SAS services
- JMS queues
- a JDBC data source

SAS Web Application Server Clustering

Server clustering provides availability and enhances performance. In SAS 9.4, enhancements have been made to the deployment model to better support clustering of SAS Web Application Servers. You can easily configure vertical cluster members (additional server instances on the same machine) and horizontal cluster members (install and configure servers on additional machines). Combining vertical and horizontal clustering is also supported and can be configured easily.

For more information, see [*SAS Intelligence Platform: Middle-Tier Administration Guide*](#).

Obtain a Valid SAS 9.4 Deployment Plan

After you understand exactly which current SAS products you have deployed and on which machines and operating systems, you can contact your SAS representative to obtain a valid SAS 9.4 deployment plan. A deployment plan is a crucial component of the SAS Deployment Wizard, which is the tool that you use to install SAS 9.4 and migrate the package containing your current SAS 9.4 data and configuration. When you contact your SAS representative, it is helpful to have a migration analysis report that represents the current status of your SAS deployment. For more information, see [“Create a Migration Analysis Report”](#).

Schedule User Downtime

During the migration process, you should schedule downtime for users relying on the current SAS 9.4 deployment to ensure that all metadata and physical content stay in sync as the current SAS 9.4 content is migrated to the new SAS 9.4 deployment.

Also, when the migration utility creates the migration package, it actually pauses the SAS Metadata Server. Therefore, you are unable to use your current SAS 9.4 system during this period.

Chapter 3

Performing Pre-migration Tasks

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Overview of Performing Pre-migration Tasks

Perform any pre-migration tasks that you identified in your migration design phase and some new tasks that are a part of all SAS migrations. Performing pre-migration tasks is

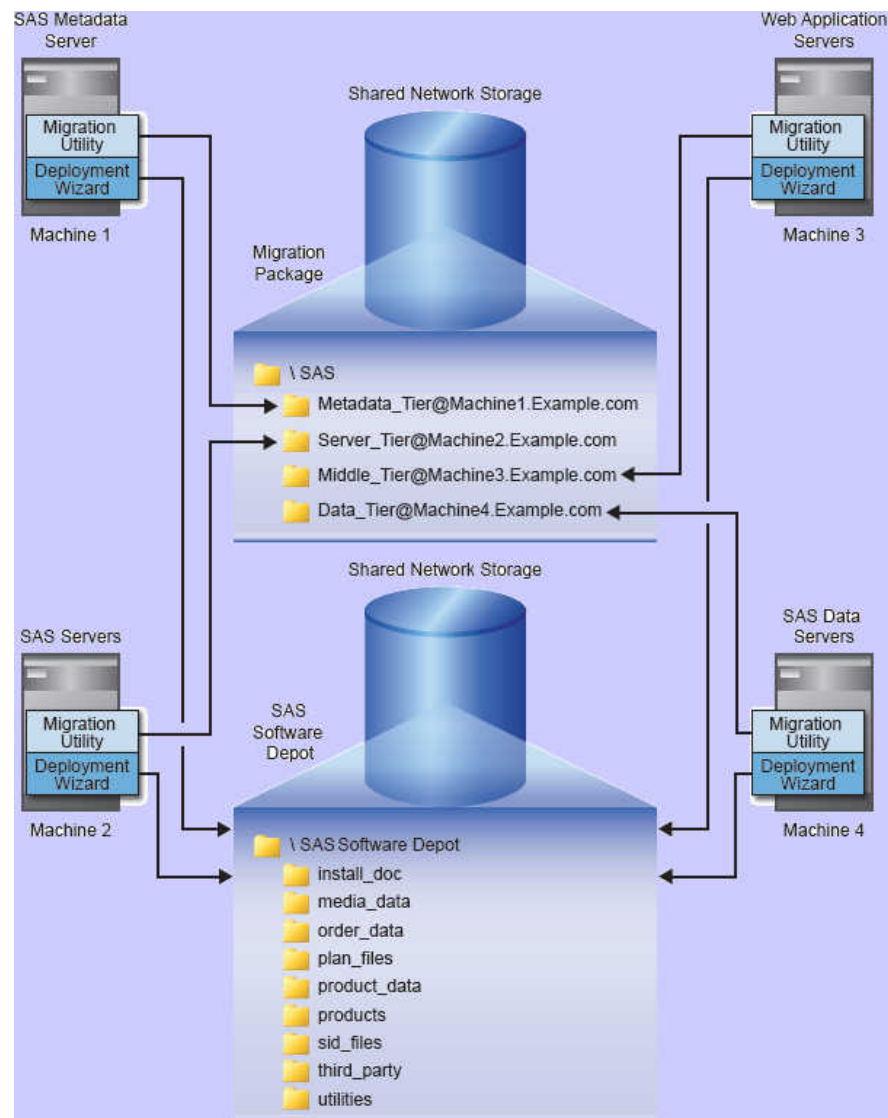
the second of five steps required to install SAS 9.4 and migrate your current SAS 9.4 content.

You might have identified some of your current SAS 9.4 products that require maintenance before you can migrate them. Some of your hardware might need to be upgraded, operating systems might need to be patched, and third-party software might need to be updated. Some products might have retired and need to be unconfigured.

During the pre-migration task phase, you create a migration package that contains your current SAS data and configuration using the SAS Migration Utility. The other major SAS migration tool, the SAS Deployment Wizard, uses your migration package as input to move your current SAS content successfully to SAS 9.4.

In addition to the SAS migration package, the wizard relies on the SAS Software Depot, which contains SAS 9.4 installation files. You create a SAS Software Depot when you download your SAS 9.4 order.

Figure 3.1 Migration Package and SAS Software Depot Topography



When you complete the pre-migration tasks, you have accomplished the following:

1. You backed up your current SAS deployment.

This is a best practice to ensure that your current SAS deployment is protected.

For more information, see [“Back Up Your Current SAS System”](#).

2. You applied required maintenance to any current SAS products.

During your migration design, you identified any current SAS products that require maintenance before you can migrate them.

For more information, see [“Apply Any Required SAS Maintenance”](#).

3. You unconfigured retired SAS products.

You have run the SAS Content Assessment system evaluation application and identified issues.

For more information, see [“Unconfigure Retired SAS Products”](#).

4. You completed the pre-migration checklists.

The SAS Deployment Wizard prompts you for the required operating system accounts that you used with SAS and for ports to designate for the new SAS 9.4 servers.

For more information, see [“Completing the Pre-migration Checklists”](#).

5. You installed third-party software required for SAS 9.4.

SAS provides a third-party software site that tells you what to install, how to get it, and how to install it.

For more information, see [“Installing Third-Party Software”](#).

6. You created a SAS 9.4 Software Depot.

The SAS Software Depot contains the SAS installation files used by the SAS Deployment Wizard to install and configure SAS 9.4.

For more information, see [“Creating SAS Software Depots”](#).

7. You created a migration package.

Using the SAS Migration Utility, you create a package containing your current SAS data and configuration that the SAS Deployment Wizard uses.

For more information, see [“Create the Migration Package”](#).

Back Up Your Current SAS System

As a best practice, you should have an up-to-date operating system backup of your current SAS deployment. If you have a multi-machine deployment, this means your SAS Metadata Server machine, server tier, middle tier, and data tier.

On each machine, make sure that you have backed up the following directories:

- SAS installation directory and all of its child directories (for example, **C:\Program Files\SASHome**).
- SAS configuration directory and all of its child directories (for example, **C:\SAS\Config**).

On the metadata server machine, back up the earlier listed directories and all metadata repositories.

For more information, see “[About Backing Up and Restoring Your SAS Content](#)” in *SAS Intelligence Platform: System Administration Guide*.

For all backups that you make, follow your site's established backup procedures.

CAUTION:

As you would with any backup, run these backups through your site's validation procedures to be confident of their integrity before proceeding with your SAS migration.

Unconfigure Retired SAS Products

You should unconfigure retired products from your source system before performing a migration. The SAS Content Assessment system evaluation application is a tool that looks for possible issues that could adversely affect migration.

System evaluation examines the specified SAS configuration directory and its corresponding metadata content and corresponding installation content in a SAS Metadata Server. It reports issues found in various SAS objects, such as metadata objects and definitions in the Foundation repository only, critical configuration files, and critical installation files.

[Download](#) the latest version of system evaluation. The download is either a ZIP file (for Windows), a TGZ file (for Linux), or a TAR file (for AIX).

Apply Any Required SAS Maintenance

When you designed your SAS migration, you might have discovered that one or more of your current SAS products are ineligible for migration and require that maintenance patches be applied. Your SAS representative can help you get the necessary maintenance that your products require. Follow the instructions provided for this, and make sure that all the affected products have been patched.

Note: After you have applied the necessary maintenance, you should rerun the migration analysis report on all your affected SAS machines and use the report to verify that all of your current SAS products are now eligible for migration.

For more information, see “[Create a Migration Analysis Report](#)”.

Completing the Pre-migration Checklists

Overview of Completing the Pre-migration Checklists

Locate the SAS pre-installation checklist that you will use to deploy your SAS 9.4 software.

If your SAS representative created a customized deployment plan for your site, then use the checklist that came with the customized deployment plan.

If you are using a standard deployment plan, then use the checklist that came with the standard plan. Standard deployment plans are stored by default in the SAS Software

Depot. However, you can download the latest [9.4 Standard Deployment Plans](#) that also contain a corresponding architectural diagram and pre-installation checklist.

Once you locate the appropriate checklist for your order, complete it, and have it available to refer to when you run the SAS Deployment Wizard.

Here is additional information that will help you complete your checklist:

- [“Complete the External User Account Checklist”](#)
- [“Important Notes on User Accounts and Authentication”](#)
- [“Packaging SAS Content on a Metadata Server Cluster”](#)
- [“Packaging SAS Content Server on Windows ”](#)
- [“Complete the New Server Ports Checklist”](#)
- [“Review SAS 9.4 Documentation”](#)
- [“Determine the Path to Database JDBC JAR Files”](#)
- [“Determine the User ID Associated with Scheduled Flows”](#)
- [“Permission Considerations When User Accounts or Groups Change”](#)

Complete the External User Account Checklist

Make sure that you review important information in [“Important Notes on User Accounts and Authentication”](#).

Note: If you are migrating to new machines, make sure that the external accounts that you plan to use exist. For more information, see the section on users, groups, and ports in the *SAS Intelligence Platform: Installation and Configuration Guide* that is appropriate for your source version of SAS. This guide is available at <http://support.sas.com/documentation/onlinedoc/intellplatform/index.html>.

Important Notes on User Accounts and Authentication

Consider the following when working with user accounts during the migration process:

- Identities must be unique. You cannot reassign an existing system identity that is associated with a metadata persona in either the current SAS or SAS 9.4 configuration. For example, if the operating system user account `sasdemo` is associated with metadata in the SAS Demo User persona in your SAS 9.4 source system, you cannot also associate it in SAS 9.4 with the SAS Anonymous Web User persona.
- On UNIX systems, the SAS Deployment Wizard requires that you provide the root password during configuration. Certain SAS products and features use functionality that requires SAS to check user ID authentication and file access authorizations. This necessitates that certain files within your SAS installation have setuid permissions and be owned by root.
- On UNIX and z/OS, the SAS Installer account requires permission to invoke the `CHOWN` command on the directories and files being migrated. If the SAS Installer account does not have this permission, then you must manually run the permission scripts using the root account after SAS Deployment Wizard finishes executing. These scripts are in *SAS-configuration-directory/Temp*.

On Windows, migrated files are owned by the identity running the SAS Deployment Wizard regardless of their ownership on the current SAS system, but they retain the same effective permissions as on the current SAS system.

- The SAS automated migration tools detect machine name changes for the metadata server during the migration process and automatically changes host name domains in all logins and for the necessary file permissions.

For example, if the metadata server host name changed from myhost to mynewhost, then all domain logins that are qualified with myhost are automatically changed to mynewhost. (The tools change myhost\sasadm and myhost\sastrust to mynewhost\sasadm and mynewhost\sastrust.)

- The SAS automated migration tools do not automatically change the following:

- required external user account IDs

(For example, changing myhost\ebiadmin to myhost\sasadm or changing ebiadmin to sasadm.

You must specify these new external accounts when prompted for them in the deployment wizard in order to change the SAS metadata. To change the file permissions, use the permission scripts.

For more information, see [“Determine the User ID Associated with Scheduled Flows”](#).

- required operating system group (UNIX only)

(For example, changing the primary group of the SAS Installer user from sas94 to sas.

To change the file permissions that involve group membership, use the permission scripts. (There are no SAS metadata changes required when you change an operating system user group.)

For more information, see [“Determine the User ID Associated with Scheduled Flows”](#).

- If your UNIX system uses an authentication method other than /etc/passwd or /etc/shadow, then you must configure authentication before you begin your SAS software deployment or SAS 9.4 does not function properly. For more information, see the [Configuration Guide for SAS 9.4 Foundation for UNIX Environments](#).
- The SAS Anonymous Web User is used to grant clients access to applicable SAS Web Infrastructure Platform applications such as SAS BI Web Services and the Stored Process Web Application.
- The migration process does not change any existing launch credential assignments. For example, if the source system SAS 9.4 SAS Stored Process Server has a login (for example, spsrv) as its designated launch credential, that assignment is preserved. If the spsrv account is not valid on the SAS 9.4 machine, the SAS Stored Process Server does not work in the SAS 9.4 environment (until you change that server's launch credential).

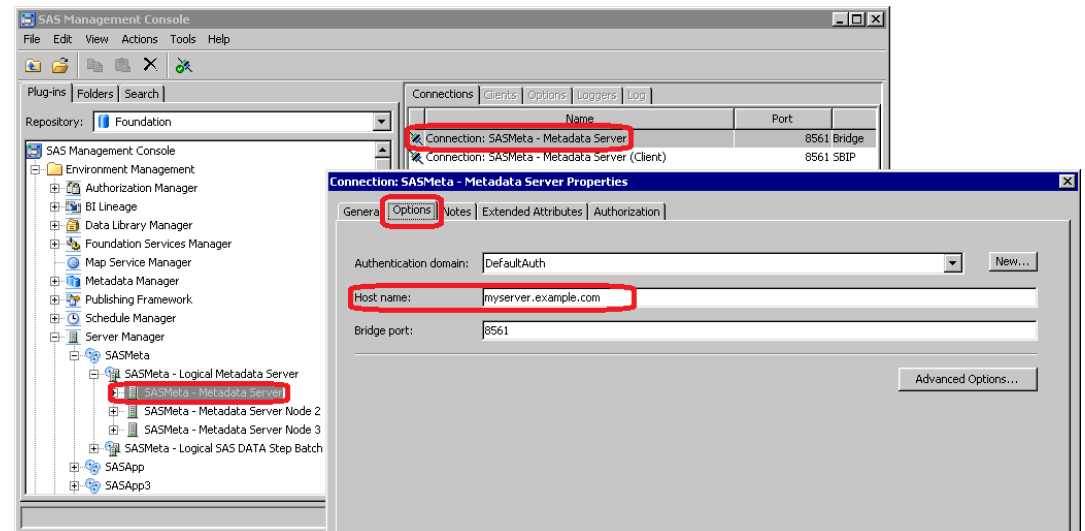
Packaging SAS Content on a Metadata Server Cluster

On SAS deployments that use clustered metadata servers, run the migration utility on the first metadata server node. (This is the node that was deployed before the other nodes were added. It is also referred to as the *initially configured metadata server*.)

Note: You might need to run the migration utility on additional metadata server nodes if those nodes contain SAS content that you need to migrate. For example, a machine that hosts a metadata server node might also host the SAS middle tier or a SAS object spawner.

To determine which metadata server node is the first node and identify the machine on which it resides, use SAS Management Console. In **Server Manager**, expand the **SASMeta** server tree. The console displays the nodes in order of creation. On the **Connections** tab, right-click on the server, and select **Properties**. In the Connection window, note the value in the **Host Name** field.

Figure 3.2 SAS Management Console Displaying Metadata Server Nodes



For more information, see “Managing a Clustered Metadata Server” in *SAS Intelligence Platform: System Administration Guide*.

Packaging SAS Content Server on Windows

When creating a SAS Migration Utility package for a multi-tier configuration, it is often easier to write the contents directly to a network location that all the machines can access. However, if the SAS Content Server is running on a Windows system, the following errors might occur when attempting to package that machine:

```
[ERROR ] SMU {SCSExecute.Execute} Target 'Execute' failed with message
'Repository Exception trying to copy repository. HTTP/1.1 500 Internal Server Error'.
[WARN ] SMU Migration target Execute had an error.
Repository Exception trying to copy repository. HTTP/1.1 500 Internal Server Error
```

An error occurred. Would you like to:

- 1 Continue
- 2 Quit

The problem occurs because the SAS Content Server runs under the SAS Web Application Server, which on Windows is a service that is started by the LOCALSYSTEM account. This account does not have network credentials, and it cannot write to the shared network location. You can create a migration package of this machine by doing one of the following:

- Stop the SAS Content Server before creating the package. (To do so requires stopping SASServer1.)

- Create the package in a local directory, and then copy it to the network location.
- Run SASServer1 as a different user that has network credentials.

Complete the New Server Ports Checklist

Complete the ports section of the pre-install checklist to use later (during the installation and migration step) when the SAS Deployment Wizard prompts you for ports to designate for the new SAS servers. The deployment wizard uses the same ports by default when migrating the current SAS servers. You have the opportunity to select new port numbers for these servers. For information about changing the ports that you use, see the [Remap Ports](#) page.

Note: If you are migrating to new machines, make sure that the ports that you plan to use are unused. For more information, see the section on users, groups, and ports in the *SAS Intelligence Platform: Installation and Configuration Guide*.

Review SAS 9.4 Documentation

It is important to review all the different documents associated with deploying your SAS 9.4 software. There can be late-breaking information. Or, instructions specific to a particular configuration might be too narrow for inclusion in the *SAS Intelligence Platform: Migration Guide*.

Your review should include these documents:

- QuickStart Guide (or installation instructions for z/OS)

This document is provided with your SAS software. Follow its instructions.

The QuickStart Guides are also available online:

- [Windows](#)
- [UNIX](#)
- [z/OS](#)

- software order email (SOE)

This email is sent to your site to announce the software and detail the order. It enumerates the initial installation steps and, for SAS 9.4, contains instructions for using Electronic Software Delivery (ESD), if applicable. The SID file contains your site's SAS license (SETINIT).

- SAS order information (SOI)

After you download your order to an existing SAS Software Depot, you can use the SAS order information (SOI) file to determine what products are in your order and when the order was fulfilled. The SOI is in your SAS Software Depot in `install_doc/order-number/soi.html`.

- SAS software summary

In the same depot location as the SOI, the SAS software summary is a more detailed list of the software included in your order. Unlike the SAS order information document, which lists only the software that you have specifically ordered, this document describes the included software that supports your order. The software summary is in your SAS Software Depot in `install_doc/order-number/ordersummary.html`.

Note: The SAS Deployment Wizard installs only what is listed in the deployment plan. The order summary might list more products than the deployment plan. For more information, see “[About Deployment Plans](#)” in *SAS Intelligence Platform: Installation and Configuration Guide*.

- [System Requirements](#)
- Outstanding [SAS Notes](#) for alert status installation problems
- Installation Instructions for SAS Performance Management Solutions
 - <http://support.sas.com/documentation/onlinedoc/fm>
 - <http://support.sas.com/documentation/onlinedoc/hcm>
 - <http://support.sas.com/documentation/onlinedoc/stm>

Determine the Path to Database JDBC JAR Files

The database required by the SAS Web Infrastructure Platform uses JDBC for communication. Determine the path to the database JDBC driver JAR files. During the installation and migration step, the SAS Deployment Wizard prompts you for them.

Determine the User ID Associated with Scheduled Flows

After migration, you need to reschedule all of your SAS flows. (See “[Server Tier Post-migration Tasks](#)”.) To do this, you need to know the user ID under which each flow is scheduled to run.

Follow these steps to determine the user ID associated with scheduled flows:

1. Log on to Platform Flow Manager.
2. Select the **user ID** tab.
3. For each user ID, note the flows associated with it.

Permission Considerations When User Accounts or Groups Change

The SAS automated migration tools include scripts that are used to assign the proper permissions to files and directories in the SAS configuration directory. If you are using required operating system user accounts and group names in SAS 9.4 that are different from the ones on your current SAS system, then you must make sure that the permissions reflect these changes.

During configuration, the SAS Deployment Wizard invokes the levconfig extension (a part of the migration package), which converts certain temporary files into corresponding permission script files (*.bat and *.sh files). The deployment wizard persists these permission script files in the SAS 9.4 configuration directory (under **Levn/Temp**), and then invokes them during configuration.

You have to do one of the following procedures:

- Before running the SAS Deployment Wizard, do the following:
 - Replace occurrences of a current SAS external user account (for example, ebiadmin) with the SAS 9.4 external user account (for example, sasadm) in the *.tmp files in the levconfig\levconfig1 directory of the migration package

(for example, `/smu_package/host1.example.com/levconfig/levconfig1`).

- Or, after running the SAS Deployment Wizard, do the following:
Replace occurrences of a current SAS required external account with the SAS 9.4 required external account in the permission scripts in *SAS 9.4-configuration-directory/Temp*, and rerun these scripts.

Installing Third-Party Software

Overview of Installing Third-Party Software

In the pre-installation checklists in your SAS 9.4 order, you are instructed to install required third-party software. The checklists point you to supplemental instructions for other third-party software. If your order contains alternate or supplemental instructions for certain products, these products are listed in product README files found in your SAS Software Depot under `install_doc/order-number/ReadmeFiles`.

Install Third-Party Products Using the Software Website

SAS maintains a third-party software website to help you do the following:

- determine what version of the product to install
- obtain the product, if you do not already have it
- find installation instructions
- learn about any patches required

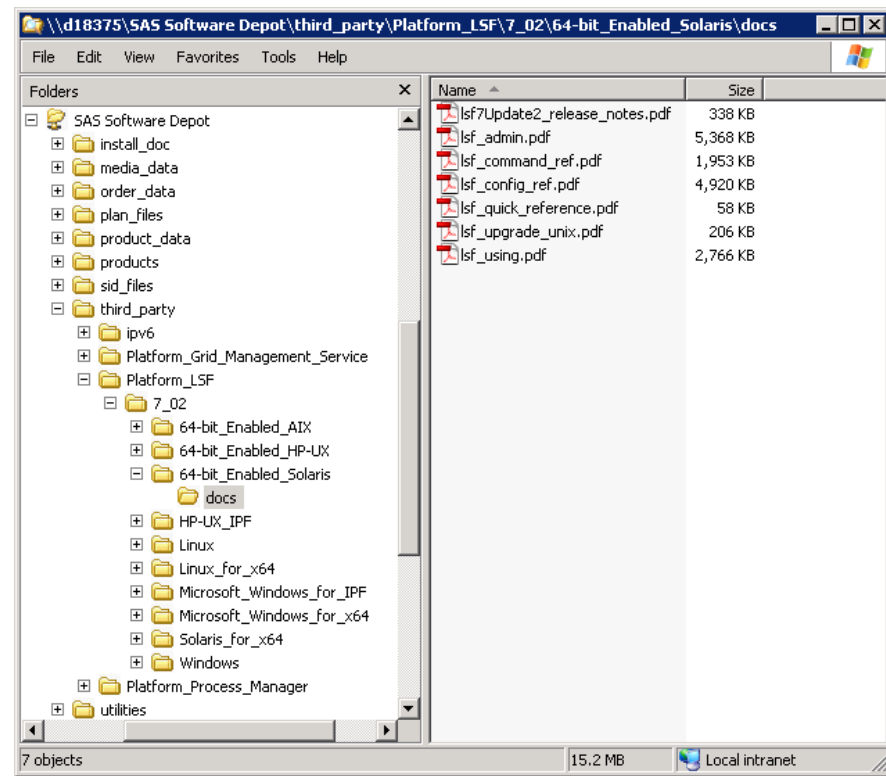
Note: Some third-party software is shipped with your SAS order. For more information, see [“Install Third-Party Products Using the SAS Software Depot”](#). If you are installing the Java Access Bridge, Platform Process Manager, Platform LSF, or Platform Grid Management Service, you must use the installation instructions and installation programs provided in your SAS order. For more information, see [Pre-installation Checklists for Third-Party Products](#).

Note: Users in Russia: SAS cannot export the Java Runtime Environment (JRE) to Russia. You need to locate the appropriate link on the [Third-Party Software Website](#) and download the JRE. Install it in the default location, and it will be ready for use when you install your SAS software.

Install Third-Party Products Using the SAS Software Depot

In the pre-installation checklists in your SAS 9.4 order, you are instructed to install required third-party software. The checklists point you to supplemental instructions for other third-party software. If your order contains alternate or supplemental instructions for certain products, these products are listed in product README files found in your SAS Software Depot under `install_doc/order-number/ReadmeFiles`.

Some third-party products are shipped with SAS 9.4. Such products' installation files and documentation are located in the SAS Software Depot under the `third_party` directory.

Figure 3.3 *third_party Directory in the SAS Software Depot*

Platform Suite for SAS is an example of one third-party application that you install in this way. To determine whether any of your third-party software is distributed with your order, see the *SAS Software Summary* in your SAS Software Depot in your **order_number** directory under **install_doc**. For example:

```
C:\SAS Software Depot\install_doc\order_number
\ordersummary.html.
```

Note: The recommendation is that you migrate the scheduling server and SAS sequentially. Try not to migrate both SAS and Platform Process Manager in one step. For same-machine migrations, the recommendation for migrating Platform Process Manager installations is that you first move to the later version of Platform Process Manager on your current version of SAS before migrating SAS 9.4 to the later version. For new-machine migrations, the recommendation is that you install the latest version of Platform Process Manager on the new machine before migrating to the later version of SAS 9.4.

Moving Platform Suite for SAS Custom Calendars

If you install a version of Platform Suite for SAS on a different machine than the previous version was installed on, you must manually copy the Process Manager calendar metadata to the new location. The new machine must have access to the calendar files on the old machine (such as through FTP, SCP, or shared network storage).

To copy the calendar metadata, follow these steps:

1. Make sure that you have installed Platform Suite for SAS on the new machine.

For more information, see “Platform Suite for SAS” in *SAS Intelligence Platform: Installation and Configuration Guide*.

2. Log on to the old Process Manager machine.
3. Navigate to the **calendar** subdirectory that is directly under the **work** directory.

For example:

- Windows:

```
cd C:\Program Files\Platform Computing\Platform Process
Manager\work\calendar
```

- UNIX:

```
cd /opt/Platform Computing/Platform Process Manager/work/
calendar
```

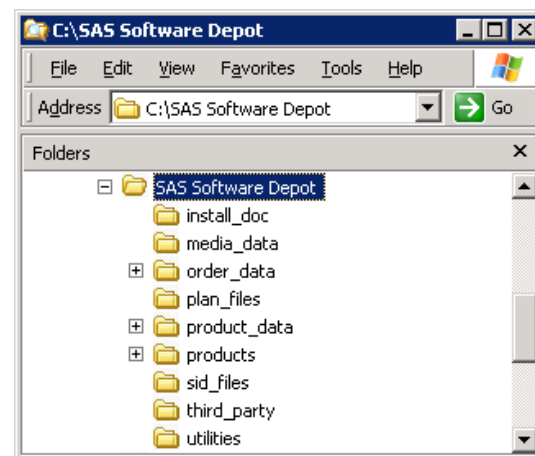
4. Copy all files except those ending in **@sys** to the corresponding **calendar** directory on the new machine.

Creating SAS Software Depots

About SAS Software Depots

A *SAS Software Depot* is a file system that consists of a collection of SAS installation files that represents one or more orders. The depot is organized in a specific format that is meaningful to the SAS Deployment Wizard, which is the tool that is used to install and configure SAS. The depot contains the SAS Deployment Wizard executable, one or more deployment plans, SAS installation data files, order data, and product data.

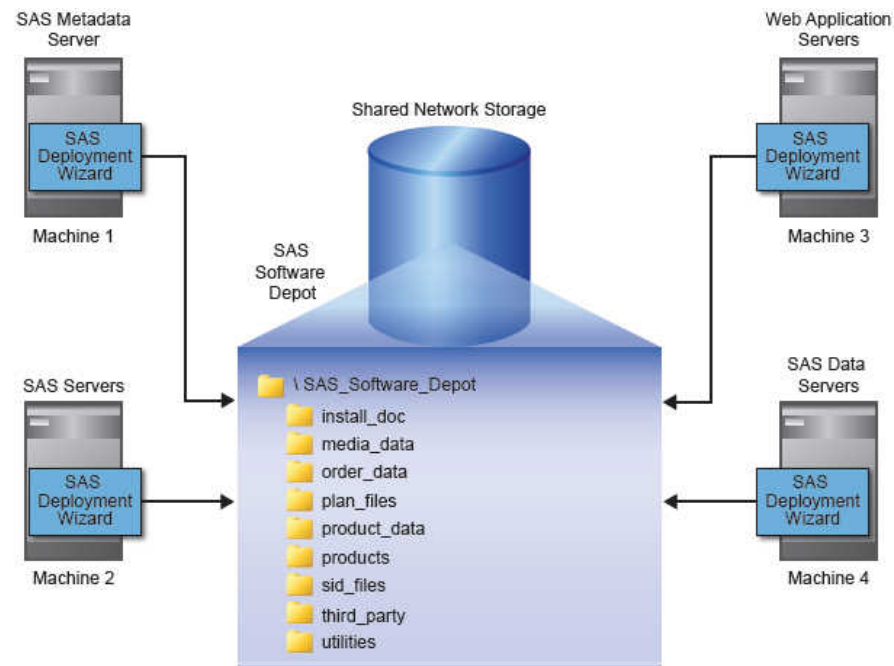
Figure 3.4 SAS Software Depot File Structure



Before you can install SAS, you must first have a software depot to install from. During a SAS software download, the SAS Download Manager downloads your order, verifies it, and automatically creates a SAS Software Depot.

Benefits of a SAS Software Depot

The main advantage of a SAS Software Depot is that it resides on the network at a location that you can share access to.

Figure 3.5 Shared SAS Software Depot Model

If you have remote sites running SAS without access to the network on which your depot resides, you can use the SAS Deployment Wizard to create your own SAS media image to write to the removable media of your choice.

For more information, see [“Create a Disc Image of Your Order”](#) in *SAS Intelligence Platform: Installation and Configuration Guide*.

Here are some other benefits of a SAS Software Depot:

- centralizes SAS orders

The depot enables you to place multiple SAS orders in one location to simplify initial SAS deployment and future maintenance.

- makes applying maintenance and upgrades easier

You need only to download the changed depot files instead of having to download an entire SAS order.

- saves disk space

Storing multiple orders in a single depot saves disk space, as any content shared between orders is not duplicated, but rather shared, in the depot.

A single depot in SAS 9.4 can store SAS software installation files for more than one operating system, making the single, multi-system SAS 9.4 depot cumulatively smaller than the multiple, single-system depots in earlier SAS versions.

- saves download time

Because there is a shared copy of common files, the SAS 9.4 single, multi-operating system depot requires smaller amounts to download.

- organizes license keys (also known as SAS installation data files)

The depot enables you to place SAS installation data files in a standard location to better associate license keys with their corresponding orders. (These files are stored in the **sid_files** directory, directly under the depot's root.)

- identifies multiple orders

The depot supports the SAS Deployment Wizard's feature that enables you to customize order descriptions and enter notes to better identify multiple orders residing in a single depot.

Because depots contain your personal SAS software order, it is important to use best practices around securing and backing up your depot.

Best Practices for SAS Software Depots

For customers who download SAS, their SAS Software Depot is the only copy of their SAS order. The depot contains the files from which SAS is initially installed. For this reason, it is important to use these best practices when managing your depot:

- Keep your depot.

When you keep your SAS 9.4 depot, applying maintenance and upgrades becomes easier because you need only to download the changed depot files instead of having to download an entire SAS order.

- Perform routine backups.

As with your SAS production system, it is important to routinely back up your SAS Software Depot and verify the integrity of these backups.

Note: Another important reason for securing and backing up your SAS Software Depot is that there are limits on the number of times that you can download your order from SAS.

- Secure the depot location.

Problems such as data loss, virus infection, and file corruption can compromise your investment in SAS. It is imperative that you have a comprehensive security policy in place to protect your depot.

- Store SAS installation data files with your depot.

The SAS installation data file for your order contains information that is integral to successfully deploying SAS and applying future SAS hot fixes. As you get these data files from SAS—such as the file that contains your permanent SAS license key—it is important that you store them with your depot in the `sid_files` directory.

CAUTION:

Be careful to use the correct installation data file that contains the SAS products that you are planning to install. Using an incorrect file can cause installation failure for SAS add-on products or other errors later when attempting to run SAS.

- Create a depot administrator.

Consider designating one or a few users to serve as SAS Software Depot administrators. People needing to deploy SAS software or to apply future SAS software maintenance require depot Read and Execute privileges. Depot administration tasks such as initially creating the depot, storing SAS installation data files, and updating order details require depot Write privileges. Separating depot administration from routine depot usage is a best practice that further protects your SAS Software Depot.

Before creating a depot, make sure that you have met the necessary requirements described in [“Prerequisites for Creating a SAS Software Depot”](#).

Prerequisites for Creating a SAS Software Depot

Before you start creating a SAS Software Depot, make sure that you have met the following prerequisites:

- Choose a machine that has the following:

- Internet access

If you are downloading your SAS order, you need a machine that can access the secure SAS download website. Also, ideally this machine should be networked so that you can perform deployments directly from the machine without having to physically relocate the depot to another machine.

- Java SDK for z/OS installed (z/OS only)

For more information, see <http://support.sas.com/resources/thirdpartysupport/index.html>.

- a Windowing environment

If you will be creating the depot on a UNIX or a z/OS system, make sure that a windowing environment (such as the Common Desktop Environment or X11) is installed.

The SAS Deployment Wizard and the SAS Download Manager can be run on operating systems that do not have windowing systems. For more information, see [SAS Deployment Wizard and SAS Deployment Manager: User's Guide](#).

Note: You have the option of creating a SAS Software Depot on a UNIX or Windows machine and transferring the depot to a z/OS environment using the SAS Software Depot Copy Utility. For more information, see [Configuration Guide for SAS Foundation for z/OS](#).

- Designate a target directory

Decide where you will create the SAS Software Depot. It is helpful if this directory can be shared on a network and accessible to all of the machines on which you will be installing software from the depot.

Note: SAS recommends that you not copy a depot from one location to another. Choose a permanent location before you create the depot.

- Grant required access permissions

The SAS Installer user must have Write access on the depot target directory.

Windows Vista and later requires that you run the SAS Download Manager installation program using administrator privileges.

- Check disk space requirements

Make sure you have enough free disk space available on the target directory.

Before creating a depot, the SAS Deployment Wizard and the SAS Download Manager both need to present you with an estimate for required disk space.

Create a Depot By Using the SAS Download Manager

A SAS Software Depot contains SAS order data, initial SAS installation data files, order data, and product data. The depot also contains the SAS Deployment Wizard executable—the tool required to install and initially configure SAS.

Note: There is no expiration date for downloading your SAS order. However, if the time period for your initial SAS installation data file has expired, you have to obtain a current SAS installation data file before you can run the SAS Deployment Wizard.

Before you can create a depot by using the SAS Download Manager, you must first download and install the manager itself. The SAS Installer automatically launches the SAS Download Manager after installing it. Therefore, the following procedure actually consists of two logical sections:

1. downloading the SAS Download Manager
2. installing the SAS Download Manager

For z/OS, see [Installation Instructions for SAS Electronic Software Delivery for Planning Installations on z/OS](#).

Although these sections flow one after the other, at the end of each section, you can stop and resume the process later.

Follow these steps to download a SAS software order and automatically create a depot by using the SAS Download Manager:

1. Locate your software order email sent by SAS. In this email, find the URL for the secure SAS website from which you download the SAS Download Manager.

Note: It is important that you locate your original software order email for the correct order and SAS installation key to download the software. You cannot use a renewal order number. The renewal order is a license update and it cannot be used to download software. If you cannot locate your original software order email, contact your SAS Installation Representative or SAS Contracts at the following URLs:

- <http://support.sas.com/adminservices/contact.html>
- <http://support.sas.com/techsup/license>

2. Ensure that you have fulfilled the necessary requirements described in “[Prerequisites for Creating a SAS Software Depot](#)”.
3. Log on to the machine as a SAS Software Depot administrator or a user with depot Read, Write, and Execute privileges.

Note: Consider designating one or a few users to serve as SAS Software Depot administrators. People needing to deploy SAS software or to apply future SAS software maintenance require depot Read and Execute privileges. Depot administration tasks such as initially creating the depot, storing SAS installation data files, and updating order details require depot Write privileges. Windows Vista and later requires that you run the SAS Download Manager installation program using administrator privileges.

4. Launch a web browser and navigate to the secure URL specified in your software order email.
5. At the prompt in the window, select the option that enables you to save the file to disk.
6. Choose a path accessible to the machine to save the download and save the file.

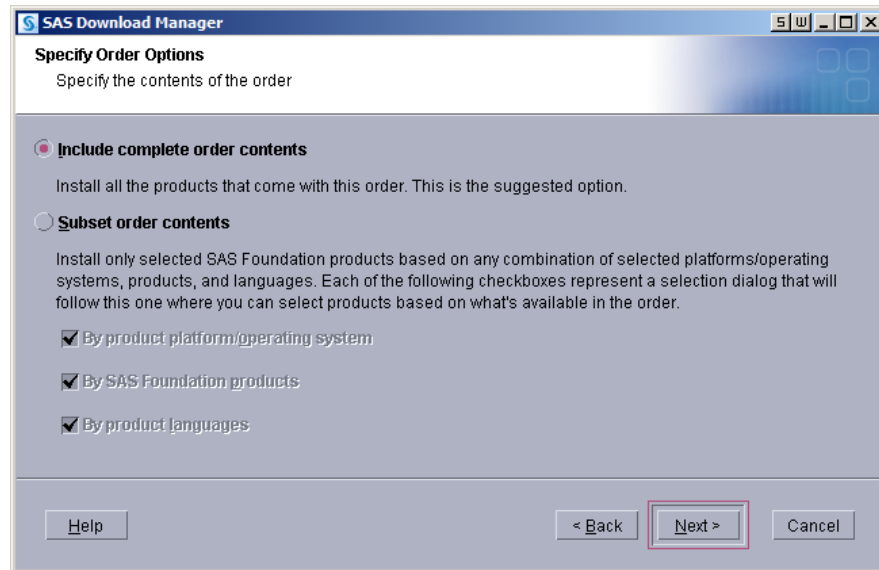
Your download begins.

7. When your browser has finished downloading the SAS Download Manager, run it and choose the language in which the SAS Deployment Wizard will display messages and prompts.

8. At some sites, you might see the page that prompts for proxy information. If so, provide the necessary proxy server settings for the SAS Download Manager to access the internet. If needed, contact your site's system administrator for help with these settings.
9. When prompted, enter your order number and SAS installation key.
10. Confirm the list of SAS offerings contained in your order. You can update the description for your order and include any notes to distinguish it from other SAS orders. The SAS Deployment Wizard displays this order information during the SAS installation.

Note: At any time after the download, you can run the SAS Deployment Wizard to add or modify SAS order information details. For more information, see [“Change Order Information”](#) in *SAS Intelligence Platform: Installation and Configuration Guide*.

11. Select **Include complete order contents** if you do not want to subset your order. This selection causes the SAS Deployment Wizard to include all the software in the order. For more information, see [“Subsetting SAS Software Orders”](#) in *SAS Intelligence Platform: Installation and Configuration Guide*.



12. Specify a location where you want to download SAS and build the SAS Software Depot.

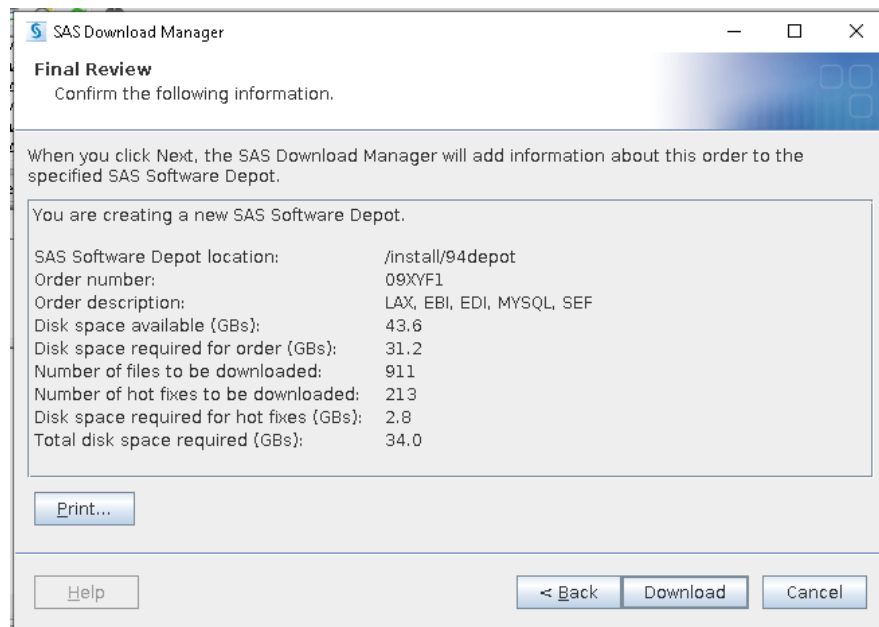
For more information, see [“Prerequisites for Creating a SAS Software Depot”](#).

13. If the directory that you specify does not exist, the wizard prompts you. If you want it to create the directory for you, click **Yes**.
14. The SAS Download Manager has finished collecting order input. This is your last opportunity to change any information before downloading the SAS order and writing files to the target directory.

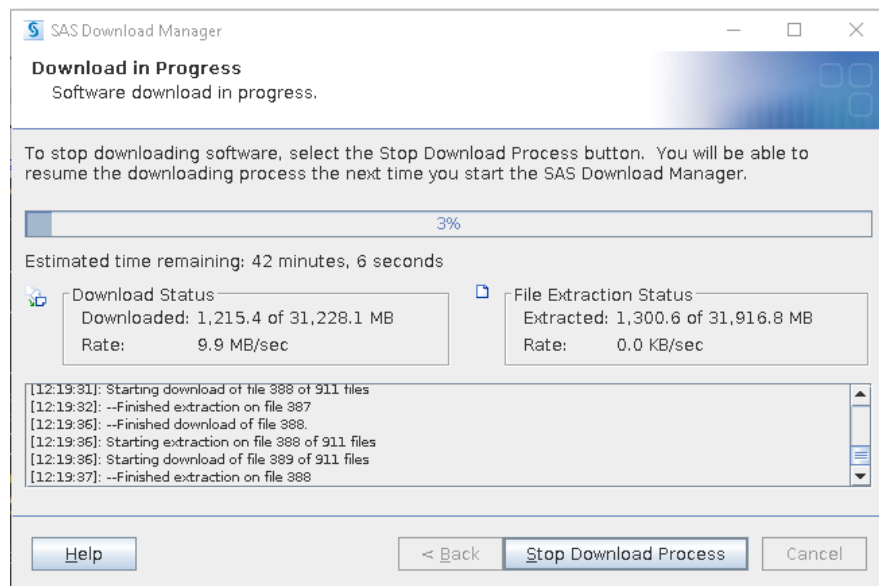
Make one of the following choices:

- Click **Download** to begin downloading the SAS order and writing files in the target directory.
- Click **Back** to navigate to earlier pages to change order information previously entered.
- Click **Cancel** to terminate the SAS Download Manager session. You will lose the information previously entered.

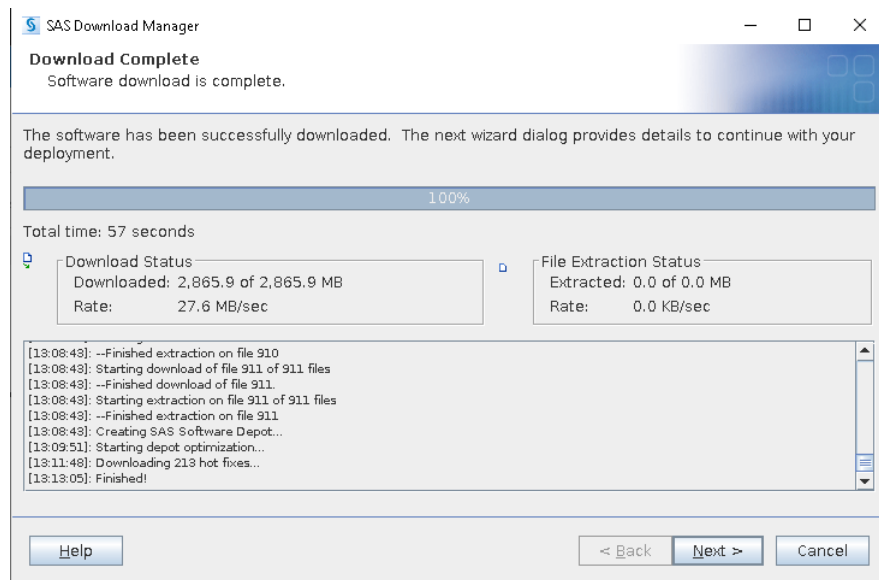
Note: SAS tracks downloads and counts only a complete download toward your download limit.



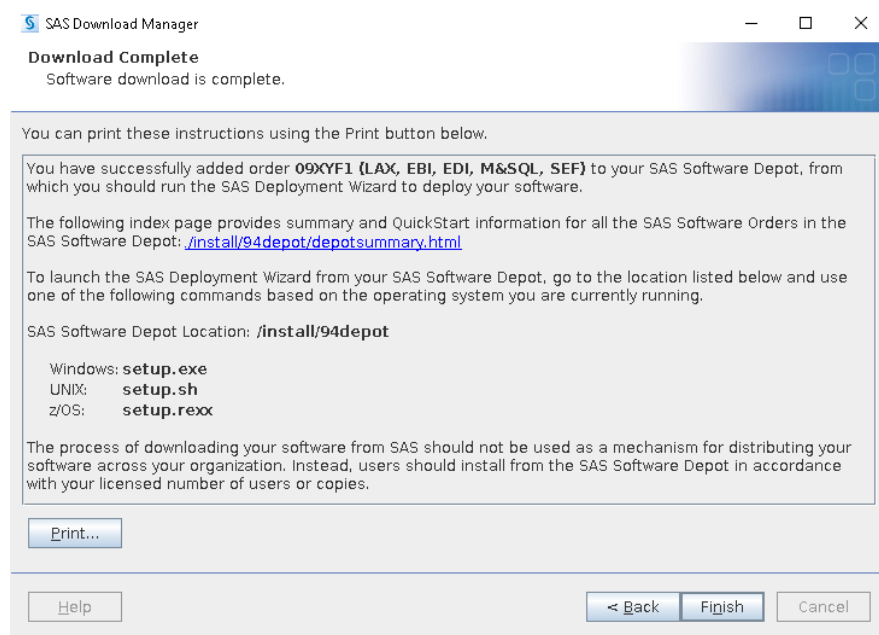
The SAS Download Manager begins downloading, uncompressing, and creating a depot of your SAS order.



When you see a page similar to the following with the progress indicator at 100%, the SAS Download Manager is finished:



15. Click **Next** to go to the final page, which describes post-download instructions.



16. Click **Finish** to close the SAS Download Manager.

After you finish your SAS 9.4 deployment, be sure to keep your depot because it makes applying maintenance and future upgrades easier.

Create a Depot By Using the SAS Deployment Wizard

You can use the SAS Deployment Wizard to create a copy of your SAS Software Depot in another directory. If the new depot location is a remote directory on another machine, the directory must be on a shared network drive accessible from the machine running the wizard.

To create a depot on a machine that does not have shared network storage, you must use another mechanism such as SFTP or SCP to copy the depot. (For more information about these programs, refer to your operating system documentation.)

To create a SAS Software Depot by using the SAS Deployment Wizard, follow these steps:

1. Log on to the machine that will contain the depot as a SAS Software Depot administrator or a user with depot Read, Write, and Execute privileges.

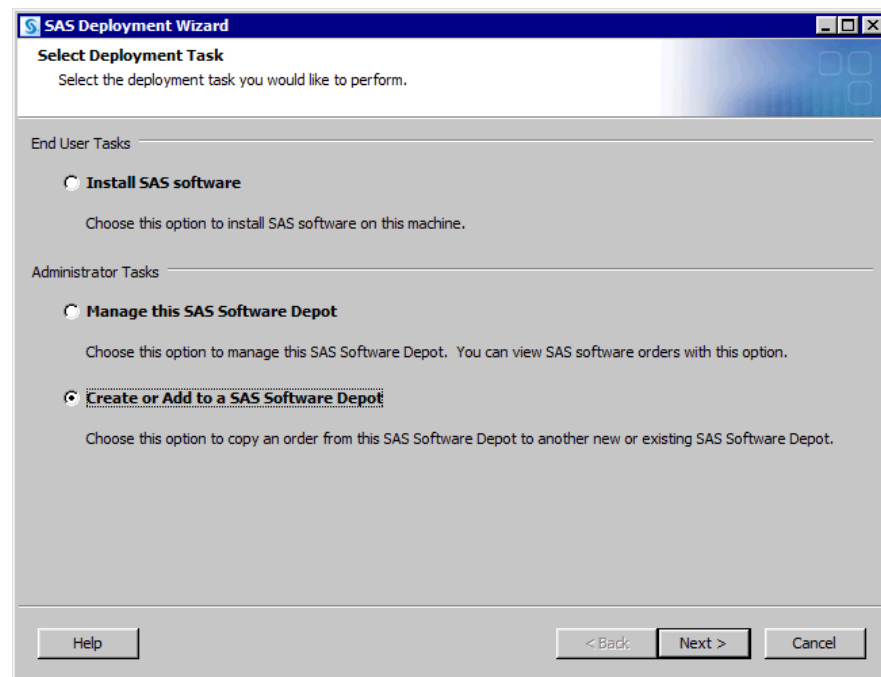
Note: Consider designating one or a few users to serve as SAS Software Depot administrators. People needing to deploy SAS or to apply future SAS maintenance require depot Read and Execute privileges. Depot administration tasks such as initially creating the depot, storing SAS installation data files, and updating order details require depot Write privileges. Windows Vista and later requires that you run the SAS Download Manager installation program using administrator privileges.

2. Ensure that you have fulfilled the necessary requirements described in [“Prerequisites for Creating a SAS Software Depot”](#).
3. Start the SAS Deployment Wizard.

Navigate to the depot's root directory depending on your operating system.

- On Windows:
Double-click **setup.exe**.
- On UNIX:
Type **./setup.sh** at a command prompt.
- On z/OS:
Type **./setup.rexx** at a command prompt.

4. Choose the language in which the SAS Deployment Wizard will display messages and prompts.
5. Select **Create or Add to a New SAS Software Depot**. Do not select **Install SAS Software**.



6. Confirm the list of SAS offerings in your order.

You can update the description for your order and include any notes to distinguish it from other SAS orders. The SAS Deployment Wizard displays this order information during the SAS installation.

SAS Deployment Wizard

Specify Order Details
Edit the description and add notes for this order to aid with future tracking.

Review the contents of the order you are working with. You can create a custom description and notes to differentiate this order from others in your SAS Software Depot.

Order number: 012265

Description: EBI+Platform Suite for SAS

Notes:

[Click to see the contents of your order that correspond with the SAS Products to Install below.](#)

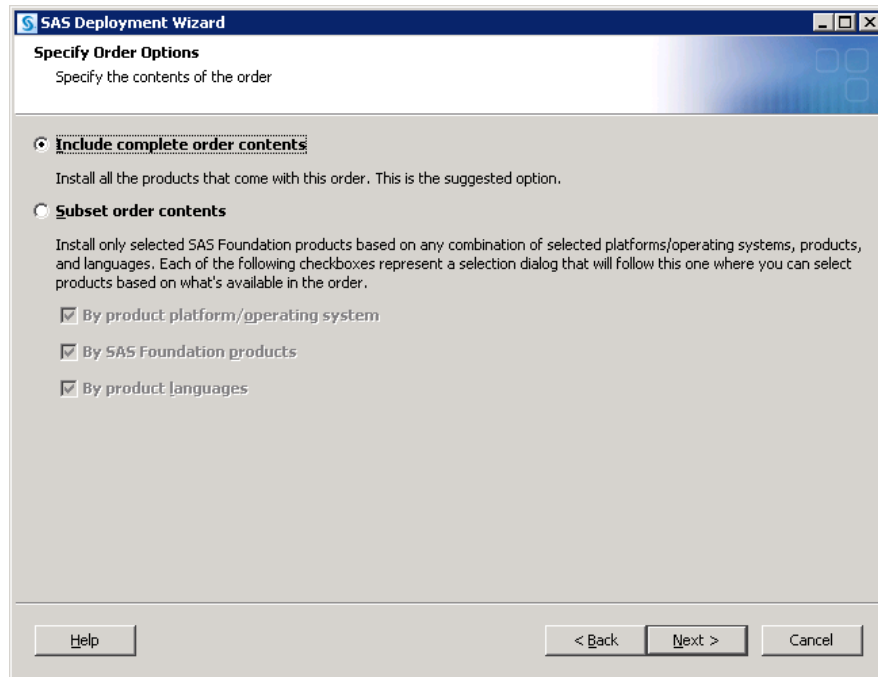
SAS Products to Install:

1. SAS Foundation
2. Report Fonts for Clients
3. SAS Add-in for Microsoft Office
4. SAS BI Dashboard
5. SAS BI Dashboard Help and Documentation
6. SAS BI Report Services
7. SAS BI Web Services for .NET

Help < Back Next > Cancel

Note: At any time after the download, you can run the SAS Deployment Wizard to add or modify SAS order information details. For more information, see [“Change Order Information”](#) in *SAS Intelligence Platform: Installation and Configuration Guide*.

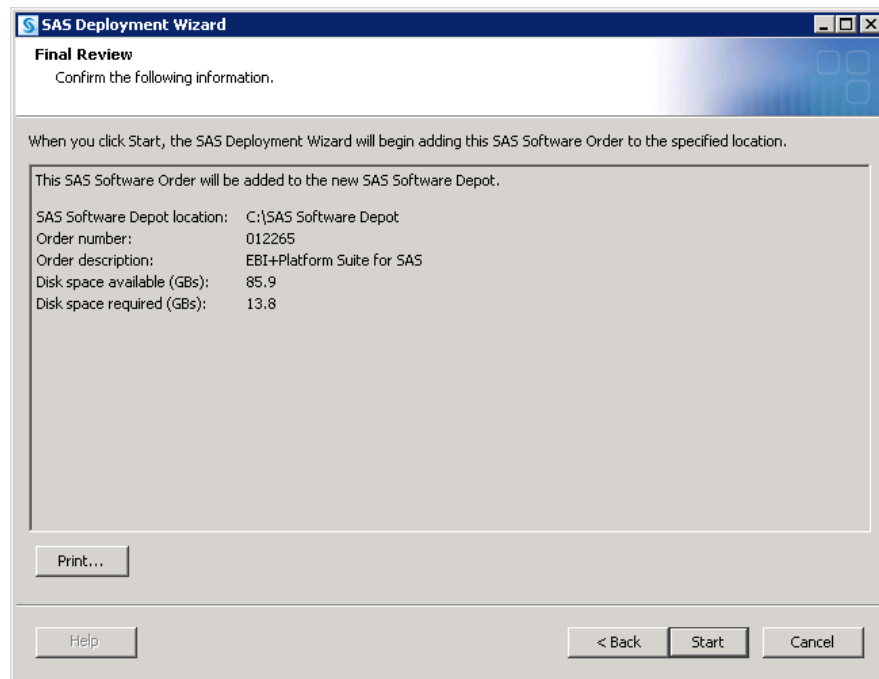
7. If you have multiple orders in your depot, you must choose the order for which you want to create a new depot.
8. Select **Include complete order contents** if you do not want to subset your order. This selection causes the SAS Deployment Wizard to include all the software in the order. For more information, see [“Subsetting SAS Software Orders”](#) in *SAS Intelligence Platform: Installation and Configuration Guide*.



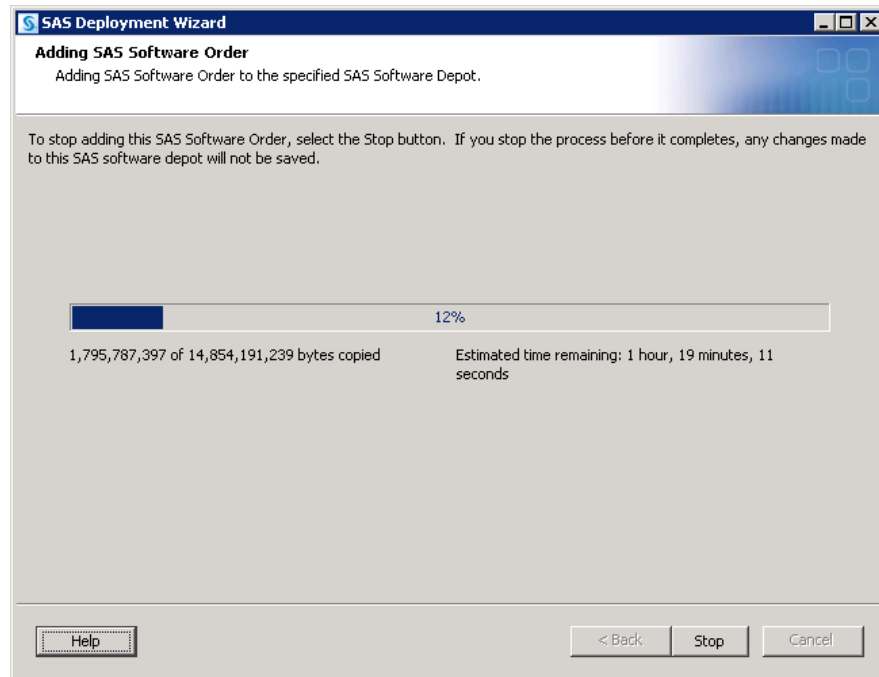
9. Specify a location where you want to download SAS and build the software depot. (This location can be shared storage that physically resides on another machine.)
For more information, see [“Prerequisites for Creating a SAS Software Depot”](#).
10. If the directory that you specify does not exist, the wizard prompts you. If you want it to create the directory for you, click **Yes**.
11. The SAS Deployment Wizard has finished collecting order input. This is your last opportunity to change any information that you have provided before the wizard begins writing files to the target directory.

Make one of the following choices:

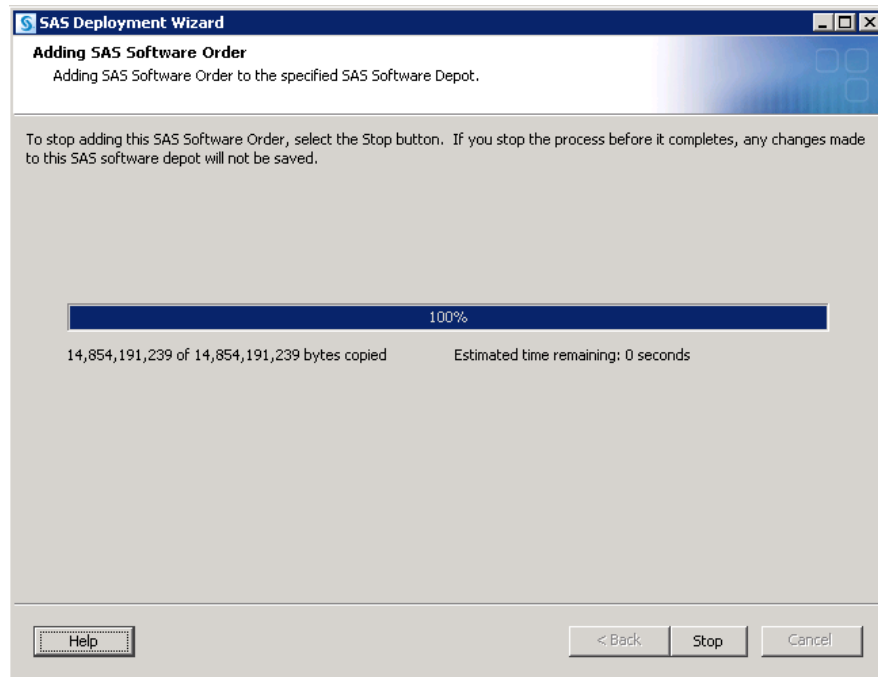
- Click **Start** to begin creating the depot in the target directory.
- Click **Back** to navigate to earlier wizard pages to change order information previously entered.
- Click **Cancel** to terminate the wizard session. You will lose order information previously entered.



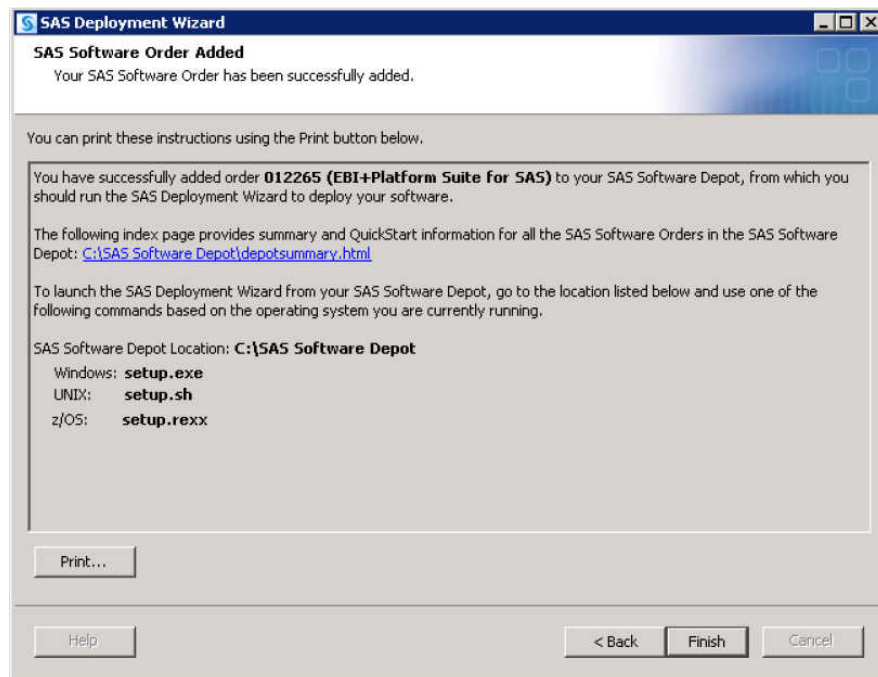
12. The SAS Deployment Wizard begins creating a depot of your SAS order.



13. When you see a page similar to the following with the progress indicator at 100%, the SAS Deployment Wizard is finished:



14. Click **Next** to go to the final page, which contains instructions for what to do after creation of the software depot.
15. Click the `depotsummary.html` link on the page to review the SAS QuickStart Guide.



16. Click **Finish** to close the SAS Deployment Wizard.
17. After you finish your SAS 9.4 deployment, be sure to keep your depot as this makes applying maintenance and future upgrades easier.

Create the Migration Package

These packages contain all of the current SAS content—data and configuration—residing on a machine. Later in the migration process, the SAS Deployment Wizard uses these migration packages to populate your SAS 9.4 deployment.

In addition to creating migration analysis reports, the SAS Migration Utility creates migration packages. A migration package contains all of the current SAS content from your deployment. Migration utility output (see [Figure 2.1](#)) consists of data and configuration that reside on each machine in your deployment. In a multi-machine environment, each time you run the migration utility, the utility adds the local machine's SAS content to build one, multi-machine migration package. Later in the migration process, the SAS Deployment Wizard uses the migration package to populate your SAS 9.4 deployment.

Note: If you downloaded the SAS Migration Utility before receiving your SAS 9.4 order, you should now use the migration utility that is provided in your order. The version of the SAS Migration Utility that is included with your SAS 9.4 order is guaranteed to be compatible with the versions of the SAS products that you have ordered.

To create a migration package, follow these steps:

CAUTION:

The migration utility pauses the SAS Metadata Server when it creates a migration package, so any attempts to use your current SAS system during this period will be unsuccessful. Therefore, you should plan accordingly.

1. Review the migration utility requirements. (See [“SAS Migration Utility Requirements”](#).)
2. Make sure that you have backed up your current SAS Metadata Repository.
For more information, see [“Back Up Your Current SAS System”](#).
3. If you have not already, complete a migration utility checklist. (See [“Complete a Migration Utility Checklist”](#).)
4. Make sure that you have prepared your metadata repositories before you create a migration package on the metadata tier. (See [“Prepare Your Metadata Repositories”](#).)
5. Verify that the current SAS Metadata Server is running.
6. If you have multiple machines in your SAS deployment, then you have to run the migration utility once on each machine. (Always run the migration utility on the metadata server first.)
7. If you are creating a migration package on a middle tier machine, verify that all data servers in your SAS environment, including the SAS Web Infrastructure Platform database, are running on SAS 9.4.
8. All SAS Web Application Servers must be stopped.
9. Log on to the current SAS machine (the source machine) whose SAS content you want to migrate.

Note: On SAS multiple machine deployments, run the migration utility first on the machine hosting the SAS Metadata Server.

10. If the version of the migration utility that you are using has changed from the one that you have used previously, then be sure to delete the migration utility's output directory.
11. Change to the SAS Migration Utility executable directory. By default, this is the **smu-version** subdirectory under the **utilities** directory in your SAS Software Depot.
12. Review the section, [“smu Command Notes”](#).
13. Use the common migration utility properties file and the common connection profile that you have developed, unless the source machine requires any special modifications.
(For example, SAS is installed on a nonstandard path.)

For more information, see [“Develop a Common SAS Migration Utility Properties File”](#).

14. Add any necessary product-specific migration utility properties to your properties file. (See [“Review Product-Specific SAS Migration Utility Properties”](#).)
15. If you have migration packages from any earlier migration utility invocations, delete or move these packages before rerunning the migration utility.
16. Invoke the migration utility on the machine with the metadata server using the following command from an operating system prompt or command line that is appropriate for your version of SAS and your operating system.

Note: On UNIX and z/OS, if you have not already, remember to assign file Execute permissions to smu.94 and smu.zos before attempting to run the migration utility. For more information, refer to your UNIX or z/OS documentation.

If you have a multi-tier SAS deployment, you need to run the migration utility once on each machine. (Do not run the migration utility on middle-tier cluster machines and machines that contain only SAS clients.) There are specific migration utility options, depending on the tier. For more information, see [“SAS Migration Utility Overview”](#).

Note: You cannot run the migration utility on more than one machine simultaneously because the migration schema might be updated by more than one process at the same time.

Use the -REPLACE option if the migration utility writes to the output directory used in earlier invocations.

SAS 9.4 on Windows 32-bit

```
smu94_32.exe -properties absolute pathname to property
file -replace
```

SAS 9.4 on Windows 64-bit

```
smu94_x64.exe -properties absolute pathname to property
file -replace
```

SAS 9.4 on UNIX

```
./smu94 - -properties absolute pathname to property file
-replace
```

SAS 9.4 on z/OS

```
./smu94.zos - -properties absolute pathname to property
file -replace
```

- For more information about migration utility commands, see [“SAS Migration Utility Overview”](#).

For more information about migration utility properties files, see [“Develop a Common SAS Migration Utility Properties File”](#).

17. Review the migration analysis report to ensure that the migration package was properly created. Point a web browser to FullReport.html in the **AnalysisReport** subdirectory under the output directory that you specified in the migration utility properties file.

Note: Address any issues identified in your migration analysis report. Any errors or warnings might mean that your SAS deployment is unsuitable for migration. Consult [SAS Notes](#) about any specific warnings.

18. After you have created the migration package, make a backup of the package. Backups are especially recommended in multi-tier deployments. If the package creation fails for one tier, you can restore the package to the last successful version, without having to rerun the migration utility on every tier again.
19. If you have a multi-tier SAS deployment, you need to run the migration utility on each machine. (Do not run the migration utility on middle-tier horizontal cluster machines and machines that contain only SAS clients.) There are specific migration utility options, depending on the tier. For more information, see [“SAS Migration Utility Overview”](#).

Note: You cannot run the migration utility on more than one machine simultaneously because the migration schema might be updated by more than one process at the same time.

Note: Later, the user ID under which the SAS Deployment Wizard runs must have Write permission for the SAS Content Server directories in the migration package on UNIX. For more information, see [“Installer Permissions on the Content Server Migration Package on UNIX or Linux”](#).

Chapter 4

Installing SAS 9.4 and Migrating Your SAS Content

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Overview of Installing SAS and Migrating Your Content

This is the third of five steps required to install SAS 9.4 and migrate your current SAS content.

Preparing to Install and to Configure

SAS Deployment Wizard Options

The SAS Deployment Wizard is a cross-platform utility that installs and configures many SAS 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.

There are two major ways that you can run the SAS Deployment Wizard:

- interactively

This is a standard method of providing input via fields on wizard pages with a back and next button navigation method. You can choose from three levels of configuration prompting: Custom (all prompts), Typical (basic set of prompts), and Express (minimum set of prompts). For more information, see [“Install and Migrate SAS Interactively”](#).

- non-interactively

A record and playback feature enables you to automate a SAS installation for use on multiple machines. This feature is designed for large-scale enterprise deployments to prevent users from having to manually provide input on every page each time the SAS Deployment Wizard is run on a machine. For more information, see [“Automating SAS 9.4 Client Installation across Multiple Machines”](#).

About Deployment Plans

A *deployment plan* describes the software to be installed and configured on each machine in a SAS deployment. A deployment plan is an XML file that is used as input to the SAS Deployment Wizard. There are two types of deployment plans: standard and customized. A standard deployment plan describes a common configuration. Standard deployment plans are stored by default in the SAS Software Depot. A customized deployment plan is created by a SAS representative specifically for a site.

- If a SAS representative created a customized deployment plan for you, an XML file (or a ZIP file containing an XML file) will have been emailed to you.
- If your SAS representative recommended that you use a standard deployment plan, you just need the name of the deployment plan that you will use. You will download the actual deployment plan with your SAS custom order. During the installation, the standard deployment plan is available from a drop-down list in the SAS installation program.
- Your deployment plan must be a valid SAS 9.4 plan. The SAS Deployment Wizard does not accept plans from earlier SAS releases.
- The deployment plan that you use for installing SAS 9.4 must contain definitions for all of the SAS products on your source system. (This is one reason why it is important to run the migration analysis report to determine what SAS products currently reside on your source system.)

At the end of the SAS deployment, the SAS Deployment Wizard makes a copy of the deployment plan that it used. The deployment plan can be helpful when you want to add another SAS product or change your SAS configuration. The wizard stores a copy of the deployment plan in the SAS configuration directory (under **utilities**) and inserts a date and time stamp to the deployment plan file name. For example:

```
C:\SAS\Config\Lev1\Utilities\plan.2013-05-23-06.43.xml
```

You might want to download the [latest SAS 9.4 standard deployment plans](#).

If you do not have the deployment plans from your previous SAS deployments, the migration analysis report can help you determine the SAS products configured in your current SAS deployment. For more information, see [Figure 2.3](#).

SAS Deployment Agents

The SAS Deployment Agent and its remote clients are required for deployments that run remote processes. SAS uses the SAS Deployment Agent to copy content and to perform

configuration management operations associated with creating new servers and clustering. It is also used for server administration tasks such as deployment backups.

Support for Certificate-Based Communication

In SAS 9.4, the SAS Deployment Wizard prompts for Transport Security Layer (TLS), certificate-based communication. For more information, see [SAS Intelligence Platform: Middle-Tier Administration Guide](#).

Metadata Server Clustering

A metadata server cluster is a group of three or more host machines (nodes) that have been configured as identical metadata servers. Each node runs its own server process, and has its own server configuration information, journal file, and copy of the repository data sets. In addition, each node maintains a complete in-memory copy of the SAS Metadata Repository. The nodes work together as if they were a single metadata server.

Note: If you are configuring metadata server clustering, and if your server tier or middle tier includes one or more Windows hosts, then the SAS Deployment Wizard should prompt you for the SAS Deployment Backup and Recovery Tool: User Account. This external account, also referred to as the backup user, is used to run the SAS Deployment Backup and Recovery Tool. The account must meet the requirements that are specified in “What Is a Backup User?” in [SAS Intelligence Platform: System Administration Guide](#). If this prompt does not appear, then you must configure the user manually after the deployment is completed. For instructions, see “Specifying a Backup User Manually” in [SAS Intelligence Platform: System Administration Guide](#).

Clustering provides redundancy and high availability of the SAS Metadata Server.

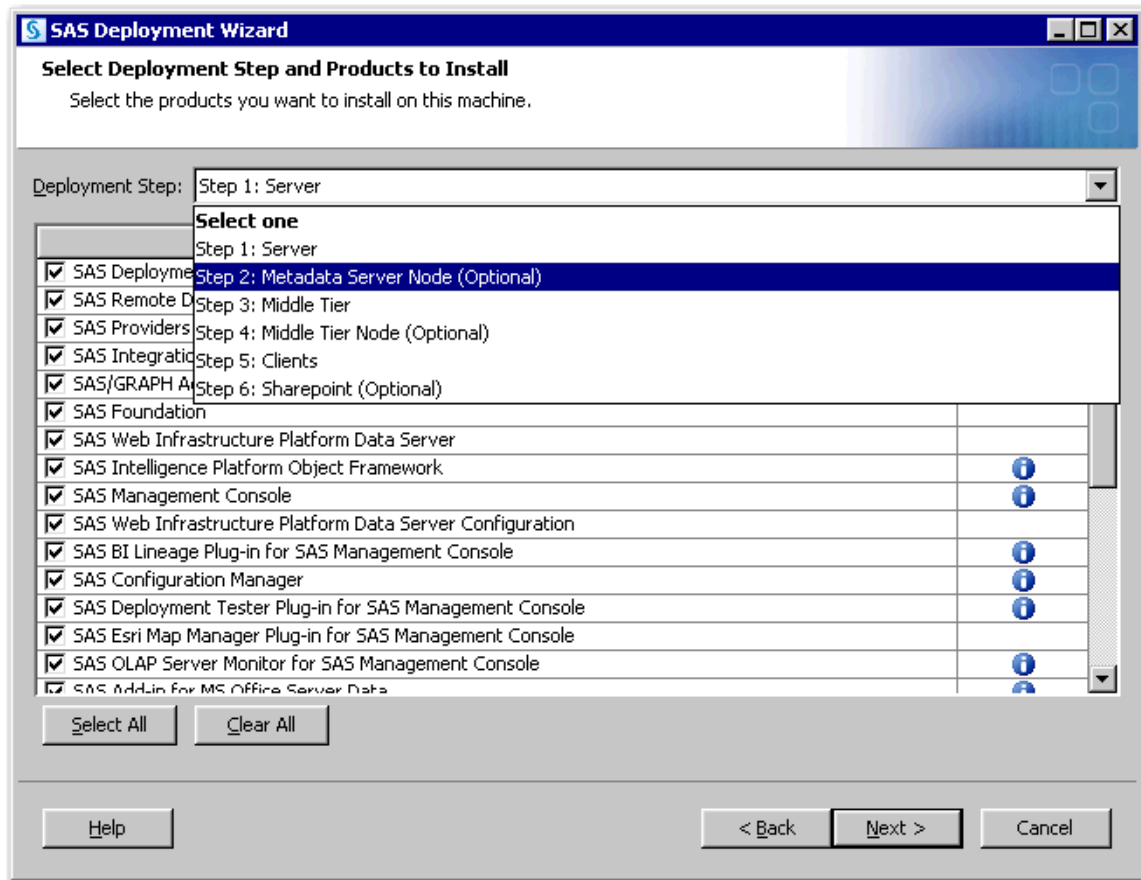
Client applications and users interact with the cluster in the same way that they would interact with a SAS Metadata Server that is not clustered. A load-balancing process automatically distributes work among the nodes. If a node ceases to operate, the metadata server continues to be available using the remaining nodes.

On Windows, you need an external, Windows domain-based user account that starts all of the nodes. The suggested user ID for this service login is `myWindowsDomain\sassvlgm`. On UNIX and z/OS, the nodes are started by the Installer account. For more information, see “Prerequisites for Cluster Configuration” in [SAS Intelligence Platform: System Administration Guide](#).

All of the nodes in the metadata server cluster must be on the same operating system.

You deploy your metadata server cluster by installing an initial SAS Metadata Server, and then moving to another machine and running the SAS Deployment Wizard to deploy a metadata server node. You indicate which type of metadata server you want to deploy by choosing the appropriate step on the deployment wizard’s Select Deployment Step and Products to Install page.

Figure 4.1 Select Deployment Step and Products to Install Page



For more information, see “Using Metadata Server Clustering” in *SAS Intelligence Platform: System Administration Guide*.

Installation Order Rules for Multiple Machine Deployments

Be aware that if you are deploying SAS on a multi-machine, distributed system, you must install software on your computers in a particular order.

1. Always install SAS software on the metadata server machine first.
2. Install the SAS application servers (such as workspace server or stored process server) on machines other than the metadata server machine.
3. If your deployment plan separates SAS Web Server from SAS Web Application Server, install SAS Web Server first.
4. For SAS deployments where the metadata server and middle tier reside on the same machine, remember that the SAS server tier (the compute tier) must be configured after the metadata server and before the middle tier.
5. Install the middle tier.
6. If you are implementing metadata server clusters, install the metadata server nodes next. (Do not select the **Perform migration** check box in the deployment wizard.)
7. If you are implementing SAS Web Application Server clusters, install the application server nodes next. (Do not select **Perform migration** in the deployment wizard.)

8. Install software on machines that will host only clients last.

Metadata Content Repository Considerations

Your metadata repositories should reside either on a local file system or a high-performance, high-availability network file system. For more information about metadata repositories, see “[About SAS Metadata Repositories](#)” in *SAS Intelligence Platform: System Administration Guide*.

Installer Permissions on the Content Server Migration Package on UNIX or Linux

The user ID under which the SAS Deployment Wizard runs must have Write permission for the SAS Content Server directories in the migration package on UNIX or Linux. Before running the deployment wizard, be sure to change the owner of the **SCS** directory and its child directories to the SAS Installer account, using the following command:

```
chown $USER -R root-directory-migration-package/SCS
```

Install and Migrate SAS Interactively

Installing and migrating SAS interactively with the SAS Deployment Wizard consists of two main phases.

- Providing installation information such as the following:
 - deployment plan location
 - machine type (metadata server machine, server machine, and so on)
 - SAS components to be installed on the machine
 - valid paths to any required pre-installed, third-party software
- Providing migration and configuration information such as the following:
 - migration package location
 - prompting level
 - configuration directory name
 - required user account credentials

This topic describes some of the more important configuration windows that you encounter during the migration and configuration phase of a SAS 9.4 deployment. The type and number of configuration-related windows that you see depend on the prompt level that you choose, the SAS tier that you are currently migrating, and the contents of your SAS 9.4 custom order. For information about all SAS Deployment Wizard prompts, see the online Help for the wizard page in question.

Note: The deployment wizard can be run on operating systems that do not have windowing systems. For more information, see the [SAS Deployment Wizard and SAS Deployment Manager User's Guide](#).

Note: You might be prompted more than once for a SAS Application Server Context. You should never select **SASMeta** even if it is selected by default. Be sure to change it to the appropriate application server context name.

To migrate and configure SAS interactively, follow these steps:

1. If you are using HTTPS self-signed or site-signed certificates, you must deploy SAS Intelligence Platform in the following manner:
 - a. Install SAS Intelligence Platform and the new trusted CA bundle.
Run the deployment wizard in install-only mode.
 - b. Add your self-signed and site-signed certificates to the trusted CA bundle.
Use the trusted CA bundle tasks in the SAS Deployment Manager.
 - c. Configure SAS Intelligence Platform.
Run the deployment wizard in configure-only mode.
 - d. Repeat these steps on each machine in your deployment. This means that you must add certificates to the trusted CA bundle on each and every machine.

For more information, see [SAS Intelligence Platform: Middle-Tier Administration Guide](#).

2. Make sure that you have reviewed the [SAS system requirements](#). The SAS Deployment Wizard checks the version of the operating system and will not proceed if the correct patch level is not met.
3. Verify that you have performed the earlier required steps outlined in “[Overview of Installing SAS and Migrating Your Content](#)”.

Note: A few pages into the SAS installation, the SAS Deployment Wizard might prompt you for paths to the requested third-party software. You must install the necessary third-party software on the current machine, or the SAS Deployment Wizard might not let you continue with the installation. In this situation, you will have to end the SAS Deployment Wizard session and install the required third-party software before you can continue.

4. If you use any garbage collection scripts, temporarily suspend these scripts during SAS Deployment Wizard execution. If any wizard temporary files are deleted during wizard execution, configuration failures can occur.
5. Make sure that you have no SASMeta SAS Application Server components in the SAS deployment that you are migrating. For more information, see “[Migration of SASMeta Server Components](#)”.
6. Ensure that you have the list of required user IDs available. For more information, see “[Completing the Pre-migration Checklists](#)”.
7. If your migration package resides on UNIX or Linux and contains SAS Content Server content, be sure to change the owner of the **SCS** directory and its child directories to the SAS Installer account.

For more information, see “[Installer Permissions on the Content Server Migration Package on UNIX or Linux](#)”.

8. If you are deploying a middle-tier machine, make sure that you have read and understood the information in “[Middle-Tier Considerations](#)”.
9. Review information about where to source your SAS Metadata Repositories described in “[Metadata Content Repository Considerations](#)”.
10. Review information about SAS Deployment Wizard configuration prompting levels.
11. If you are deploying SAS on multiple machines, make sure that you are following the process described in “[Installation Order Rules for Multiple Machine Deployments](#)”.

12. Log on to the machine with a user ID that meets the requirements for the appropriate operating system.

- Windows

You should use the same account that was used to deploy your current SAS version. This account must be a member of the Administrators group.

- UNIX

You should use the same account that was used to deploy your current SAS version. Do not use **root**.

- z/OS

You should use the same account that was used to deploy your current SAS version.

13. Unless you plan to use different ports for the SAS servers to which you are migrating, make sure that the SAS servers are not running on the machine on which you are currently migrating.

- Windows

Use the Windows Services snap-in to stop your current SAS servers. For more information, see your Windows documentation.

- UNIX and z/OS

Use the server scripts to stop your current SAS servers. These scripts reside in the SAS configuration directory under the SAS Application Server directory for the respective server. For example:

```
/opt/config/Lev1/SASMeta/MetadataServer/MetadataServer.sh  
-stop
```

Note: If you are migrating on the same machine, make sure that there are no SAS 9.4 servers running when you are re-running the deployment wizard to address configuration errors. On UNIX and z/OS, you can run the following command: **./sas.servers status**. If any SAS 9.4 servers are running, shut them down with the following command: **./sas.servers stop**. Make sure that all servers are stopped. In SAS 9.4, some servers are not stopped by this script.

14. Start the SAS Deployment Wizard from the highest-level directory in your SAS Software Depot using the command appropriate for your operating system:

Table 4.1 Start-Up Commands for the SAS Deployment Wizard

Operating System	Command
Windows	setup.exe -record -deploy
UNIX	setup.sh -record -deploy
z/OS	setup.rexx -record -deploy To use a temporary directory other than /tmp , specify -templocation new-temp-dir .

Note: Using the **-RECORD** and **-DEPLOY** options causes the wizard to create a response file that records the inputs that you specified. This can be helpful when

you want to repeat the deployment on other machines or when you are troubleshooting a deployment issue.

By default, the deployment wizard writes the response file in the following location:

- Windows:
`C:\Documents and Settings\current-user
\sdwresponse.properties`
- UNIX and z/OS:
`~/sdwresponse.properties`

You should see a welcome screen similar to the following:



15. Choose Language

Select the language for the deployment wizard, and click **OK**.

- From the drop-down list, select the language that you want the deployment wizard to use when it displays text.

16. If you have more than one SAS software order in your depot, the wizard prompts you to select the order that you want to deploy. When you are finished, click **Next**.

17. Select Deployment Task

Select the deployment task that you want to perform, and click **Next**.

- Select **Install SAS Software**.

18. Specify SAS Home

Specify the location where you want to install SAS, and click **Next**.

- If you want to specify a different location other than the default, enter the location in **SAS Home**. Click **Next**.

Starting with SAS 9.4M6 on UNIX only, the option `export SASMAKEHOMEDIR=1` in `$CONFIG/Lev1/level_env_usermods.sh` creates SAS Home automatically.

CAUTION:

The directory path for the SAS installation directory (SASHome) cannot contain parentheses. Using parentheses causes SAS Environment Manager scripts to fail.

Note: Sharing the same SAS installation directory that is used by previous SAS versions is not supported in SAS 9.4.

Although your SASHome, (the the wizard refers to your SAS installation directory as SASHome) and SAS configuration directories can share the same parent directory, one directory cannot reside inside another. Also, SASHome should not be a directory within your SAS Software Depot.

CAUTION:

There should be one SASHome directory per SAS deployment. Therefore, when deploying multiple tiers on the same machine, SASHome should always be shared. By contrast, when you deploy different versions of SAS on the same machine, there should be a unique SASHome for each SAS version.

Note: On Windows, the deployment wizard prompts you for the SASHome directory the first time you run the wizard. In any subsequent wizard sessions on the same machine, the wizard uses the previously specified location for SASHome.

19. Select Deployment Type

Specify the type of deployment that you want to perform. Click **Next**.

- Confirm that **Perform a Planned Deployment, Install SAS Software**, and **Configure SAS Software** are all selected unless you are providing your own TLS certificates.

Note: If you are migrating on a middle-tier machine and you are providing your own TLS certificates, you must run the deployment wizard in install-only mode. For more information, see [SAS Intelligence Platform: Middle-Tier Administration Guide](#).

20. Specify Deployment Plan

Specify the type of deployment plan that you are using, and click **Next**.

- non-customized or customized deployment plan

Choose **Specify the full path to a non-customized or a customized deployment plan**, and click **Browse** to navigate to the plan file (plan.xml).

CAUTION:

You must select a plan file that matches your topology to be deployed. Do not deselect products that are selected during initial configuration.

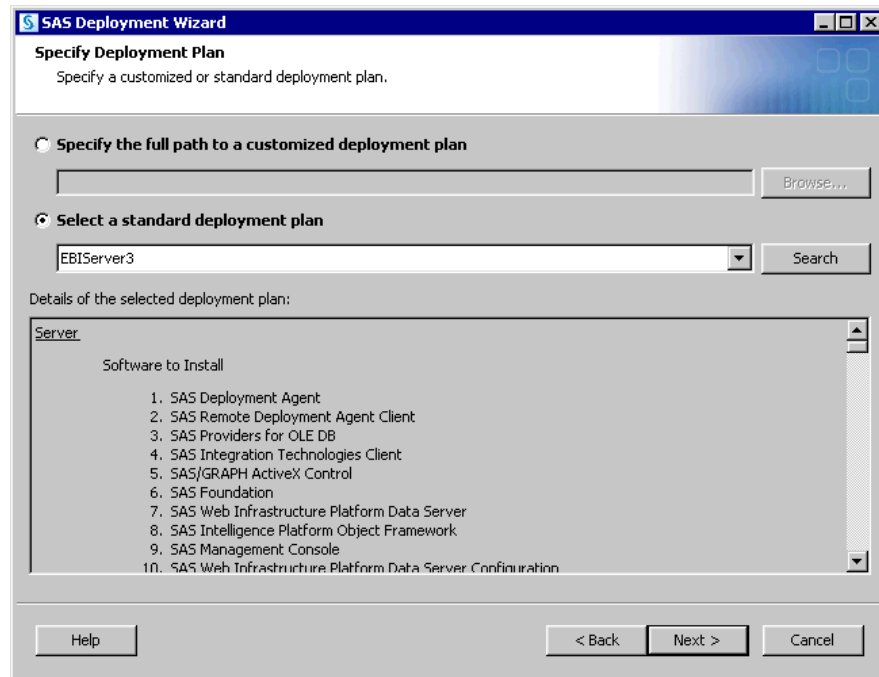
- standard deployment plan

Select **Select a standard deployment plan** and the appropriate plan in the drop-down menu.

CAUTION:

You must select a plan file that matches your topology to be deployed. Do not deselect products that are selected during initial configuration.

For more information, see “[About Deployment Plans](#)” in [SAS Intelligence Platform: Installation and Configuration Guide](#).



21. Select Deployment Step and Products to Install

Select the machine on which you are installing software, and select the SAS products that you want to install. When you are finished, click **Next**.

- From the **Deployment Step** drop-down menu, select the machine on which you are installing software.

Note: If you are deploying SAS on multiple machines, make sure that you are following the process described in “[Installation Order Rules for Multiple Machine Deployments](#)” in *SAS Intelligence Platform: Installation and Configuration Guide*.

Note: When a machine has multiple deployment steps, the deployment wizard attempts to default to the correct step. In some cases, this can be difficult for the wizard to determine. Therefore, always be careful to choose the correct step and avoid merely choosing the default step.

For information about SAS Web Parts for Microsoft SharePoint, see [Appendix 1, “Deploying SAS Web Parts for Microsoft SharePoint”](#).

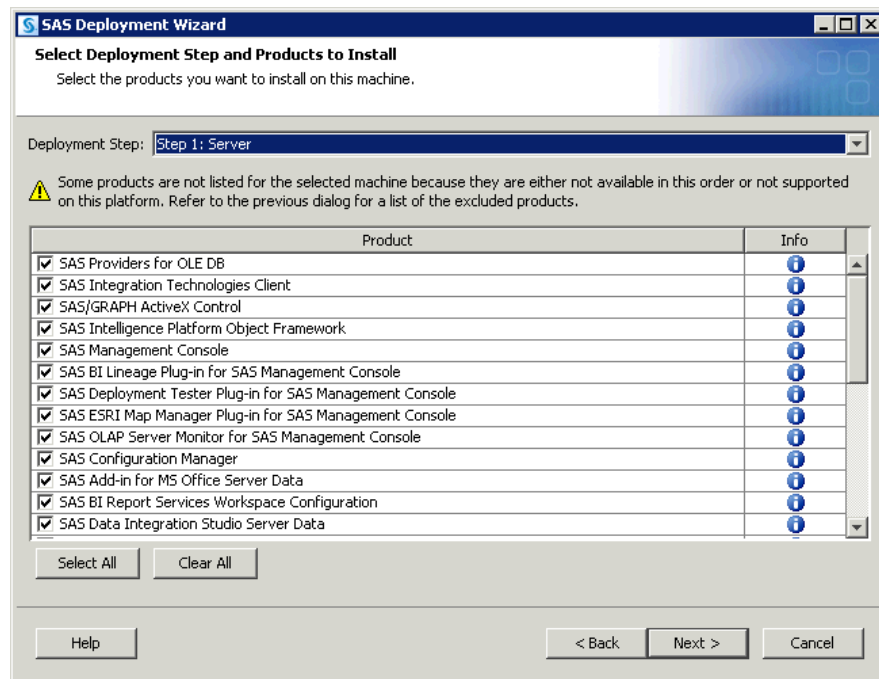
- All products in the table are installed by default. Deselect any products that you do not want to install. When you are finished, click **Next**.

Note: Included in your SAS 9.4 order are procedures that enable you to take advantage of additional functionality that is provided by SAS Viya. You must have a SAS Viya license to use the OPTNETWORK procedure and the procedures for these products:

- SAS Visual Data Mining and Machine Learning
- SAS Visual Statistics
- SAS Econometrics
- SAS Visual Forecasting

Note: If you are deploying a middle-tier node machine, make sure that **SAS Web Application Server** is selected.

Note: If you are deploying a SAS Data Management product, you should select a SAS Quality Knowledge Base product.



22. Select SAS Foundation Mode

Specify which mode of SAS Foundation to install, and click **Next**.

- You see this page when you are installing on a 64-bit machine and your order contains software for both 32-bit and 64-bit machines.
- Select **64-bit Native Mode** to take full advantage of your 64-bit machine and the additional functionality provided by SAS Viya.
- Select **32-bit Compatibility Mode** if you are concerned about compatibility with 32-bit software that you have installed or might eventually install.

23. Select SAS Enterprise Guide Mode

Specify which mode of SAS Enterprise Guide to install, and click **Next**.

- You see this page when you are installing on a 64-bit machine and your order contains software for both 32-bit and 64-bit machines.
- Select **64-bit Native Mode** to take full advantage of your 64-bit machine.
- Select **32-bit Compatibility Mode** if you are concerned about compatibility with 32-bit software that you have installed or might eventually install.

Note: Some products have a dependency on 32-bit SAS Enterprise Guide. If one of those products is in the list of products to be installed and you choose to install the 64-bit version of SAS Enterprise Guide, the 32-bit version is installed also.

24. Select SAS Add-in for Microsoft Office Mode

(Windows only) Specify which mode of SAS Add-In for Microsoft Office to install, and click **Next**. (This page appears when the deployment wizard is unable to detect the bit capacity of Microsoft Office.)

- Select **32-bit Compatibility Mode** if you are running 32-bit Microsoft Office.

Note: The bit capacity of SAS Add-In for Microsoft Office must match the bit capacity of Microsoft Office.

- Select **64-bit Native Mode** if you are running 64-bit Microsoft Office.

25. Specify SAS Installation Data File

Specify the path to your SAS installation data file, and click **Next**.

- Click **Browse** and locate your SAS installation data file.

The SAS installation data file contains information about the software that you have licensed for the current machine.

CAUTION:

Be careful to use the correct SAS installation data file that contains the SAS products that you are planning to install. Using an incorrect file can cause installation failure for SAS add-on products or other errors later when attempting to run SAS. For multiple machine deployments, during the clients step, choose the SAS installation data file for the server machine that is associated with the clients being installed.

26. Select Language Support

Select the languages for your SAS software to support, and click **Next**.

- Add additional languages that you want SAS software to support.

By default, SAS attempts to support all languages for which your machine's operating system is configured.

27. Select Regional Settings

Select the language, region, and locale setting that affect how SAS displays text, numbers, currencies, dates, and times, and specify how SAS sorts data. Click **Next**.

- Accept the default value of English (United States) or select a different language, region, and locale in **Language (Region) [Locale]**.
- Select **Configure as a Unicode server** if you want to configure SAS as a Unicode server.

For more information, see [“Locale and Encoding Preparation” in SAS Intelligence Platform: Installation and Configuration Guide](#).

28. Select Authentication Type

- Select **Use PAM Authentication** if your system uses pluggable authentication modules (PAM).

In addition, you might need to update your PAM configuration files for SAS 9.4 to use PAM authentication. For more information, see the [Configuration Guide for SAS Foundation for UNIX Environments](#).

If you are uncertain whether your system uses PAM for authentication, contact your system administrator.

Note: Do not select PAM authentication if you know that your system uses `/etc/passwd` or `/etc/shadow` authentication.

29. Default Product for SAS Filetypes

(Windows only) Indicate the SAS product that your system will use by default to open SAS file types (.sas, .sas7bdat, and so on) that are shared by more than one product. Click **Next**.

- Select **SAS Foundation** as the SAS program that will launch and open SAS files by default when you double-click the file in Windows Explorer.
- Select **SAS Enterprise Guide** as the SAS program that will launch and open SAS files by default when you double-click the file in Windows Explorer.

30. Select Microsoft Office Applications

(Windows only) Choose the Microsoft Office applications for which you want the SAS Add-In for Microsoft Office activated, and click **Next**.

- When the Microsoft Office application is launched, it automatically activates SAS Add-In for Microsoft Office. A user sees either a **SAS** tab on the ribbon (Microsoft Office 2007, 2010, and 2013) or a **SAS** menu and toolbars (Microsoft Office 2003). To activate the SAS Add-In for Microsoft Office in Microsoft Excel, Word, PowerPoint, or Outlook after the installation, you can run SwitcherUtility.exe. For more information, see the Help for the SAS Add-In for Microsoft Office.

31. SAS Environments URL

Specify the URL for the file that defines SAS environments, and click **Next**.

- In **SAS Environments URL**, enter the URL for the file that defines SAS environments.

The SAS environment file, named sas-environment.xml, specifies a set of SAS deployments at your site. Your administrator makes this file available on your site's network and can provide you with its URL. To log on to some client applications, the URL must be specified in this window. If the URL is not known at this time, you can continue and provide the URL later.

If you use SAS Web Server, then the URL should resemble **protocol://hostname:port/sas/sas-environment.xml**, where *hostname* is the fully qualified host name of your machine and *port* is the default port for SAS Web Server. (For an unsecure port, use 80 on Windows and 7980 on UNIX. For a secure port, use 443 on Windows and 8343 on UNIX.)

If you use a different web server or no web server, leave this field blank. Follow the instructions for the sas-environment.xml file in the Instructions.html document created by the SAS Deployment Wizard after your configuration is completed to find the file and deploy it on your web server.

For more information, see [“Configure the SAS Environment File” in SAS Intelligence Platform: Middle-Tier Administration Guide](#).

32. Specify Remote Communication Configuration

Specify the configuration for communication with the SAS Deployment Agent, and click **Next**.

- In **Specify how to secure the remote connection**, choose one of the following selections:

Note: In a multiple machine deployment, all machines must be configured the same way.

- Select **Generate credentials to secure the connection** if you want the deployment wizard to create a self-signed certificate, generate a keystore, and import the certificate into the truststore.

- Select **Specify existing credentials to secure the connection** if you have already implemented CA-signed, site-signed, or self-signed certificates. In the following windows, the wizard prompts you for the keystore location and password and the truststore location and password for the SAS Deployment Agent and SAS Remote Deployment Agent Client.
- Select **Do not secure the connection** if you do not want to secure SAS Deployment Agent communication or you have not yet implemented certificates.

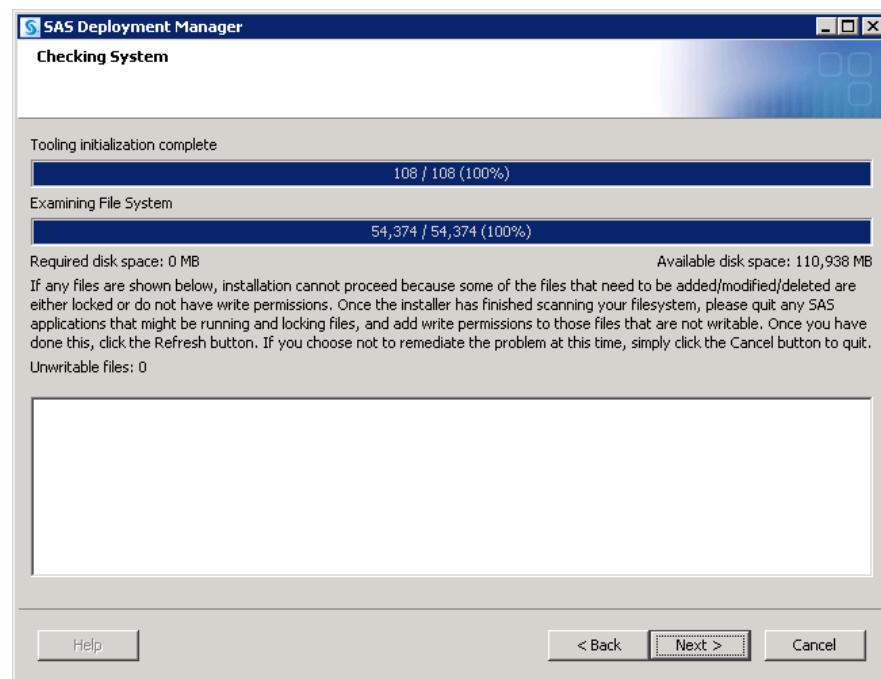
You can set up certificates later on your own or by using the SAS Deployment Manager. Do not start the SAS Deployment Agent until you have completed the manual security configuration.

For more information, see *Manage SAS Deployment Agent Service* in the [SAS Deployment Wizard and SAS Deployment Manager 9.4: User's Guide](#) and "Providing Your Own Certificates" in *SAS Intelligence Platform: Security Administration Guide* for information about the SAS Deployment Agent keystore and truststore, especially the tip about accepting the default and letting SAS Deployment Wizard install certificates for you.

33. Checking System

The deployment wizard scans your machine to determine whether any SAS files are locked or do not have Write permission. If no action is required, click **Next**.

- If the wizard lists any files in the text box, then while the wizard is still running, quit SAS, and add Write permission to each file listed. When you are finished, click **Next**.



34. (z/OS only) Provide input for the following prompts, and click **Next**.

Note: For more information, see the [Configuration Guide for SAS Foundation for z/OS](#).

- **FTP Batch Generation**

Specify the fully qualified host name or IP address of the z/OS mainframe machine on which you are deploying SAS. Specify a valid user ID and password

with which the SAS Deployment Wizard will FTP deployment information to the mainframe machine.

- **Specify Jobcard Information**

Specify the job account, programmer-name, message class, message level, time, and region values. For more information, consult your z/OS documentation.

- **Select Installation Action**

Choose **A - Install a new SAS system**.

- **Specify New Installation Qualifier**

Specify the path where you want to install SAS. You can also choose to require Storage Management Subsystem (SMS) parameters. For more information, consult your z/OS documentation.

- **Specify IBM's SMS Parameters**

If you chose to require Storage Management Subsystem (SMS) parameters in the previous page, enter them here. For more information, consult your z/OS documentation.

- **Specify Parameters**

These are all parameters that are used in various DD statements throughout the installation. For more information, consult your IBM JCL documentation.

- **Specify Entry Point**

Specify the parameters for various ways that SAS can be run with different performance implications. Choose **SAS** (default ENTRY point) to run the unbundled configuration. Choose **SASB** to run the bundled configuration. Choose **SASLPA** to run the bundled configuration with some modules installed in the Link Pack Area (LPA).

- **Specify Parameters**

Specify additional parameters for DD statements. **VOLDISK** designates the **VOLSER** that the installed data sets will go to. For more information, consult your IBM JCL documentation.

- **Specify Parameters**

Specify parameters used for reblocking the SAS load modules to a library with an optimum block size.

35. If you use a third-party database and SAS/ACCESS is a part of your order, select the software version for the third-party database, and click **Next**.

The deployment wizard uses your selection to configure SAS/ACCESS for the correct version of the third-party database.

Make sure that you perform any additional configuration on your system, such as installing the third-party database client and configuring the system environment for access to the native client libraries. For more information about the correct environment variables, use your operating system and SAS version to locate the appropriate SAS Foundation configuration guide.

36. Review Required Software

Review the list of third-party software that is required for the SAS software that you are installing on the current machine, and click **Next**. (The list depends on the SAS software that you are installing.)

- On the subsequent pages, be prepared to provide paths to these third-party applications. The number of wizard pages varies depending on the SAS software that you are installing on the current machine.

Note: You must provide valid paths to the third-party applications or the SAS Deployment Wizard will not let you continue with the installation.

For more information, see the following resources:

[Third-Party Software for SAS 9.4](#)

37. Specify Software Location

Specify the installation directory for the required software, and click **Next**.

- In the field, enter the installation directory for the required third-party software.

38. Select Configuration Prompting Level

Specify the amount of information that you want to configure by selecting one of three prompting levels. Click **Next**.

- **Express**

Displays the minimum set of wizard pages needed to complete the SAS configuration.

Note: When deploying the SAS middle tier, the SAS Deployment Wizard automatically configures your SAS Web Application Server. To disable this feature, run the wizard using either the Typical or Custom prompting level. Manually configuring your SAS middle tier is an advanced task and requires using other documents such as your Instructions.html file.

- **Typical**

Displays the basic set of wizard pages needed to complete the SAS configuration.

- **Custom**

Displays all the wizard pages to complete the SAS configuration.

39. Specify Configuration Information

Specify the directory for SAS configuration files and logs. Select a configuration level. Click **Next**.

- In **Configuration Directory**, select the directory for SAS configuration files and logs.

In UNIX environments, the Installer generally overrides the default configuration directory with the site's preferred location (for example, `/opt/sas/config`). The Installer must have Write permission on this path.

- In **Configuration Level**, select the configuration level (for example, **Lev1** indicates production).

Note: The last digit of the default port number reflects the configuration level. For example, when you select **Lev1**, the default port for the SAS Metadata Server is 8561. If you select another level, such as **Lev2**, the wizard changes the default port to 8562.

For more information, see “[Overview of the Configuration Directory Structure](#)” in *SAS Intelligence Platform: System Administration Guide*.

Note: Although your SAS installation directory and SAS configuration directory can share the same parent directory, one directory should not reside inside another. Specifying the configuration directory under the SAS installation directory or vice versa can lead to file permission issues because of the need to manage installed files differently from site-specific configurations.

40. Local Machine Name

Identify the local machine. Click **Next**.

- In **Fully-qualified Local Host Name**, enter the complete name of the local host.

The fully qualified local host name typically takes the form of the local host name plus the domain name server (for example, MyMachine.example.com).

Note: As noted in [RFC 952](#), underscores and whitespace characters are not allowed in host names.

TIP If you do not know the domain name server used at your site, check with your system administrator.

- In **Short Local Host Name**, enter a short host name.

The short local host name is the abbreviated, more common name of the host, usually a single word (for example, MyMachine).

41. Migration Information

Specify whether to perform migration. Specify the path to the migration package. Click **Next**.

- Select **Perform migration** if you are migrating to SAS 9.4.

Note: You can ignore this page unless you are migrating.

For more information, see [Chapter 1, “Introduction to Migrating SAS Software,”](#).

- In **SAS Migration Utility Package Directory**, enter an absolute path to the migration package that you created with the SAS Migration Utility.

This path should include the top level directory of the migration package (for example: C:\SMU\94_Deployment). (This path should match the value of the SMU.Output.Dir property.)

Note: During installation of additional SAS Metadata Server nodes, the SAS Deployment Wizard prompts for a migration. Ignore this prompt. Migration is supported only on the primary SAS Metadata Server node.

CAUTION:

The Perform migration check box should not be selected if you are running the SAS Deployment Wizard on any middle-tier node machines or client-tier machines. The Perform migration check box should be selected only when there is content available in the migration package for the current machine.

42. If you are performing a multi-machine deployment, and you are migrating a machine other than the metadata server, the wizard prompts you to select the machine to migrate. Click **Next**.

Note: If you have already deployed the metadata tier and you have only a total of two tiers, the deployment wizard automatically selects the remaining tier for you.

43. Remap Ports

Review the list of ports for the SAS products being migrated. Click **Next**.

- The deployment wizard displays the port being used in your current SAS deployment (**Port from Source** column). To specify a different port to use for

SAS 9.4, click the **Port for Target** cell in the appropriate row for the SAS product instance. Enter the new port number.

By default, the deployment wizard assumes that ports used in your current SAS deployment are identical to the ports used in your SAS 9.4 deployment. Use this page if you want to specify different ports in your SAS 9.4 deployment.

44. Provide the remaining migration and configuration information as the wizard prompts you for it.

Note: This topic describes some of the more important pages that you encounter during the migration and configuration phase of a SAS 9.4 deployment. The options for which the SAS Deployment Wizard prompts you depend on which SAS products are identified in your deployment plan and, in multi-machine deployments, which machine you are currently deploying. For information about all SAS Deployment Wizard prompts, see the online Help for the wizard page in question.

Authentication Domain

Specify the authentication domain that SAS uses to authenticate logins to servers. Click **Next**.

- Accept the default value (DefaultAuth) unless you are planning to use a different authentication domain for servers on this machine. For example, if the SAS Metadata Server is on Windows and the SAS Workspace Server is on UNIX, the workspace server might be assigned to a SAS authentication domain named UNIXAuth.

Note: Authentication domain assignments from the original deployment are always preserved. This prompt affects only new servers that are introduced in the SAS that you are configuring.

SAS Metadata Server: Override Backup Location

Specify a different location for the SAS Metadata Server backup directory, if necessary. Click **Next**.

- If you want to change the location of the SAS Metadata Server backup directory, select **Override the default SAS Metadata Server backup directory**.

When configuring a metadata server cluster, you must specify a network file system path accessible to all nodes in the cluster.

For more information, see [“Backing Up and Recovering the SAS Metadata Server”](#) in *SAS Intelligence Platform: System Administration Guide*.

SAS Metadata Server: Repository Configuration

Specify the name and location of the metadata repositories and foundation repository. Click **Next**.

- **SAS Metadata Server Configuration Directory** is Read-only. It identifies the parent directory under which the metadata repositories and foundation repository reside.

After deployment, you should apply appropriate operating system security on this directory. For more information, see [“First-Priority Setup Tasks”](#).

- In **Metadata Repository Root Directory**, enter the location of the metadata repositories. This location must be specified as a path relative to the SAS Metadata Server Configuration Directory. Each metadata repository created during configuration is a subdirectory in this location. Do not use special characters (for example, hyphens, underscores, and so on). Use characters

appropriate for an operating system subdirectory name. On UNIX, avoid shell characters that might cause unintended side effects.

- In **Foundation Repository Name**, enter the name of the foundation repository and the name of the subdirectory (relative to the Metadata Repository Root Directory) in which the foundation repository is located. The maximum number of characters in the name is 60. Do not use special characters (for example, hyphens, underscores, and so on). Use characters appropriate for an operating system subdirectory name. On UNIX, avoid shell characters that might cause unintended side effects.

SAS Metadata Server: Override Service Login Account

Specify whether you want to use a different service login account for the SAS Metadata Server. Click **Next**.

- If you want to change the service login account for the SAS Metadata Server, select **Specify the service login account for the SAS Metadata Server**. The LocalSystem account is the default Windows service login account for the SAS Metadata Server.

When configuring a metadata server cluster on Windows, you must specify the external user account that is used to start the SAS Metadata Server. This user account must be the same account that you specify to start the other nodes. The deployment wizard automatically grants the **Log on as a service** Windows user right if the user account does not already have it.

For more information, see “[Backing Up and Recovering the SAS Metadata Server](#)” in *SAS Intelligence Platform: System Administration Guide*.

Deployment Accounts: Type of Accounts

Select the type of accounts to use for initial deployment SAS identities. Click **Next**.

- Select **Use SAS internal accounts when appropriate** for SAS to use accounts known only to SAS. Or, select **Use external accounts for all identities**.

If you selected internal accounts, SAS creates and authenticates internal accounts in metadata rather than using an operating system account.

Note: On Windows, whenever the deployment wizard prompts you for an external account, always enter a domain-qualified user account (for example, myDomain\myAccount).

For more information, see “[Internal User Accounts](#)” in *SAS Intelligence Platform: Installation and Configuration Guide*.

External Account: Installer

Specify the operating system account (external account) used to initialize the SAS Metadata Server. Click **Next**.

- In **External User ID**, enter the user ID for the external account that you are using to install and configure SAS.

Depending on the operating system, this account should meet the following requirements:

Windows:

Use a domain-qualified account that is available in the long term for future SAS maintenance. It must be a member of the Windows Administrators group.

UNIX:

Use the same account on all machines on which you are deploying SAS. Do not use root.

z/OS:

Use the same account on all machines on which you are deploying SAS.

- In **External Password**, enter the password for the user ID.

For more information, see “[Defining User Accounts](#)” in *SAS Intelligence Platform: Installation and Configuration Guide*.

SAS Internal Account: Unrestricted Administrator

Enter the password for the first unrestricted administrator identity. Click **Next**.

- In **New Internal Password**, enter a password for the internal account (sasadm@saspw) that the wizard creates to serve as an unrestricted administrator for configuring the SAS Metadata Server.

Note: Record this password because you will need it in the future.

- In **Confirm New Internal Password**, re-enter the password. Click **Next**.

For more information, see “[Defining User Accounts](#)” in *SAS Intelligence Platform: Installation and Configuration Guide*.

- Select **Set passwords using the Unrestricted Administrator password** if you want to reuse this password for the internal SAS Metadata Server accounts and SAS Web Infrastructure Platform Data Server accounts during this deployment. Selecting this option when running the deployment wizard with the Express prompting level reduces the number of configuration prompts.

Note: There are password restrictions for SAS Web Infrastructure Platform Data Server. Make sure that your password meets the criteria described in “[Password Policies](#)” in *SAS Intelligence Platform: Installation and Configuration Guide*.

SAS Internal Account: Trusted User

Specify the password for the SAS Trusted User identity. Click **Next**.

- In **New Internal Password**, enter a password for the internal account (sastrust@saspw) that the wizard creates to enable SAS server and spawner components to communicate securely with each other.

Note: Record this password because you will need it in the future.

- In **Confirm New Internal Password**, re-enter the password. Click **Next**.

For more information, see “[Defining User Accounts](#)” in *SAS Intelligence Platform: Installation and Configuration Guide*.

SAS BI Web Services: Authentication Method

Select the method by which users of SAS BI Web Services are authenticated. Click **Next**.

- In **Authentication Method**, make a selection.
- **SAS Authentication** is managed by the SAS Metadata Server.
- **Web Authentication** is managed by the SAS Web Application Server using container-based authentication or a third-party product.

Selecting **Web Authentication** has these effects:

- Web authentication for SAS BI Web Services for Java is partially configured. For more information, see [“Secure SAS BI Web Services for Java”](#) in *SAS Intelligence Platform: Middle-Tier Administration Guide*.
- There is no effect on BI web applications (such as SAS Web Report Studio, SAS Information Delivery Portal, and so on). You have to configure web authentication for these BI web applications.
- Web authentication prevents you from setting up an anonymous web user (as this is incompatible with web authentication).

Anonymous Web Access

When using SAS authentication, select this option to set up a SAS identity for anonymous access to certain web services and web applications that support this feature. Click **Next**.

- Select **Enable anonymous web access** to set up a SAS identity for anonymous access to certain web services and web applications that support this feature.

SAS BI Web Services for Java and .NET, the SAS Stored Process Web Application, and SAS Visual Analytics Guest Access are the only components that support this feature.

For more information, see [“PUBLIC Access and Anonymous Access”](#) in *SAS Intelligence Platform: Security Administration Guide*.

SAS Internal Account: Anonymous Web User

Enter the password for the anonymous web user identity. Click **Next**.

- In **New Internal Password**, enter a password for the internal SAS account that the wizard uses to grant clients access to applicable SAS Web Infrastructure Platform applications such as SAS BI Web Services and the SAS Stored Process Web Application.

When SAS authentication is being used and the user has not preemptively specified credentials, the client is given access to these applications under the anonymous web user identity.

For more information, see [“Use the SAS Anonymous Web User with SAS Authentication”](#) in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

Note: Record this password because you will need it in the future.

- In **Confirm New Internal Password**, re-enter the password. Click **Next**.

External Account: SAS Spawnd Servers Account

Specify the credentials used to launch the back-end SAS Stored Process Server and SAS Pooled Workspace Server. Click **Next**.

- In **External User ID**, enter the user ID to start the SAS Pooled Workspace Server and the SAS Stored Process Server.

Note: On Windows, enter a domain-qualified user ID.

- In **External Password**, enter the password for the external user ID.

Note: Record this password because you will need it in the future.

For more information, see [“Defining User Accounts”](#) in *SAS Intelligence Platform: Installation and Configuration Guide*.

Client-side Credentials Policy

Specify whether users are allowed client-side storage of credentials. Click **Next**.

- Select **Allow users to save credentials in client-side connection profiles** to allow users to save their user IDs and passwords in client-side connection profiles.

When this option is selected, SAS enables the OMA_SASSEC_LOCAL_PW_SAVE option in the omaconfig.xml file.

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

Estimated System Size

Estimate the size of your system based on user number and workload size. Click **Next**.

- In **Size Estimate**, select **Small System**, **Medium System**, or **Large System**.

The wizard uses your sizing estimate as a tuning hint during SAS server configuration. This option appears only during SAS Metadata Server configuration and it applies to all machines configured with this metadata server.

You might have to further refine individual tuning parameters after you have collected and evaluated system usage information.

For more information, see “[Initial Sizing and Tuning Configuration Options for Deployments](#)” in *SAS Web Applications: Tuning for Performance and Scalability*.

E-mail Server

Specify email server information. Click **Next**.

- In **Host Name**, enter the host name for an SMTP email server at your site. SAS uses this server to send alerts for system-related issues to an administrator (for example, the SAS Metadata Server detects a journaling issue).

The wizard uses this email server as the default for the application server to provide email services to various SAS clients. For example, with SAS Data Integration Studio, you can use a Publish to Email transformation to alert users about various data changes. For the SAS BI Dashboard to send alerts by email to dashboard users and administrators, the port and host name must be configured for the email server.

- In **Port**, enter the port that the SMTP email server uses.

SAS Web Infrastructure Platform Data Server

Specify SAS Web Infrastructure Platform Data Server information. Click **Next**.

- In **Host Name**, enter the fully qualified host name of the SAS Web Infrastructure Platform Data Server. Or, accept the default value.

The default value is the host name where the deployment wizard is currently running. In most cases, the default value is correct. However, a machine can have more than one network interface card (NIC) or host name alias. If so, see your Pre-installation Checklist to determine whether the default value is correct.

- In **Port**, enter the TCP/IP port number on which SAS Web Infrastructure Platform Data Server listens. Or, accept the default value.

- In **Data Administrator**, enter the user ID for the user administering SAS Web Infrastructure Platform Data Server.
- In **Data Administrator Password**, enter the password for the user ID associated with the SAS Web Infrastructure Platform Data Server administrator.

Note: There are password restrictions for SAS Web Infrastructure Platform Data Server. Make sure that your password meets the criteria described in “[Password Policies](#)” in *SAS Intelligence Platform: Installation and Configuration Guide*.

Note: Record this password because you will need it in the future.

- In **Confirm Password**, re-enter the password, and click **Next**.

SAS Web Server: Automated or Manual Configuration Option

Specify whether you want the wizard to configure the SAS Web Server automatically. Click **Next**.

- If you want to configure the SAS Web Server manually, clear **Configure SAS Web Server automatically**.

Select this option for the deployment wizard to automatically build and configure the SAS web applications and to configure a sample SAS Web Server for use with SAS 9.4. (To use this wizard feature, make sure that your SAS Web Application Server is not running before proceeding.)

It is strongly recommended that you choose to automatically configure the SAS Web Server. If you need to make changes to the SAS Web Server after the automatic configuration, there are tools to help you reconfigure it.

For more information, see “[Scripting Tool for SAS Web Application Server](#)” in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

If you choose not to automatically configure your SAS Web Server, you are prompted for the SAS Web Application Server information, and deployment stages such as configure products, deploy web applications, and start SAS Web Application Servers execute to create instructions for manual configuration. For more information, see “[Manual Configuration](#)” in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

Note: Manually configuring your SAS middle tier is an advanced task and requires using other documents such as your Instructions.html file.

SAS Web Server: Configuration

Specify SAS Web Server information. Click **Next**.

- The standard port for HTTP traffic is 80. If you want to change this for SAS Web Server, then specify a new port number in **HTTP Port**.

Note: On UNIX systems, you must start servers as root if you want them to listen on ports lower than 1024. You should install and configure as a less-privileged user, and then start SAS Web Server manually as root.

For more information, see “[Pre-installation Checklist for Ports for SAS](#)” in *SAS Intelligence Platform: Installation and Configuration Guide*.

- The standard port for TLS traffic is 443. If you want to change this port for SAS Web Server, then specify a new port number in **HTTPS Port**. (See earlier note.)

- In **Configured Protocol**, select the communication protocol for SAS Web Server. There are two choices, HTTP Protocol (unsecured) and HTTP Protocol using Secure Sockets (secured).

If you select HTTP Protocol using Secure Sockets, an X.509 certificate and RSA private key are required. The deployment wizard prompts you for the paths to these items on a later page. You can enter locations for these items or provide information to create them. For more information, see [SAS Intelligence Platform: Middle-Tier Administration Guide](#).

For more information, see [SAS Intelligence Platform: Middle-Tier Administration Guide](#).

- In **Administrator Mail Address**, enter an email address for email to be sent to the SAS Web Server administrator.

Web Application Server: Multiple Servers

Specify whether to configure multiple SAS Web Application Servers on which to deploy SAS web applications. Click **Next**.

- Select **Configure multiple servers** to have the deployment wizard automatically configure multiple SAS Web Application Servers for you. The deployment wizard uses SAS best practices for choosing the best server to deploy each web application to.

In some situations, it might be preferable to split the SAS web applications across multiple SAS Web Application Servers. This is usually done for performance reasons.

If you choose to manually configure your SAS Web Application Servers, you are provided with recommended configuration values in a generated file (Instructions.html) when the deployment wizard completes.

More advanced performance configuration considerations are documented in [SAS Intelligence Platform: Middle-Tier Administration Guide](#).

SAS Web Application Server: Server Configuration

Specify the SAS Web Application Server name and JVM options. Click **Next**.

- In **Server Name**, enter a logical name for your SAS Web Application Server. This name is displayed in your SAS Web Application Server administrative console and used in administrative scripting.

A suffix is automatically added to the name to distinguish cluster members. For example, if the name SAS1 is entered, the actual name is SAS1_1. If the cluster member multiplier provided on the next wizard page is greater than 1, additional servers are created with unique suffixes. For example, if the multiplier is 2, then servers named SAS1_1 and SAS1_2 are created.

CAUTION:

The server name cannot contain special characters (for example, periods, colons, underscores, and so on).

CAUTION:

The server name must be unique. Non-unique names cause your web configuration to fail.

- In **Additional JVM Options**, enter any additional Java options that you want the SAS Web Application Server JVM to use. These JVM options are appended to the end of the server's command line. Deployment wizard default options can be overridden in this way.

Enter any additional Java options that you want the SAS Web Application Server JVM to use. These JVM options are appended to the end of the server's command line. Deployment wizard default options can be overridden in this way.

Note: Determine whether the machine that you are deploying SAS on has these characteristics:

- Uses IPv6 (Internet Protocol Version 6)
- Runs Windows
- Communicates with the SAS Foundation server tier.

If it does, then you must add the following JVM start-up options either now or later to your SAS Web Application Server start-up script:

- `-Djava.net.preferIPv4Stack=false`
- `-Djava.net.preferIPv6Addresses=true`

For more information, see [“Designating Ports and Multicast Addresses”](#) in *SAS Intelligence Platform: Installation and Configuration Guide*.

Web Applications: Automatic Deployment

Specify whether you want the deployment wizard to automatically deploy SAS web applications to the SAS Web Application Server. Click **Next**.

- Select **Deploy web applications automatically** for the deployment wizard to automatically deploy SAS web applications to the SAS Web Application Server.

If you do not choose to deploy SAS web applications automatically, manual deployment instructions are written to the Instructions.html file during the web application deployment stage.

Note: Manually deploying your SAS web applications is an advanced task and requires using other documents such as your Instructions.html file.

Regardless of whether you choose to automatically deploy your SAS web applications, when building web applications, the deployment wizard automatically explodes enterprise application archive (EAR) files.

For more information, see [“Deploy Content Manually to the SAS Content Server”](#) in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

Web Applications: List of Sites Allowed to Link to this SAS Installation

Enter a comma-delimited list of additional known hosts and domains to trust. Click **Next**. Web Applications: Allow List of Sites Allowed to Link to This SAS Installation

- In **URLs Allow List**, enter a comma-delimited list of additional known hosts and domains to trust in the following form:

`http|https://host[:port] | domain/, ...`

The valid URLs allowlist can include just a list of host names to trust. The valid URLs allowlist can also include wildcards such as * for host name and domain.

Note: The port number must be specified if the allowlist site uses port numbers other than the standard 80 for HTTP or 443 for HTTPS.

For example:

`https://myserver:443/,http://example.com`

For security reasons, you must list any host name URL for any site that could redirect browsers to your software. This might include corporate sites linking to your software for reporting purposes or single sign-on servers.

For example, if `https://corporatePortal.company.com/` links to your server, then enter `https://corporatePortal.company.com/` as one entry. This field enables you to add additional known hosts and domains to a preset list automatically created by the SAS configuration process.

For more information, see “[Configure the Cross Domain Proxy Servlet Through an Allowlist](#)” in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

Note: After installing SAS 9.4 and migrating your content, you must update the `sas.web.csrf.referers.knownHosts` property using SAS Management Console. For more information about `sas.web.csrf.referers.knownHosts` and how to change its value, see “[Modify the Allowlist for URLs and HTTP Request Methods](#)” in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

- Select **Enter advanced options for URL white list handling** to display an additional page on which you can specify advanced options for the allowlist.

SAS Web Infrastructure Platform Scheduling Services Dependencies

Specify the product instances on which scheduling services are dependent. Click **Next**.

- In **SAS Application Server Context**, select the server context on which to base the configuration of SAS Web Infrastructure Platform.

Note: Avoid choosing the SASMeta server context.

SAS Content Server: Repository Directory

Specify SAS Content Server information. Click **Next**.

- In **Repository Directory**, enter the location for the SAS Content Server indexes and repository configuration file. Click **Browse** to search for this location.

For more information, see “[Administer the SAS Content Server](#)” in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

- Select **Start initial node as clustered** if this machine is (or might be) part of a clustered deployment.

CAUTION:

If you enable this option, you must establish a central backup vault for the SAS Deployment Backup and Recovery Tool. Starting in SAS 9.4M2, a vault is no longer required for clustered SAS Content Servers.

Deselect **Start initial node as clustered** if you are not deploying the SAS middle tier on a machine cluster. (This option enables journaling and the necessary cluster synchronization processes.)

If you redeploy the SAS middle tier on a machine cluster in the future, you can manually specify the Java system property `-Dcom.sas.server.isclustered=true` and restart the initial application server node. For more information, see “[Add a Horizontal Cluster Member](#)” in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

SAS Environment Manager Mid-Tier Dependencies

Specify the product instances on which SAS Environment Manager is dependent. Click **Next**.

- In **SAS Application Server Context**, select the server context on which to base the configuration of SAS Environment Manager.

Note: Avoid choosing the SASMeta server context.

SAS Environment Manager: Administration Database Configuration

Specify SAS Environment Manager information. Click **Next**.

- In **User ID**, enter the user ID for accessing the database used with your SAS Web Infrastructure Platform Database tables. This user ID must have the ability to insert, update, and delete records.

By default, the SAS Environment Manager uses the Administration database on the SAS Web Infrastructure Platform Data Server. If you are using the SAS Web Infrastructure Platform Data Server, the user ID is Read-only.

For more information, see “[SAS Web Infrastructure Platform Data Server](#)” in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

- In **Password**, enter a valid password for the user ID.

Note: Record this password because you will need it in the future.

- In **Confirm Password**, re-enter the password.

SAS Internal Account: SAS Environment Manager Service Account

Specify the password for the SAS Environment Manager Service. Click **Next**.

- In **SAS Environment Manager Service Account Password**, enter a password for the SAS Environment Manager Service account (sasevs@saspw).

The password must contain at least six characters. Make sure that you enter the same password that was specified in any previous SAS Environment Manager configuration prompts.

Note: Record this password because you will need it in the future.

This account is required for the SAS Environment Manager Service and its agent to communicate while monitoring the processes in your SAS deployment. This internal SAS account has unrestricted administrative access rights to the SAS Metadata Server.

- In **Confirm Password**, re-enter the password.

SAS Environment Manager: Database Configuration

Specify SAS Environment Manager database information. SAS Environment Manager is a default Postgres database provided by SAS that stores collected server metrics. Click **Next**.

- In **Database User**, enter a user ID for accessing the SAS Environment Manager database.
- In **Database User Password**, enter a valid password for the user ID associated with the database account.

Note: Record this password because you will need it in the future.

- In **Confirm Password**, re-enter the password.

- In **Database Encryption Passphrase**, enter a valid passphrase key for encrypting and decrypting the SAS Environment Manager database user password.

The key must be at least eight characters long and can contain letters and numbers only.

Note: Record this passphrase because you will need it in the future.

- In **Confirm Database Encryption Passphrase**, re-enter the passphrase key. Click **Next**.

SAS Visual Analytics Transport Service: Whitelist Mobile Devices

Specify whether to enforce an allowlist for SAS Visual Analytics Apps, and click **Next**.

- Select **Enforce allowlist for mobile devices** to use an allowlist to control access to SAS Visual Analytics Apps.

A deployment enforces either the denylist or the allowlist. If the allowlist is not selected to be enforced, the denylist is enforced by default. If the allowlist is enforced, only devices that are on the allowlist can use SAS Visual Analytics Apps. If the denylist is enforced, any device that is not on the denylist can use SAS Visual Analytics Apps. Although only one list is enforced, you can make changes to both lists.

For more information, see “[Enable or Prevent Access by Using the Allowlist and Denylist](#)” in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

SAS Visual Analytics Admin: Context Root

Specify the context root. Click **Next**.

- In **Context Root for SAS Visual Analytics Admin**, enter the context root.

The form of the URL for SAS Visual Analytics Administrator is `http://machine:port/SASVisualAnalyticsAdministrator`. Although the machine and port are configured elsewhere and they typically apply to the web container as a whole, the **SASVisualAnalyticsAdministrator** portion is the context root, and you can change it (within the constraints of URL rules).

SAS Visual Analytics Hyperlink Service: Context Root

Specify the context root. Click **Next**.

- In **Context Root for SAS Visual Analytics Hyperlink Service**, enter the context root.

The form of the URL for SAS Visual Analytics Service Hyperlink Service is `http://machine:port/SASVisualAnalytics`. Although the machine and port are configured elsewhere and typically apply to the web container as a whole, the **SASVisualAnalytics** portion is the context root, and you can change it (within the constraints of URL rules).

SAS Visual Analytics Administrator Dependencies

Specify the product instances on which Administrator is dependent. Click **Next**.

- In **SAS Application Server Context**, select the server context on which to base the configuration of Server Administrator.

Note: Avoid choosing the SASMeta server context.

SAS Deployment Backup and Recovery Tool: Enable Central Vault

Indicate whether to use a central backup vault for the SAS Deployment Backup and Recovery Tool. Click **Next**.

- Select **Enable central vault storage of backup files** to enable central storage of backup files by specifying a network-accessible vault directory.

CAUTION:

If your SAS deployment is SAS 9.4M2 or earlier, then a central backup vault directory is required if your middle-tier environment includes a clustered SAS Content Server.

The default value for the central backup vault directory is kept blank. The feature of storing backup files at a central location is disabled by default.

To enable this feature, provide a directory shared across all the tiers. The default retention period for a backup is 30 days. If the configuration that you are performing requires a backup at a central shared location and you want to change the retention period, change the **Retention period**.

(On Windows only) Provide a valid operating system (external) user account and password to execute commands using the SAS Deployment Agent. This user account must have the following characteristics:

- It must be an external account that has access to and sufficient privileges in order for each host machine to be included in the backup.
- It must be known to the host machine that contains the central vault.
- It must have Read and Write access to the following directories:
 - the central vault directory
 - **SAS-configuration-directory/SASMeta/Metadata**

For more information, see [“Using the Deployment Backup and Recovery Tool” in *SAS Intelligence Platform: System Administration Guide*](#).

45. Deployment Summary

Review software that the deployment wizard plans to install and configure.

- When you see the Deployment Summary page, the deployment wizard has finished collecting installation and configuration input. This is the last opportunity to go back and change any information that you have provided in previous pages before the wizard begins writing to your system.

Note: Before proceeding with the migration, make sure that the information that you have provided to the deployment wizard is correct. Incorrect user input such as user IDs and passwords cause all or portions of your migration to fail.

Make one of the following choices:

- Click **Start** to begin installing SAS files and writing the configuration to the current machine.

The deployment wizard launches the installation and configuration process and provides an ongoing status update.

- Click **Back** to navigate to previous pages to change installation and configuration information.
- Click **Cancel** to terminate the deployment wizard session. Note that you will lose installation and configuration information previously entered.

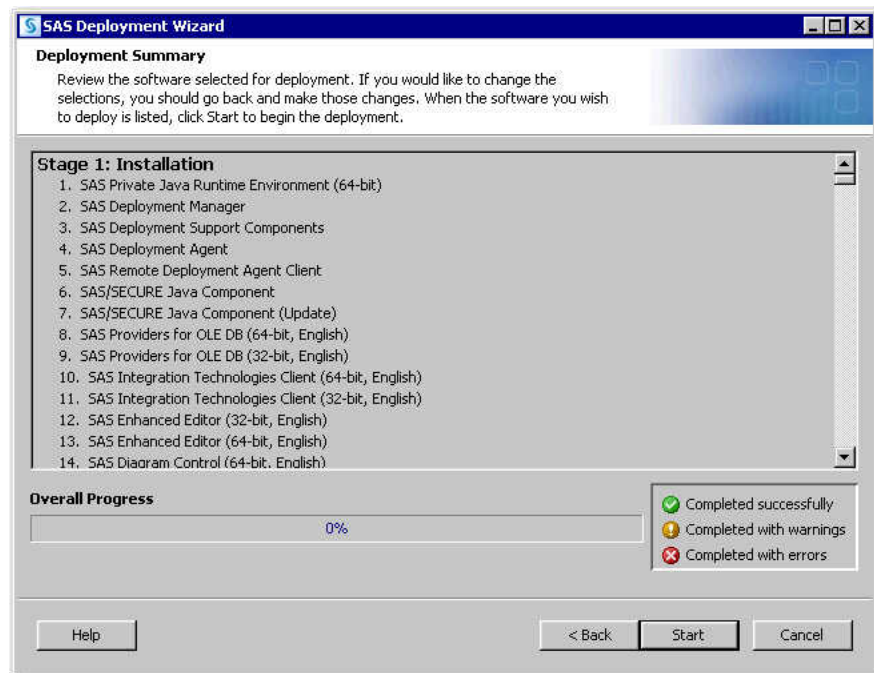
CAUTION:

If you encounter a situation in which the deployment wizard reports a configuration failure, leave the error message displayed. Do not continue. Consult additional documentation and, if necessary, contact SAS Technical Support. Moving past an error most often results in having to delete your deployment and start over.

On UNIX, when you are installing the server tier, you are instructed to run a script as root. As the message in the installation program explains, certain SAS products and features use functionality that requires SAS to check user ID authentication and file access authorizations. This, in turn, necessitates that certain files within your SAS installation have setuid permissions and be owned by root.

Your credentials are temporarily stored in your Windows Registry using the Windows automatic logon functionality. In rare circumstances, it is possible that those values will remain in your Windows Registry after they are used. This poses a potential security risk.

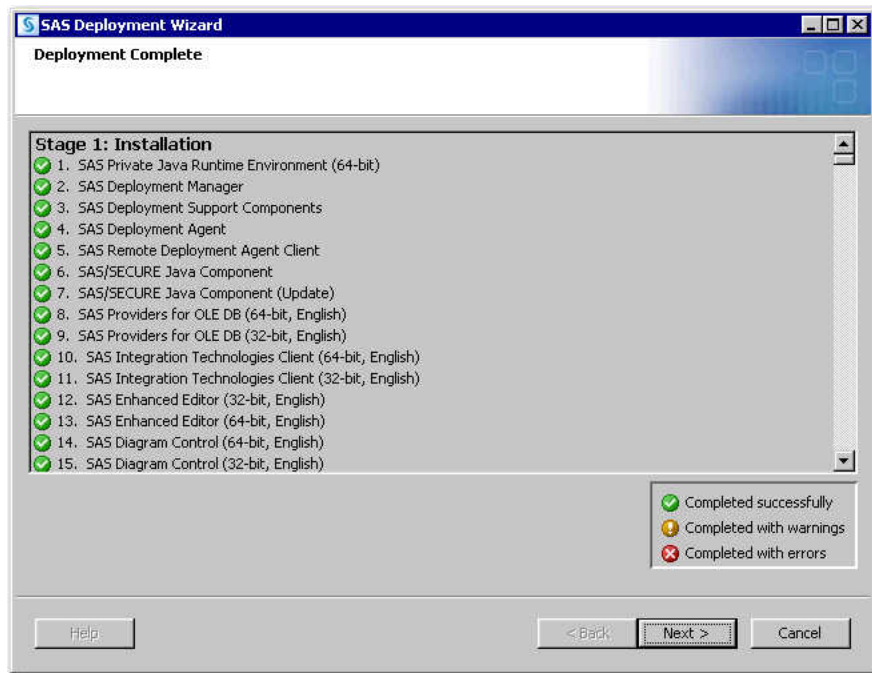
For more information about this functionality including any risks, see Microsoft documentation about security and automatic logons. You should weigh the risk of convenience of automatic logon after restart against the security policies in place at your site.



46. Deployment Complete

The Deployment Complete page displays the configuration results for each SAS product.

- A green check mark next to every item on this page indicates that your deployment completed successfully. Click **Next**.
- If you received errors during your deployment, then [Contact SAS Technical Support](#). Mention the files listed in “[Review SAS Deployment Tool Documents, Reports, and Logs](#)” in *SAS Intelligence Platform: Installation and Configuration Guide*.

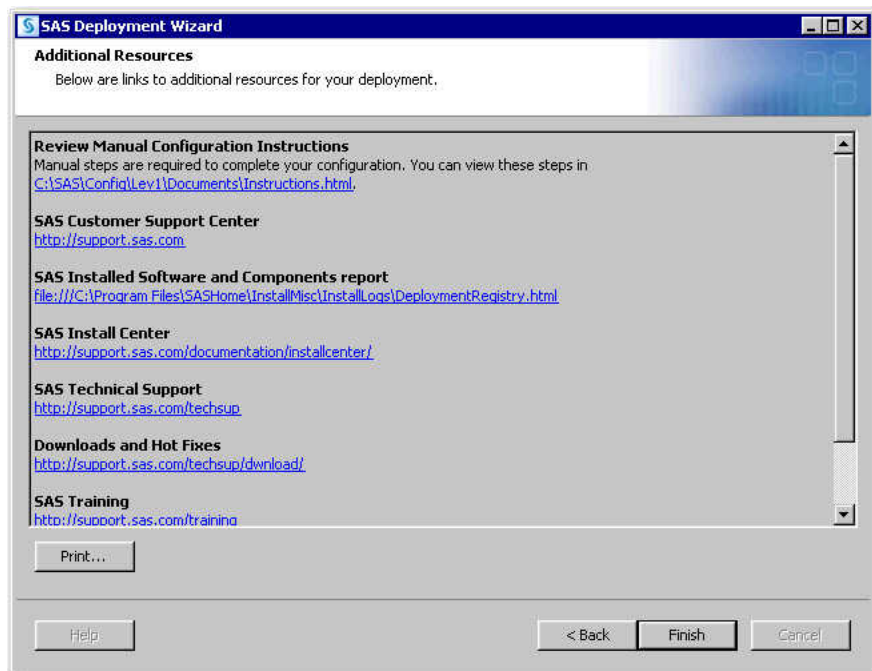


47. Additional Resources

Use the links displayed to review more information about your SAS deployment.

- Click **Finish** to close the SAS Deployment Wizard.

Proceed to the section, “[Review SAS Deployment Wizard Documents, Reports, and Logs](#)” on page 96 to examine the SAS Deployment Wizard output to troubleshoot any configuration errors and complete any necessary manual configuration steps.



48. Configuration Guidelines and Details

Review configuration guidelines and details for post-deployment steps. Click **Next**.

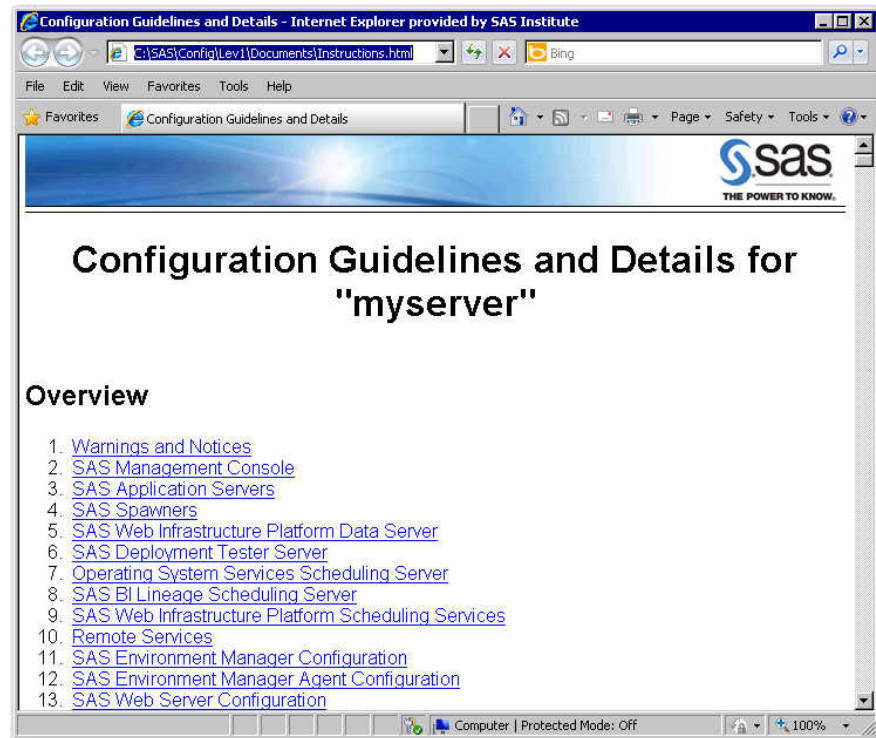
- To complete your SAS deployment, review the configuration guidelines and details and perform the steps listed.

Configuration Guidelines and Details (the Instructions.html file) is automatically generated by the deployment wizard. It has post-installation steps specific to your SAS order that you must perform.

- The SAS Deployment Wizard writes the Configuration Guidelines and Details (the Instructions.html file) to the **Documents** directory under the SAS configuration path. For example:

- Windows:

`C:\SAS\Config\Lev1\Documents\Instructions.html`



49. For multi-machine deployments, back up your metadata repository and your SAS configuration directory before you run the SAS Deployment Wizard on the next machine called for by your deployment plan. (You do not need to back up machines that contain only SAS clients.)

- Make a backup copy of your SAS 9.4 configuration directories by using your site-approved method. Your SAS configuration directories are all of the child directories under the path that you specified earlier on the **Specify Configuration Information** page.
- Back up your web application server directories.
- Back up your metadata repository and repository manager on the metadata server machine. For more information, see “[About Backing Up and Restoring Your SAS Content](#)” in *SAS Intelligence Platform: System Administration Guide*.

50. When you are finished completing any manual configuration tasks, and you have made the necessary backups, repeat the steps listed on each machine specified in your deployment plan.

51. Be sure to restart any servers that you stopped for the purpose of creating a backup.
52. When you are finished installing and migrating SAS on each machine called for in your deployment plan, proceed to [“Overview of Performing Post-migration Tasks”](#).

Automating SAS 9.4 Client Installation across Multiple Machines

The SAS Deployment Wizard provides a record and playback feature that enables you to automate a SAS installation across multiple machines. This feature is designed for large-scale enterprise deployments where SAS 9.4 clients need to be deployed across many machines. Using the record and playback feature prevents users from having to manually provide input on every page every time the SAS Deployment Wizard is run on a machine. For more information, see [“Automating the SAS Installation on Multiple Machines”](#) in *SAS Intelligence Platform: Installation and Configuration Guide*.

Chapter 5

Performing Post-migration Tasks

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Overview of Performing Post-migration Tasks

This is the fourth of five steps required to install SAS 9.4 and migrate your current SAS content.

The actual manual post-migration tasks that you should perform depend on which SAS products you are migrating. Regardless of the SAS products that make up your deployment, you should follow the steps listed in the `Instructions.html` file and review any configuration errors in the `ConfigurationErrors.html` file and in the configuration logs. For more information, see [“Review SAS Deployment Wizard Documents, Reports, and Logs”](#).

The remaining post-migration tasks are grouped according to the tier:

- [“Metadata Server Tier Post-migration Tasks”](#)
- [“Server Tier Post-migration Tasks”](#)
- [“Middle-Tier Post-migration Tasks”](#)

For a discussion of functionality changes in SAS 9.4, see [SAS Guide to Software Updates and Product Changes](#).

Install Hot Fixes and Apply Security Updates

After you complete your migration and before you put your newly migrated deployment into production, you should check for and apply any hot fixes. For more information, see [SAS Guide to Software Updates and Product Changes](#).

Apply security updates. See [Security Bulletins](#) for more information.

Review SAS Deployment Wizard Documents, Reports, and Logs

During configuration of SAS 9.4, the SAS Deployment Wizard creates various documents that can help you identify any remaining configuration tasks and errors. Use the following documents to perform any manual configuration steps and correct any configuration errors:

- `Instructions.html`
contains a list of SAS manual steps that must be performed to complete your deployment. `Instructions.html` is under the SAS configuration directory in the **Levn/Documents** subdirectory (for example: `C:\SAS\Config94\Lev1\Documents`).
- `DeploymentSummary.html`
contains a list of the deployment tasks performed by the SAS Deployment Wizard and a brief status for each. The deployment summary is one source for a list of all the SAS products installed and configured and information such as servers started, web applications built, and web applications deployed. `DeploymentSummary.html` is

under the SAS configuration directory in the **Levn/Documents** subdirectory (for example: **C:\SAS\Config94\Lev1\Documents**).

- **ConfigurationErrors.html**

contains a list of any configuration errors that require further attention.

ConfigurationErrors.html is under the SAS configuration directory in the **Levn/Documents** subdirectory (for example: **C:\SAS\Config94\Lev1\Documents**).

- **Configuration logs (as needed)**

provide a finer list of errors for each SAS component that the SAS Deployment Wizard migrates and configures. There is one log file for each SAS component. The configuration logs are under the SAS configuration directory in the **Levn/Logs/Configure** subdirectory (for example: **C:\SAS\Config94\Lev1\Logs\Configure**).

- **SDW_YYYY-MM-DD-HH-MM-SS.log**

logs SAS Deployment Wizard messages, which can be used for general troubleshooting. The deployment wizard log is written to the following path:

- **Windows:**

\Users\user\AppData\Local\SAS\SASDeploymentWizard

- **UNIX:**

home-directory/.SASAppData/SASDeploymentWizard

- **logCrossplatformOutput.log**

Generated when migrating from one version of an operating system to another (within families: Windows to Windows or UNIX to UNIX). Outlines parameters passed to **MIGRATE** and **CIMPORT** and the corresponding logs generated by these two SAS procedures. **logCrossplatformOutput.log** is under the SAS configuration directory in the **Levn/Logs/Configure** subdirectory (for example: **C:\SAS\Config94\Lev1\Logs\Configure**).

- **logPermissionsOutput.log**

Generated when migrating from one version of an operating system to another (within families: Windows to Windows or UNIX to UNIX). The result of applying all permission migration commands is logged to this file. It shows which commands failed and the console error. **logPermissionsOutput.log** is under the SAS configuration directory in the **Levn/Logs/Configure** subdirectory (for example: **C:\SAS\Config94\Lev1\Logs\Configure**).

- **Levn/Temp** subdirectory

All the failed permission commands that are run during the migration are persisted in this subdirectory. You should review the output in this directory. If you encounter any failed attempts, you should make the necessary modification and rerun the commands. For example, if the command failed due to an invalid user on the target machine, either create the user and rerun the command file or change the user ID to the actual new user and rerun the command file.

- **Levn/Temp/unmoved** subdirectory

All files that have not been migrated by **PROC MIGRATE** are written here. Typically, a file is written here because it is unsupported by **PROC MIGRATE** or the file is corrupted. Refer to **logCrossPlatformOutput.log** to further diagnose the problem.

Metadata Server Tier Post-migration Tasks

Update Third-Party Software Server Definitions

Your SAS 9.4 migrated system can contain metadata describing third-party servers, such as web application and database servers. These server definitions are stored in SAS metadata repositories and might need to be modified on the SAS 9.4 system using SAS Management Console to reflect changes to the new system. Examples of such changes might include new host names, ports, connection attributes, or security information. A list of migrated third-party metadata is provided in your migration analysis report. To view your migration analysis report, point a web browser to the AnalysisReport.xml file in the **AnalysisReport** subdirectory under the output directory that you specified when you last ran the SAS Migration Utility.

Refer to your Instructions.html file for more information about what steps you might need to perform. Instructions.html is under the SAS configuration directory in the **Levn\Documents** subdirectory (or example, **C:\SAS\Config94\Lev1\Documents**).

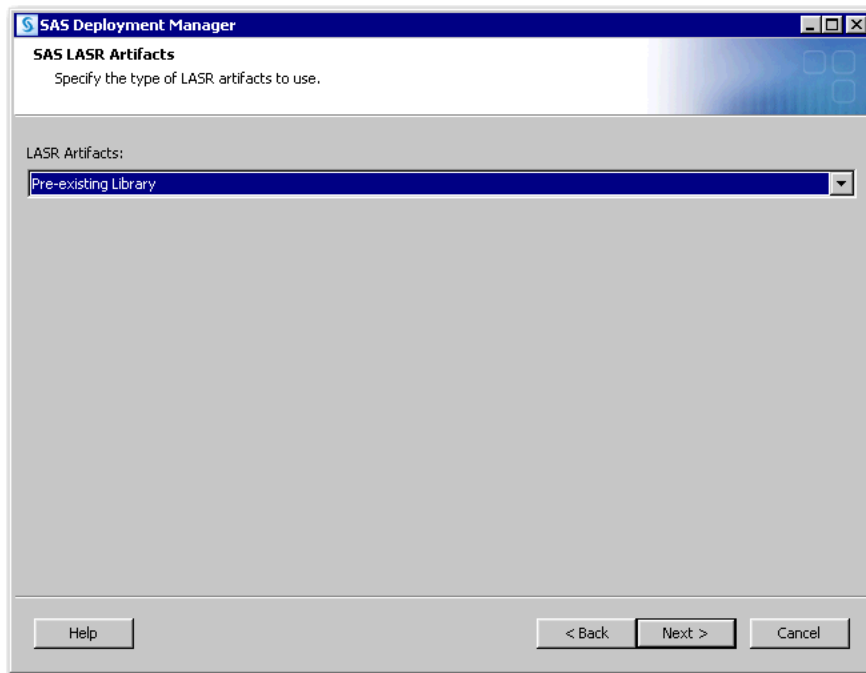
Server Tier Post-migration Tasks

SAS Visual Analytics Autoload Post-Configuration Task

The SAS Migration Utility does not migrate files and directories that were created using the **Configure Autoload Directory for SAS Visual Analytics** task in the SAS Deployment Manager. The migration utility migrates the autoload metadata objects only.

To migrate the files and directories, you must rerun the **Configure Autoload Directory for SAS Visual Analytics** task as a post-migration step on the SAS server tier. When rerunning the SAS Deployment Manager, be sure to specify **Pre-existing Library** on the SAS LASR Artifacts page.

Figure 5.1 SAS LASR Artifacts Page



Recompile SAS Macro Catalogs

When you are migrating within an operating system family (for example, Oracle Linux to AIX), SAS macro catalog files might not migrate. The workaround is to recompile these macro catalogs. For more information, see [SAS Macro Language: Reference](#).

EXTENDOBSCOUNTER (EOC) System Option

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

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

For more information, see “Base SAS 9.4” in [SAS Guide to Software Updates and Product Changes](#).

z/OS Burst Set and Optimizer Library Considerations

If the burst set library is pre-assigned in z/OS, attempting to distribute using an existing burst set in that library generates a message that the table could not be read (or a blank list) when you select **Recipients and Distribution Rules**. Attempting to create a new burst set while the library is pre-assigned generates exceptions, similar to the following:

```
An error occurred in processing the page request. createBurstSet()
(com.sas.report.output.management.OutputManagementException: The physical
data is not available [ java.sql.SQLException: Unable to execute for an
```

```

undetermined reason. SQL passthru expression contained these errors:
ERROR: Libname WRSDIST is not assigned.

[ java.sql.SQLException: SQL passthru expression contained these
errors: ERROR: Libname WRSDIST is not assigned. ] ] ) SQL passthru
expression contained these errors: ERROR: Libname WRSDIST is not assigned.

Root Cause: java.sql.SQLException: SQL passthru expression contained
these errors: ERROR: Libname WRSDIST is not assigned.

```

In actuality, the library is pre-assigned, but the message states that it is not. Removing the pre-assigned flag returns functionality to normal.

Update SAS Server Configuration Files

Certain SAS Application Server configuration files such as autoexec files (appserver_autoexec.sas) and sasv9.cfg files are not migrated. At some point, you might need to tune these files with configuration settings (such as Java options) appropriate for your site. For more information, see [“Optional Setup Tasks”](#).

Note: Starting in SAS 9.4 M2, the migration utility copies to the target system user modification files for those servers that were created with the SAS Deployment Wizard. Servers created with SAS Management Console or by other means are not migrated. The migration utility creates a **sourceusermods** subfolder within each server folder in the configuration directory on the target system that contains all the usermods files. This folder contains all the source usermods files for that server. To implement the source usermods files, ensure that all paths and options are relevant to the target environment and replace the target usermods file with the file from the sourceusermods directory. Any user modification files located in the root of the configuration directory (for example, **C:\SAS\config\Lev1**) are not copied.

Although any settings in config or autoexec files are not migrated, load balancing configuration and metadata information for SAS servers is migrated. (Load balancing here should not be confused with server clustering—the management of multiple SAS Web Application Servers on the SAS middle tier.) For more information about the load balancing algorithms available in SAS 9.4, see [“Understanding the Load Balancing Algorithms”](#) in *SAS Intelligence Platform: Application Server Administration Guide*.

Update Stored Process Archive Package Paths

The SAS automated migration tools update stored process archive package paths that point to locations inside the SAS configuration directory.

The SAS Migration Utility cannot update any paths that reside outside of the configuration directory. The migration utility flags such problematic paths in its migration analysis report. In SAS 9.4, stored process archive package paths are no longer modeled by metadata, but are stored in prompt metadata. Therefore, after the SAS Deployment Wizard finishes executing, you need to manually update the **_ARCHIVE_PATH** prompt for all affected stored processes using SAS Management Console. For more information, see [“Developing Stored Processes with Package Results”](#) in *SAS Stored Processes: Developer’s Guide* and the prompt Help in SAS Management Console online Help.

About Migrated OLAP Cubes

Cube files maintain their physical status in metadata. The OLAP procedure does not overwrite a cube repository if it finds files already present. Instead, PROC OLAP creates

a new folder with a unique name for the new cube. For this reason, OLAP cubes that were built in SAS 9.2 can be used in SAS 9.4 without rebuilding them, although some situations might require action on your part.

- If your SAS 9.2 cubes were built using relative paths, you can move the physical files from one location to another and avoid rebuilding the cubes.
- If your SAS 9.2 cubes were built in a common, network-accessible location, no action is required.
- If your SAS 9.2 cubes are using new hardware in SAS 9.4, you must rebuild the cubes.

If there is no change to the path, then you can rebuild the cube by first submitting PROC OLAP with the DELETE_PHYSICAL option to ensure that all physical files are removed. Then, you re-submit PROC OLAP to create the physical files from the existing metadata definition. If the physical files are not accessible, the first PROC OLAP step might generate an error or warning, but ignore this and the cube can be built.

Note: Cubes that you build in SAS 9.4 are not supported on SAS 9.2 OLAP Servers.

Redeploy Jobs for Scheduling

All jobs that were deployed for scheduling or were deployed as stored processes should be redeployed in the SAS 9.4 environment. From the SAS Data Integration Studio desktop, you can select **Tools** ⇒ **Redeploy Jobs for Scheduling** or **Tools** ⇒ **Redeploy Jobs to Stored Processes**.

Backup for JCL for Deployed Jobs

The SAS Migration Utility modifies JCL files associated with deployed jobs with their new SAS 9.4 path. The migration utility stores backups of the original JCL files in a directory named `oldjclbackup` located under the same parent directory where the JCL was migrated.

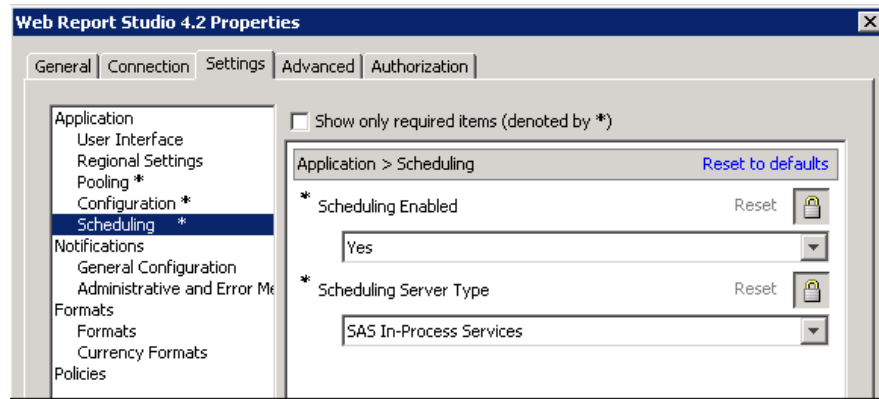
Verify Migrated Jobs with Data Quality Transformations

If jobs that include the Create Match Code transformation do not run successfully after migration, verify that the appropriate Quality Knowledge Base (QKB) location value (DQSETUPLOC value) is specified in the Global Options window for SAS Data Integration Studio.

Reschedule Flows

After migrating to SAS 9.4, owners of scheduled flows need to submit them to the scheduling server used by the SAS 9.4 system. To reschedule flows, follow these steps:

1. Determine the user IDs associated with each flow. (Locate the checklist that you completed in [“Apply Any Required SAS Maintenance”](#).)
2. If you have migrated any SAS web applications, such as SAS Web Report Studio, verify that scheduling is enabled (**Plug-ins** ⇒ **Application Management** ⇒ **Configuration Manager** ⇒ **SAS Application Infrastructure** ⇒ **Web Report Studio 4.4** ⇒ **Properties** ⇒ **Settings** ⇒ **Application** ⇒ **Scheduling**).



Note: For more information, see “Use Configuration Manager” in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

3. Reschedule the flow for your SAS product. For example:
 - For SAS Data Integration Studio, reschedule job flows.
In SAS Management Console, use the reschedule function in Schedule Manager.
For more information, see SAS Management Console online Help.
 - For SAS Web Report Studio, reschedule report flows.
In SAS Web Report Studio, in the Scheduled and Distributed Reports window (**File** ⇒ **Manage Files** ⇒ **View scheduled and distributed reports**), use the **Actions** button.
For more information, see SAS Web Report Studio online Help.

Modify Migrated Information Maps to Enable SAS Web Report Studio Optimization

When a measure data item that meets the following criteria is migrated to SAS 9.4, it is not automatically optimized for SAS Web Report Studio in the same way that an identical new SAS 9.4 data item is optimized.

- The measure data items are in an information map that was migrated to SAS 9.4 by using the SAS automated migration tools.
- The migrated information map has large data sources.
- The migrated measure data items are used in the expressions of other measure data items.
- The default aggregate function for a migrated measure data item is specified as a property of the data item instead of being defined in the data item expression.

To optimize these migrated data items for SAS Web Report Studio, you must re-create them in a SAS 9.4 environment. Consider the following example, which uses SAS Information Map Studio 4.2 to re-create some migrated data items:

1. When you re-create one of these data items, specify its aggregate function as a property of the data item (that is, follow the same basic steps that you followed when you created the data item). Do not define the aggregate function in the expression of the data item.

For example, data item DataItem1 was created in SAS Information Map Studio 3.1 and its aggregate function, **SUM(argument)**, was specified on the **Classifications/**

Formats tab. In SAS Information Map Studio 4.2, re-create this data item, and select **SUM(argument)** on the **Classifications, Aggregations, Formats** tab.

Note: Copying and pasting the information map or data items, or just updating the existing data items, will not cause optimization to occur. You must create new data items.

2. Delete the old measure data item or name the new one with a unique name.
3. Review your reports and modify any references to point to the new data items that you created.

Note: Neither new nor migrated measure data items are optimized for SAS Web Report Studio if the aggregate functions of the data items are defined in the data item expressions. If one of these data items is also referenced by the expression of another data item, then you can optimize it if you can change to specifying its aggregate function as a property of the data item.

For more information, see SAS Information Map Studio 4.4 online Help and the [Base SAS Guide to Information Maps](#).

Post-migration Tasks for SAS Data Management Server (SAS 9.3 to SAS 9.4)

When performing a SAS 9.3 to SAS 9.4 migration, complete these post-migration steps to finish your migration of SAS Data Management Server.

1. Update values in app.cfg for the Quality Knowledge Base installation directory.

For more information, see the *DataFlux Migration Guide*, which is provided as part of the DataFlux migration assessment service.

2. Enable licensing for the new Data Management Server.

For more information, see the *DataFlux Migration Guide*, which is provided as part of the DataFlux migration assessment service.

3. Using a text editor, do the following to dmserver.cfg:

- Update the SOAP port to the port number for the Data Management Server that was specified for it on the [SAS Deployment Wizard Port Remap page](#).
- Add the following for the WLP port:

```
DMSERVER/WLP/SVR/LISTEN_PORT=WLP-port
```

WLP-port is the new WLP port.

dmserver.cfg is in the **SAS-installation-directory/dmserver** directory (for example, **/var/sashome/dmserver**).

4. Start the new Data Management Server by entering the following command from a Windows command prompt or a UNIX console:

```
SAS-installation-directory/dmserver/bin/dmsadmin start
```

5. Contents of the Data Management Server batch_jobs and data_services directories are not copied to the target system as part of the migration process. Therefore, you must manually move these directories.

For more information, see the *DataFlux Migration Guide*, which is provided as part of the DataFlux migration assessment service.

6. Using SAS Management Console, associate a resource template for the Data Management Server. For more information, see SAS Management Console online Help and search for “resource template.”

7. Update jobs that used the source DM server to use the new target DM server.

Jobs that include Data Quality transformations that reference the DataFlux Data Management Server require the new target server definition. Therefore, open each job, and select the new server definition in the Data Quality transformation.

For more information, see [“Working with SAS Data Management Offerings” in SAS Data Integration Studio: User’s Guide](#).

8. Delete the old Data Management Server definition in SAS Management Console after all jobs have been updated. For more information, see SAS Management Console online Help and search for “delete server.”

Middle-Tier Post-migration Tasks

Review the SAS Middle-Tier Configuration

The automated migration tools do not preserve any of the SAS middle-tier configuration information. The deployment of the SAS 9.4 middle tier is always “out of the box.”

Many of the defaults have changed, and any customizations should be reviewed with respect to SAS 9.4 web administration guidelines before they are implemented. Do not assume that the defaults used in SAS 9.2 or SAS 9.3 middle-tier configuration are appropriate for SAS 9.4. For more information, see [SAS Intelligence Platform: Middle-Tier Administration Guide](#).

Update a Whitelist-Related Property in SAS Management Console

After migration, you must update the `sas.web.csrf.referers.knownHosts` property using SAS Management Console. For more information about `sas.web.csrf.referers.knownHosts` and how to change its value, see [“Modify the Allowlist for URLs and HTTP Request Methods” in SAS Intelligence Platform: Middle-Tier Administration Guide](#).

Reconfigure Transport Layer Security (TLS)

Any configuration of TLS (also known as SSL) made to your SAS system is not migrated. After you migrate your SAS system, you have to reconfigure TLS.

For more information, see [“Configure TLS for SAS Web Server Manually” in SAS Intelligence Platform: Middle-Tier Administration Guide](#) or see [“Configure TLS for SAS Web Application Server Manually” in SAS Intelligence Platform: Middle-Tier Administration Guide](#).

Review Role Changes to SAS Web Report Studio

SAS Web Report Studio 4.4 uses the user roles that are implemented in SAS 9.4. For information about SAS 9.4 roles, see [“Availability of Application Features in a New Deployment” in SAS Intelligence Platform: Security Administration Guide](#).

You should review your migrated SAS Web Report Studio users and their re-mapped roles to determine whether you should make any changes. The capabilities for most of your SAS Web Report Studio migrated users should remain the same. However, any SAS Web Report Studio 3.1 advanced users lose the ability to manage distribution lists. To review roles and to manually re-apply any lost capabilities, see the [SAS Intelligence Platform: Web Application Administration Guide](#).

Redefine Themes and Branding

SAS 9.2 and later includes a new theme infrastructure that is used by web applications such as SAS Web Report Studio and the SAS Information Delivery Portal.

For information about migrating custom themes created with SAS Theme Designer for Flex, see [Migrate and Update Custom Themes Automatically](#).

The product-specific branding that was available in SAS Web Report Studio 4.2 is no longer supported. There are no provisions for migrating older branding changes to the new themes in version 4.4. This means that the branded areas must be redefined in the new themes infrastructure.

Location of Dashboards and Indicators

After you upgrade to SAS BI Dashboard 4.4, update the URLs for all SAS BI Dashboard static links, StM data (in indicator data), and custom graph indicators that use stored processes. You update these URLs in the SAS BI Dashboard **Image Web address** field. See your SAS BI Dashboard online Help for more information.

After migration, dashboards and any objects in the dashboard (such as indicators, models, and ranges) are metadata objects and are saved in SAS folders. Any dashboards that you created before SAS BI Dashboard 4.3 are saved as metadata objects. The default location for these metadata objects is the **Products\BIDashboard 4.4** directory. This directory contains the **DashboardConfigs**, **IndicatorDefinitions**, **ModelConfigs**, and **RangeDefinitions** subdirectories.

CAUTION:

Do not move the contents of these folders into different folders. If the contents of these folders are moved to different folders, these objects cannot be used with their dashboards.

SAS BI Dashboard and JDBC DSX Files

If your SAS BI Dashboard relies on any data sources specified in JDBC data source XML (DSX) files, then you must manually migrate these data sources.

You have two options for migrating your data.

- Move the data under metadata control.
- Continue to use a SAS libref that points to the workspace server's file system.

If you use this libref method, then you must manually fix the librefs in JDBC DSX files.

For more information, see “Working with Data Source XML (.dsx) Files” in [SAS Intelligence Platform: Web Application Administration Guide](#).

Deprecated Middle-Tier Property

In SAS 9.3, a property was added to the SAS middle tier, Policy.DisableConcurrentUserLogins. The value of Policy.DisableConcurrentUserLogins is either TRUE or FALSE.

In SAS 9.4, Policy.DisableConcurrentUserLogins has been replaced by Policy.ConcurrentUserLogins. The value of Policy.ConcurrentUserLogins is either DENY or LOGOFF.

Reviewing Your WebDAV Configuration

Review WebDAV Report Repository Permissions

After migration, you should review your WebDAV security settings and make the changes appropriate for your site and its security needs. For more information, see [“Implement Authorization for the SAS Content Server”](#) in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

Note about Migrated WebDAV Content Datestamps

The SAS automated migration tools replace creation dates on content with the date on which the migration occurred. The migration tools preserve modification dates on content. For this reason, migrated WebDAV content can have a creation date that is later than its modification date.

Update SAS Enterprise Miner Workspace Server WebDAV Paths

If you published SAS Enterprise Miner model packages to a WebDAV server, you might need to manually update the WebDAV path.

For more information, see the [SAS Enterprise Miner: Administration and Configuration](#).

Update SAS Information Delivery Portal URLs

Some additional steps must be performed after the SAS Deployment Wizard executes to ensure that links within the SAS Information Delivery Portal have migrated appropriately. To facilitate this process, SAS provides a script that you should run to perform these tasks. See the Instructions.html file for more information.

Instructions.html is under the SAS configuration directory in the **Levn/Documents** subdirectory (for example, **C:\SAS\Config94\Lev1\Documents**).

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Validating Your SAS Migrated Deployment

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Validating Your SAS Migrated Deployment

This is the fifth of five steps required to install SAS 9.4 and migrate your current SAS content.

Validation consists of the following tasks:

- performing the initial validation of SAS servers and applications. For more information, refer to the `Instructions.html` file located on your migration target machines under ***SAS-Configuration-directory/Documents***
- confirming that your content and SAS configuration has migrated correctly.

For a discussion of functionality changes in SAS 9.4, see [SAS Guide to Software Updates and Product Changes](#).

Chapter 7

What to Do Next: Administration Tasks

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Overview of Administration Tasks

Before you perform the administration tasks in this chapter, you should have successfully completed the following tasks:

- Use the SAS Deployment Wizard to install and configure your software on each machine in your environment.
- Complete the post-installation tasks that are described in your `Instructions.html` file, which is located in the **Documents** subdirectory of your configuration directory. These tasks include performing manual configuration steps (if applicable), validating your SAS servers, validating your web applications, and backing up your system.

After the SAS Intelligence Platform has been installed, configured, and validated, you will have a functional system. You can begin performing administration tasks that are necessary to fully implement SAS Intelligence Platform in your environment. These include the following tasks:

- “[First-Priority Setup Tasks](#)” are necessary to protect the integrity of your system. You should perform these tasks first, as soon as possible after you have completed your installation.
- “[Standard Setup Tasks](#)” enable the users in your organization to begin using SAS Intelligence Platform client applications to access and analyze your data.
- “[Optional Setup Tasks](#)” address specific requirements in your environment.
- “[Ongoing System Administration Tasks](#)” keep the SAS Intelligence Platform operational.

First-Priority Setup Tasks

Summary of First-Priority Setup Tasks

The following tasks are necessary to protect the integrity of your system. Complete these steps as soon as possible after installation, before you complete any of the other tasks that are outlined in this chapter.

Table 7.1 *First-Priority Setup Tasks*

Task	Description
Check for and apply SAS hot fixes.	A best practice is to check for and apply SAS hot fixes immediately after deployment and before putting your SAS system into production. Doing so ensures that you have the latest important SAS hot fixes relevant to your site. For more information, see SAS 9.4 Guide to Software Updates and Product Changes.
Check for and apply SAS security updates.	A best practice is to check for and apply SAS security updates immediately after deployment and before putting your SAS system into production. Doing so ensures that you have a secure site. See Security Bulletins for more information.

Task	Description
Secure the SAS configuration on each server machine.	For a secure deployment, the configuration directory on each server machine must be protected by operating system controls. These controls prevent inappropriate access to repository data sets, server scripts, server logs, and configuration files. On Windows systems, all configuration directories, files, and scripts are owned by the user who performs the installation. You must update the permissions as shown in “Recommended Operating System Protections for Windows Machines”. These recommendations assume that your SAS servers and spawners run as services under the Local System account. On UNIX and z/OS systems, the SAS Deployment Wizard automatically applies the appropriate permissions. The default permissions are shown in “Default Operating System Protections for UNIX and z/OS Machines”.
Establish a formal, regularly scheduled backup process.	Establish a formal, regularly scheduled backup process that includes your metadata repositories as well as the associated physical files. SAS includes a server-based facility that performs SAS Metadata Server backups automatically on a scheduled basis. By default, these backups are scheduled to run at 1:00 a.m. every day except Sunday. As a best practice, you should modify your backup configuration to specify a storage device other than the device that is used to store the metadata repositories and the server configuration files. Be sure to include this backup location in your regular system backups. See Chapter 12, “Backing Up and Recovering the SAS Metadata Server”. It is important to back up the physical data that is associated with the metadata so that related information is synchronized if a restore becomes necessary. The Deployment Backup and Recovery tool, new with SAS 9.4, provides an integrated method for backing up and recovering SAS content across multiple tiers and machines. The backup includes the SAS Metadata Server and resources such as the SAS Content Server and server configuration files. If this tool has been configured, scheduled backups are run each Sunday at 1:00 a.m. by default. See Chapter 28, “Using the Deployment Backup and Recovery Tool”. For guidance in setting up a backup process, see: • Chapter 11, “About Backing Up and Restoring Your SAS Content” • “Setting Up Your Backups” in SAS Intelligence Platform: System Administration Guide

Recommended Operating System Protections for Windows Machines

On Windows server machines, you should apply the following operating system protections to your configuration directory. All of these directories are located in **SAS-configuration-directory\Lev1**.

Table 7.2 Recommended Operating System Protections on Windows

Directories	Users	Recommended Permissions
SAS-configuration-directory	System and Administrators	Full Control
	All other users	List folder contents, Read

Directories	Users	Recommended Permissions
SAS-configuration-directory\Lev1	System and Administrators	Full Control
	SAS Spawned Servers (sassrv)	On Windows Vista, Windows 7, and Windows Server 2008: Special permissions to Read and Execute* On Windows XP: Read and Execute*
	Deployment Backup and Recovery Tool user account, also referred to as the backup user (for example, sasbackup)***	Read and Write
	All other users	List folder contents, Read
SASMeta\MetaDataServer	System and Administrators	Full Control
	SAS Metadata Server: Service Login Account (for example, sassvlgm)**	Full Control
		Remove all other users and groups
SASMeta\MetaDataServer\Backups (or other SAS Metadata Server backup location)	Deployment Backup and Recovery Tool user account, also referred to as the backup user (for example, sasbackup)***	Read
Lev1\SASApp	System and Administrators	Full Control
	SAS Spawned Servers (sassrv)	Windows Vista, Windows 7, and Windows Server 2008 only: Special permissions to Read and Execute*
	All other users	List folder contents, Read
Lev1 subdirectories: Documents, ReportBatch, SASMeta, Utilities, Web	System and Administrators	Full Control
	All other users	List folder contents, Read

Directories	Users	Recommended Permissions
Lev1 subdirectories: • ConnectSpawner • Logs • ObjectSpawner • SASApp\OLAPServer • ShareServer	System and Administrators	Full Control Remove all other users and groups
SASApp subdirectories : PooledWorkspaceServer, StoredProcessServer	System and Administrators	Full Control
	SAS Spawnd Servers (sassrv)	On Windows Vista, Windows 7, and Windows Server 2008 only: Read and Execute, List folder contents, and Read*
	All other users	No access
SASApp subdirectories: PooledWorkspaceServer\Logs, StoredProcessServer\Logs	System, Administrators, and SAS Spawnd Servers (sassrv)	Full Control*
SASApp subdirectories: • ConnectServer\Logs • Data\wrsdist • Data\wrstemp • PooledWorkspaceServer\sasuser • StoredProcessServer\sasuser • WorkspaceServer\Logs	System, Administrators, and SAS Spawnd Servers (sassrv)	Full Control
sasv9_meta.cfg file	System and Administrators	Read and Write
		Remove all other users and groups

* The SAS Deployment Wizard automatically sets these permissions for sassrv.

** On Windows, this account is required for SAS Metadata Server clustering on Windows.

*** On Windows, this account is required when using a central vault for the Deployment Backup and Recovery Tool or when using SAS Metadata Server clustering.

Note:

- These recommendations assume that your SAS servers and spawners run as services under the Local System account. If servers and spawners are run under a different account, then grant that account the permissions that are recommended for System.

For example, if the SAS Metadata Server is run under the SAS Metadata Server: Service Login Account, then grant that account Full Control of **SASMeta\MetadataServer**, as shown in the preceding table.

- If you have configured SAS Metadata Server clustering or middle-tier clustering, be sure to set the appropriate protections on all of the configured nodes.
- You might have selected the custom installation option to place all of your log files in a single directory. If you selected this option, then you need to grant the SAS Spawnd Servers (sassrv) user Full Control of the central log destination (for example, *SAS-configuration-directory\Lev1\Logs*).
- If users are using SAS Enterprise Guide to create stored processes, then the SAS Spawnd Servers (sassrv) account must have Write access to the directory in which stored processes are stored.
- If you enable logging for a SAS Workspace Server, then you need to grant all users of the SAS Workspace Server Full Control of the log directory. (See “Create a Log File for Workspace Server Troubleshooting” in *SAS Intelligence Platform: System Administration Guide*.)

For information about the configuration directory structure, see “Overview of the Configuration Directory Structure” in *SAS Intelligence Platform: System Administration Guide*.

Default Operating System Protections for UNIX and z/OS Machines

The following table shows the default operating system protections that are provided automatically for configuration directories on UNIX and z/OS machines. All of these directories are located in *SAS-configuration-directory/Lev1*.

Table 7.3 Default Operating System Protections on UNIX and z/OS

Directories	Users	Default Permissions
<i>SAS-configuration-directory</i>	SAS Installer	Read, Write, and Execute
<i>SAS-configuration-directory/Lev1</i> Lev1 subdirectories: <i>Documents</i> , <i>ReportBatch</i> , <i>SASApp</i> , <i>SASMeta</i> , <i>Utilities</i> , <i>Web</i>	All other users	Read and Execute
Lev1 subdirectories:	SAS Installer	Read, Write, and Execute
• <i>ConnectSpawner</i>	All other users	No access
• <i>Logs</i>		
• <i>ObjectSpawner</i>		
• <i>SASApp/OLAPServer</i>		
• <i>SASMeta/MetadataServer</i>		
• <i>ShareServer</i>		
<i>SASApp</i> subdirectories: <i>PooledWorkspaceServer</i> , <i>StoredProcessServer</i>	SAS Installer	Read, Write, and Execute
	sas group	Read and Execute

Directories	Users	Default Permissions
SASApp subdirectories:	SAS Installer	Read, Write, and Execute
• ConnectServer/Logs • Data/wrsdist • Data/wrstemp • PooledWorkspaceServer/Logs • PooledWorkspaceServer/sasuser • StoredProcessServer/Logs • StoredProcessServer/sasuser • WorkspaceServer/Logs	sas group	Read, Write, and Execute
sasv9_meta.cfg file	SAS Installer	Read and Write
	All other users	no access

Note:

- Make sure that the SAS Spawnd Servers account (sassrv) is a member of the sas group, which has the necessary permissions to server configuration files and log directories.
- You might have selected the custom installation option to place all of your log files in a single directory. If you selected this option, then you need to grant either the sas group or the SAS Spawnd Servers (sassrv) user Read, Write, and Execute permission on the central log destination (for example, **SAS-configuration-directory/Lev1/Logs**).
- If users are using SAS Enterprise Guide to create stored processes, then the SAS Spawnd Servers (sassrv) account must have Write access to the directory in which stored processes are stored.
- If you enable logging for a SAS Workspace Server, then you need to grant all users of the SAS Workspace Server Read, Write, and Execute permission on the log directory. (See [“Create a Log File for Workspace Server Troubleshooting”](#) in *SAS Intelligence Platform: System Administration Guide*).
- For information about the configuration directory structure, see [“Overview of the Configuration Directory Structure”](#) in *SAS Intelligence Platform: System Administration Guide*.

Standard Setup Tasks

The following administration tasks are essential to enable the users in your organization to begin using SAS Intelligence Platform client applications to access and analyze your data.

Table 7.4 Standard Setup Tasks

Task	Description
Add users and manage access.	Standard security setup activities include the following: • creating SAS administrators and regular SAS users • managing access to metadata, data, and application functionality For more information, see “Selected Tasks” in <i>SAS Intelligence Platform: Security Administration Guide</i>.
Establish connectivity to your data sources.	To enable the client applications in the SAS Intelligence Platform to access your data sources (including SAS data sets, third-party relational databases, and data from Enterprise Resource Planning systems), you must create metadata objects that represent your data. For example, to enable users to access data in a library of SAS data sets, you must define metadata objects that represent the SAS library and each of the tables in the library. For more information, see Chapter 4, “Connecting to Common Data Sources”.
Set up your metadata folder structure.	SAS Intelligence Platform clients use a hierarchy of SAS folders to store metadata for content such as libraries, tables, OLAP schemas, jobs, information maps, and reports. The initial structure provides private folders for individual users and a separate area for shared data. Within these folders, you should create a customized folder structure that meets your specific needs. For more information, see Chapter 18, “Working with SAS Folders”. <i>Note:</i> Be sure to secure access to the folders as described in the <i>SAS Intelligence Platform: Security Administration Guide</i>.

Optional Setup Tasks

It might be necessary for you to modify your initial configuration to meet specific requirements in your environment. Optional administration and configuration tasks include the following:

Table 7.5 Optional Setup Tasks

Task	Description
Install sas.servers as a boot script.	On UNIX machines, you can choose to install the sas.servers script as a boot script so that the SAS servers start automatically when you start the machine. The comments in the sas.servers script contain installation instructions that are specific to your operating environment. For more information, see “Using the sas.servers Script on UNIX or z/OS to Start or Stop All Servers” in <i>SAS Intelligence Platform: System Administration Guide</i>.
Optimize the performance of the SAS Metadata Server.	To optimize the performance of the SAS Metadata Server, you might want to adjust the maximum number of threads used by the server. See “Configuring the Number of Threads Used by the Metadata Server” in <i>SAS Intelligence Platform: System Administration Guide</i>. For other performance-related tasks, see Chapter 15, “Managing Metadata Server Memory”.

Task	Description
Create automatically Home Directories for SAS Users	For UNIX machines, you can add the following option <pre>export SASMAKEHOMEDIR=1</pre> to the <code>\$CONFIG/Levl/level_env_usermods.sh</code> file to get the Home Directory created automatically for a user who tries to get a workspace server. This option works for IWA, non-IWA, Standard Workspace Server or Load Balanced Workspace Server scenarios.
Modify the configuration of your processing servers.	Here are some server configuration changes that you might want to make for performance optimization or other reasons: • Define a cluster of load-balanced SAS Workspace Servers in order to balance a load across SAS Workspace Servers that you have installed on multiple hosts. This type of configuration is most useful when you have a large number of users (such as data integration specialists) using a SAS Workspace Server for relatively long-running jobs. For more information, see “Understanding Server Load Balancing” in SAS Intelligence Platform: Application Server Administration Guide. • Modify load balancing or algorithms for SAS Stored Process Servers and SAS Pooled Workspace Servers. For more information, see “Understanding the Load Balancing Algorithms” in SAS Intelligence Platform: Application Server Administration Guide. • If your SAS server metadata contains characters other than those typically found in the English language, then you must start your SAS server with an <code>ENCODING=</code> or <code>LOCALE=</code> system option that accommodates those characters. For more information, see “Encoding and Locale Information” in the SAS Intelligence Platform: Application Server Administration Guide. • If you are submitting large jobs (for example, JAVA GRAPH jobs) on z/OS servers, then you might need to specify a larger region size. For more information, see “Managing Memory” in the SAS Companion for z/OS. • If you want your BI output to always use the time zone of the server’s operating system, then you can specify the <code>TIMEZONE</code> system option in a restricted configuration file on the server tier. This option prevents users from specifying different time zones. For more information, see “TIMEZONE= System Option” and “Restricted Options” in the SAS System Options: Reference.
Optimize web application performance.	For information about configuring middle-tier components for better efficiency and performance, see the SAS Intelligence Platform: Middle-Tier Administration Guide .
Adjust server logging.	You can change your server configurations to obtain additional logging information for troubleshooting, performance management, or other purposes. For more information, see Chapter 10, “Administering Logging for SAS Servers” and SAS Viya Logging Facility for SAS Programs and Jobs .
Enable job and report scheduling.	To enable SAS scheduling features, you can install and configure scheduling software, configure operating system scheduling, or configure in-process scheduling. For more information, see Scheduling in SAS .
Increase Java heap memory allocation for desktop applications.	To process large amounts of data, you might need to modify the Java heap memory allocation that is configured for SAS Management Console, SAS Data Integration Studio, SAS OLAP Cube Studio, SAS Information Map Studio, and SAS IT Resource Management. See “Managing the Java Heap Used by Desktop Applications” in SAS Intelligence Platform: Desktop Application Administration Guide .

Task	Description
Set up change management for SAS Data Integration Studio users.	If you want to implement change management for SAS Data Integration Studio, then you must set up project repositories and at least one change-managed folder. For more information, see “Administering SAS Data Integration Studio” in <i>SAS Intelligence Platform: Desktop Application Administration Guide</i> .
Collect ARM log information for SAS Data Integration Studio batch jobs.	If you want to collect ARM log information for SAS Data Integration Studio jobs that are run on a batch basis, then you must enable logging for the batch server that executes the jobs. For more information, see “Collecting ARM Log Information for SAS Data Integration Studio Jobs” in <i>SAS Intelligence Platform: System Administration Guide</i> .

Ongoing System Administration Tasks

The following table lists important system administration tasks that you need to perform on an ongoing basis to keep the SAS Intelligence Platform operational.

Table 7.6 Ongoing System Administration Tasks

Task	Documentation Reference
Start, stop, pause, resume, and refresh the servers that are used in the system.	Chapter 6, “Operating Your Servers”
Check the status of a server or of a metadata repository.	Chapter 7, “Checking the Status of Servers”
Monitor the activity of servers.	Chapter 9, “Monitoring the Activity of SAS Servers”
Perform regular full backups of the SAS Metadata Server.	Chapter 11, “About Backing Up and Restoring Your SAS Content”
Use server logs and configure logging options.	Chapter 10, “Administering Logging for SAS Servers” and <i>SAS Viya Logging Facility for SAS Programs and Jobs</i>
Create a new metadata repository.	Chapter 17, “Managing SAS Metadata Repositories”
Promote individual metadata objects or groups of objects.	Chapter 20, “Promotion Tools Overview”

Note: The preceding table includes only the tasks that are documented in this guide. Other important administration tasks are described in the following documents:

- *SAS Intelligence Platform: Security Administration Guide*
You can use [“Checklist for a More Secure Deployment”](#) in *SAS Intelligence Platform: Security Administration Guide* to ensure that your environment remains secure on an ongoing basis.
- *SAS Intelligence Platform: Data Administration Guide*

- *SAS Intelligence Platform: Application Server Administration Guide*
- *SAS Intelligence Platform: Desktop Application Administration Guide*
- *SAS Intelligence Platform: Middle-Tier Administration Guide*
- *SAS Intelligence Platform: Web Application Administration Guide*
- *Scheduling in SAS*
- *SAS/SHARE User's Guide*
- *SAS/CONNECT User's Guide*

You can access these [documents](#).

Best Practices for Ensuring the Integrity of Your System

Keep Necessary Documentation Available

SAS administrators should keep the following documentation available for each environment:

- the operational document specific to your environment to assist in transferring information to new administrators or for vacation coverage
- an updated store of user IDs and passwords
- a complete log of changes and events that take place in the SAS environment. This log is helpful if issues are encountered. The following changes should be included in the log:
 - host name changes
 - updates
 - patches

Start and Stop SAS Servers in the Correct Order

It is critical that the SAS servers be started and stopped in the recommended order as documented in “[Overview of Server Operation](#)” in *SAS Intelligence Platform: System Administration Guide*. The SAS_lsm tool described in [Usage Note 58231: Utility that manages multi-tiered SAS services for Unix/Linux deployments](#) is one of the options to ensure that this recommendation is followed consistently.

Back Up Your Environment

Maintain a regular schedule of deployment backups, as described in [Chapter 28, “Using the Deployment Backup and Recovery Tool”](#).

Use operating system commands to back up your file system contents on a regular basis when server processes are stopped. Verify that your backup process is successful. Verify that you can restore from your backup.

Maintain a daily schedule of SAS Metadata Server backups, as described in [Chapter 12, “Backing Up and Recovering the SAS Metadata Server”](#).

By default, the SAS Metadata Server retains backups for 7 days. If you have enough available storage in the backup location, it is recommended that you increase that setting to retain at least 30 days of metadata backups. This ensures that a valid backup is available if a metadata corruption issue is encountered. If there is insufficient storage available in the backup location to support this, it is possible to store metadata backups at an alternative location. You should perform a file system backup of the metadata backup location nightly to allow for the recovery of older backups that were removed by the metadata server in accordance with your file system backup retention policy.

Test Alert Email Configuration

SAS Metadata Server automatically sends an email to the designated email address when specific errors occur. This enables the SAS administrator to take timely action to correct the issue.

To test the alert email:

1. Log on to SAS Management Console.
2. Expand **Metadata Manager**, and right-click the active server.
3. Select **Properties**, and click **Send Test Message**.
4. The settings for the alert email are in the omaconfig.xml and sasv9.cfg files that are located in the *sas-config-dir/SASMeta/MetadataServer* directory.

For more information, see [Backup Alert Notifications](#) in *SAS Environment Manager 2.5 Administration: User's Guide*.

Regularly Assess Your Environment for Available Hot Fixes

SAS makes hot fixes available for the customer to download and install. For more information, see the following resources:

- [SAS Hot Fix Analysis, Download and Deployment Tool](#)
- [SAS Hot Fix Announcements Communities Page](#)
- [How to learn about hot fixes to SAS software](#)

Update SAS Licenses and TLS Certificates

SAS licenses and TLS certificates must be updated before the expiration date.

Monitor Your Environment for System Resource Limitations

Based on the system resource limitations defined in the system requirements documentation, monitor your environment for available disk space, CPU, I/O, file descriptors, ulimits, and memory. Use system tools and the Environment Manager provided by SAS to monitor your server health and issue alerts as described in “[Using SAS Environment Manager to Monitor SAS Servers](#)” in *SAS Intelligence Platform: System Administration Guide*.

For Linux, see [System Requirements for SAS 9.4 Foundation for Linux for x64](#).

For Windows, see [System Requirements for SAS 9.4 Foundation for Microsoft Windows](#).

Perform Regular Metadata Maintenance

Perform regular maintenance of metadata as described in [“Running the Metadata Analyze and Repair Tools”](#) in *SAS Intelligence Platform: System Administration Guide*.

Long-Running SAS Sessions

To monitor long-running SAS sessions:

1. Check for long-running SAS sessions that might be abandoned and are no longer connected to a user session or a batch process.
2. Check SAS Enterprise Guide sessions that are left running overnight by users. These can lock the SAS tables.

These sessions might interfere with the nightly backup processes. Both of these tasks can be successfully scripted. Your SAS consultants can help you find and adapt such scripts in your environment.

Clean Up Abandoned SASWork Directories

The SAS Cleanwork Utility for UNIX or Windows can be used for this task.

- For the UNIX environment, see [“SAS Usage Utilities: cleanwork”](#) in *SAS Companion for UNIX Environments*.
- For the Windows environment, see [“Cleanwork Utility”](#) in *SAS Companion for Windows*.

Run Scripts to Archive Log Files

Compress and archive log files periodically to save disk space. If you have servers that need to be restarted in order to rotate their logs, schedule a daily task to restart each of them. Log files are essential for troubleshooting issues, so retain the archived log files for a period of time to ensure that they are not needed by SAS Technical Support.

SAS Visual Analytics Monitoring

If you have installed SAS Visual Analytics on your machine, monitor the Autoload feature to ensure that it is periodically refreshing the tables when SAS Visual Analytics is running.

Monitor the audit reports to review information about the usage of your SAS Visual Analytics environment.

SAS Grid Monitoring

If you have a grid environment, monitor the distribution of the interactive and batch workload to ensure that the health of your grid is good. For further guidance, see [SAS Grid Manager](#).

Maintenance of the SAS Shared Services Database

For more information about the SAS Shared Services database, see the following resources:

- [Tuning the PostgreSQL Data Server](#) in *SAS 9.4 Web Applications: Tuning for Performance and Scalability*
- [Monitoring Database Usage with SAS Environment Manager](#)

Maintenance of the PostgreSQL Database

To perform regular maintenance on the PostgreSQL database, see “[Tuning the PostgreSQL Data Server](#)” in *SAS Web Applications: Tuning for Performance and Scalability*.

Allow Only the SAS Metadata Server to Access Your Metadata Repositories

The **MetadataRepositories** and **rposmgr** subdirectories, which are located in the SAS configuration directory, are critical to the operation of your system. These data sets contain metadata that defines your servers, users, access levels, enterprise data sources, and data structures. They also contain metadata for resources that are created and used by SAS applications, including information maps, OLAP cubes, report definitions, stored process definitions, and jobs.

To safeguard the integrity of your system:

- Never move, delete, modify, or directly read the data sets in the **MetadataRepositories** and **rposmgr** directories. These data sets should be accessed only by SAS Metadata Server processes.
- Do not place other files in these directories.

Use Best Practices for Working with SAS Folders

The folders that appear on the **Folders** tab of SAS Management Console are used by client applications to store BI content and system information. Inappropriate renaming, deleting, or moving of these folders or their contents could cause client applications to malfunction.

When interacting with folders in SAS Management Console, be sure to follow the best practices that are provided in [Chapter 18, “Working with SAS Folders”](#). If you need to move or copy the contents of these folders, use the procedures that are provided in [Chapter 20, “Promotion Tools Overview”](#).

Use Usermods Files When Customizing Autoexec Files, Server Configuration Files, and Start-up Scripts

If you need to customize a configuration file, autoexec file, or start-up script for a SAS server, do not directly modify the file or script. Instead, add your customizations to the corresponding file that is named *server-name_usermods.cfg*, *autoexec_usermods.sas*, *server-name_usermods.bat*, or *server-name_usermods.sh*.

Use of these files prevents your customizations from being overwritten when a new SAS release is installed.

Be Aware of the SAS Virtualization Environment Policy

Do not make changes that affect the responsiveness of virtual machines that are running SAS servers. For more information, see [SAS Product Support for Virtualization Environments](#).

Appendix 1

Copying an Existing SAS 9.4 Deployment

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Copying an Existing SAS 9.4 Deployment

You can use the SAS Migration Utility and the SAS Deployment Wizard to create a second SAS 9.4 deployment that contains the same SAS content and the same configuration as an existing SAS 9.4 deployment. This capability is useful in the following situations:

- You have created and verified a SAS deployment in a test environment, and you want to replicate that deployment in a production environment.
- You want to use the SAS deployment in your production environment as the basis for creating a deployment in a test environment or a development environment.
- You need to create a mirror of your SAS deployment for disaster recovery purposes.
- You want to move your SAS deployment to upgraded hardware.

In addition to the limitations previously mentioned, the SAS Migration Utility has the following limitations when copying an existing SAS 9.4 deployment:

- You can use the SAS Migration Utility only for the initial replication of a deployment. The utility cannot be used to refresh or update an existing deployment. You can refresh the deployment as needed by using the [promotion tools](#) to copy specific content items from one deployment to another.
- In deployments with a clustered metadata server or a clustered middle tier, run the SAS Migration Utility only on the first metadata node and the primary middle tier machine. If you want the target deployment to use clustering, run the SAS

Deployment Wizard on each additional metadata node and horizontal cluster node in the target deployment. On the additional nodes, do not select **Perform migration**.

Be sure to use the correct version of the SAS Migration Utility. When you migrate from a SAS 9.4 deployment, use `smu94_x64.exe`, `smu94.sh`, or `smu94.zos`.

Overview of the SAS 9.4 to SAS 9.4 Migration Process

The SAS 9.4 to SAS 9.4 migration process includes the following steps:

- “Step 1: Design Your Migration”
- “Step 2: Perform Pre-migration Tasks”
- “Step 3: Run the SAS Deployment Wizard and Migrate Your SAS Content”
- “Step 4: Complete Manual Migration Steps”
- “Step 5: Validate the New Environment”
- “Step 6: Maintain and Update the New Environment”

Step 1: Design Your Migration

In this step, you determine how you are going to perform the migration. The following options are available:

- Migrate to the same machine as the source environment. You might want to use this option if you are creating a new environment for development or testing purposes.

If you choose this option, it is recommended that you use the same instance of installed software (SASHome) for both environments.

When you perform the migration, select a configuration level that is different from the level of the source environment. For example, if the source environment uses **Lev1**, select **Lev2** for the new environment. Under the configuration directory path, a new subdirectory is created with the level number that you specify.

The new environment has its own configuration files, metadata servers, middle-tier servers, and other SAS servers. In addition, each environment has its own set of physical files (including files for tables, deployed jobs, and stored process source code) on the machine.

For port numbers, the following options are available:

- If the source and the target environments will both be operational at the same time, then it is important to specify new port numbers for each server in the target environment.
- If only one environment will be operational at a time, then the source and target environments can use the same port numbers. The benefit to this option is that users do not need to create new metadata profiles and can use existing shortcuts to access web applications.
- Migrate to a different machine.

If you choose this option, a new instance of installed software is created on the new machine, along with a new configuration directory, new server instances, and copies of physical files. If you choose this option, it is not necessary to specify a different level number or different port numbers.

Note: The procedures in this chapter are for a single-machine configuration. However, same-version migration is also supported for multi-machine configurations. For guidance, see [Chapter 2, "Designing Your Migration"](#).

Step 2: Perform Pre-migration Tasks

As with any migration, be sure to perform all pre-migration tasks in [Chapter 3, "Performing Pre-migration Tasks"](#). The following steps are crucial or specific to copying an existing SAS 9.4 deployment:

1. Make sure that the SAS Metadata Server and the SAS Web Infrastructure Platform Data Server are running in the source SAS 9.4 environment.
2. Log on to the metadata server host machine in the source SAS 9.4 environment, and navigate to the directory that contains the SAS Migration Utility executables. By default, the executables are located in the SAS Software Depot in the path `utilities/smu94` (or `Utilities\smu94` on Windows).
3. Open the utility template file (`smu.properties.template`) in a text editor. Edit the file to specify properties including the following:
 - a. • fully qualified paths for the SAS 9.4 source environment's configuration directory (`SMU.config.dir`), the SAS executable (`SMU.SASROOT`), the SAS 9.4 source environment's SASHome (`SMU.SASHOME`), and an output directory for the migration package (`SMU.Output.Dir`).
 - the metadata server host name (`SMU.host.metadata`), administrative user ID (`SMU.user`), and administrative user password (`SMU.password`) to access the SAS 9.4 source environment's metadata server; or the name of a connection profile (`SMU.profile`) that contains this information. You must specify an unrestricted user (for example, `sasadm@saspw`).
 - the user ID (`SMU.webinfpltfm.dbms.userid`) and password (`SMU.webinfpltfm.dbms.password`) that can be used to open a JDBC connection to the SAS Web Infrastructure Platform Data Server in the SAS 9.4 source environment. The `webinfpltfm.dbms.userid` can be found in the following file:

```
SAS-configuration-directory/Lev1/Web/WebAppServer/  
SASServer1_1/conf/server.xml
```

Look for the line that contains the text

```
driverClassName="org.postgresql.Driver".
```

Additional properties might also be needed. See ["Develop a Common SAS Migration Utility Properties File"](#).

- b. Run the migration utility in analyze mode, using the following command from an operating system prompt or command line:

- Windows 64-bit:

```
smu94_x64.exe -analyze -properties absolute-pathname-to-properties-file -replace
```

- UNIX:

```
./smu94 -- -analyze -properties absolute-pathname-to-properties-file -replace
```

- z/OS:

```
./smu94.zos -- -analyze -properties absolute-pathname-to-properties-file -replace
```

- c. Check the migration utility log file (migrate.log), which is located in your migration package output directory. If the utility completed successfully, the following messages should appear at the end of the log:


```
[INFO] SMU Product analyses completed
[INFO] SMU No packaging was performed due to the mode setting
```
- d. Check the migration analysis report (AnalysisReport.xml).
- e. Correct any errors that are reported in the migrate.log file or in the migration analysis report, and then rerun the migration utility in analyze mode. Repeat this process until all errors have been resolved.
- f. Run the migration utility using the same command that you used in step 2, but without the **-analyze** option. The command creates the migration package. Check the migrate.log file and the migration analysis report to verify that the migration package was created successfully.

Step 3: Run the SAS Deployment Wizard and Migrate Your SAS Content

In this step, you run the SAS Deployment Wizard with the migration package as input. The wizard configures the target environment based on the source environment and loads your content to the target environment. Follow these steps:

1. Log on to the machine with the appropriate user ID. As a best practice, you should log on with the same account that was used to install the source environment. On Windows, the account must be a member of the Administrators group. On UNIX, do not use **root**.
2. If you are migrating to the same machine and you will be using the same port numbers in both environments, stop all of the servers in the source environment before starting the SAS Deployment Wizard.
3. Go to the highest-level directory in the SAS Software Depot. From that directory, use one of the following commands to start the SAS Deployment Wizard:
 - Windows: **setup.exe -record -deploy**
 - UNIX: **setup.sh -record -deploy**
 - z/OS: **setup.rexx -record -deploy**
4. As you respond to the SAS Deployment Wizard prompts, follow the guidelines that are provided in the following tables. (These tables list only the pages that pertain to migrations.)

If you are migrating to the same machine as the source environment, respond to the prompts as follows:

Table A1.1 SAS Deployment Wizard Responses for Migrating to the Same Machine

Wizard Page	How to Respond When Migrating to the Same Machine (Shared SASHome from the Same Ship Event, Different Level Number)
Select Deployment Task	Select Install SAS software .
Select Deployment Type	Select Perform a Planned Deployment and Configure SAS Software . When migrating to the same machine, you do not need to select Install SAS Software because the software is already installed on the machine.
Specify Deployment Plan	Specify the same deployment plan that was used to create the source environment.
Specify Configuration Prompting Level	Select the same prompting level that was used to create the source environment (for example, Typical).
Specify Configuration Information	Configuration Directory You can accept the default directory or specify a different directory. Configuration Level Select a level that is different from the level of the source environment. For example, if the source environment is using Lev1 , you might want to select Lev2 . Under the configuration directory path, a new subdirectory is created with the level number that you specify.
Local Machine Name	Enter the fully qualified host name and short host name for the machine.
Migration Information	Select Perform migration , and then navigate to the highest-level directory of the migration package that you created during pre-migration tasks. If you have a multiple machine deployment, you must specify the source machine corresponding to the target machine to which you are migrating. Select the source machine in the Select Machine to Migrate SAS Deployment Wizard prompt. If there is only one machine remaining in your deployment, this prompt is not presented. If your migration fails and you need to retry, see “Creating Restore Points for Multiple-Machine Deployments” in <i>SAS Guide to Software Updates and Product Changes</i> . <i>Note:</i> Do not select this option when you are installing additional metadata server nodes or additional middle tier horizontal cluster nodes.
Remap Ports	To specify port numbers that are different from the defaults, click the Port for Target cell in the appropriate row, and enter the new port number. Port numbers that appear in bold indicate a potential port conflict. If the source and the target environments will both be operational at the same time, then it is important to specify new port numbers for each server in the target environment. If only one environment will be operational at a time, then the two environments can share the same port numbers.
External Account: Installer	As a best practice, specify the same SAS Installer account that was used to create the source environment.
External Account: SAS Spawnd Servers Account	If you want, you can specify the same SAS Spawnd Servers account that is used by the source environment.

Wizard Page	How to Respond When Migrating to the Same Machine (Shared SASHome from the Same Ship Event, Different Level Number)
SAS Web Infrastructure Platform Database Server	If the source and the target environments will both be operational at the same time, then it is important to specify new port numbers for each component in the target environment. If only one environment will be operational at a time, then the two environments can share the same port numbers.
SAS Deployment Tester Server	
SAS Web Server: Configuration	
Web Application Server: JMS Configuration	
Web Application Server: Cache Locator Configuration	
Web Application Server: Server Ports	
Scheduling Services Cache Locator	
SAS Web Application Themes	
SAS Environment Manager: Configuration	
SAS Flex Application Themes	
SAS Web Infrastructure Platform Scheduling Services Configuration Dependencies	If SASMeta is selected, then it is not necessary to select a different metadata server context. In SAS 9.4, the SASMeta server context no longer includes a workspace server or a batch server.
SAS Visual Analytics Configuration Dependencies	
IP Multicast	Be sure to modify the multicast settings if you are migrating to the same machine as the source environment. The combination of multicast IPD address and multicast UDP port should be different for each SAS deployment and also different from those used by other multicast applications at your site. See “Designating Ports and Multicast Addresses” in <i>SAS Intelligence Platform: Installation and Configuration Guide</i> .

If you are migrating to a different machine, respond to the prompts as follows:

Table A1.2 SAS Deployment Wizard Responses for Migrating to a Different Machine

Wizard Page	How to Respond When Migrating to a Different Machine (Same or Different Level Number)
Select Deployment Task	Select Install SAS software .
Select Deployment Type	Select Perform a Planned Deployment, Install SAS Software, and Configure SAS Software .
Specify Deployment Plan	Specify the same deployment plan that was used to create the source environment.
Specify Configuration Prompting Level	Select the same prompting level that was used to create the source environment (for example, Typical).

Wizard Page	How to Respond When Migrating to a Different Machine (Same or Different Level Number)
Specify Configuration Information	Configuration Directory You can accept the default directory or specify a different directory. Configuration Level You can use the same level number that is used in the source environment. This option is appropriate if you are creating a mirror of your SAS deployment for disaster recovery purposes or if you are migrating your deployment to new hardware. If you are creating a separate test or development environment, you might want to specify a different level number.
Local Machine Name	Enter the fully qualified host name and short host name for the machine.
Migration Information	Select Perform migration, and then navigate to the highest-level directory of the migration package that you created during pre-migration tasks. <i>Note:</i> Do not select this option when you are installing additional metadata server nodes or additional middle tier nodes.
Remap Ports	If you want to specify any port numbers that are different from the defaults, click the Port for Target cell in the appropriate row, and enter the new port number. Port numbers that appear in bold indicate a potential port conflict.
External Account: Installer	As a best practice, specify the same SAS Installer account that was used to create the source environment.
External Account: SAS Spawnd Servers Account	Specify the SAS Spawnd Servers account that you created on this machine.
SAS Web Infrastructure Platform Scheduling Services Configuration Dependencies SAS Visual Analytics Configuration Dependencies	If SASMeta is selected, then you must select a different server context. In SAS 9.4, the SASMeta server context no longer includes a workspace server or a batch server.
IP Multicast	When migrating to a different machine, it is usually not necessary to modify the multicast settings. See “Designating Ports and Multicast Addresses” in <i>SAS Intelligence Platform: Installation and Configuration Guide</i> .

- When the wizard is finished, read the warnings and notices that appear in `Instructions.html`.
- On Windows systems, check to ensure that a unique set of Windows services has been created for the new environment. If you migrated to the same machine, a separate set of services should appear for each level (for example, Lev1 and Lev2).

Step 4: Complete Manual Migration Steps

In this step, you manually perform certain migration tasks that are not performed by the SAS Deployment Wizard. Refer to the following sources for information about manual steps that might be required to complete the migration:

- Instructions.html document for your new deployment
- [“Overview of Performing Post-migration Tasks”](#)

The manual steps include tasks such as the following:

- If necessary, create new connection profiles for the new environment. This step is necessary in the following situations:
 - You migrated to a new machine.
 - You migrated to the same machine and specified a different port number for the metadata server. Make sure that the new profile names include the level number so that users will select the correct profile when logging on.
- Copy physical files such as data tables, deployed jobs, and stored process source files to the new environment. (These files are copied automatically only if they are stored in the configuration directory in locations that are managed by the SAS Deployment Wizard.)

Then, modify the path information for these files. Use SAS Management Console to modify path locations for libraries, stored process repositories, and deployment directories. Use SAS OLAP Cube Studio to modify physical paths for cubes. Use SAS Data Integration Studio to modify file references that are stored in jobs or job flows.

- Rebuild OLAP cubes if necessary.
- Manually apply any needed customizations to autoexec and configuration files for SAS servers.

Note: In a SAS 9.4 to SAS 9.4 migration, it is generally not necessary to run the Authorization Differences Reports.

Step 5: Validate the New Environment

The final step is to validate the new environment to ensure that it is configured properly and is operational. For instructions, see [“Validating Your SAS Migrated Deployment”](#).

Step 6: Maintain and Update the New Environment

You can refresh the new environment as needed by using the promotion tools to copy specific content items from one deployment to another. See [“Introduction to the Promotion Tools”](#) in *SAS Intelligence Platform: System Administration Guide*.

Appendix 2

SAS Migration Utility Reference

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SAS Migration Utility Overview

The SAS Migration Utility is an Ant-based framework and set of SAS product extensions whose primary purpose is to create a package of your current SAS content—data and configuration—that the SAS Deployment Wizard uses when it installs and configures SAS 9.4. The migration utility framework consists of a two-phase process: an analyze phase and a package phase.

In the analyze phase, the migration utility locates the SAS content required for migration, performs a validation to ensure the content can be reliably migrated, and saves the required information for the migration utility package phase. During the analyze phase, the migration utility generates a migration analysis report that you can use to inventory and enumerate those SAS products found on your current SAS system to be eligible for automatic migration with the deployment wizard.

In the package phase, the migration utility searches the system and copies SAS content into a migration package that is used by the deployment wizard as it installs and configures SAS 9.4.

Important: The SAS Migration Utility does not support symbolic links that occur in the SAS configuration directory's **LevX** directory. You must adjust the SAS configuration directory's **LevX** directory or file structure to remove the symbolic links and replace them with the actual directories or files before running the utility. Afterward, the original directory or file structure can be restored using symbolic links, if necessary.

For more information about how to use the SAS Migration Utility, see [“Inventorying Your Current SAS Deployment”](#).

The SAS Migration Utility Version

With SAS 9.4, there are different versions of the SAS Migration Utility. You should use the version that matches your source operating system. Choose the matching version from your new SAS Software Depot even if you already have a matching version in your existing SAS Software Depot. The table maps the SAS Migration Utility to the operating system.

Table A2.1 SAS Migration Utility Compatibility Chart

Your Current SAS Version	Operating System of the Machine You Are Migrating			
	Windows 32-Bit	Windows 64-Bit	UNIX	z/OS
SAS 9.2	smu92_32.exe	smu92_x64.exe	smu92	smu92.zos
SAS 9.3	smu93_32.exe	smu93_x64.exe	smu93	smu93.zos
SAS 9.4	smu94_32.exe	smu94_x64.exe	smu94	smu94.zos

To migrate from SAS 9.2 or SAS 9.3 to SAS 9.4, please contact SAS Technical Support to receive the utility and for guidance.

smu Command Syntax

For SAS 9.2 or SAS 9.3 syntax, please contact SAS Technical Support.

Windows:

```
smu94_32.exe | smu94_x64.exe
<-analyze>
<-localhost fully-qualified-host-name>
<-properties filename>
-sasconfigdir path -sasexedir path -sasproductdir path
-profile filename | -metadathost host-name <-metadataport port> -user userID -
password password
-outputdir path <-tier name> <-replace>
```

<-help>

UNIX:

smu94 --

<-analyze>

<-localhost *fully-qualified-host-name*>

<-properties *filename*>

-sasconfigdir *path* **-sasexedir** *path* **-sasproductdir** *path*

-profile *filename* | **-metadatahost** *host-name* <**-metadaport** *port*> **-user** *userID* **-password** *password*

-outputdir *path* <**-tier** *name*> <**-replace**>

<-help>

z/OS:

smu94.zos --

<-analyze>

<-localhost *fully-qualified-host-name*>

<-properties *filename*>

-sasconfigdir *path* **-sasexedir** *path* **-sasproductdir** *path*

-profile *filename* | **-metadatahost** *host-name* <**-metadaport** *port*> **-user** *userID* **-password** *password*

-outputdir *path* <**-tier** *name*> <**-replace**>

<-help>

smu Command Syntax Description

--

is required by the migration utility when running on UNIX and z/OS. These are two hyphens (--) without any space between them.

Default: None

Required: Yes (for UNIX and z/OS only)

Equivalent Property: Not applicable

-analyze

specifies that the migration utility performs only the first of its two execution phases: analyze. In the analyze phase, the migration utility locates the current SAS content required for migration, performs a validation to ensure the content can be reliably migrated, and saves the required information for the migration utility package phase. During the analyze phase, the migration utility generates a migration analysis report that you can use to inventory and enumerate those SAS products found on your current SAS system to be eligible for automatic migration with the SAS Deployment Wizard.

Default: None

Required: No

Equivalent Property: Not applicable

When not specified, the migration utility performs both of its two phases, analyze and package. In the package phase, the migration utility uses information saved by the analyze phase to search the system and copy current SAS content into a migration package.

-localhost *fully-qualified-host-name*

explicitly sets the machine host name on which the migration utility is running.

Use **-localhost** for machines that have multiple network interfaces or a dynamic name. *fully-qualified-host-name* should be a fully qualified host name for the machine. For example: **-localhost myserver.example.com**

Default: None

Required: No

Equivalent Property: SMU.localhost

-properties *pathname*

specifies the absolute path and file name to a file that contains inputs for the migration utility in the form of properties. For example: **-properties "C:\SAS Software Depot\utilities\smu\smu.properties"**.

For more information, see [“Running the Migration Utility Using a Properties File”](#).

Enclose any paths containing spaces in double quotation marks.

Default: None

Required: No

Equivalent Property: Not applicable

-sasconfigdir *path*

specifies the path to the current SAS configuration directory.

Enclose any paths containing spaces in double quotation marks.

Examples:

"C:\SAS 9.4\Config\Lev1"

/opt/sas/config/Lev1

Default: None

Required: Yes

Equivalent Property: SMU.config.dir

-sasexedir *path*

specifies the current SAS path to the SAS executable (on Windows) or the top-level SAS installation directory on (UNIX). If you are running the migration utility on a machine that does not contain the SAS executable or script, use **-sasproductdir** instead.

Enclose any paths containing spaces in double quotation marks.

Examples:

"C:\Program Files\SASHome\SASFoundation\9.4"

/opt/sas/SASHome/SASFoundation/9.4

Default: None

Required: No, when **-sasproductdir** is used

Equivalent Property: SMU.SASROOT

-sasproductdir *path*

specifies the path name to the top-level directory where the current SAS products are installed.

Enclose any paths containing spaces in double quotation marks.

Examples:

"C:\Program Files\SASHome"

/opt/sas/SASHome

Default: None

Required: No, when **-sasexedir** is used

Equivalent Property: SMU.SASHOME

-profile *filename*

specifies the absolute path name of a valid current SAS client connection profile that contains connection parameters containing unrestricted user credentials for the current SAS Metadata Server of the SAS deployment to be migrated. (A SAS client connection profile is used by clients such as SAS Management Console, SAS Information Map Studio, SAS Data Integration Studio, and SAS OLAP Cube Studio.)

Unless you specify an absolute path to the profile, the migration utility checks the machine's default SAS client connection profile directory.

By default, SAS stores connection profiles here:

- Windows:
C:\Documents and Settings\user-ID\Workspaces
- UNIX and z/OS:
\$HOME/Workspaces

Enclose any paths containing spaces in double quotation marks.

Default: SAS connection profile directory (see earlier paths)

Required: No (See [“smu Command Notes”](#))

Equivalent Property: SMU.profile

[“Running the Migration Utility Using a Properties File”](#)

-metadatahost *host-name*

specifies the name of the machine on which the current SAS Metadata Server resides. *host-name* is either a fully qualified host name or an IP address for the metadata server machine.

Default: None

Required: No (See [“smu Command Notes”](#))

Equivalent Property: SMU.host.metadata

See [“Running the Migration Utility Using a Properties File”](#)

-metadataport *port*

specifies the port the migration utility uses to connect to the SAS Metadata Server. If no port is specified, the migration utility uses 8561 by default.

Default: 8561

Required: No

Equivalent Property: SMU.port.metadata

`-user <domain>userID -password password`

specifies the user ID and password for sasadm or another unrestricted user ID on the current SAS Metadata Server. The migration utility accepts passwords that are encoded using PROC PWENCODE.

CAUTION:

You should encode any passwords used in a migration utility properties file. The migration utility supports the {sas002} method through PROC PWENCODE. For more information, see “PWENCODE Procedure” in *Base SAS Procedures Guide*.

(Specify the unrestricted user ID in the manner in which you would when you normally run SAS. For example, if SAS has stored the user ID as domain-qualified, and you specify it with the migration utility as unqualified, the connection fails.)

Default: None

Required: No (See “smu Command Notes”)

Equivalent Properties: SMU.user, SMU.password

See “Running the Migration Utility Using a Properties File”

`-outputdir path -replace`

specifies the absolute path to the parent output directory where the migration utility should write its output. If the directory does not exist, the migration utility creates it for you.

If the specified directory already exists and contains information from a previous migration utility invocation, the migration utility returns an error, unless you specify the -REPLACE option.

The migration utility writes the migration analysis report to **SMU.Output.Dir/tier/AnalysisReport**.

Enclose any paths containing spaces in double quotation marks.

Default: None

Required: Yes

Equivalent Property: SMU.Output.Dir

`-tier name -replace`

specifies a name for the subdirectory (under the parent directory) where the migration utility writes its migration analysis report and the migration package. In addition, the migration utility appends an at sign (@) and the fully qualified host name to the specified tier name directory (for example, **middle_tier@myhost.example.com**).

This is required when you have two tiers on the same machine (for example, the SAS server tier and middle tier).

If the specified directory already exists and contains information from a previous migration utility invocation, the migration utility returns an error, unless you specify the -REPLACE option.

If you omit **-tier**, the migration utility creates a directory using the fully qualified host name.

Enclose any paths containing spaces in double quotation marks.

Default: fully qualified host name

Required: No (except when two tiers are on the same machine)

Equivalent Property: Not applicable

-help

displays the list of migration utility options and a brief description for each.

Default: None

Required: No

Equivalent Property: Not applicable

[“Running the Migration Utility Using a Properties File”](#)

smu Command Notes

Follow these notes when running the SAS Migration Utility:

- The SAS Migration Utility command line has a 254-character limit. Command-line input that exceeds this length causes the utility to fail. If your input exceeds 254 characters, use a migration utility properties file. For more information, see [“Running the Migration Utility Using a Properties File”](#).
- The current SAS Metadata Server must be running when you invoke the migration utility.
- On SAS multi-machine deployments, run the migration utility first on the machine hosting the SAS Metadata Server.
- On SAS deployments that use clustered metadata servers, run the migration utility on the first metadata server node. For more information, see [“Packaging SAS Content on a Metadata Server Cluster”](#).
- You must run the migration utility from its executable directory.

By default, this is the **smu94** subdirectory under the **Utilities** directory in your SAS Software Depot.

Note: On UNIX and z/OS, if you have not already, remember to assign file Execute permissions to **smu.sh** before attempting to run the migration utility. For more information, refer to your UNIX or z/OS documentation.

- The migration utility must be run on every machine that is running SAS using the same output directory (**SMU.Output.Dir**).

For SAS multi-machine deployments, you should install the utility on shared network storage that is accessible from every SAS machine to avoid having to install the migration utility separately on each machine.

- On SAS multi-machine deployments, the migration utility must be able to write to (and read from) its output directory.

The utility output directory should be on shared network storage accessible to every SAS machine in the deployment.

- When specifying the metadata server to connect to, it is a best practice to use a fully qualified host name or an IP address. Do not refer to the metadata server as **localhost** or its IP equivalent (127.0.0.1), unless all of the machines in your SAS deployment are able to connect to the server using that host name.

- In the migration utility properties, when specifying Windows paths, delimit directories with two backspaces (for example, **SMU.SASHOME=C:\\Program Files\\SASHome**).
- On the migration utility command line, enclose any paths containing spaces in double quotation marks. (Paths containing spaces in properties files do not require double quotation marks.)

Note: A backslash immediately followed by a double quotation mark (\\") is not allowed on the migration utility command line. Avoid ending Windows paths with a trailing backslash on the command line. (This limitation does not apply to migration utility property files.)

- Metadata server connection information must be provided to the migration utility through one of the following methods:
 - the connection-related command-line options (-METADATAHOST, -USER, and so on)

Note: The migration utility accepts passwords that are encoded using PROC PWENCODE.

CAUTION:

You should encode any passwords used in a migration utility properties file. The migration utility supports the {sas002} method through PROC PWENCODE. For more information, see “[PWENCODE Procedure](#)” in *Base SAS Procedures Guide*.

- a migration utility properties file
 - a SAS client connection profile
- (The client connection profile must be created and saved on the machine on which you are running the migration utility.)
- On UNIX, modify the PATH environment variable such that the directory containing the Java binary is the first JRE found. Verify your setting by executing from the UNIX shell prompt: **which java**
 - It is recommended that you use the -REPLACE command-line option when invoking the migration utility. This ensures that output from any previous migration utility invocations that specified the same output directory and tier directory is overwritten.

smu Command Examples

Example 1: Basic, Two-Phase Migration Utility Invocation

In this example, on Windows (64-bit), the migration utility executes both its phases—creating a migration analysis report and a migration package. The migration utility uses information in the connection profile named md1234.swa to communicate with the SAS Metadata Server.

```
smu94_x64.exe -profile md1234 -sasconfigdir C:\SAS\BIServer\Levl
-sasproductdir "C:\Program Files\SASHome"
-outputdir C:\SMU_packages\host1234 -replace
```

Example 2: Two-Phase Migration Utility Invocation with Output Preferences

In this example, on Windows (32-bit), the migration utility executes both its phases and creates a migration analysis report and a migration package in an output directory named **server_tier@host1234.example.com** that is a child of a parent directory named **C:\SMU_packages**. The migration utility uses information in the connection profile named **md1234.swa** to communicate with the SAS Metadata Server.

```
smu94_32.exe -profile md1234 -sasconfigdir C:\SAS\BIServer\Lev1
-sasproductdir "C:\Program Files\SASHome"
-outputdir "C:\SMU_packages" -tier server_tier -replace
```

The **-REPLACE** option is specified to make sure that any output from a previous migration utility session (that might have specified the same output directory and tier name) is overwritten.

Example 3: Report-Only Migration Utility Invocation

In this example, on UNIX, the migration utility executes its analyze phase only, and creates a migration analysis report in an output directory named **server_tier@host1234.example.com** that is a child of a parent directory named **/home/sas/smu_packages**. The migration utility uses information in the connection profile named **md1234.swa** to communicate with the SAS Metadata Server. The migration utility writes the migration analysis report to **SMU.Output.Dir/tier/AnalysisReport**.

```
./smu94 -- -sasconfigdir /opt/SAS/config/Lev1
-sasproductdir /opt/SASHome -profile md1234
-outputdir "/home/sas/smu_packages" -tier server_tier
-replace -analyze
```

The **-REPLACE** option is specified to make sure that any output from a previous migration utility session (that might have specified the same output directory and tier name) is overwritten.

Example 4: Migration Utility Invocation Using a Properties File

In this example, on UNIX, the migration utility executes both its phases and creates a migration analysis report and a migration package. All of the required inputs are provided to the migration utility in properties contained in a text file named **myhost.properties**.

```
./smu94 --
-properties
/opt/sas_9.4/SAS_Software_Depot/utilities/smu3/myhost.properties

-replace
```

The **-REPLACE** option is specified to make sure that any output from a previous migration utility session (that might have used the same properties file) is overwritten. For more information, see [“Running the Migration Utility Using a Properties File”](#).

Example 5: Migration Utility Invocation Using a Properties File on the WebDAV Tier

In this example, on UNIX, the migration utility executes both its phases and creates a migration analysis report and a migration package on the machine that contains WebDAV content. All of the required inputs are provided to the migration utility in properties contained in a text file named `myhost.properties`.

```
./smu94 --
-properties
/opt/sas_9.4/SAS_Software_Depot/utilities/smu3/myhost.properties

-replace
```

The `-REPLACE` option is specified to make sure that any output from a previous migration utility session (that might have used the same properties file) is overwritten. For more information, see [“Running the Migration Utility Using a Properties File”](#).

Example 6: Migration Utility Invocation When Two Tiers Are on the Same Machine

In this example, on UNIX, the migration utility executes both its phases and creates a migration analysis report and a migration package on the machine that contains two tiers—the server tier and the middle tier. Because this machine hosts two tiers, you must run the migration utility twice.

The following commands show the server tier being packaged first. The `-TIER` argument instructs the migration utility to write the package to **server_tier@host1234.example.com**. When the migration utility is run on this machine a second time (not shown), the `-TIER` argument contains a different value, `middle_tier1`, which instructs the migration utility to write the package to **middle_tier@host1234.example.com**.

```
./smu94 -- -sasconfigdir /opt/SAS/config/Levl
-sasproductdir /opt/SASHome -profile md1234
-outputdir "/home/sas/smu_packages" -tier server_tier
-replace
```

The `-REPLACE` option is specified to make sure that any output from a previous migration utility session (that might have specified the same output directory and tier name) is overwritten.

Running the Migration Utility Using a Properties File

How the Migration Utility Manages Passwords

Starting with the January 2015 release (SAS 9.4, Rev. 940_15w04), the SAS Migration Utility requires passwords specified in `{sas002}` encoding.

For passwords (provided in properties containing the strings `.password`, `.passwd`, or `.pwd`), the migration utility does the following:

- automatically encodes clear-text passwords in {sas002} encoding
- removes passwords from smu.properties in the migration package

You can override this password behavior by setting SMU.CLEARTEXT.PASSWORD.IS_ALLOWED to TRUE.

Run the Migration Utility Using a Properties File

An alternative to providing SAS Migration Utility invocation options on the command line is to provide these options in a properties file. You do this by creating a file containing values for the various migration utility properties that you want to use, and saving this file in the same directory where the migration utility batch or script file is. For information about product-specific properties, see [“Review Product-Specific SAS Migration Utility Properties”](#).

Note: SAS has a migration utility template file (smu.properties.template) that provides examples for how to use various properties. You can find this file in your SAS Software Depot in the **smu** subdirectory under **Utilities**.

When you run the migration utility, you reference your properties file with the -PROPERTIES command-line option. For example:

```
smu94_32.exe -properties "C:\SAS Software Depot\utilities\smu4\mid_tier.properties"
-replace

smu94_x64.exe -properties "C:\SAS Software Depot\utilities\smu4\mid_tier.properties"
-replace
```

The migration utility enables you to use a combination of properties and command-line options. For example:

```
smu94_32.exe -analyze -profile myhost
-properties "C:\SAS Software Depot\utilities\smu4\mid_tier.properties" -replace

smu94_x64.exe -analyze -profile myhost
-properties "C:\SAS Software Depot\utilities\smu4\mid_tier.properties" -replace
```

In migration utility properties files, when specifying Windows paths or domains as a part of a user ID, you must escape any backslashes (\) with another backslash character. For example:

```
SMU.config.dir=C:\\SAS\\config\\94M4Platform\\Lev1
SMU.user=mydomain\\sasadm
```

The migration utility recognizes the number sign (#) as the comment character when it is used as the first character in a line.

Sample Migration Utility Properties File

Here is a sample migration utility properties file with comments that describe each property:

CAUTION:

You should encode any passwords used in a migration utility properties file. The migration utility supports the {sas002} method through PROC PWENCODE. For more information, see [“PWENCODE Procedure” in Base SAS Procedures Guide](#).

Note: Migration utility properties are case sensitive.

CAUTION:

To avoid unauthorized access to sensitive information, the location where the migration utility writes package information (SMU.Output.Dir) should be properly secured with file access permissions, readable by the migration utility and the SAS Installer users only.

```
# Sample smu.properties file
#
# The following properties are needed by the
# SAS Migration Utility to properly analyze your SAS 9.4
# system. Additional product-specific properties are
# described in the SAS Intelligence Platform: Migration
# Guide. All passwords should be supplied in {sas002}
# encoding. Use proc pwencode to get the encoded password.

#
# The configuration directory the migration utility
# will read from. This should usually be the "Lev1"
# directory. It will usually contain a SASMeta, Data
# and product directories.
#
SMU.config.dir=C:\\SAS\\Config\\Lev1

#
# The SMU.SASROOT property should not be set manually
# without direct assistance from SAS Technical Support.
#
#SMU.SASROOT=C:\\Program Files\\SASHome\\SASFoundation\\9.4

#
# The directory that is the install base of
# the SAS product set
#
SMU.SASHOME=C:\\Program Files\\SASHome

#
# Use this property to specify paths to skip migrating. The migration
# utility will ignore directories listed here. This property can be
# useful if your site has large amounts of data and you don't want to
# migrate all of it. The specified paths can be absolute
# or relative to the SAS configuration directory.
#
#levconfig.exclude.dir.12BYTE.1=AppData
#levconfig.exclude.dir.12BYTE.2=C:\\SAS\\Config94\\Lev1\\SASApp\\SASEnvironment\\test\\test1
#levconfig.exclude.dir.12BYTE.3=/opt/SAS/Config/Lev1/SASApp/SASEnvironment/test/test1

#
# The metadata server host. This must be defined for
# the migration utility to run successfully. The
# port defaults to 8561. If a different metadata
# port was used, this must be set to the correct port.
#
SMU.host.metadata=my.metadataahost.com
#SMU.port.metadata=8561
```

```

#
# The metadata server administrative user and password.
# This must be an unrestricted user so all data can be
# read for metadata extraction. The password should be
# encoded using the {sas002} method.
#
SMU.user=adminuser
SMU.password={sas002}ENCODEDPASSWORD

#
# A workspace profile is acceptable as an alternative
# to providing the host, port, user and password
# (if the password is in the profile). This can be
# just the profile name, which will look in the default
# location and the current working directory, or a full
# path to the profile.
#
#SMU.profile=MyServer

#
# The migration package output directory. It will be
# created if this is being run against the metadata server
# tier. Otherwise, it should already contain the results
# from your metadata server tier run and any other upstream
# tiers. The results from every tier of your deployment
# should be included in the same migration package.
#
#SMU.Output.Dir=C:\\SMU\\migrationPackage

#
# If the SMU is being run on a system with multiple network
# interfaces, or a dynamic host name, this property may
# need to be set to get the "right" name used for directory
# naming, etc.
#
#SMU.localhost=my.localhost.com

#
# The SCSAnalyzeTask will try to get the host and port of
# the Content Server web application from the metadata,
# but that source can be overridden by supplying the
# URL here. The host and port should be specified,
# the context should normally be as shown below.
#
#SMU.scs.url=http://localhost:8080/SASContentServer/admin

#
# The userid and password provided have to be unrestricted
# in the content server for the copy to be performed. If
# these are not set, the metadata user and password will
# be used. The password should be encoded using the {sas002} method.
#
#SMU.scs.user=
#SMU.scs.password={sas002}ENCODEDPASSWORD

#

```

```

# These properties are used for SAS Content Servers that
# have had their repositories customized by the end user.
# If you don't understand these, chances are you don't
# need them. The password should be encoded using the {sas002} method.
#
#scs.jndi.jndiName=
#scs.jndi.driver=
#scs.jndi.jdbcUrl=
#scs.jndi.user=
#scs.jndi.pwd={sas002}ENCODEDPASSWORD
#scs.jndi.jdbcdir=

#
# This property is used to set up the trust store for
# SSL connections. If your content server or other
# web apps are using the https scheme, you need to
# either set this property, or set up the certificates
# in <java-home>/lib/security/jssecacerts or
# <java-home>/lib/security/cacerts. For more information
# see http://download.oracle.com/javase/1.5.0/docs/guide/security/jsse/JSSERefGuide.html
#
#javax.net.ssl.trustStore=
#
# Specify the user ID and password to use to connect to the
# Web Infrastructure Platform Shared Services database (which
# by default is named SharedServices).
# If the database server for the Web Infrastructure Platform is the SAS Web
# Infrastructure Platform Data Server, supply the credentials for the
# administrative user you created during deployment. (This user is by
# default also named SharedServices).
# If the database server for the Web Infrastructure Platform is a non-SAS
# DBMS (for example, Oracle or DB2) supply the credentials appropriate
# for connecting to the Shared Services database on that server.
# The password should be encoded using the {sas002} method.
#
#SMU.webinfpltfm.dbms.userid=myDatabaseUserID
#SMU.webinfpltfm.dbms.password={sas002}ENCODEDPASSWORD
#
# Specifies non-standard locations for SAS application data sets and
# catalogs for the migration utility to move.
#
# The utility packages these directories in the levconfig output
# folder in the "userdirs" subdirectory.
#
# List absolute paths or paths relative to the SAS configuration
# directory. Separate multiple paths with a comma.

#levconfig.user.dirs=my_SAS_solution_data_sets,my_SAS_solution_catalogs,
# C:\my_data\my_SAS_solution_misc
#
# This property should be set to true, if SMU will be run multiple
# times on the same machine because multiple tiers of SAS 9.4
# are deployed on the same machine.
#SMU.isMultipleTierMachine=true
#

```

```
# All passwords should be supplied in {sas002} encoding.  
# The SAS Migration Utility will enforce this requirement.  
# You may disable this security feature by setting the following  
# property to TRUE. Setting this value allows SAS to read  
# clear text passwords.  
#  
SMU.cleartext.password.is_allowed=FALSE  
SMU.SAS.version=9.4
```


Appendix 3

Product-Specific SAS Migration Utility Properties

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Product-Specific SAS Migration Utility Properties Overview

Some SAS products have unique properties that the SAS Migration Utility uses when creating a migration analysis report, or later in the process when the utility builds a migration package.

SAS Analytics Platform Properties

The following tables describe unique properties for the SAS Analytics Platform applications that the SAS Migration Utility uses when creating a migration analysis report or when building a migration package. To use these properties, add them to your migration utility properties file. For more information, see [“Running the Migration Utility Using a Properties File”](#).

Table A3.1 *SMU.apcore.dir Property*

Property	SMU.apcore.dir
----------	----------------

Examples	SMU.apcore.dir=C:\Program Files\SAS\SASAPCore
When to Use	To specify the SAS Analytics Platform applications installation directory.

Table A3.2 *SMU.apcore.migration.is_enabled Property*

Property	SMU.apcore.migration.is_enabled
Examples	SMU.apcore.migration.is_enabled=true
When to Use	Set to true, when migrating SAS Analytics Platform applications.

SAS Content Server Properties

The following tables describe unique properties for the SAS Content Server that the SAS Migration Utility uses when creating a migration analysis report or when building a migration package. To use this property, add it to your migration utility properties file. For more information, see [“Running the Migration Utility Using a Properties File”](#).

Table A3.3 *SMU.scs.maxmemory Property*

Property	SMU.scs.maxmemory
Example	SMU.scs.maxmemory=512
When to Use	When migrating the SAS Content Server (JCR) repository while the web application server is down, the migration utility uses SMU.scs.maxmemory to set the maximum heap size (in megabytes) of the Java process for the JCR repository. You should increase the default (512 MB) only when migrating very large content repositories.

Table A3.4 *SMU.scs.tempdir Property*

Property	SMU.scs.tempdir
Example	SMU.scs.tempdir=/opt/area/with/space
When to use	When migrating the SAS Content Server (JCR) repository, the migration utility uses space in the default temporary directory. If more space is needed and is available on another device, this property bypasses the default directory and uses the specified directory for temporary storage.

SAS Contextual Analysis Properties

The following tables describe unique properties for the SAS Contextual Analysis that the SAS Migration Utility uses when creating a migration analysis report or when building a migration package. To use this property, add it to your migration utility properties file. For more information, see [“Running the Migration Utility Using a Properties File”](#).

Table A3.5 *SMU.txtansvc.dbms.userid Property*

Property	SMU.txtansvc.dbms.userid
Examples	SMU.txtansvc.dbms.userid=myDatabaseUserID
When to Use	For use when migrating SAS Contextual Analysis To export the SAS Contextual Analysis database to the migration package. Specify a valid user ID with which the migration utility can use a JDBC connection to access the database.

CAUTION:

You should encode any passwords used in a migration utility properties file.

The migration utility supports the {sas002} method through PROC PWENCODE.

For more information, see [“PWENCODE Procedure” in Base SAS Procedures Guide](#).

Table A3.6 *SMU.txtansvc.dbms.password Property*

Property	SMU.txtansvc.dbms.password
Examples	SMU.txtansvc.dbms.password={SAS002}DBCC571245AD0B31433834F80BD2B99E16B3C969
When to Use	For use when migrating SAS Contextual Analysis The password for the user ID with which the migration utility uses a JDBC connection to access the SAS Contextual Analysis database. You can use regular text or encode the password using PROC PWENCODE and the {sas002} method.

SAS Grid Control Server Properties

The following table describes a unique property for the SAS Grid Control Server that the SAS Migration Utility uses when creating a migration analysis report or when building a migration package. To use this property, add it to your migration utility properties file. For more information, see [“Running the Migration Utility Using a Properties File”](#).

Table A3.7 *SMU.grid.appservers Property*

Property	SMU.grid.appservers
Example	SMU.grid.appservers=SASMeta,SASApp,SASApp2
When to Use	When multiple SAS grids are defined in a single metadata server. Multiple grids are indicated by the presence of more than one grid monitoring server with each referencing different machines. Use SAS.grid.appservers to identify which SAS Application Servers (and their logical grid servers) should be migrated with the grid monitoring server that references this machine. SMU.grid.appservers contains a comma-separated list of SAS Application Server names that should be migrated with this machine. The default value is a NULL string.

SAS IT Resource Management Properties

The following tables describe unique properties for SAS IT Resource Management for the SAS middle tier. The SAS Migration Utility uses these properties when creating a migration analysis report or when building a migration package. To use these properties, add them to your migration utility properties file. For more information, see [“Running the Migration Utility Using a Properties File”](#).

Table A3.8 *SMU.itrmmidtier.dbms.userid Property*

Property	SMU.itrmmidtier.dbms.userid
Examples	SMU.itrmmidtier.dbms.userid=myDatabaseUserID
When to Use	For use when migrating any release of SAS IT Resource Management on SAS 9.4 to any other release of SAS IT Resource Management on SAS 9.4. To export the SAS IT Resource Management ITRM database to the migration package. Specify a valid user ID with which the migration utility can use a JDBC connection to access the database.

CAUTION:

You should encode any passwords used in a migration utility properties file. The migration utility supports the {sas002} method through PROC PWENCODE. For more information, see [“PWENCODE Procedure” in Base SAS Procedures Guide](#).

Table A3.9 *SMU.itrmmidtier.dbms.password Property*

Property	SMU.itrmmidtier.dbms.password
Examples	SMU.itrmmidtier.dbms.password ={SAS002}DBCC571245AD0B31433834F80BD2B99E16B3C969

When to Use	For use when migrating any release of SAS IT Resource Management on SAS 9.4 to any other release of SAS IT Resource Management on SAS 9.4. The password for the user ID with which the migration utility uses a JDBC connection to access the SAS IT Resource Management ITRM database. You can use regular text or encode the password using PROC PWENCODE and the {sas002} method.
-------------	--

SAS Model Manager Properties

The following tables describe unique properties for SAS Model Manager that the SAS Migration Utility uses when creating a migration analysis report or when building a migration package. To use these properties, add them to your migration utility properties file. In the SAS Deployment Wizard, the database is named “SAS Model Manager Database” for SAS Model Manager 12.3, and it is named “SAS Decision Manager Database” for SAS Model Manager 13.1 and later. For more information, see [“Running the Migration Utility Using a Properties File”](#).

The values for the SAS Migration Utility properties can be found in SAS Management Console. Select the **Folders** tab and expand **System** ⇒ **Applications** ⇒ **SAS Model Manager Mid-Tier**. Select the **Model Manager Mid-Tier <version>** folder, right-click the **Model Manager-Mid-Tier <version>** application object, and then select **Properties** ⇒ **Configuration**. The prefix for the configuration properties that are equivalent to the SAS Migration Utility properties is dbms.mmapi. For more information, see *SAS Model Manager Migration Guide*.

Table A3.10 *mmapi.dbms.data.name Property*

Property	mmapi.dbms.data.name The configuration property in SAS Management Console is named dbms.mmapi.name.
Examples	mmapi.dbms.data.name=MdlMgrDB
When to Use	For use when migrating SAS Model Manager 12.3 or later to the same version or a later version. To export the SAS Model Manager database to the migration package. Specify a valid database name with which the migration utility can use a JDBC connection to access the database.

Table A3.11 *SMU.mmapi.dbms.userid Property*

Property	SMU.mmapi.dbms.userid The configuration property in SAS Management Console is named dbms.mmapi.userid.
Examples	SMU.mmapi.dbms.userid=myDatabaseUserID

When to Use	For use when migrating SAS Model Manager 12.3 or later to the same version or a later version. To export the SAS Model Manager database to the migration package. Specify a valid user ID with which the migration utility can use a JDBC connection to access the database.
-------------	---

CAUTION:

You should encode any passwords used in a migration utility properties file. The migration utility supports the {sas002} method through PROC PWENCODE. For more information, see “[PWENCODE Procedure](#)” in *Base SAS Procedures Guide*.

Table A3.12 *SMU.mmapi.dbms.password Property*

Property	SMU.mmapi.dbms.password
Examples	SMU.mmapi.dbms.password ={SAS002}DBCC571245AD0B31433834F80BD2B99E16B3C969
When to Use	For use when migrating SAS Model Manager 12.3 or later to the same version or a later version. The password for the user ID with which the migration utility uses a JDBC connection to access the SAS Model Manager database. You can use regular text or encode the password using PROC PWENCODE and the {sas002} method.

Table A3.13 *mmapi.data.dbms.type Property*

Property	mmapi.data.dbms.type The configuration property in SAS Management Console is named dbms.mmapi.type.
Examples	mmapi.data.dbms.type=oracle
When to Use	For use when migrating SAS Model Manager 12.3 or later to the same version or a later version. To export the SAS Model Manager database to the migration package. Specify a valid database type with which the migration utility can use a JDBC connection to access the database.

Table A3.14 *SMU.mmapi.dbms.host Property*

Property	SMU.mmapi.dbms.host The configuration property in SAS Management Console is named dbms.mmapi.host.
Examples	SMU.mmapi.dbms.host=myDatabaseHost

When to Use	For use when migrating SAS Model Manager 12.3 or later to the same version or a later version. To export the SAS Model Manager database to the migration package. Specify a valid host name with which the migration utility can use a JDBC connection to access the database.
-------------	--

Table A3.15 *SMU.mmapi.dbms.port Property*

Property	SMU.mmapi.dbms.port The configuration property in SAS Management Console is named dbms.mmapi.port.
Examples	SMU.mmapi.dbms.port=1521
When to Use	For use when migrating SAS Model Manager 12.3 or later to the same version or a later version. To export the SAS Model Manager database to the migration package. Specify a valid port number with which the migration utility can use a JDBC connection to access the database.

Table A3.16 *SMU.mmapi.jdbc.driver Property*

Property	SMU.mmapi.jdbc.driver The configuration property in SAS Management Console is named dbms.mmapi.jdbc.dir.
Examples	SMU.mmapi.jdbc.driver ="C:\SAS\Config\Lev1\Web\Applications\SASWIPServices9.4\JDBCDrivers\" SMU.mmapi.jdbc.driver=/data/install/oracle_jdbc
When to Use	For use when migrating SAS Model Manager 12.3 or later to the same version or a later version. To export the SAS Model Manager database to the migration package. Specify a valid directory path to the database JDBC driver JAR files.

SAS Shared Services - SAS Web Infrastructure Platform Database Properties

The following tables describe unique properties for the SAS Web Infrastructure Platform Database that the SAS Migration Utility uses when creating a migration analysis report or when building a migration package. To use these properties, add them to your migration utility properties file. For more information, see [“Running the Migration Utility Using a Properties File”](#).

Table A3.17 *webinfpltfm.dbms.exporter.jvm.max.heap.option Property*

Property	webinfpltfm.dbms.exporter.jvm.max.heap.option
Example	webinfpltfm.dbms.exporter.jvm.max.heap.option=-Xmx500m
When to Use	When migrating SAS Web Infrastructure Platform Database and you need to set the maximum heap size of the Java process for the exporter. Use m to specify megabytes and g to specify gigabytes.

Table A3.18 *webinfpltfm.dbms.exporter.jvm.init.heap.option Property*

Property	webinfpltfm.dbms.exporter.jvm.init.heap.option
Example	webinfpltfm.dbms.exporter.jvm.init.heap.option=-Xms500m
When to Use	When migrating SAS Web Infrastructure Platform Database and you need to set the initial heap size of the Java process for the exporter. Use m to specify megabytes and g to specify gigabytes.

Note: Specify the user ID and password to use to connect to SAS Web Infrastructure Platform Database or SAS Shared Services database (the default name is SharedServices). If the database server for SAS Web Infrastructure Platform is SAS Web Infrastructure Platform Data Server, supply the credentials for the administrative user that you created during deployment (the default user is SharedServices). If the database server for SAS Web Infrastructure Platform is a third-party DBMS (for example, Oracle or DB2), supply the credentials appropriate for connecting to the SAS Shared Services database on that server.

Table A3.19 *SMU.webinfpltfm.dbms.userid Property*

Property	SMU.webinfpltfm.dbms.userid
Example	SMU.webinfpltfm.dbms.userid=SharedServices
When to Use	To export the SAS Shared Services database to the migration package. Specify a valid user ID with which the migration utility can use a JDBC connection to access the database. For more information, see “Complete a Migration Utility Checklist” .

CAUTION:

You should encode any passwords used in a migration utility properties file. The migration utility supports the {sas002} method through PROC PWENCODE. For more information, see [“PWENCODE Procedure”](#) in *Base SAS Procedures Guide*.

Table A3.20 *SMU.webinfpltfm.dbms.password Property*

Property	SMU.webinfpltfm.dbms.password
----------	-------------------------------

Example	SMU.webinfpltfm.dbms.password={SAS002}DBCC571245AD0B31433834F80BD2B99E16B3C969
---------	--

When to Use	The password for the user ID with which the migration utility uses a JDBC connection to access the SAS Shared Services database. You can use regular text or encode the password using PROC PWENCODE and the {sas002} method.
-------------	---

Table A3.21 *dbms.webinfpltfm.is_usingschemapattern Property*

Property	dbms.webinfpltfm.is_usingschemapattern
----------	--

Example	dbms.webinfpltfm.is_usingschemapattern=true
---------	---

When to Use	If the database user ID used to access the SAS Web Infrastructure Platform Database can read multiple database tables from different schemas, then an additional schema pattern or catalog property must be specified to uniquely query the table column metadata. Set dbms.webinfpltfm.is_usingschemapattern to true if multiple tables with the same name exist in the SAS Web Infrastructure Platform Database. Use in conjunction with dbms.webinfpltfm.schemapattern.
-------------	--

Table A3.22 *dbms.webinfpltfm.schemapattern Property*

Property	dbms.webinfpltfm.schemapattern
----------	--------------------------------

Example	dbms.webinfpltfm.schemapattern= <i>schema</i>
---------	---

When to Use	If the database user ID used to access the SAS Web Infrastructure Platform Database can read multiple database tables from different schemas, then an additional schema pattern or catalog property must be specified to uniquely query the table column metadata. Specify the schema or catalog name. Use in conjunction with dbms.webinfpltfm.is_usingschemapattern.
-------------	---

SAS Visual Analytics Properties

The following tables describe unique properties for SAS Visual Analytics that the SAS Migration Utility uses when creating a migration analysis report or when building a migration package. To use these properties, add them to your migration utility properties file. For more information, see [“Running the Migration Utility Using a Properties File”](#).

Table A3.23 *SMU.webapp.bisrvmid.dbms.userid Property*

Property	SMU.webapp.bisrvmid.dbms.userid
----------	---------------------------------

Example	SMU.webapp.bisrvmid.dbms.userid=vatadm
When to Use	For use when migrating to SAS Visual Analytics 6.2, 6.4, 7.1, or 7.2. To export the SAS Web Infrastructure database to the migration package. Specify a valid user ID with which the migration utility can use a JDBC connection to access the database. For more information, see “Complete a Migration Utility Checklist”.
How to Locate	• In SAS Management Console, select the Folders tab and expand System ⇒ Applications ⇒ SAS Visual Analytics Services ⇒ Visual Analytics Services release-number. • In the right pane, select Visual Analytics Services release-number and right-click Properties ⇒ Configuration. • In the Name column, locate webapp.bisrvmid.dbms.userid. • The value to use for SMU.webapp.bisrvmid.dbms.userid is located in the Value column.

CAUTION:

You should encode any passwords used in a migration utility properties file. The migration utility supports the {sas002} method through PROC PWENCODE. For more information, see [“PWENCODE Procedure” in Base SAS Procedures Guide](#).

Table A3.24 SMU.webapp.bisrvmid.dbms.password Property

Property	SMU.webapp.bisrvmid.dbms.password
Example	SMU.webapp.bisrvmid.dbms.password={SAS002}DBCC571245AD0B31433834F80BD2B99E16B3C969
When to Use	For use when migrating to SAS Visual Analytics 6.2, 6.4, 7.1, or 7.2. The password for the user ID with which the migration utility uses a JDBC connection to access the SAS Web Infrastructure database. You can use regular text or encode the password using PROC PWENCODE and the {sas002} method.

Table A3.25 SMU.bihpgrdc.lasr.host.name Property

Property	SMU.bihpgrdc.lasr.host.name
Example	SMU.bihpgrdc.lasr.host.name=my_new_lasr_machine.example.com
When to Use	Use this property if you have changed your SAS LASR Analytic Server machine after your initial deployment. For use when migrating SAS Visual Analytics 6.2 or later.

Table A3.26 SMU.bihpgrdc.private.lasr.port Property

Property	SMU.bihpgrdc.private.lasr.port
----------	--------------------------------

Example	SMU.bihpgrdc.private.lasr.port=10011
When to Use	Use this property if you have changed your SAS LASR Analytic Server ports after your initial deployment. For use when migrating SAS Visual Analytics 6.2 or later.

Table A3.27 *SMU.bihpgrdc.public.lasr.port Property*

Property	SMU.bihpgrdc.public.lasr.port
Example	SMU.bihpgrdc.public.lasr.port=10031
When to Use	Use this property if you have changed your SAS LASR Analytic Server ports after your initial deployment. For use when migrating SAS Visual Analytics 6.2 or later.

SAS Web Report Studio Properties

The following tables describe unique properties for SAS Web Report Studio that the SAS Migration Utility uses when creating a migration analysis report or when building a migration package. To use these properties, add them to your migration utility properties file. For more information, see [“Running the Migration Utility Using a Properties File”](#).

Table A3.28 *citationweb.war.dir Property*

Property	citationweb.war.dir
Examples	citationweb.war.dir=C:\My Config\SAS\SASWebReportStudio\4.4 citationweb.war.dir=/my_config/SAS/SASWebReportStudio/4.4
When to Use	When SAS Web Report Studio is not configured in the standard location, which is <i>SAS-configuration-directory\web\webapps</i> .

Table A3.29 *citationweb.war.file Property*

Property	citationweb.war.file
Examples	citationweb.war.file=C:\Program Files\SAS\SASWebReportStudio\4.4\SASWebReportStudio.war citationweb.war.file=/usr/local/SAS/SAS_9.4/SASWebReportStudio/4.4/SASWebReportStudio.war

When to Use	When migrating multiple instances of SAS Web Report Studio, the SAS Migration Utility, by default, bases the resulting configuration on the first instance found. To override this behavior, you can specify the fully qualified location of the SAS Web Report Studio WAR file or folder for the utility to use.
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Overview and Common Messages

Important: Some messages in this archive are specific to earlier versions of the SAS Migration Utility. For example, some of the products and features that are mentioned in the messages have been discontinued. For the most recent information, see the main contents of this document, starting with the [Chapter 1, “Introduction to Migrating SAS Software,”](#) on page 1.

Here are some common analysis report messages:

Customizations made to *product-name* are the user's responsibility to migrate. Such customization could include: *list*.

This informational message reminds you that content must be migrated manually. You must make similar customizations to the target SAS deployment as were made to the previous deployment.

Migration of this SAS environment is not recommended. This version of the SAS Migration Utility does not support migration for the product.

Verify that you are using the SAS Migration Utility that is included in your order. A copy of the SAS Migration Utility is available to [download](#) for a preliminary analysis of your previous deployment. When you are ready to proceed with your migration, use the SAS Migration Utility that is included in your order to perform your analysis, assess requirements, and create the migration package. If you use a SAS Migration Utility other than the version included in your order, it might support a different set of products and components than your order. The migration package could produce inaccurate results.

Migration of this SAS environment is not recommended. This version of *product-name* is not at the required version and needs to be upgraded in order to use the automated migration processes.

A message like this indicates that a product needs an update or hot fix in the previous deployment before you can migrate.

SAS BI Dashboard

 A SAS BI Dashboard configuration directory is missing.

If you proceed with migration, the target SAS configuration of SAS BI Dashboard might be incomplete due to this missing file. Verify that the previous deployment's configuration is functional.

 Customizations made to the SAS BI Dashboard are the user's responsibility to migrate. Such customization could include: [1] Java source (JSPs, additional class files), [2] Web applications, [3] Packages published to the file system (Archive Packages), [4] Portlets

This informational message reminds you that content must be migrated manually. You must make similar customizations to the target SAS deployment as were made to the previous deployment.

 Migration of this SAS environment is not recommended. This version of the SAS Migration Utility does not support migration for SAS BI Dashboard.

Verify that you are using the SAS Migration Utility that is included in your order. A copy of the SAS Migration Utility is available to [download](#) for a preliminary analysis of your previous deployment. When you are ready to proceed with your migration, use the SAS Migration Utility that is included in your order to perform your analysis, assess requirements, and create the migration package. If you use a SAS Migration Utility other than the version included in your order, it might support a different set of products and components than your order. The migration package could produce inaccurate results.

 You must manually migrate any data sources specified in the JDBC dsx file(s) by either 1) Moving the data under metadata control or 2) Continuing to use a libref that points to the workspace server's file system. If the latter is chosen, then you will need to manually fix the librefs in the JDBC dsx file(s).

For more information about DataSourceDefinition (.dsx) files, see [“SAS BI Dashboard and JDBC DSX Files” on page 105](#).

SAS BI Lineage Scheduling Server

 Deployed Jobs to be manually defined:

This message is followed by a list of deployed jobs that are defined in metadata in the previous deployment. For information about post-migration tasks, see [Chapter 5, “Performing Post-migration Tasks,” on page 95](#).

 **There are no BI Lineage Java batch servers found in the metadata repository. Configure a server using SASMC.**

For information about post-migration tasks, see [Chapter 5, “Performing Post-migration Tasks,”](#) on page 95.

 **Java batch servers not being migrated because the command line property does not conform to the default configuration location:**

This message is followed by a list of Java batch servers that are defined in metadata in the previous deployment. For information about post-migration tasks, see [Chapter 5, “Performing Post-migration Tasks,”](#) on page 95.

 **Java batch servers to be migrated:**

This message is followed by a list of Java batch servers that are defined in metadata in the previous deployment. This is an informational message, and no action is necessary.

 **SAS BI Lineage Scheduling Server migration is complete.**

This is an informational message, and no action is necessary.

 **User modified file to be migrated:**

This message is followed by a list of files. This is an informational message, and no action is necessary.

SAS BI Portlets

 **Customizations made to the SAS BI Dashboard are the user's responsibility to migrate. Such customization could include: [1] Java source (JSPs, additional class files), [2] Web applications, [3] Packages published to the file system (Archive Packages), [4] Portlets**

This informational message reminds you that content must be migrated manually.

SAS BI Report Services

 **Migration of this SAS environment is not recommended. This version of BI Report Services is not at the required version and needs to be upgraded in order to use the automated migration processes. ... Details: The date in the sas.report.output.management.jar Manifest.mf file indicates that the SAS BI Report Services installation is older than 9.1.3 SP4. The version found in the sas.report.output.management.jar Manifest.mf file is: *current-version***

Contact SAS and request Upgrading the SAS BI Applications and Applying SAS Service Pack 4

✗ Missing configuration property

Verify that the `smu.properties` file contains the required properties, and run the SAS Migration Utility again.

✗ Configuration information for the distribution library cannot be obtained because the BI Report Services configuration file cannot be found in the install folder *path-name*.

This message indicates that `OutputManagementConfigTemplate.xml` is not located in the `SASQueryAndReportingServices/3.1` folder.

✗ The metadata server is down.

Start the metadata server and run the SAS Migration Utility again.

✗ There was an error accessing the metadata.

Determine whether the metadata server is running. If the metadata server is stopped, then start it and run the SAS Migration Utility again.

✗ A `JDOMEException` occurred when parsing the `OutputManagementConfigTemplate.xml` file. Please verify that the encoding type and the content match and if not, modify the file's encoding as needed before executing the migration. The encoding type and content must both be utf-8.

The `OutputManagementConfigTemplate.xml` file specifies the encoding for the file on the first line. This message indicates that the encoding and the content do not match. The file must be edited and modified so that the content and the encoding type are both UTF-8.

✗ `OutputManagementConfigTemplate.xml` is invalid, the xml descriptor specifies utf-8 encoding but some of the content is not in the utf-8 format.

The `OutputManagementConfigTemplate.xml` file specifies the encoding for the file on the first line. This message indicates that the encoding and the content do not match. The file must be edited and modified so that the content and the encoding type are both UTF-8.

✗ `OutputManagementConfigTemplate.xml` is an empty file.

Edit the `OutputManagementConfigTemplate.xml` and add the appropriate content, or refer to the SAS documentation to learn how to configure the product and generate the `OutputManagementConfigTemplate.xml` file prior to migration.

✗ *element-name* element in `OutputManagementConfigTemplate.xml` is null.

Edit the file and add the correct value for the specified element.

✗ Missing config file element *element-name*.

Edit the file and add the correct value for the specified element.

 Unable to retrieve metadata.

Determine whether the metadata server is running. If the metadata server is stopped, then start it and run the SAS Migration Utility again.

 The deployed components list is null for the metadata library.

Determine whether the metadata server is running. If the metadata server is stopped, then start it and run the SAS Migration Utility again.

 An IOException was encountered when trying to parse the OutputManagementConfigTemplate.xml.

The format of the OutputManagementConfigTemplate.xml file, which is located in the SASQueryAndReportingServices/3.1 folder, is incorrect. Edit the file with an appropriate editor and correct the problems.

 The file could not be found and will not be migrated.

This message probably indicates that the previous deployment's content is not stored in default locations. If the previous deployment's content is not stored in default locations, it is not migrated to the target SAS deployment.

 BI Report Services is not installed in *path-name*

In order to be migrated, the product must be installed in SASQueryAndReportingServices/3.1 under the <SASHOME> folder. SASHOME is the directory where your SAS products are installed.

 The distribution library metadata contains a file system path for the distribution library folder, which does not exist. Please verify the location of the distribution library and correct the metadata using SASMC.

With SAS Management Console, examine the definition of the library in metadata. The metadata contains a path for the library on disk. Either correct the path in the metadata to point to the correct folder, or create the folder that is specified in metadata and move the distribution library data sets to that folder.

 Please migrate your datasets in the burst distribution library. The current machine and folder location are *machine-and-location*. The recommended location for the distribution library folder is on the workspace server machine in the data folder of the server context under *path-name*. Post migration, please use SASMC to confirm that your burst distribution library points to the correct machine and folder.

In burst mode, the Report Output Generation tool distributes a report to email addresses that are defined in a recipient list. The recipient list, also known as a burst set data set, is stored in the distribution library.

 An existing distribution library could not be found in the metadata repository with the libref of *libref*. This libref is defined in the OutputManagementConfigTemplate.xml file and specifies the library which contains distribution list tables for scheduled reports. A new distribution library will be created during the migration process in the metadata repository with a

name like SASApp - wrsdist. If you have existing distribution list datasets and would like to use them in your 9.2 configuration, copy them into the folder location referenced by that library. Then register them with the metadata server. Refer to the migration documentation for more information.

For information about specifying the output management library, see [SAS Intelligence Platform: Installation and Configuration Guide](#).



The distribution library full path can not be resolved due to the nature of the metadata.

This message indicates that the previous deployment's distribution library is not stored in the default location. In this case, the library definition is migrated to the target SAS deployment's metadata, but the physical path name for the library might be incorrect. After migration, check the library's metadata, and correct the path name if necessary.



The metadata library is null.

Determine whether the metadata server is running. If the metadata server is stopped, then start it and run the SAS Migration Utility again.



The distribution library host name in metadata is null.

Determine whether the metadata server is running. If the metadata server is stopped, then start it and run the SAS Migration Utility again.



The distribution library's directory path in metadata is null.

Determine whether the metadata server is running. If the metadata server is stopped, then start it and run the SAS Migration Utility again.



The following Java Batch Servers will be migrated:

This informational message is followed by a list of default Java Batch Servers that can be migrated automatically.



Please migrate the Java Batch Servers listed below. These Java Batch Servers will not be migrated.

This message is followed by a list of nondefault Java Batch Servers that an administrator has created. The nondefault Java Batch Servers cannot be migrated automatically. An administrator can re-create these nondefault Java Batch Servers in the target deployment and define them with SAS Management Console.

SAS/CONNECT Server



Conflict over port *number* found between *server-name-1* and *server-name-2*.

You can ignore this message if *server-name-1* and *server-name-2* are the same server (for example, Connection: Connect Server and Connection: Connect Server).

 **Failed to migrate. A connect spawner must be associated with this connect server in the metadata. Note: The metadata of this connect server will migrate with the metadata repository.**

When you define a SAS/CONNECT server in SAS Management Console, you can choose whether to use a spawner, script, or SASCMD method to connect to the server:

- If you want to use a spawner to connect to the SAS/CONNECT server in the target SAS deployment, then in the previous deployment, define a spawner that is associated with this SAS/CONNECT server.
- If you want to define the SAS/CONNECT server using a SASCMD or Script sign-on, then you can ignore this warning message.

When you use the SAS Deployment Wizard in the target SAS deployment, the configuration of the SAS/CONNECT server requires the associated Connect spawner information. Without an associated spawner, the configuration fails. Therefore, when a spawner is not associated with a SAS/CONNECT server, the SAS Migration Utility assumes you use a SASCMD or Script sign-on, and omits the SAS/CONNECT server from the migration package to avoid a configuration failure.

 **For connect server migration, the hot fix E9BC13 needs to be applied on Windows machines that will run both a 9.1 SAS/CONNECT spawner and a 9.2 or later SAS/CONNECT spawner. The hot fix must be applied before running the SAS Deployment Wizard to deploy the 9.2 or later environment.**

If your deployment is on Windows and you plan to run both a SAS 9.1 and a SAS 9.2 or later spawner on the same machine, then apply hot fix E9BC13 for Base SAS to the SAS 9.1.3 environment before you run the SAS Deployment Wizard to deploy the target SAS environment.

This warning message always appears in the analysis report, even if you have already applied the hot fix. The SAS Migration Utility cannot determine whether the hot fix has been applied.

 **Conflicting port values found for servers A and B. Please correct the port values before continuing with migration.**

Correct the port values in the previous deployment's metadata (for example, with SAS Management Console) for the two SAS/CONNECT server definitions before you create a migration package with the SAS Migration Utility. If you do not correct the conflicting port values in the previous deployment's metadata, the configuration in the SAS Deployment Wizard fails.

 **The server name contains characters not compatible with SAS 9.2. Please remove the incompatible characters from server name before migration.**

For SAS/CONNECT, SAS/SHARE, and Operating System Services in migrations to early releases of SAS 9.2, some users can see this message even though no action is needed. The SAS Deployment Wizard corrects the name automatically for this server. You can disregard this error for the SAS/CONNECT, SAS/SHARE, and Operating System Services.

Be aware that you might need to correct the names of other servers before you migrate. The naming convention in the SAS Management Console has changed. In SAS 9.2 and later, the forward slash and backslash are not supported in server names. Other unsupported characters in server names include control characters (for example, tabs,

newlines) and leading or trailing blanks. The name must not be greater than 60 characters, and must be specified (non-null).

✓ **The SASCMD value is not specified with the connect server, it is required that this value be defined to successfully validate the connect server. You might need to manually define the SASCMD value; otherwise, a default value will be added during migration.**

In the previous deployment's SAS Management Console, add the SASCMD value to the SAS/CONNECT server's ServerComponent's property field. This SASCMD value is required in order to validate the SAS/CONNECT server successfully in the target SAS deployment. The validation is a new feature in SAS 9.2 and later of the Server Manager plug-in in SAS Management Console. If the value is not specified in the previous deployment, then validation is not performed, and a default SASCMD value is added to the target SAS deployment. The default value depends on the deployment.

SAS Content Server

✗ **The content repository is locked. Before running the SAS Migration Utility, the SAS Content Server needs to be stopped. Setting the property SMU.scs.allow.sync to true will allow the utility to pause so it can be stopped.**

This message is seen in migrations from SAS 9.2 only. The message indicates that the property SMU.scs.allow.sync is unset or false, and that a lock file was found. You must either stop the SAS Content Server or set the property SMU.scs.allow.sync to true, and then run SAS Migration Utility again. The property SMU.scs.allow.sync is useful if you need to minimize the amount of time that the Content Server is offline. When SMU.scs.allow.sync is true, the SAS Migration Utility prompts you to stop and restart the Content Server.

✗ **Content Repository is locked, but content server is not accessible.**

This message is seen in migrations from SAS 9.3 and later. The message indicates that a lock file was found, and the SAS Migration Utility is able to copy the content without you stopping the Content Server. However, the copy failed because the connection information is incorrect. By default, the connection information is taken from the metadata that is set with SAS Management Console. Usually, this connection information is correct. Alternatively, you can use the following SAS Migration Utility properties to specify connection information: SMU.scs.url, SMU.scs.user, and SMU.scs.password.

SAS Data Integration Studio Server Data

✗ **Migration of this SAS environment is not recommended. This version of SAS Data Integration Studio Server Data is not at the required version and needs to be upgraded in order to use the automated migration processes.**

An administrator performs the upgrade iteratively on one client per each SAS Metadata Server. After you complete the upgrade, run the SAS Migration Utility again. When the requirements are met, this message does not appear in the Analysis Report.

 **SAS Data Integration Studio Server Data found metadata that is not correct for version 3.4 of the SAS Data Integration Studio. Product needs to be upgraded to latest version before migration. Ensure the Update Metadata for SAS Data Integration Studio plug-in has been run from SAS Management Console. Metadata server is required to be at version 9.1.3SP4 with hotfix E9BA20 applied.**

One or more SAS Metadata Repositories is not at the baseline. See above.

 **SAS Data Integration Studio Server Data found metadata that is not correct for version 3.4 of the SAS Data Integration Studio. The server version is *version-number*, it should be greater than or equal to *version-number*. Metadata server needs to be upgraded to 9.1.3SP4 with hot fix E9BA20 or later before migration.**

The custom tree conversion has been run, but the metadata server is not at the SAS 9.1.3 SP4 baseline. See above.

 **SAS Data Integration Studio Server Data found metadata that is not correct for version 3.4 of the SAS Data Integration Studio. Metadata server needs hotfix E9BA20 or later applied and client updates before migration.**

The metadata server is at the baseline, but the correct hot fix has not been applied. See above.

DATA Step Batch Server

 **Conflict over port *number* found between *server-name-1* and *server-name-2* .**

You can ignore this message if *server-name-1* and *server-name-2* are the same server (for example, Connection: Connect Server and Connection: Connect Server).

 **The server name contains characters not compatible with target SAS version. Please remove the incompatible characters from server name before migration.**

Correct the name of the server in the previous deployment's SAS Management Console, and run SAS Migration Utility again.

The naming convention in the SAS Management Console has changed. In SAS 9.1.3, the forward slash and backslash characters are supported in server names, but in SAS 9.2 and later these characters are not supported. Other unsupported characters in server names include control characters (for example, tabs, newlines) and leading or trailing blanks. The name must not be greater than 60 characters, and must be specified (non-null).

SAS Data Surveyor for Clickstream Data

✓ **Migration is supported for this version. User customizations made to any source clickstream collection servers are not automatically applied to the target system.**

The SAS Data Surveyor for Clickstream Data Mid-Tier product, when configured as an Apache HTTP server, results in a clickstream collection server that is responsible for collecting data from specially tagged web pages. The following instructions explain how migration works for this product.

When applying the migration package on the target deployment, you are presented with the standard configuration prompts, and the target Apache HTTP server is configured as if it were a new configuration. Any user customizations that were made to the source clickstream collection server must be manually applied to the target system. For example, if you created any customized configuration files specific to collecting records from certain tagged web pages, copy those files to the target deployment.

If more than one clickstream collection server was configured on the previous deployment, then run the configuration process for this product to configure each of the clickstream collection servers required on the target deployment.

✓ **Migration is supported for this version. The physical file locations related to the registered libraries and their content that support the SAS Data Integration Jobs that use the SAS Data Surveyor for Clickstream Data transformation are not migrated automatically.**

The SAS Data Surveyor for Clickstream Data metadata might require some post-migrations tasks to be completed.

SAS Data Integration Studio jobs that use the SAS Data Surveyor for Clickstream Data transformations were migrated from the previous deployment and must be reviewed for the following:

- If the file system folder locations for the libraries used by the jobs were local to the previous deployment, then you must replicate them on the target deployment in order for your jobs to work. If the Setup job was used to define the original folder structure, then it can be used on the target deployment.

Alternatively, you can copy the folder structure from the previous deployment to the target deployment. Depending on how you intend to use this system, you might or might not want to also copy any content with the folder structure.

- If the file system locations for the libraries used by the jobs were shared on the network in the previous deployment, it might be possible that no changes are necessary.

Care should be taken to ensure that you do not have two jobs, one from the previous deployment and the other from the target deployment, updating the same location. If you need to change the file system folder location associated with a job, use the copy and paste special functionality to change the file references.

DataFlux Integration Server Configuration

✓ **The DataFlux Integration Server for SAS product is no longer available after the 9.2 release. It will be replaced by the DataFlux Data Management Server when you configure the target system using this migration package.**

The DataFlux Data Management Server has significant changes and enhancements from the previous product, and therefore content migration from the previous product is not supported.

DAV Content

✗ **The Xythos home directory was not found at *pathname*.**

Fix the SMU.WFS.XythosHome property to point at the correct directory.

✗ **The Xythos home doesn't appear to be correct.**

Verify that the SMU.WFS.XythosHome property points to the directory that is currently used by the Xythos server.

✗ **The DAV content was not found at *pathname*.**

This message indicates that the WebDAV server at the reported URL could not be contacted. In other words, a connection to the WebDAV server could not be made. Verify that the server is running and the URL is correct. The WebDAV server must be running so that the SAS Migration Utility can retrieve and package the content.

● **The content area specified in the metadata mapping was not found at *pathname*.**

You might need to update the mapping in the previous deployment's metadata. For example, use the Business Report Manager plug-in in SAS Management Console to update the properties. In addition, verify that the SAS Migration Utility -DAVTIER option is specified on the correct host. This message is reported for file-system-based mappings only.

● **Content URL *pathname* is mapped to by multiple metadata roots: *repository-names***

This message indicates that in the previous deployment, multiple repositories are pointing to the same WebDAV location. In the target SAS deployment, this content is migrated to the first repository that was found. To change the mappings after you migrate, use the DAVTree utility in the target SAS deployment to move the WebDAV content. For more information about the DAVTree utility, see [SAS Intelligence Platform: Middle-Tier Administration Guide](#).

Note: If you have WebDAV content, the -DAVTIER option or SMU.isdavtier property is required. The Analysis Report does not remind you to specify the option or the property if it is missing.

SAS Field Quality Analytics Server Configuration

 **Contents of the WRNAFDL directory will not be migrated to the destination host unless these subdirectories are defined in the levconfig.user.dirs property as input to the SAS Migration Utility: *list-of-directories***

Follow the message's instruction to manually add the directory paths to the levconfig.users.dirs property, and run the SAS Migration Utility again. See also migration information in [SAS Field Quality Analytics documentation](#).

SAS Financial Management

 **Stored Process metadata will be migrated from subordinate repositories into Foundation.**

This is an informational message. The stored process metadata and the associated .sas file are migrated. However, if you have done any customizations in the previous release that include any other supporting files, you probably need to migrate those files manually.

 **Workflow customization will not be migrated.**

If you had workflow customizations in SAS Financial Management 4.4, you can use the same stored processes in SAS Financial Management 5.1. However, some setup is required, both in SAS Management Console and in the JVM options for the managed server to which you deployed SAS Financial Management. Follow the instructions in "Customizing a Workflow" in *SAS Financial Management: Customization Guide*.

For information about the Java classes that might be used in a stored process, see "The SAS Financial Management Java API" in the same book.

SAS Forecast Server

 **Stored process reports detection failed to complete. If any user reports are present, they should be manually migrated using the import/export capability of SAS Management Console. If present, user reports would exist under the metadata subtree /Forecast Studio/Stored Processes.**

This message is very uncommon. It indicates that the analysis algorithm was unable to determine whether report objects exist in the repository. If report objects do exist, use the instructions below to migrate reports manually.

 **This system appears to contain stored process reports, which cannot be automatically migrated. User reports can be migrated manually using the import/export capability of SAS Management Console. If present, user reports would exist under the metadata subtree /Forecast Studio/Stored Processes.**

The message can be triggered by sample reports. You need to take notice only if you had created custom reports that you want to use in the migrated system. To migrate manually, take the following steps:

1. In the source system, export user reports to SPK files.
2. In the target system, create or choose the environment in which to use some reports.
3. Configure the reports' root location for the environment, if not done already, using the product plug-in for SAS Management Console.
4. Import the SPK file contents into the chosen metadata location.
5. Review report objects and make any necessary compatibility changes. The FS_REPORT keyword can be applied to all stored processes in the reports tree automatically using the product plug-in.

 **Environment settings will be automatically migrated but file system content must be manually copied to target system. In addition, migrated environment objects will be given default permissions.**

Recursively copy the specified file system subtree specified to the same location on the new server. For in-place migration, the structure can be left as is. Environments are automatically assigned generated names. If an administrator wants to rename the environment objects, use the product's plug-in for SAS Management Console. Because SAS Metadata Repository permissions are now checked for the environment and project objects, an administrator might want to alter those settings after migration. Use the SAS Management Console.

 **This configuration file has been deprecated and will not be migrated. Environment objects will be automatically created during migration for all active project locations, but may require additional manual configuration.**

This message indicates that the user_locations.properties file is found in the installation area of the SAS Forecast Server component. The presence of the file does not necessarily imply that it is actively in use. Beyond the other general tasks related to environment migration (mentioned in the above item), this message implies no additional work. However, sites that used this file in the source system might want to customize the new environment objects in the target system, particularly the permissions, in order to configure the user spaces as desired.

SAS Foundation Services

 **Migration is supported for this version. Deployment of the Event Broker Service will be disabled by commenting out the 'deploy_group_3' property.**

In the new environment, the Event Broker Service (one of the Remote Services) is not deployed.

SAS Grid Manager

✗ The logical grid server "*server-name*" does not have a host name associated with it. Please add the host name or delete the grid monitoring server from the metadata.

Verify that all grid monitoring servers have a host name in their connection, or delete the grid monitoring servers that do not have a host-name in their connection.

✗ Logical grid servers without a host name cannot be migrated when the grid monitoring servers reference more than one machine. You can migrate logical grid servers by specifying their SAS Application Server name(s) on the "SMU.grid.appservers" property.

This message is applicable in migrations from SAS 9.1.3 only. You must specify which logical grid servers to migrate with this host. Use the SMU.grid.appservers property to specify the names of the SAS application servers that contain the logical grid servers for this grid control server.

✗ Unsupported Analyze type

Migration supports the full analyze mode only. A selective migration is not supported.

✗ Cannot find the migration extension directory pathname for GRDCCTLSVR/GRDCNODE

Verify that the migration package directory is specified on the command line or through the SMU.Output.Dir property.

✗ Cannot find the SAS configuration directory *pathname*

Verify that the correct SAS configuration directory is specified on the command line or through the SMU.config.dir property.

✗ Metadata server is not running.

Verify that you specified the metadata host-name, port, user, and password correctly.

✗ Cannot connect to the metadata server

Verify that you specified the metadata host-name, port, user, and password correctly.

✗ An exception has occurred accessing metadata information: *item-name*

Contact SAS Technical Support.

✗ An exception has occurred communicating to the metadata server: *item-name*

Contact SAS Technical Support.

 A file IO error occurred creating the Execute script *item-name*

Verify that you have Write permission to the migration package directory.

 Grid execution script directory "*pathname*" does not have a corresponding logical grid server and will not be migrated. References to this directory will need to be manually updated.

The name of the directory that contains the GridServer subdirectory must match the name of a SAS application server context in metadata. For example, if the GridServer subdirectory is in the SASApp directory, the migration utility searches the metadata for a SAS application server named SASApp. This message indicates that the name of the parent directory to the GridServer subdirectory does not match the name of any SAS application servers defined in the metadata. You can either rename the parent directory or manually migrate the information in the GridServer subdirectory. To manually migrate the information, copy the new sasgrid script file and any other files you created (such as config files) to the new GridServer subdirectory. In addition, update any references to the directory in the metadata.

 Backing up grid execution script directory. NOTE: Options added to the sas command line in the old script will need to be put in the command field of the Logical Grid Server.

If you have added SAS command line options to the script file in the GridServer subdirectory, move those options to the end of the logical grid server Command field. Make this change in the target deployment after you migrate.

 Located grid script directory "*pathname*" so host is either a grid control server or grid node

No action is needed. This is an informational message that this machine must be a grid control server or a grid node because a GridServer subdirectory was found in the SAS configuration directory structure. The machine is migrated as a grid control server if the metadata points to this machine as a grid monitoring server or a logical grid server. If the metadata does not point to this machine, it is assumed to be a grid node.

 Host name matches an existing logical grid server so this host will be migrated as a grid control server

No action is needed. This is an informational message that this host is migrated as a grid control server, because one of the logical grid servers reference this machine.

 Since all grid monitoring servers reference this host, all logical grid servers without a host name will be migrated with this machine.

No action is needed. This is an informational message. This host is migrated as a grid control server even though none of the logical grid servers reference it, because all grid monitoring servers reference this machine.

 Host name matches an existing grid monitoring server so this host will be migrated as a grid control server

No action is needed. This is an informational message that this host is migrated as a grid control server, because a grid monitoring server references this host

✓ **Host *host-name* is a logical grid server in *[pathname]/[pathname]/[pathname]***

No action is needed. This is an informational message that a logical grid server was found whose host name matches this machine's host name.

✓ **Host *host-name* is a grid monitoring server in *[pathname]***

No action is needed. This is an informational message that a grid monitoring server was found whose host name matched this machine's host name.

SAS Information Delivery Portal

✗ **The file could not be found and will not be migrated. The *install.properties* file is used to extract the WebDAV Repository name.**

This message probably indicates that the install directory for the Portal was not found. Check the migration log for a message that specifies the Portal installation directory, *javaportal.install.dir*. If this value is not correct, then add the *javaportal.install.dir* property to the SAS Migration Utility properties file, and set the value to the Portal2.0.1 directory.

✗ **The file could not be found and will not be migrated. The *install_defaults.properties* file is used to extract the WebDAV Repository name if not found in the *install.properties* file.**

This message probably indicates that the install directory for the Portal was not found. Check the migration log for a message that specifies the Portal installation directory, *javaportal.install.dir*. If this value is not correct, then add the *javaportal.install.dir* property to the SAS Migration Utility properties file, and set the value to the Portal2.0.1 directory.

✗ **The file could not be found and will not be migrated. The *web.xml* file is used to extract the Portal Banner and the SAS Guest name.**

This message probably indicates that the *Portal.war* file could not be found in the Staging directory. The standard location for configuration of the Portal is *configuration-directory\web\webapps*, where *configuration-directory* is the value of the *SMU.config.dir* property. If the Portal is not configured in the standard location, you can use the *javaportal.war.dir* property in the SAS Migration Utility properties file to specify the location of the WAR file.

✗ **The file could not be found and will not be migrated. WARNING: SAS Information Delivery Portal installation directory was not found. You can set the '*javaportal.install.dir*' property in the *smu.properties* file to the path that includes the Portal2.0.1 directory.**

Check the migration log for a message that specifies the Portal installation directory, *javaportal.install.dir*. If this value is not correct, then add the *javaportal.install.dir* property to the SAS Migration Utility properties file, and set the value to the Portal2.0.1 directory.

 Please migrate any custom themes used by the SAS Information Delivery Portal 9.1.3 SP4.

This informational message reminds you that content must be migrated manually. You must make similar customizations to the target SAS deployment as were made to the previous deployment.

 Customizations made to the SAS Information Delivery Portal are the user's responsibility to migrate. Such customization could include: [1] Java source (JSPs, additional class files), [2] Web applications, [3] Packages published to the file system (Archive Packages), [4] Local and Remote service definitions, [5] repository definitions, [6] Smart objects, [7] Application Server files, [8] Java Policy file

This informational message reminds you that content must be migrated manually. You must make similar customizations to the target SAS deployment as were made to the previous deployment. Although not mentioned in the message, code changes are also necessary for custom portlets; see "Moving Existing Custom Portlets to SAS Information Delivery Portal 4.2" in the document *Developing Portlets for the SAS Information Delivery Portal*.

SA IT Management Solutions Core Components Data Tier

 ITRM hot fix 311IS04 or its most recent replacement has not been applied.

This message indicates that you must fulfill the baseline requirements of applying the most recent [hot fix bundle](#) for SAS IT Resource Management 3.1.1.

After you complete the upgrade, run the SAS Migration Utility again. When the baseline requirement is met, this message does not appear in the Analysis Report.

Level Configuration

 This system cannot be migrated to SAS 9.2. SAS Foundation must be at service pack 4 or later. This system is at *version-number*

You must upgrade to meet the baseline requirements. Contact SAS and request SAS 9.1.3 SP4.

 Customizations to the SAS Application Server autoexec and configuration files are not migrated automatically. Any customization of these files must be added manually to the new system after the SAS Deployment Wizard is complete.

This informational message reminds you that customizations must be manually migrated. You must make similar customizations to the target SAS deployment as were made to the previous deployment.

 **Some of the file(s) or subdirectories from Data / environment directory were excluded from migration package. The details of which are stored in *pathname***

This message indicates that files were excluded from migration due to an error such as incorrect permissions. Examine the contents of `excludedfiles.log` in the specified location. If the listed files are necessary, manually copy them to the target SAS deployment. For example, if the person who is running the migration does not have Read permission for a file, then the root user or the file's owner can copy the file with the usual operating system commands.

 **The Data Package "*item-name*" will not be migrated, as its source directory "*item-name*" does not reside in SAS configuration directory. Any .sas source files in this directory will be copied to "*pathname*" in the migration package for future reference.**

If the target SAS deployment is installing on a different machine from the previous deployment, manually migrate the data package to the target SAS machine. Alternatively, you can copy .sas files from the migration package in `tier-name/levconfig/datapackagesuffix`. In addition, verify that the path name is correct in metadata for that data package. If the target SAS deployment is installing on the same machine, you can continue to access the resources at their existing location.

A data package can be a source code repository for stored processes and jobs, a database catalog or schema, or a SAS library. For more information about migrating these items, see [Chapter 5, "Performing Post-migration Tasks," on page 95](#).

 **The Data Package "*item-name*" will not be migrated, as its path "*pathname*" is not absolute and it is not associated with any of the server contexts on this machine.**

This message indicates that the data package is not associated with any server context and has relative path. Manually migrate the data package to the target SAS deployment. In addition, correct the path name in metadata for that data package.

A data package can be a source code repository for stored processes and jobs, a database catalog or schema, or a SAS library. For more information about migrating these items, see [Chapter 5, "Performing Post-migration Tasks," on page 95](#).

 **The Data Package "*item-name*" having path "*pathname*" will not be migrated, as its location on the disk could not be determined.**

This message indicates that the path name specified for the data package does not exist or it is corrupted. Examine the SAS files at the specified path name. If the SAS files are necessary, you can either correct the errors and run SAS Migration Utility again, or manually migrate the data package to the target SAS deployment. In addition, correct the path name in metadata for that data package.

A data package can be a source code repository for stored processes and jobs, a database catalog or schema, or a SAS library. For more information about migrating these items, see [Chapter 5, "Performing Post-migration Tasks," on page 95](#).

 **Item Store files (These files are in the migration package, But if you are migrating on cross platform/architecture machine the item store files will not be migrated)**

Here are different types of items stores:

- Output Delivery System (ODS) template item stores are an ODS table, style, or tagset template. To migrate to an incompatible environment, use the TEMPLATE procedure with the SOURCE statement in the source environment to route your item store information to a .sas file :

```
proc template;
  source / file="c:\my-pathname\my-item-store.sas" store=sasuser.templat;
run;
```

In the target environment, run the following code to create an updated item store:

```
%include "c:\my-pathname\my-item-store.sas";
```

Check the log after running PROC TEMPLATE, and check the formatting that the template creates. If a template inherits styles from a parent template, the parent might have changes in the new release.

- ODS document item stores can be used in a compatible environment. They cannot be migrated to an incompatible environment.
- Linear model item stores are created by the STORE statement in many SAS/STAT linear modeling procedures. You might be able to use the PLM procedure to show the SAS code that created the item store.
- SAS registry files contain information about SAS session applications. Do not migrate the SAS registry.

 Errors encountered while running CPORT on catalogs from *pathname* directory. Please refer to the log file *filename* for more details.

This message indicates that the log file contains one or more error messages that might need your attention. When you examine the log file, if the log message states that a catalog was created for a different operating system, then you probably moved that catalog from a different deployment without converting it.

For example, the ORIONFMT catalog was used for SAS BI Dashboard sample code in a previous release. If you no longer need the BI Dashboard samples, then you can delete the catalog or ignore the error message.

If the CPORT procedure cannot write the catalog to the transport file, then your SAS session was probably also unable to access the catalog. So this message usually indicates that the catalog was not in use. However, you are encouraged to research the possible need for the catalog and keep a copy of the catalog in your backup. For more information about PROC CPORT, see [Base SAS Procedures Guide](#).

 The Data Package "*item-name*" will not be migrated, as its source directory "*pathname*" is a symbolic link.

If a data package SAS library path is defined as a symbolic link on UNIX, then it cannot be migrated. The content is not packaged and the path on the target side is not changed.

 Service pack information can not be retrieved.

This message indicates that an exception or error occurred while the service pack information was being retrieved. Try running SAS Migration Utility again. If the error continues, contact your on-site SAS support personnel.

 Item store files found. If you are migrating on a cross platform/architecture machine the item store file will not be migrated automatically.

See information above about items stores.

✓ **Service pack information can not be retrieved. SAS Foundation must be at service pack 4 or later to perform migration.**

Verify the SAS version and service pack level by running some SAS code and viewing the SAS log. The service pack level is displayed at the top of the SAS log when you run a job. You must be running SAS 9.1.3 SP4 before you can migrate. If you need to upgrade, contact SAS and request SAS 9.1.3 SP4, or download it from the support site.

SAS Marketing Optimization

✗ **Total-number numeric measure names exceed the 26-character restriction.** However, all proposed numeric measure names produced by truncation to 26 characters result in unique names that do not appear as substrings within customer or communication character attributes. The requested automatic re-naming of numeric measure names whose length exceed the 26-character restriction failed. See the `analyze_datastore` SAS log file in the `mktopt_analysis_results` subdirectory. See the *report-name* HTML report in the *directory-name* SMU output subdirectory for a summary of numeric measure names exceeding 26 characters in length.

This error indicates that the property `mktopt.numeric.measures.autorename=true` and the automatic renaming should have completed successfully, but did not. See the `analyze_datastore` log for more information.

✗ **Total-number numeric measure names exceed the 26-character restriction.** Re-naming of the numeric measure names whose length exceed the 26-character restriction must be performed manually using the SAS Marketing Optimization graphical user interface (GUI) because automatic re-naming was not requested. As an alternative to manually renaming the numeric measure names using the GUI, add the `mktopt.numeric.measures.autorename` property with a value of `true` to the `SMU.properties` file and re-run the SAS Migration Utility. See the *report-name* HTML report in the *directory-name* SMU output subdirectory for a summary of numeric measure names exceeding 26 characters in length.

Follow the directions in the message.

✗ **Total-number numeric measure names exceed the 26-character restriction.** Re-naming of the numeric measure names whose length exceed the 26-character restriction must be performed manually using the SAS Marketing Optimization graphical user interface (GUI) because the proposed numeric measure names produced by truncation to 26 characters results in the following problem(s): *Total-number* of the proposed numeric measure names would be duplicates when fully qualified by input data, project, and scenario. *Total-number* of the proposed numeric measure names appear as substrings within one or more communication character attributes. *Total-number* of the proposed numeric measure names appear as substrings within one or more customer character attributes. See the *report-name* HTML report in the *directory-name* SMU output subdirectory for a summary of numeric measure names exceeding 26 characters in length.

You must manually rename the numeric measures that are listed in the HTML report.

 **The SAS Marketing Optimization Server extension cannot execute because one or more of the following properties have been incorrectly set: `mktoptconfig.appserver.context.directory`, `mktoptconfig.autoexec.directory.and.name`.**

Set the properties correctly and run the SAS Migration Utility again.

 **Migration of this SAS environment is not recommended. This version of *product-name* is not at the required version and needs to be upgraded in order to use the automated migration processes.**

A message like this indicates that a product needs an update or hot fix in the previous deployment before you can migrate.

 **There are *total-number* optimization jobs and *total-number* refresh jobs scheduled for execution in the SAS 9.1.3 environment. It is recommended that the scheduled execution of these jobs be manually cancelled in the 9.1.3 environment before migration of SAS Marketing Optimization (5.1) is performed. Regardless of whether or not their scheduled execution in SAS 9.1.3 is cancelled, these jobs will not be automatically re-scheduled for execution in the SAS 9.2 environment. They must be manually re-scheduled in the SAS 9.2 environment.**

For information about post-migration steps, contact your SAS on-site personnel for the *SAS Marketing Optimization Migration Guide*.

 **Data location customizations have resulted in one or more SAS Marketing Optimization (mktopt) data directories existing outside of the LEVCONFIG directory. Each of these directories may need to be manually copied to the SAS 9.2 environment if that environment is on a different machine and if the directory is not network accessible: *list***

This is a post-migration task to be completed in the new environment. The data directories can contain SAS data sets, log files (from optimization executions), XML files (for surfaced reports), and SAS programs (for optimization jobs and OLAP cube generation).

 **There are *total-number* optimization jobs and *total-number* refresh jobs scheduled for execution in the current SAS environment. It is recommended that the scheduled execution of these jobs be manually cancelled in the current environment before migration of SAS Marketing Optimization Server is performed. Regardless of whether or not their scheduled execution is cancelled, these jobs will not be automatically re-scheduled for execution in the new environment. They must be manually re-scheduled in the new environment.**

Although it is not required, it is strongly recommended that you cancel these scheduled jobs. For information about pre- and post-migration steps, contact your SAS on-site personnel for the *SAS Marketing Optimization Migration Guide*.

 **One or more SAS Marketing Optimization Server data directories exist in a file system location which is not automatically included in the migration package. If these directories are in the *SAS Config Dir/Lev1/Applications/SASMarketingOptimizationDotVer* directory or other LEVCONFIG directories, then**

include the `levconfig.user.dirs` property in your `smu.properties` file and set its value to a comma-separated list of these directories per the SAS Migration Utility documentation. Otherwise, each of these directories may need to be manually copied to the new environment if that environment is on a different machine and if the directory is not network accessible.

This message is completed by a list of custom directory file locations that can include one or more of the following: `DATASTORE=`, `PROJECTS=`, `PUBLISHED_SOLUTIONS=`, `PROMOTED_SOLUTIONS=`, `OLAP_CUBES=`, `MOMA_INPUT_DATA=`, `MOMA_AGENT_TABLES=`. For information about pre- and post-migration steps, contact your SAS on-site personnel for the *SAS Marketing Optimization Migration Guide*.



Migration of this SAS environment is not recommended. This version of the SAS Migration Utility does not support migration for SAS BI Dashboard.

Verify that you are using the SAS Migration Utility that is included in your order. A copy of the SAS Migration Utility is available to [download](#) for a preliminary analysis of your previous deployment. When you are ready to proceed with your migration, use the SAS Migration Utility that is included in your order to perform your analysis, assess requirements, and create the migration package. If you use a SAS Migration Utility other than the version included in your order, it might support a different set of products and components than your order. The migration package could produce inaccurate results.

SAS Metadata Server



ERROR: Product *product-name* depends on server *server-name*. This can affect migration of this system to a SAS 9.4 or later system. See SAS Note 50211 for more information.

As directed in the message, see [SAS Note 50211](#).



Unable to locate repository manager.

Verify that the `-sasconfigdir` parameter on the command line, or the `SMU.config.dir` property in `smu.properties`, is correct. The SAS Migration Utility gathers the subdirectories of the configuration directory (from `-sasconfigdir` or `SMU.config.dir`). Progressing through each subdirectory, the SAS Migration Utility looks for one of the following items:

- a next-lower-level subdirectory named "rposmgr"
- a file named "omaconfig.xml".

A next-lower-level subdirectory named `rposmgr` is assumed to be the repository manager. A file named "omaconfig.xml" is treated as a metadata server configuration file, which is parsed to find the location of the repository manager if the repository manager has not been located.

This message probably indicates that no subdirectory of the configuration directory contains one of these two items that specify a valid repository manager.



Missing repository manager data set(s).

Contact the administrator for your metadata server.

 Repository *repository-name* is missing one or more data set(s).

Contact the administrator for your metadata server.

 Multiple repositories of type Foundation are registered for this metadata server.

Consolidate the content of all the Foundation repositories into a single Foundation repository, and then remove the extra Foundation repositories.

 No repository of type Foundation is registered for this metadata server.

A valid metadata server requires one, and only one, Foundation repository to be registered.

 The server tier does not exist.

This message appears in SAS 9.2M2 only. In a multi-tiered deployment, this message can appear on any machine. The message indicates that the metadata server context cannot be found on this machine. If the message did not appear on the machine that hosts the metadata server tier, then no action is needed, and migration can proceed.

 No metadata server was detected in configuration directory *your-Levn-directory*.

This message indicates that the migration utility did not find the metadata server in the location that you specified in the command line (for example, `-sasconfigdir C:\SAS\Config\Lev1`) or in `SMU.properties` (for example, `SMU.config.dir=C:\SAS\Config\Lev1`).

 Use of repository type Custom is preferred over use of repository type Project.

This message indicates that when you migrated from a previous release, you had one or more Project repositories that were reinitialized. Project repositories are not reinitialized in the current migration, and they are ready for use after migration. However, a best practice is to discontinue the use of Project repositories and instead use Custom repositories, which are the currently supported type for non-Foundation repositories.

 Unable to locate file *file-name*.

This is a warning message for `omacfg.xml`, `adminUsers.txt`, or `trustedUsers.txt`. Determine whether the metadata server should be migrated without the specified file. An `omacfg.xml` file is not required, but its usage is very common. An `adminUsers.txt` file is almost a requirement, and the absence of the file might be cause for concern. A `trustedUsers.txt` file is not required, but its usage is also common.

 AuthenticationDomain objects exist in repository *repository-name*. AuthenticationDomain objects will be migrated to the foundation repository.

No action is needed if you want the AuthenticationDomain objects to be located in the Foundation repository in the target SAS deployment.

 **Located repository *repository-name* of type Project owned by group *owner-name*. Group ownership will be disallowed. This repository will be deleted during migration.**

The repository and the metadata that it contains is deleted from the target SAS deployment. If you want to migrate the repository, change the ownership so that the repository is owned by a non-group Identity.

 **Located repository *repository-name* of type Project with no owner. A repository of type Project will be required to have an owner. This repository will be deleted during migration.**

The repository and the metadata that it contains is deleted from the target SAS deployment. If you want to migrate the repository, assign an owner Identity.

 **Located repository *repository-name* of type Project owned by *owner-name*.**

This message informs you of the ownership of a project repository, to help you determine whether to migrate the metadata. Project repositories are reinitialized in the target SAS deployment, and the previous deployment's metadata is deleted. Check in any new or checked-out metadata that you want to migrate.

 **Metadata is checked out to project repository *repository-name*.**

Project repositories are reinitialized in the target SAS deployment, and the previous deployment's metadata is deleted. Check in any metadata that you want to migrate.

 **New metadata exists in project repository *repository-name*.**

Project repositories are reinitialized in the target SAS deployment, and the previous deployment's metadata is deleted. Check in any metadata that you want to migrate.

 **This repository will be reinitialized during migration. It will appear as a new repository.**

Check in any new or checked-out metadata that you want to migrate.

 **This repository will be deleted during migration.**

Check in any new or checked-out metadata that you want to migrate. If the repository is owned by a group, or has no ownership, change the ownership so that the repository is owned by a non-group Identity.

 **The trusted peer list name is not migrated.**

The migration utility has located a file (usually named `trustedPeers.xml`) that contains the trusted peer list. This file is not migrated as a part of the migration process. You must migrate this file manually. See [“Trusted Peer Connections” in SAS Intelligence Platform: Security Administration Guide](#).

SAS Model Manager API

 **Migration of this SAS environment is not recommended. This version of the SAS Migration Utility does not support migration for SAS Model Manager Application Programming Interface.**

Verify that you are using the SAS Migration Utility that is included in your order. A copy of the SAS Migration Utility is available to [download](#) for a preliminary analysis of your previous deployment. When you are ready to proceed with your migration, use the SAS Migration Utility that is included in your order to perform your analysis, assess requirements, and create the migration package. If you use a SAS Migration Utility other than the version included in your order, it might support a different set of products and components than your order. The migration package could produce inaccurate results.

 **One or more of the properties in the `smu.properties` file is missing its value. Specify a value for each of the following properties: *list***

This message includes a list of SAS Model Manager product-specific properties that you must specify in your `smu.properties` file. For information about SAS Model Manager properties, see *SAS Model Manager: Migration Guide*.

 **Directory-name under the workspace server: *Workspace-server-name* is not migrated. Please migrate it manually.**

The directory contains SAS Model Manager files related to dashboard reports. These files can include HTML, image, and text files as well as SAS files such as data sets. For more information about migrating this directory, see *SAS Model Manager: Migration Guide*.

Object Spawner

 **Conflict over port *number* found between *server-name-1* and *server-name-2*.**

You can ignore this message if *server-name-1* and *server-name-2* are the same server (for example, Connection: Connect Server and Connection: Connect Server).

 **No server(s) are assigned to *spawner-name*. This spawner will not be migrated**

Workspace and stored process servers are launched by the object spawner. If you are migrating either of these servers, then the spawner must be migrated as well. In such a case, this message indicates that the spawner is valid, but the links between the spawner and the corresponding servers are broken. You must establish the links again before you migrate. If you are not migrating the workspace or stored process server, then you do not need to migrate the spawner, and no action is necessary.

 **The server name contains characters not compatible with target SAS version. Please remove the incompatible characters from server name before migration.**

Correct the name of the server in the previous deployment's SAS Management Console, and run SAS Migration Utility again. The naming convention in the SAS Management Console has changed. In SAS 9.1.3, the forward slash and backslash characters are supported in server names, but in SAS 9.2 and later these characters are not supported. Other unsupported characters in server names include control characters (for example, tabs, newlines) and leading or trailing blanks. The name must not be greater than 60 characters, and must be specified (non-null).



Spawner definition not found in metadata server.

This is informational message. No action is needed unless you expected to find a spawner definition.

OLAP Cube Servers



Conflict over port *number* found between *server-name-1* and *server-name-2*.

You can ignore this message if *server-name-1* and *server-name-2* are the same server (for example, Connection: Connect Server and Connection: Connect Server).



After installing SAS OLAP Server, you will need to determine which cubes and shared dimensions need to be rebuilt. A cube or shared dimension may need to be rebuilt if the target system is a different operating system or if the path for the cube must change on the target system.

This message is a reminder of a post-migration task. In some deployments, rebuilding cubes can be time-consuming, so this task is left to the administrator or user, following migration.



After installing SAS OLAP Server, you will need to recreate existing cubes manually.

This message is a reminder of a post-migration task. In some deployments, rebuilding cubes can be time-consuming, so this task is left to the administrator or user, following migration.



The server name contains characters not compatible with target SAS version. Please remove the incompatible characters from server name before migration.

Correct the name of the server in the previous deployment's SAS Management Console, and run SAS Migration Utility again. The naming convention in the SAS Management Console has changed. In SAS 9.1.3, the forward slash and backslash characters are supported in server names, but in SAS 9.2 and later these characters are not supported. Other unsupported characters in server names include control characters (for example, tabs, newlines) and leading or trailing blanks. The name must not be greater than 60 characters, and must be specified (non-null).



"*server-name*" will not be migrated successfully, as its port cannot be found. To support migration for this server, you need to update the port attribute of the connection of this server and run SMU again.

Correct the port attribute in SAS Management Console and run SAS Migration Utility again.

 **"server-name" uses TCP/IP service "service-name". Make sure the service is available on the target system to avoid configuration failure during migration.**

This message indicates that an administrator set the service attribute manually with the SAS Management Console, and the attribute contains characters that are not supported in the target deployment. Usually, these unsupported characters are white space. Correct the service attribute in SAS Management Console and run SAS Migration Utility again.

Operating System Services

 **Conflict over port *number* found between *server-name-1* and *server-name-2*.**

You can ignore this message if *server-name-1* and *server-name-2* are the same server (for example, Connection: Connect Server and Connection: Connect Server).

 **No object spawner is assigned to "*server-name (server-ID)*". This server will not be migrated.**

Without an association to an object spawner, the server cannot function and therefore is not migrated. If you want to migrate the server, then in the previous deployment of SAS, associate an object spawner to the server and run SAS Migration Utility again.

For SAS/CONNECT, SAS/SHARE, and Operating System Services in migrations to early releases of SAS 9.2, some users can see this message even though no action is needed. The SAS Deployment Wizard corrects the name automatically for this server. You can disregard this error for the SAS/CONNECT, SAS/SHARE, and Operating System Services. Be aware that you might need to correct the names of other servers before you migrate. The naming convention in the SAS Management Console has changed. In SAS 9.2 and later, the forward slash and backslash are not supported in server names. Other unsupported characters in server names include control characters (for example, tabs, newlines) and leading or trailing blanks. The name must not be greater than 60 characters, and must be specified (non-null).

SAS OpRisk VaR and SAS OpRisk Monitor

 **Refer to the SAS OpRisk Monitor 4.1: Administrator's Guide for instructions on migrating your OpRisk Monitor solution data.**

The migration document ships to customers with the software.

 **Refer to the SAS OpRisk VaR 4.1 and SAS OpRisk VaR 4.1 Consortium Tool: Configuration Editor for instructions on migrating your SAS OpRisk VaR data store(s).**

The migration document ships to customers with the software.

 **Migration of this SAS environment is not recommended. This version of SAS OpRisk VaR Server is not at the required version and needs to be upgraded in order to use the automated migration processes.**

The previous deployment must be at SAS OpRisk VaR Server 4.2 or later.

 **Customizations made to SAS OpRisk VaR Server are the user's responsibility to migrate. Such customization could include: *list***

This message includes a list of items that you must migrate or re-configure manually. Instructions are available in the documentation.

 **A copy of the existing configuration directory for SAS OpRisk VaR Server has been stored in the migration package. Note: These files will not be migrated to the new system.**

The files are compressed and stored in the SAS Migration Utility package, which is located in the `orvarcfg` directory of the package. You can extract the files (using standard uncompression commands such as `zip`, `gzip`, and `tar`) to the location of your choice.

Platform Process Manager

 **Conflict over port *number* found between *server-name-1* and *server-name-2*.**

You can ignore this message if *server-name-1* and *server-name-2* are the same server (for example, Connection: Connect Server and Connection: Connect Server).

 **The server name contains characters not compatible with SAS 9.2. Please remove the incompatible characters from server name before migration.**

Correct the name of the server in the previous deployment's SAS Management Console, and run SAS Migration Utility again. The naming convention in the SAS Management Console has changed. In SAS 9.1.3, the forward slash and backslash characters are supported in server names, but in SAS 9.2 and later these characters are not supported. Other unsupported characters in server names include control characters (for example, tabs, newlines) and leading or trailing blanks. The name must not be greater than 60 characters, and must be specified (non-null).

 **JOB Scheduler found, You have to manually upgrade it to PlatformPM. Metadata definition of the job scheduler will be changed to platformPM on target machine for you**

Platform Job Scheduler is not supported in the new deployment. The metadata is automatically changed to Platform Process Manager, but you must manually upgrade to Platform Process Manager.

SAS Profitability Management

 **Migration of this SAS environment is not recommended. This version of the SAS Migration Utility does not support migration for SAS BI Dashboard.**

Verify that you are using the SAS Migration Utility that is included in your order. A copy of the SAS Migration Utility is available to [download](#) for a preliminary analysis of your previous deployment. When you are ready to proceed with your migration, use the SAS Migration Utility that is included in your order to perform your analysis, assess requirements, and create the migration package. If you use a SAS Migration Utility other than the version included in your order, it might support a different set of products and components than your order. The migration package could produce inaccurate results.

 **Input SAS Libraries must be manually migrated, unless they can stay on the machine where they currently are.**

For information about moving data sets, see the installation documentation, which is available from the [SAS Profitability Management product documentation](#).

Publishing Framework

 **Any explicit or direct ACT permissions on the 9.1 'Publish-Subscribe' folder (and its contents) are migrated. However, because the migration relocates this folder (and reorganizes its contents), inherited permissions might differ after migration. You might have to manually open up access under SAS Folders > System->Publishing after migration.**

After migration, the relocation of the folder can cause changes to permissions that are inherited from parent folders. For more information about inherited settings, see [SAS Intelligence Platform: Security Administration Guide](#).

 **Content channel channel-name is currently defined with an archive persistent store location of pathname. The archive packages (.spk) will not be migrated. You will need to manually copy these files to the new filesystem.**

Copy the .spk files as binary files by using operating system commands or a tool like FTP.

SAS Real-Time Decision Manager

 **Migration of this SAS environment is not recommended. This version of the SAS Migration Utility does not support migration for SAS Real-Time Decision Manager Queues Configuration.**

The queues configuration is deleted.

 **Migration is supported for this version. The custom SAS Activity code requires manual migration. You will need to execute the MigrateActivity script to migrate your custom sas code.**

More information is available in the administration guide or in the instructions.html document that is created during deployment.

 **Migration is not supported for this version. The system resources that reference the queue manager and queues will be removed. Do not include the SAS connection type system resources in the exported .spk files that will be migrated manually.**

The queues configuration is deleted.

 **Migration is supported for this version. If the objectspawner is not needed then you will need to manually remove the object spawner that was configured for exclusive use by SAS Real-Time Decision Manager.**

More information is available in the administration guide or in the instructions.html document that is created during deployment.

 **Migration is supported for this version. The metadata folder System \Applications\SAS Decision Services\Decision Services (version)\ is the new folder path for design and production repositories.**

More information is available in the administration guide or in the instructions.html document that is created during deployment.

 **The migration of the design and production repositories is not complete. The design of the system resources has changed. Any artifacts must be added manually to the new design and production repositories after the SAS Deployment Wizard is complete.**

More information is available in the administration guide or in the instructions.html document that is created during deployment.

 **The migration of the design and production repositories is not complete. The design of the system resources has changed. Any artifacts must be added manually to the new design and production repositories after the SAS Deployment Wizard is complete.**

More information is available in the administration guide or in the instructions.html document that is created during deployment.

 **Migration is supported for this version. All sas activity xml in only the design and production repositories that were configured out of the box will be migrated to use the same system resource. You will need to manually migrate additional user repositories that you may have created. When manually migrating to 9.3, do not include the SAS connection type resources into your exported .spk files.**

More information is available in the administration guide or in the instructions.html document that is created during deployment.

✓ **Migration is supported for this version. The message queue polling servers will be removed.**

The queues configuration is deleted.

✓ **Migration is supported for this version. The queue manager and queues metadata will be removed.**

The queues configuration is deleted.

✓ **Migration is not supported for this version. The dependency on a Websphere MQ Server has been removed.**

The dependency on a Websphere MQ Server has been removed.

✓ **The name of this product component has been changed to *product-name*.**

This message is informational only. The component names have been changed.

Share Server

● **Conflict over port *number* found between *server-name-1* and *server-name-2*.**

You can ignore this message if *server-name-1* and *server-name-2* are the same server (for example, Connection: Connect Server and Connection: Connect Server).

● **"*server-name*" will not be migrated successfully, as its connection specifies service as "*server-ID*". To support migration for this server, you need to empty the service prompt and run SMU again.**

Acceptable forms for the server ID value are:

`__port short-host-name.__port`

Precede the port number with two underscores. The short host name must be a valid SAS name that is 8 characters or less in length.

● **"*server-name*" will not be migrated successfully, as port number not found in its Server ID "*server-ID*". To support migration for this server, you need to update the Server ID and run SMU again.**

See above for acceptable forms of the server ID value.

● **"*server-name*" will not be migrated as the host name in Server ID "*server-ID*" doesn't resemble to the local host.**

See above for acceptable forms of the server ID value.

● **The server name contains characters not compatible with SAS 9.2. Please remove the incompatible characters from server name before migration.**

For SAS/CONNECT, SAS/SHARE, and Operating System Services in migrations to early releases of SAS 9.2, some users can see this message even though no action is needed. The SAS Deployment Wizard corrects the name automatically for this server. You can disregard this error for the SAS/CONNECT, SAS/SHARE, and Operating System Services.

Be aware that you might need to correct the names of other servers before you migrate. The naming convention in the SAS Management Console has changed. In SAS 9.2 and later, the forward slash and backslash are not supported in server names. Other unsupported characters in server names include control characters (for example, tabs, newlines) and leading or trailing blanks. The name must not be greater than 60 characters, and must be specified (non-null).

Solutions Services DataTier

 **The Solutions Role Administrator login user ID was not found. The SAS Deployment Wizard will not be able to update the user ID or password during migration. This will cause configuration failures.**

SAS Migration Utility looks for the default Person Name (Solutions Role Administrator) or the default Login user ID (slnadm or *domain-name\slnadm*). This error indicates that neither of these user IDs exist. Use SAS Management Console in the source environment to determine whether the default User IDs were modified.

 **Table *table-name* has missing values in the *column-name* column. Please delete the rows with missing values, or set valid *column-name* values for those rows, before migrating.**

Make the suggested changes, and run SAS Migration Utility again to confirm that the error no longer appears.

 **Table *table-name* should be empty because the primary keys for this table have changed in Solutions Services 5.1. Please back up table *table-name* and delete its contents before migrating.**

After migration, you can reload the table.

 **The SASSDM database will not be exported, could not find the MySQL credentials file.**

The SASSDM database is exported for migration by using the MySQL credentials found in the `mysqldb.properties` file. That file was created during the previous deployment's configuration. This message indicates that you might have mistakenly deleted that file.

 **Custom directives will be migrated from subordinate repositories into the Foundation repository.**

This is an informational message only.

 **Any customizations to templates that are stored in DAV will not be migrated.**

If you need help with these customizations, contact your on-site SAS support personnel.

 Alerts associated to Documents in Document Manager will not be migrated.

Generally, these alerts can safely be discarded.

 The .sas file associated with a custom stored process is copied into the SMU output by levconfig and can be found here: *pathname*

The .sas source files for the custom stored processes are located at the indicated path name, which is a relative path name in the migration package directory. After migration, you must move the .sas files from the migration package to the destination system's disk drive. If you move the .sas files to a different location on the destination machine than they were on the source machine, you must update the path name in metadata by using SAS Management Console.

 Stored Process metadata will be migrated from subordinate repositories into Foundation.

This is an informational message only.

 Document Manager related metadata will be migrated from subordinate repositories into Foundation.

This is an informational message only.

Stored Process Servers

 Conflict over port *number* found between *server-name-1* and *server-name-2*.

You can ignore this message if *server-name-1* and *server-name-2* are the same server (for example, Connection: Connect Server and Connection: Connect Server).

 The server name contains characters not compatible with target SAS version. Please remove the incompatible characters from server name before migration.

Correct the name of the server in the previous deployment's SAS Management Console, and run SAS Migration Utility again.

The naming convention in the SAS Management Console has changed. In SAS 9.1.3, the forward slash and backslash characters are supported in server names, but in SAS 9.2 and later these characters are not supported. Other unsupported characters in server names include control characters (for example, tabs, newlines) and leading or trailing blanks. The name must not be greater than 60 characters, and must be specified (non-null).

 No object spawner is assigned to "*server-name (server-ID)*". This server will not be migrated.

Without an association to an object spawner, the server cannot function and therefore is not migrated. If you want to migrate the server, then in the previous deployment, associate an object spawner to the server and run SAS Migration Utility again.

 Server "**server-name**" uses "**server-ID**" login **user-ID**. This login will be modified to match the target machine name during migration and must exist on the target system for the server to function.

This is an informational message to notify you that the SAS Migration Utility is able to change the login to match the target system.

 Server "**server-name**" uses "**server-ID**" login **user-ID**. This login will not be modified during migration and must exist on the target system for the server to function.

The SAS Migration Utility is not able to change the login to match the target system. See [SAS Note 36464](#) for instructions to correct the login in the previous deployment's SAS Management Console, and run SAS Migration Utility again.

SAS Table Server

 The SAS Table Server product is no longer available after the 9.2 release. It will be replaced by the SAS Framework Data Server when you configure the target system using this migration package.

If you migrate to SAS 9.4, SAS Table Server is replaced with SAS Web Infrastructure Platform Data Server. If you migrate to SAS 9.3, SAS Table Server is replaced with SAS Framework Data Server.

Third-Party Servers

 Metadata describing **server-name** Server may need to be updated if this software has moved.

This message prints for any third-party server that is defined in SAS metadata (such as an HTTP server). If the message specifies the SAS Content Server, then no action is required. However, for other servers, you can choose to migrate them manually. If you want to migrate a third-party server, then in the target SAS deployment after migration, you must update the metadata definition manually. Updates to metadata can include host and port information, any file system paths, and so on.

SAS Web Analytics

 Content from SAS Web Analytics will not be migrated.

SAS Web Analytics 5.3 provides updates to jobs for SAS Data Integration Studio and Web Report Studio. The changes are significant, and customizations from previous releases cannot be incorporated automatically.

SAS Web Infrastructure Platform

✗ The SAS Web Infrastructure Platform's database cannot be exported because a database connection could not be opened.

The connection attempt failed. Common reasons for failure include (but are not limited to): the database login ID or password is not valid, the database is not running, or the customer configured an incompatible JDBC driver. If you continue to have a connection failure, contact your on-site SAS support personnel for assistance.

✗ The SAS Web Infrastructure Platform's database cannot be exported because database vendor *dbms-type* is not supported.

For a list of supported database vendors, see *SAS Intelligence Platform: Middle-Tier Administration Guide*.

✗ The SAS Web Infrastructure Platform's database cannot be exported because the `SMU.webinfpltfm.dbms.userid` property which specifies the database login ID is not defined.

Specify the correct SAS Migration Utility property, and run the utility again.

✗ The SAS Web Infrastructure Platform's database cannot be exported because the `SMU.webinfpltfm.dbms.userid` and `SMU.webinfpltfm.dbms.password` properties which specify the database login ID and password are not defined.

Specify the correct SAS Migration Utility properties, and run the utility again.

✗ The SAS Web Infrastructure Platform's database cannot be exported because the `SMU.webinfpltfm.dbms.password` property which specifies the database login ID's password is not defined.

Specify the correct SAS Migration Utility property, and run the utility again.

✗ The SAS Web Infrastructure Platform's database cannot be exported because the property which specifies the database's host is not defined.

This message indicates that the property was not set correctly by the framework. This property cannot be specified with the SAS Migration Utility. Contact your on-site SAS support personnel for assistance.

✗ The SAS Web Infrastructure Platform's database cannot be exported because the property which specifies the database's port is not defined.

This message indicates that the property was not set correctly by the framework. This property cannot be specified with the SAS Migration Utility. Contact your on-site SAS support personnel for assistance.

 **The SAS Web Infrastructure Platform's database cannot be exported because the property which specifies the database's name is not defined.**

This message indicates that the property was not set correctly by the framework. This property cannot be specified with the SAS Migration Utility. Contact your on-site SAS support personnel for assistance.

 **Migration is supported for this version, but the target database cannot be a Teradata database. For a list of supported database vendors, see SAS Intelligence Platform: Middle-Tier Administration Guide.**

If you do not make a selection, the database is migrated to SAS Web Infrastructure Platform Data Server. For more information, see [SAS Intelligence Platform: Middle-Tier Administration Guide](#).

 **Distributed IP Schedulers to be migrated: *list***

This message is followed by a list of servers. This is an informational message and no action is necessary.

SAS Web OLAP Viewer for Java

 **(*item-name*) does not have "BIP Tree".**

This message indicates that you have improperly edited the previous deployment's repository tree structure. If folder structure in repository is not parallel with directories in the external content server, or if the BIP Tree folder is not present, then the SAS Web OLAP Viewer instance that works with the repository is probably not functioning. In this case, you probably have no content to migrate.

 **Migration of this SAS environment is not recommended. This version of SAS Web OLAP Viewer is not at the required version and needs to be upgraded in order to use the automated migration processes.**

SAS Web OLAP Viewer 3.1 and SAS 9.1.3 SP4 are the baseline requirements for migration. If you have a version of SAS Web OLAP Viewer prior to 3.1, then you must upgrade before you create a migration package with the SAS Migration Utility. Contact SAS and request Upgrading the SAS BI Applications and Applying SAS Service Pack 4.

 **Migration of this SAS environment is not recommended. This configuration of SAS Web OLAP Viewer is invalid and cannot be migrated.**

If you have content to migrate, contact your on-site SAS support personnel for assistance.

 **Multiple instances of SAS Web OLAP Viewer were found**

No action is needed. All valid instances of Web OLAP Viewer are migrated. Invalid instances are not migrated. The analysis report identifies the previous deployment's instances that are migrated to the target deployment. When migrating multiple instances

of SAS OLAP Web Viewer, the SAS Migration Utility, by default, bases the resulting configuration on all valid instances found. To override this behavior, you can specify the fully qualified location of the SAS OLAP Web Viewer WAR file or folder with the `webolapviewr.war.file` or `webolapviewr.war.dir` property. When the fully qualified location to the WAR file (or exploded WAR directory) is provided, only that instance is processed.



Migration Summary: matched folders (n), unmatched folders (n)

No action is needed. Each SAS 9.1.3 deployment has home folders for users, which are typically located at BIP Tree/Users. The user home folders (for each deployment) are moved to the standard user folder location in the target deployment during migration.



The SAS Web OLAP Viewer product is no longer available after the 4.2 version. When you configure the target system using this migration package, data exploration objects will be analyzed for conversion to reports as part of SAS Web Report Studio configuration.

For more information, see [SAS Intelligence Platform: Web Application Administration Guide](#).

SAS Web Parts for Microsoft SharePoint



If you intend to set up a new SAS installation in parallel with your existing installation for testing or development purposes, you will need to provide either a separate SharePoint Web Application or a separate SharePoint installation into which the web parts can be deployed for the new SAS environment. When you are ready to move the new SAS installation into production, you can uninstall the old version of the web parts from your production SharePoint machine(s), install the new version and configure them to connect with the new SAS installation.

Follow the message's instructions if they apply to your deployment.

SAS Web Report Studio



Property list file *filename* does not exist.

A required property file is missing. The script that runs the SAS Web Report Studio and SAS Web Report Viewer migration also generates this file. Therefore, this error suggests that something is wrong with the file system. Another possibility is that the script was paused between generating the file and executing the SAS Migration Utility logic, and the file was deleted prior to executing the SAS Migration Utility logic.



Style sheet *filename*, referenced by [*filename*] does not exist and cannot be migrated.

The LocalProperties.xml file refers to a style sheet file that does not exist, and which cannot, therefore, be migrated. This message probably indicates that the specification is outdated in the LocalProperties.xml file. Determine whether you can remove the reference or supply the missing style sheet file.

 **Clustering is enabled for deployments *instance-name* and disabled for deployments *instance-name*; choosing to default to clustering enabled.**

No action is needed unless this information is unexpected.

 ***item-name* scheduling type will be selected by default. *item-name* scheduling is enabled for *instance-name* and *item-name* scheduling is enabled for *instance-name*. If this is a problem, disable scheduling for the deployments you do not want to use for this decision.**

Take the action explained in the message if it is appropriate.

 **Scheduling type *item-name* defined for deployment *instance-name* not recognized.**

Scheduling should be defined as either platform or inprocess. This message indicates that the deployment has something else defined. Investigate the reason for this customization.

 **Removing property *property-name* from *instance-name*; its value is illegal and cannot be migrated.**

This message indicates that a property associated with the software component of a deployed Web Report Studio or Web Report Viewer instance contains a circular reference. This error in the property probably occurred when that instance was configured. Such a property is defective and cannot be migrated. Check, after migration, that the specified property has been assigned a valid value.

 **Multiple deployed instances of SAS Web Report Viewer were found; this is not a supported configuration.**

Multiple deployments of Web Report Viewer were detected. Migration might not succeed. Multiple deployments of SAS Web Report Viewer are not supported in SAS 9.2 and later. Investigate the reason for this customization.

 **This instance is at release *number*.**

Deployments of Web Report Studio were detected, and they are not all at the same version. This is unexpected. Migration will probably work, but this is not a supported configuration. Investigate the reason for this customization.

 **Clustering is disabled for deployments *product-name*.**

No action is needed unless this information is unexpected.

 **Clustering is enabled for deployments *product-name*.**

No action is needed unless this information is unexpected.

✓ **Clustering is not defined for any deployments.**

No action is needed unless this information is unexpected.

✓ **Default scheduling ports defined as *port-number*, *port-number*, and *port-number*.**

No action is needed unless this information is unexpected.

✓ **Scheduling ports are not defined for any deployments**

No action is needed unless this information is unexpected.

✓ ***item-name* scheduling type is enabled for *product-name*.**

No action is needed unless this information is unexpected.

✓ **Scheduling is not enabled for any deployments.**

No action is needed unless this information is unexpected.

✓ **Copying configuration file**

No action is needed unless this information is unexpected.

✓ **Found configured instance *product-name*.**

No action is needed. This is an informational message.

✓ **Style sheet file will be migrated.**

No action is needed. This is an informational message.

The follow messages are from earlier releases:

✗ **not found (MAJOR ERROR: Could not locate 'BIP Tree')**

This message indicates that you have improperly edited the previous deployment's repository tree structure. If the folder structure in the repository is not parallel with directories in the external content server, or if the BIP Tree folder is not present, then the Web Report Studio instance that works with the repository in the previous deployment is probably not functioning. In this case, you probably have no content to migrate.

✗ **not found (*item-name*)**

Verify that the report repository is running, and that the SAS Migration Utility parameters are correct.

✗ **An error occurred writing configuration.properties: *item-name***

This is an I/O error. Investigate the nature of the error, and run SAS Migration Utility again when the problem is resolved.

 **There were 0 roles found to be migrated. This is acceptable if the WRS roles were never created. The following roles were looked for: (*role-name*).**

Verify that none of the specified roles were created.

 **The instance specified by *citationweb.war.file* (*instance-name*) does not exist.**

Set the *citationweb.war.file* to the correct deployment and run SAS Migration Utility again.

 **Migration Summary: *item-name* was scanned for SAS Web Report Studio home folders. (*n*) were matched to metadata users, and will be relocated into their new home folder. (*n*) were not matched (possibly users with no metadata account) and will migrate in-place. (*n*) Metadata roles were located and will be migrated and converted.**

No action is needed. In addition to the basic configuration, each SAS 9.1.3 deployment has home folders for users, which are typically located at BIP Tree/Report Studio/Users. The user home folders (for each deployment) are moved to the standard user folder location in the target deployment during migration. SAS 9.2 and later provides expanded support for roles.

 **NOTICE: there are (*n*) "unmatched" home folders, these are home folders not belonging to a SAS Metadata user (probably "Public users"). They will be migrated "in place", and not relocated to a new SAS 9.2 Home Folder. The file *file-name* lists each unmatched home folder.**

No action is needed. If a user is not defined in metadata, the folder is unmatched. The unmatched SAS 9.1.3 folder is migrated to a different location than the other user folders in the target deployment. In SAS 9.2 and later, the parent folder of the unmatched folder is changed from Users to Users.913. The Users.913 folder is a system folder, which hides it from most applications, but the folder can be seen in SAS Management Console.

 **Did not find subfolder**

Check the repository for possible corruption.

 **Stylesheet *file-name* does not exist and cannot be migrated.**

The Web Report Studio deployment apparently references a style sheet that does not exist. Either ignore this message or fix the deployment configuration files (*WebReportStudioProperties.xml* or *LocalProperties.xml* or both), looking for the specified style sheet name in a *sas.wrs.styles.css* value.

 **Multiple instances of SAS Web Report Studio were found. This instance will be used for configuration.**

No action is needed unless the message indicates the wrong Web Report Studio deployment. If that is the case, set the *citationweb.war.file* to the correct deployment and run SAS Migration Utility again.

This message is a result of an enhancement in SAS 9.2 and later. Now a single deployment can generally do the same work that was done by multiple deployments in SAS 9.1.3. In your SAS 9.1.3 installation, each deployment includes configuration information (such as scheduling user ID and password). When you migrate to SAS 9.2

or later, the migration creates one deployment. The analysis report identifies the SAS 9.1.3 configuration that is migrated to the target deployment.

If two SAS 9.1.3 deployments refer to the same repository, the first one that is encountered is used to gather migration data. In this case, see the migration log for more information.



Stylesheet file will be migrated.

No action is needed unless the indicated file is not the expected file. If an unexpected file is indicated, check whether the value of `citationweb.war.file` is correct and points to the correct Web Report Studio deployment.



Platform PM scheduling credentials recorded

This message indicates that scheduling credentials exist in the previous deployment. The target deployment of SAS Web Report Studio uses platform process manager scheduling by default.

No action is needed unless platform process manager scheduling is not the correct default for the target SAS deployment. To avoid setting this default, remove the scheduling credentials from the `WebReportStudioProperties.xml` file that is in the specified location, run SAS Migration Utility again, and verify that the message is no longer present in the Analysis Report. Here are the properties with the scheduling credentials removed:

```
<wrs.scheduling>
  <LSFSchedulingServerUID> </LSFSchedulingServerUID>
  <LSFSchedulingServerPw> </LSFSchedulingServerPw>
</wrs.scheduling>
```

Workspace Servers and Pooled Workspace Server



Conflict over port *number* found between *server-name-1* and *server-name-2*.

You can ignore this message if *server-name-1* and *server-name-2* are the same server (for example, Connection: Connect Server and Connection: Connect Server).



The server name contains characters not compatible with target SAS version. Please remove the incompatible characters from server name before migration.

Correct the name of the server in the previous deployment's SAS Management Console, and run SAS Migration Utility again. The naming convention in the SAS Management Console has changed. In SAS 9.1.3, the forward slash and backslash characters are supported in server names, but in SAS 9.2 and later these characters are not supported. Other unsupported characters in server names include control characters (for example, tabs, newlines) and leading or trailing blanks. The name must not be greater than 60 characters, and must be specified (non-null).



No object spawner is assigned to "*server-name (server-ID)*". This server will not be migrated.

Without an association to an object spawner, the server cannot function and therefore is not migrated. If you want to migrate the server, then in the previous deployment, associate an object spawner to the server and run SAS Migration Utility again.

 **Server "*server-name*" uses "*server-ID*" login *user-ID*. This login will be modified to match the target machine name during migration and must exist on the target system for the server to function.**

This is an informational message to notify you that the SAS Migration Utility is able to change the login to match the target system.

 **Server "*server-name*" uses "*server-ID*" login *user-ID*. This login will not be modified during migration and must exist on the target system for the server to function.**

The SAS Migration Utility is not able to change the login to match the target system. See [SAS Note 36464](#) for instructions to correct the login in the previous deployment's SAS Management Console, and run SAS Migration Utility again.

Glossary

authentication

the process of verifying the identity of a person or process for security purposes. Authentication is commonly used in providing access to software, and to data that contains sensitive information.

authentication domain

a SAS internal category that pairs logins with the servers for which they are valid. For example, an Oracle server and the SAS copies of Oracle credentials might all be classified as belonging to an OracleAuth authentication domain.

connection profile

a client-side definition of where a metadata server is located. The definition includes a computer name and a port number. In addition, the connection profile can also contain user connection information.

data set

See [SAS data set](#).

deploy

to install an instance of operational SAS software and related components. The deployment process often includes configuration and testing as well.

deployment plan

information about what software should be installed and configured on each machine in a SAS deployment. A deployment plan is stored in a plan.xml file.

foundation services

See [SAS Foundation Services](#).

identity

See [metadata identity](#).

Integrated Windows authentication (IWA)

a Microsoft technology that facilitates use of authentication protocols such as Kerberos. In the SAS implementation, all participating components must be in the same Windows domain or in domains that trust each other.

Internet Protocol Version 6 (IPv6)

a protocol that specifies the format for network addresses for all computers that are connected to the internet. This protocol, which is the successor of Internet Protocol

Version 4, uses hexadecimal notation to represent 128-bit address spaces. The format can consist of up to eight groups of four hexadecimal characters, delimited by colons, as in FE80:0000:0000:0000:0202:B3FF:FE1E:8329. As an alternative, a group of consecutive zeros could be replaced with two colons, as in FE80::0202:B3FF:FE1E:8329.

IPv6

See [Internet Protocol Version 6](#).

IWA

See [Integrated Windows authentication](#).

metadata identity (identity)

a metadata object that represents an individual user or a group of users in a SAS metadata environment. Each individual and group that accesses secured resources on a SAS Metadata Server should have a unique metadata identity within that server.

middle tier

in a SAS business intelligence system, the architectural layer in which web applications and related services execute. The middle tier receives user requests, applies business logic and business rules, interacts with processing servers and data servers, and returns information to users.

migrate

to populate a new deployment of SAS software with the content, data, or metadata (or a combination of these) from an existing deployment. Migrating might include upgrading to a new software release, converting data or metadata, or other changes to ensure compatibility.

object spawner (spawner)

a program that instantiates object servers that are using an IOM bridge connection. The object spawner listens for incoming client requests for IOM services.

planned deployment

a method of installing and configuring a SAS business intelligence system. This method requires a deployment plan that contains information about the different hosts that are included in the system and the software and SAS servers that are to be deployed on each host. The deployment plan then serves as input to the SAS Deployment Wizard.

promote

to copy selected metadata and associated content within or between planned deployments of SAS software. This promotion process is repeatable for a particular deployment. *See also* [migrate](#).

promotion

the process of copying selected metadata and associated content within or between planned deployments of SAS software that could run different software releases. Methods of promotion include import and export processes, as well as explicit copies between two servers. This process is repeatable for a particular deployment.

SAS Application Server

a logical entity that represents the SAS server tier, which in turn comprises servers that execute code for particular tasks and metadata objects.

SAS authentication

a form of authentication in which the target SAS server is responsible for requesting or performing the authentication check. SAS servers usually meet this responsibility by asking another component (such as the server's host operating system, an LDAP provider, or the SAS Metadata Server) to perform the check. In a few cases (such as SAS internal authentication to the metadata server), the SAS server performs the check for itself. A configuration in which a SAS server trusts that another component has pre-authenticated users (for example, web authentication) is not part of SAS authentication.

SAS data set (data set)

a file whose contents are in one of the native SAS file formats. There are two types of SAS data sets: SAS data files and SAS data views.

SAS Deployment Manager

a cross-platform utility that manages SAS deployments. The SAS Deployment Manager supports functions such as updating passwords for your SAS deployment, rebuilding SAS web applications, and removing configurations.

SAS Deployment Wizard

a cross-platform utility that installs and initially configures many SAS products. Using a SAS installation data file and, when appropriate, a deployment plan for its initial input, the wizard prompts the customer for other necessary input at the start of the session, so that there is no need to monitor the entire deployment.

SAS Foundation Services (foundation services)

a set of core infrastructure services that programmers can use in developing distributed applications that are integrated with the SAS platform. These services provide basic underlying functions that are common to many applications. These functions include making client connections to SAS application servers, dynamic service discovery, user authentication, profile management, session context management, metadata and content repository access, information publishing, and stored process execution.

SAS IOM workspace (workspace)

in the IOM object hierarchy for a SAS Workspace Server, an object that represents a single session in SAS.

SAS Management Console

a Java application that provides a single user interface for performing SAS administrative tasks.

SAS Metadata Server

a multi-user server that enables users to read metadata from or write metadata to one or more SAS Metadata Repositories.

SAS OLAP Server

a SAS server that provides access to multidimensional data. The data is queried using the multidimensional expressions (MDX) language.

SAS Pooled Workspace Server

a SAS Workspace Server that is configured to use server-side pooling. In this configuration, the SAS object spawner maintains a collection of workspace server processes that are available for clients.

SAS Software Depot

a file system that consists of a collection of SAS installation files that represents one or more orders. The depot is organized in a specific format that is meaningful to the SAS Deployment Wizard, which is the tool that is used to install and initially configure SAS. The depot contains the SAS Deployment Wizard executable, one or more deployment plans, a SAS installation data file, order data, and product data.

SAS Stored Process Server

a SAS IOM server that is launched in order to fulfill client requests for SAS Stored Processes.

SAS Workspace Server

a SAS server that provides access to SAS Foundation features such as the SAS programming language and SAS libraries.

SAS/SHARE server

the result of an execution of the SERVER procedure, which is part of SAS/SHARE software. A server runs in a separate SAS session that services users' SAS sessions by controlling and executing input and output requests to one or more SAS libraries.

SASHOME directory

the location in a file system where an instance of SAS software is installed on a computer. The location of the SASHOME directory is established at the initial installation of SAS software by the SAS Deployment Wizard. That location becomes the default installation location for any other SAS software that is installed on the same computer.

server context

a SAS IOM server concept that describes how SAS Application Servers manage client requests. A SAS Application Server has an awareness (or context) of how it is being used and makes decisions based on that awareness. For example, when a SAS Data Integration Studio client submits code to its SAS Application Server, the server determines what type of code is submitted and directs it to the correct physical server for processing (in this case, a SAS Workspace Server).

servlet

a Java program that runs on a web server. Servlets are a complementary technology to applets, which run in web browsers. Unlike applet code, servlet code does not have to be downloaded to a web browser. Instead, servlets send HTML or other appropriate content back to a browser or to another type of web-based client application.

servlet container

the component of a web server that manages the lifecycle of servlets, mapping a URL to a particular servlet and ensuring that the URL requester has the correct access rights. All servlet containers must support HTTP as a protocol for requests and responses, but they can also support additional protocols such as HTTPS.

single sign-on (SSO)

an authentication model that enables users to access a variety of computing resources without being repeatedly prompted for their user IDs and passwords. For example, single sign-on can enable a user to access SAS servers that run on different platforms without interactively providing the user's ID and password for each platform. Single sign-on can also enable someone who is using one application to launch other applications based on the authentication that was performed when the user initially logged on.

spawner

See [object spawner](#).

spot

the location for displaying a creative in an interactive channel. For example, a spot can be an identifiable area on a web page, email message, or mobile application.

SSO

See [single sign-on](#).

trusted user

a privileged service account that can act on behalf of other users on a connection to the metadata server.

unrestricted identity

a user or group that has all capabilities and permissions in the metadata environment due to membership in the META: Unrestricted Users Role (or listing in the adminUsers.txt file with a preceding asterisk).

upgrade

a type of software update that introduces new functionality. An upgrade generally involves a new release number.

web application

an application that is accessed via a web browser over a network such as the internet or an intranet. SAS web applications are Java Enterprise Edition (JEE) applications that are delivered via web application archive (WAR) files. The applications can depend on Java and non-Java web technologies.

web authentication

a configuration in which users of web applications and web services are verified at the web perimeter, and the metadata server trusts that verification.

Web Distributed Authoring and Versioning (WebDAV)

a set of extensions to the HTTP protocol that enables users to collaboratively edit and manage files on remote web servers.

WebDAV

See [Web Distributed Authoring and Versioning](#).

WebDAV server

an HTTP server that supports the collaborative authoring of documents that are located on the server. The server supports the locking of documents, so that multiple authors cannot make changes to a document at the same time. It also associates metadata with documents in order to facilitate searching. The SAS business intelligence applications use this type of server primarily as a report repository. Common WebDAV servers include the Apache HTTP Server (with its WebDAV modules enabled), Xythos Software's WebFile Server, and Microsoft's Internet Information Server (IIS).

workspace

See [SAS IOM workspace](#).

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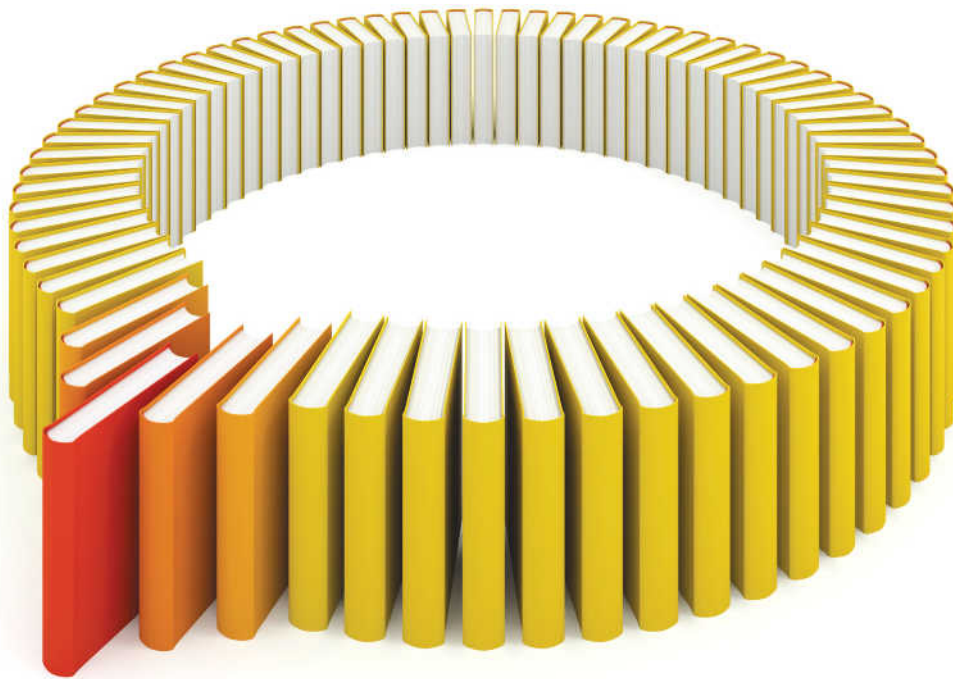
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