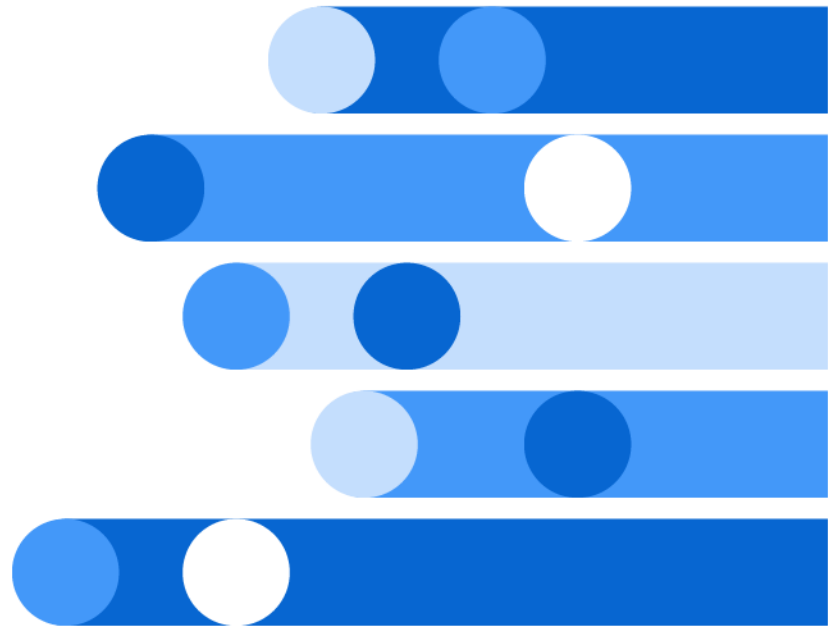




SAS[®] Deployment Wizard and SAS[®] Deployment Manager 9.4M7–M9: User's Guide



The correct bibliographic citation for this manual is as follows: SAS Institute Inc. 2025. *SAS® Deployment Wizard and SAS® Deployment Manager 9.4M7-M9: User's Guide*. Cary, NC: SAS Institute Inc.

SAS® Deployment Wizard and SAS® Deployment Manager 9.4M7-M9: User's Guide

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April 2026

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9.4_01-P1:deploywizug

Contents

Chapter 1 / Overview of the SAS Deployment Wizard, the SAS Deployment Manager, and the User's Guide	1
What is the SAS Deployment Wizard?	1
What is the SAS Deployment Manager?	2
Using This Guide	2
Definition of Terms	2
Notes	4
Chapter 2 / Best Practices	7
Using Default Values	7
The SAS Software Depot	7
Manage Your SAS installation data files	11
Store and Use Deployment Plan Files	12
Chapter 3 / SAS Deployment Wizard: Command-Line Options	13
Quiet Installation	14
Record and Playback	15
Logging	20
Hot Fixes	20
Check System Requirements (Windows Only)	21
Subset an Order	24
Configure the SAS Deployment Agent	26
Miscellaneous Command-Line Options	27
Chapter 4 / SAS Deployment Wizard: Basic Troubleshooting	35
Suspend and Resume a Deployment	35
SAS Deployment Wizard Stops without Error Message	36
SAS Deployment Wizard Log Files	37
Installation Log Files	37
Chapter 5 / Find and Apply Hot Fixes	39
Apply Hot Fixes during Any Installation	39
Apply Hot Fixes outside of an Installation	40
Hot Fix Logs	47
Chapter 6 / SAS Deployment Manager Tasks	49
Overview	50
Administration Tasks	50
Manage SAS Deployment Agent Service	60
SAS/IntrNet Service Tasks	67
Hadoop Configuration	70
Repair Tasks	70
Manage Trusted CA Bundle	71

Chapter 7 / SAS Deployment Manager: Command-Line Options	75
Quiet Deployment	75
Record and Playback	76
Uninstall All Products	79
Miscellaneous Command-Line Options	79
Chapter 8 / SAS Deployment Agent	83
Overview	83
Security Considerations	84
Add Services to the SAS Deployment Agent (UNIX Only)	85
Check the Status of the SAS Deployment Agent (UNIX Only)	85
Chapter 9 / Additional Tools	87
SAS Software Depot Check Utility	87
View Registry	89
SAS Update File Cleanup Utility (Windows and UNIX Only)	92
Appendix 1 / Independent Installation of SAS Products	93
Overview	93
Installation	95
Command-Line Options	97
Uninstallation	98
Apply Hot Fixes	98
Appendix 2 / Windows Administration	99
Prepare for a SAS Installation in a Terminal Server Environment or on Citrix	99
Install SAS 9.4 in a Terminal Server Environment or on Citrix	100

Overview of the SAS Deployment Wizard, the SAS Deployment Manager, and the User's Guide

<i>What is the SAS Deployment Wizard?</i>	1
<i>What is the SAS Deployment Manager?</i>	2
<i>Using This Guide</i>	2
<i>Definition of Terms</i>	2
Notes	4
Do Not Run Both Applications Simultaneously	4
Deployment Registry	4
UNIX Installer Account	4
Windows Terminal Server Users	5
UNIX Windowing Environments	5
Federal Desktop Core Configuration	6
Large Fonts	6

What is the SAS Deployment Wizard?

The *SAS Deployment Wizard* is the common interface used to install and deploy all SAS 9.4 software. Using the SAS Deployment Wizard, you can create and interact with the SAS Software Depot, the repository of files and data necessary to install your SAS 9.4 software. When you use the SAS Deployment Wizard to its full capability, it provides a broad range of deployment opportunities, from installing software on a single machine to installing on many machines across several tiers, either silently or interactively.

What is the SAS Deployment Manager?

The *SAS Deployment Manager* is a tool that looks very much like the SAS Deployment Wizard. However, the SAS Deployment Manager is used for post-installation configuration tasks such as configuring some products, applying hot fixes, updating metadata, and uninstalling SAS software.

Using This Guide

This User's Guide is a high-level document that provides support information for the SAS Deployment Wizard and its processes. This document, combined with the Help information available from each SAS Deployment Wizard page, should be sufficient information to assist you to install and deploy your software. However, if you need more technical information or would like to see detailed screen-by-screen instructions, see [SAS Intelligence Platform: Installation and Configuration Guide](#). As always, if you cannot find the answers to your questions, contact SAS Technical Support.

Definition of Terms

This section defines terms key for installing and deploying your SAS software.

Software Order Email

The *Software Order Email* contains important information about your SAS Software Package and instructions for preparing to install your software. The Software Order Email is sent to the SAS Installation Representative at your site.

If you cannot find your Software Order Email, go to [SAS License Assistance](#) to have it re-sent to the SAS Installation Representative at your site.

SAS Software Depot

The *SAS Software Depot* is a centralized repository of your installation software.

SAS Installation Data (SID) file

The *SAS Installation Data file* consists of customized installation information and product authorization information. The SAS Deployment Wizard uses the installation information in the SID file to install your licensed software and apply customized product authorization information to your system. The file

name uses the following format: `sas94_xxxxxx_yyyyyyy_zzz.txt`. `xxxxxx` is your order number. `yyyyyyy` is your setnumid (also sometimes referred to as “site number,” a unique identifier that Tech Support uses). `zzz` is the operating system for which the order is licensed.

The SID file for your software order is located in the `sid_files` directory at the root of your SAS Software Depot.

SAS Order Information

The *SAS Order Information* is a file that contains the list of SAS software that you have ordered. This list is the same as the one that is included with your Software Order Email, but is included in your software. The SAS Order Information file is located in your SAS Software Depot at `/install_doc/order-number/soi.html`.

Basic and Planning

Your Software Order Email and SAS Order Information have Order Type or Deployment Type fields. The value in the field is either Basic or Planning. Basic orders are generally straightforward single-machine deployments. Planning orders are more complex, multi-machine deployments. The type of order you have helps you to identify your orders (if you have more than one order) and determines the path that you use to go through the SAS Deployment Wizard.

SASHOME

SASHOME is the file location where your SAS software is installed on a machine (for example, the default *SASHOME* for Windows is `C:\Program Files\SASHome`). *SASHOME* is determined when you install software through the SAS Deployment Wizard the first time. The location that you use becomes the default installation location for any other SAS software that you install on the same machine. For Windows users, this means that you are prompted for the *SASHOME* location only the first time that you use the SAS Deployment Wizard on a machine.

Note: The location that you use for *SASHOME* must not contain a SAS Software Depot.

If you want to install more than one version of SAS on a machine, you can do so by using a different *SASHOME* for each version. If you are putting planned deployments of different versions of SAS on the same machine, you must ensure that you are using different configuration directories. You should also ensure that there are no port conflicts between the two versions, especially if you intend to run both versions at the same time. Furthermore, Windows users can register file types to only a single version.

Deployment Plan

A *deployment plan* is a pre-selection of the software that is installed by the SAS Deployment Wizard. It contains a description of what the plan deploys, identifies the target machines, and lists the software to be installed and configured. It is an XML file and is named `plan.xml`. Most installations of Basic orders do not require a deployment plan.

The SAS Deployment Wizard contains a set of standard deployment plans that you can use with little customization. If you are working with a SAS consultant

in the deployment of your software, that consultant has access to a tool that creates a customized deployment plan for your installation.

After you perform a planned deployment, a copy of the deployment plan that was used is stored in the configuration directory in a file whose name uses date/time format (for example, `C:\SAS\Config\Lev1\Utilities\plan.2011-01-24-02.24.xml`).

Notes

Do Not Run Both Applications Simultaneously

The SAS Deployment Wizard writes to many of the same files as the SAS Download Manager. Therefore, you cannot run instances of the SAS Deployment Wizard and the SAS Download Manager at the same time.

Deployment Registry

In order to support updates to the SAS software, installation data is stored in a deployment registry that is created in your SASHOME directory and is located in `SASHOME\deploymentreg`. You should not move, modify in any way, or delete this registry while SAS software is installed in order to ensure successful application of updates. You should not delete this registry unless you are performing a complete removal of all SAS software from the machine.

UNIX Installer Account

For UNIX, the installer account must be the sas account with a umask of 022. Do not use the root account because it causes deployment failures.

Many organizations increasingly avoid the use of shared user accounts to ensure that their IT departments can track and report which people are using and modifying the hardware and software services. The UNIX installer account is frequently targeted as the subject of such audit control. However, for many SAS deployments, a group of system administrators might log in to the environment by using the UNIX installer account, making it difficult to determine who is acting as that account for a given action.

In order to facilitate audit control, you can establish a procedure that prohibits anyone from logging on to the UNIX installer account directly. The following steps describe this process for a system administrator.

Note: The following steps require `sudo`. Not all organizations have `sudo`, or `sudo` might be rigorously protected since it uses root privileges. Check with your system administrator before attempting to use `sudo`.

Note: If you decide to use this procedure, you must not use it for deploying the metadata tier of any planned deployments. The SAS Metadata Server always requires the `sas` account in order to configure. After the metadata tier has been deployed, you can use this procedure on all other machines in the deployment.

- 1 Log on with your personal credentials.
- 2 Submit the `su - sas` command to enable you to operate as the UNIX installer account. This example assumes that the user ID is `sas`, which is the recommended user ID. If you use another user ID, use it in place of `sas` in the command.
- 3 Modify or update the SAS software.
- 4 Log out of the `su` identity and return to your own shell.

Windows Terminal Server Users

If you are using a Microsoft Remote Desktop Server, you must use the same account for every installation on the terminal server and for any subsequent updates to the terminal server.

UNIX Windowing Environments

The SAS Deployment Wizard has a graphical user interface by default. If you are installing your software on a UNIX system, make sure that a windowing environment (such as X11) is installed. If you would prefer to use a text interface on UNIX, see [“Use a Text-Based Interface \(UNIX Only\)” on page 29](#) or [“Use a Text-Based Interface \(UNIX Only\)” on page 80](#).

Federal Desktop Core Configuration

If you are using Federal Desktop Core Configuration (FDCC) security standards on your system, do not use the autologin functionality when the SAS Deployment Wizard is performing updates and a reboot is required.

Large Fonts

If you are running the SAS Deployment Wizard or SAS Deployment Manager on a computer that uses larger fonts or a higher DPI setting, some of the pages might be truncated in the viewable area of the application. You can improve this by enlarging the size of the application when it first opens.

Best Practices

<i>Using Default Values</i>	7
<i>The SAS Software Depot</i>	7
Directory Structure	8
Move SAS Software Depots	8
Delete SAS Software Depots	10
Delete Software Orders from SAS Software Depot	10
Change Software Order Details in SAS Software Depots	11
<i>Manage Your SAS installation data files</i>	11
<i>Store and Use Deployment Plan Files</i>	12

Using Default Values

As you use the SAS Deployment Wizard, SAS recommends that you accept the default values that are provided to you throughout the wizard pages. As long as the SAS Deployment Wizard remains open, you can review previous pages to modify your entries as necessary. Click the **Help** button to get more information about what the default values are for individual pages.

If you do change any initial default values, your responses become the default values for each subsequent pass through the SAS Deployment Wizard.

The SAS Software Depot

The SAS Software Depot is a centralized repository of your installation software.. A depot can contain multiple orders with the following restrictions:

- Orders from 9.4M7 can exist in the same depot.
- Orders from 9.4M8 and later can exist in the same depot.

- Orders from 9.4M8 and later cannot exist in the same depot as orders from 9.4M7.

Directory Structure

The SAS Software Depot has a common directory structure across all orders. The following list describes the directories at the root of each SAS Software Depot and their contents. SAS strongly recommends not manually changing the directory structure in any way. Always use the SAS Deployment Wizard for any directory manipulation that might be required.

There are only a few subdirectories that you should ever have to interact with:

sid_files

The subdirectory that contains the SAS installation data file for your order or orders. The SAS Deployment Wizard prompts for the location of your SAS installation data file during the install process and points to this directory by default. When you receive a new SAS installation data file upon renewing your software, usually annually, you should store it in the **sid_files** subdirectory as well. SAS Technical Support recommends that you not delete your original SAS installation data file.

third_party

This subdirectory contains any third-party software that is required for your order and that SAS can provide, as well as the documentation for installing it. The QuickStart Guide for your order directs you to the appropriate point in the installation process to install the third-party software.

standalone_installs

This subdirectory contains SAS software that must be installed outside the SAS Deployment Wizard. Instructions for installing this software are available in the **ReadmeFiles** subdirectory, or in the installation instructions described by the preinstallation checklist if one is available for the products.

install_doc

This subdirectory is divided into smaller subdirectories based on your orders. Each order subdirectory contains a software order information file and an **ordersummary.html** file, which is the full list of the products that your order contains.

If your order includes a **third_party** or **standalone_installs** subdirectory, the README documents describing how to install software in those subdirectories are available in the **/install_doc/order-number/ReadmeFiles** folder.

Move SAS Software Depots

If you want to move or copy your SAS Software Depot from the location where it was originally built, the method that you use depends on the network status of the original and target locations.

Move between Shared Networked Locations

The SAS Deployment Wizard enables you to copy a SAS Software Depot from an existing one by selecting **Create or Add to a SAS Software Depot** on the **Select Deployment Task** page. If you select the **Create or Add to a SAS Software Depot** option, the SAS Deployment Wizard also enables you to subset orders within the SAS Software Depot that you are copying so that you can create smaller depots in new locations. The **Help** information for the **Select Deployment Task** page and the subsequent pages describe the subsetting process.

Move between Non-Shared Network Locations

Use the SAS Software Depot Copy Utility for Microsoft Windows and UNIX to move a SAS Software Depot between locations that are not networked. The utility uses FTP processes in order to move a depot.

SAS Software Depot Copy Utility

The SAS Software Depot Copy Utility copies an entire depot and places it in a target that you specify. You cannot subset your software depot by using the Copy Utility.

Note: If you are working from a depot that was created by subsetting another depot, the utilities directory does not exist.

- 1 Navigate to the `\utilities\depotcopier` directory in your SAS Software Depot.
- 2 Do one of the following:
 - On Windows:
Double-click `SASDepotCopierUtility.exe`. The **Order Details** page opens.
 - On UNIX:
Execute `SASDepotCopierUtility.sh`. An xterm window appears.
- 3 Enter the host name of the remote machine that you want to copy the software depot to. Type the location for the copy of your software depot and press ENTER.
- 4 Enter the user ID for the machine that you are copying to, and then press ENTER.
- 5 Enter the password for the user ID that you specified in [Step 4](#), and then press ENTER. For security reasons, your password is not displayed as you enter it.
- 6 Enter the location of the software depot on the machine that you are working from, and then press ENTER.

- 7 Enter the location on the remote machine on which you want to place the copied software depot, and then press ENTER. When you press ENTER, the copying process begins.

Note: The location that you specify must already exist. The utility cannot create a new directory.

- 8 When the copying process is complete, you receive a success message. Windows users can close their **Command Prompt** window.

Note: If you are copying the depot from a Windows environment to a UNIX environment, the appropriate Execute permissions must be set manually. After the copy process is complete, issue the following command:

```
chmod -R 755 depot-location
```

Delete SAS Software Depots

SAS recommends that you not remove instances of SAS Software Depot. When you keep your SAS 9.4 depot, applying maintenance and upgrades become easier because you need to download only the changed depot files instead of needing to download an entire SAS order again.

For space reasons, you might want to remove a SAS Software Depot after you install your software. If you decide to remove a SAS Software Depot, SAS recommends that you make a backup of your SAS Software Depot so that you have a copy of the installation files if they are required.

If you remove the SAS Software Depot without making a copy of it, you have also removed the SAS Deployment Wizard and the files necessary to make it run.

Delete Software Orders from SAS Software Depot

Note: When you are deleting software orders, you must use the user ID that was used to create the depot.

To remove an order from a SAS Software Depot:

- 1 Start the SAS Deployment Wizard from the SAS Software Depot containing the desired order.
- 2 On the **Select Deployment Task** page, select **Manage this SAS Software Depot** and click **Next**.

- 3 The **Manage SAS Software Depots** page opens. Select **Manage SAS Software Depot** and click **Next**.
- 4 The **Manage SAS Software Depot** page opens. Select the software order that you want to delete in the **Select a SAS Software Order** pane. Click **Delete Order**.
- 5 The **Confirm Order Delete** page opens. Click **Yes** to confirm the deletion.
The **Delete Order** page opens, indicating that the order is being deleted . When the page closes, the order no longer appears in the **Select a SAS Software Order** window.

Change Software Order Details in SAS Software Depots

To change the information that is associated with a software order in the SAS Deployment Wizard:

- 1 Start the SAS Deployment Wizard from the SAS Software Depot containing the desired order.
- 2 On the **Select Deployment Task** page, select **Manage this SAS Software Depot** and click **Next**.
- 3 The **Manage SAS Software Depots** page opens. Select **Manage SAS Software Depot** and click **Next**.
- 4 The **Manage SAS Software Depot** page opens. Select the order for which you want to revise the information, and then click **Change Details**.
- 5 The **Order Details** page opens. In the **Description** field, you can modify the description of the order that shows when the order is listed. In the **Notes** field, you can add information that helps you with using the order in the future. When your modifications are complete, click **OK**.
- 6 If you changed the description, the **Order Description** changes on the **Manage SAS Software Depot** page. Click **Finish** to close the SAS Deployment Wizard.

Manage Your SAS installation data files

There are two main guidelines for managing your SAS installation data files. First, use the default location for storing your SAS installation data files or keep an accurate record of where you store your SAS installation data files. Second, ensure that subsequent SAS installation data files that you receive are stored in the same

location. Storing your SAS installation data files in the `sid_files` subdirectory meets both of these objectives.

Users who have an enterprise-wide deployment should also consider storing their SAS installation data files in a networked location in order to ensure that all users have access to them.

Store and Use Deployment Plan Files

Most installations of Basic orders will not require a deployment plan. A deployment plan is a preselection of the software that will be installed by the SAS Deployment Wizard. It contains a description of what the plan deploys, identifies the target machines, and lists the software to be installed and configured. It is an XML file and is named `plan.xml`.

By default, any deployment plan files that are included with your software are stored in the `plan_files` directory at the root of your SAS Software Depot. If you receive or create a customized deployment plan file, you should also store it in the `plan_files` directory. In order to differentiate between deployment plan files, you can either create a new directory for each `plan.xml` file inside the `plan_files` directory or simply add a prefix (for example, `entbiserver.plan.xml`). If you do add a prefix, ensure that the end of the file name does not change from `plan.xml`.

Note: If you are deploying your software by using a `plan.xml` file and it indicates more than one deployment step on the same machine, each deployment step on that machine after the first step should be performed with only the **Configure SAS Software** option selected (leaving the **Install SAS Software** option deselected) on the **Select Deployment Type** page.

If you perform a planned deployment, a copy of the deployment plan that was used is stored in the configuration directory in the `plan.<year-month-day-hour-minute>.xml` format. Here is an example:

```
C:\SAS\Config\Levl\Utilities\plan.2026-01-24-02.24.xml
```

After your SAS software is installed, your deployment plan files are no longer strictly necessary, but you should retain them. You can use the deployment plan files for record-keeping purposes, for possible future re-installation and re-configuration tasks, or for adding products.

SAS Deployment Wizard: Command-Line Options

Quiet Installation	14
The MIF File in Quiet Mode (Windows Only)	14
Record and Playback	15
Record Mode	15
Quiet Playback Mode	17
Monitor the SAS Deployment Wizard during Quiet Playback	18
Interactive Playback Mode	19
Logging	20
Hot Fixes	20
Exclude Hot Fixes	20
Include Hot Fixes (z/OS Only)	21
Check System Requirements (Windows Only)	21
Subset an Order	24
Subset an Order Without SAS Foundation	24
Subset an Order with SAS Foundation	25
Create a Report of Subsetted Products	25
Configure the SAS Deployment Agent	26
Skip Configuration	26
Force Configuration	26
Miscellaneous Command-Line Options	27
Deploy on Linux 10 and Later (UNIX Only)	27
Configure a Host Name	27
Specify Different SASUSER and WORK Directories (Windows and UNIX Only) ...	28
Use a Text-Based Interface (UNIX Only)	29
Specify a Graphic Interface (z/OS Only)	30
Submit Jobs Automatically (z/OS Only)	30
Unchain Install Jobs (z/OS Only)	30
Turn Off Pre-Installation Validation (z/OS Only)	31
Optimize a SAS Software Depot	31
Create an Alternate Temporary Directory	32
Update Product Documentation	32
Help with Command-Line Options	33

The command-line options in this chapter apply to all installations, including initial installation, add-on installations, and installing maintenance on an existing deployment.

Quiet Installation

A quiet installation provides all of the responses that would normally be supplied to the wizard when running interactively, but without the presence of a user. It is intended for use in any context that does not require a user to be present at the machine.

In order to perform a quiet installation, you should first create a response file according to the information described in [“Record Mode” on page 15](#). After you create a response file, you should use the information in [“Quiet Playback Mode” on page 17](#) to perform the quiet installation on the target machine.

The MIF File in Quiet Mode (Windows Only)

The management information file (MIF file) is created during Quiet Mode to enable you to determine the success or failure of either the System Requirements Wizard or SAS Setup. This file contains information typically used by Microsoft Configuration Manager, but is usable by any process that determines the success or failure of an installation.

The MIF file is always written to the **Temp** directory, and is named `sas.mif` by default. The MIF file contains a series of START and END sections, which define certain attributes related to the tool's execution. Of specific interest to determine the success or failure of the tool is the section called `InstallStatus` similar to the following:

```
START GROUP
  NAME = "InstallStatus"
  ID = 2
  CLASS = "MICROSOFT|JOBSTATUS|1.0"
  START ATTRIBUTE
    NAME = "Status"
    ID = 1
    ACCESS = READ-ONLY
    STORAGE = SPECIFIC
    TYPE = STRING(32)
    VALUE = "Success"
  END ATTRIBUTE
  START ATTRIBUTE
    NAME = "Description"
    ID = 2
    ACCESS = READ-ONLY
    STORAGE = SPECIFIC
    TYPE = STRING(255)
```

```

VALUE = "Installation Successful."
END ATTRIBUTE
END GROUP

```

The Status and Description fields, along with their corresponding values, provide information about the results of the installation. In this example, the installation was successful, as indicated by the highlighted items. For a failure, the fields might be set as follows:

```

NAME = "Status"
VALUE = "Failed"
NAME = "Description"
VALUE = "Installation aborted by the user."

```

If the MIF file indicates success, then you do not need to review the log file. If the MIF file indicates that the installation failed, and you want to do more troubleshooting, you should review the log file.

Record and Playback

Record and playback is a feature in the SAS Deployment Wizard that is used to save page responses to a file and then load those responses at a later time. The SAS Deployment Wizard provides three different modes for record and playback. Each mode is described in the following topics.

Note that using any of the command-line options in [“Record and Playback” on page 15](#) while creating or managing a SAS Software Depot is not supported.

Record Mode

Note: Response files might contain passwords in plain or encrypted format. You should secure response files as you would any other sensitive information.

Every time that the SAS Deployment Wizard is run, by default it creates a response file that contains values for each of the prompts the user encounters when running the SAS Deployment Wizard. This file is named `ResponseRecord_timestamp.log`, where `timestamp` is the time and date of the creation of the file. The file is located in the same directory as the SAS Deployment Wizard log files:

Windows

```
%USERPROFILE%\AppData\Local\SAS\SASDeploymentWizard\
```

UNIX

```
$HOME/.SASAppData/SASDeploymentWizard/
```

You can also run the SAS Deployment Wizard in record mode to force the SAS Deployment Wizard to create a second response file. The SAS Deployment Wizard must run to completion when creating the response file in this mode.

Note: If you record a deployment that includes products that require interaction from the user, those manual responses are not recorded in the response file. Therefore, a response file that is created in this way is insufficient for use with any method of playback (quiet or interactive).

Usage

`-record`

A second, non-default response file named `sdwresponse.properties` is created in the user's home directory on all platforms. If you want to specify the location of the non-default response file, use the `-responsefile` command-line argument.

`-responsefile "full-path-to-the-response-file-being-created"`

Note: If you specify a file location in which a file already exists, the pre-existing file is overwritten by the SAS Deployment Wizard.

In addition, you can use the `-inputresponsefile` command-line option to use another response file as a source for creating a new response file. See the examples below.

`-inputresponsefile "full-path-to-the-response-file-being-read"`

By default, no deployment occurs when running in record mode. In order to force a deployment while recording, use `-deploy`.

Note: If you use both the `-record` and `-deploy` options, you are recording an installation on a specific machine. Therefore, the response file that is created might not be appropriate for use on other machines. For example, if a response file is created on a machine with one version of Internet Protocol (IPv4/IPv6) and that file is used on a machine with a different Internet Protocol, the deployment fails. SAS recommends that response files created using both options be used on other machines with caution.

Response files should be used only for software that is in the same software order. Using a response file from one order while deploying a second order might result in unintended discrepancies that are difficult to troubleshoot.

If you use any other command-line options while using `-record`, those options are not included in the response file. To properly use the response file, you must repeat those same command-line options with the playback.

Examples

In each example, if a file with the specified name is already in the specified location, the SAS Deployment Wizard overwrites the existing file with a new one. You are not warned that you are overwriting a file.

`setup.exe -record`

The SAS Deployment Wizard records a response file named `sdwresponse.properties` and stores it in your home directory.

```
setup.exe -record -deploy
```

The SAS Deployment Wizard deploys your software and records a response file named `sdwresponse.properties`. The response file is stored in your home directory.

```
setup.exe -record -responsefile "C:\foobar.properties"
```

The SAS Deployment Wizard records a response file named `foobar.properties` and stores it at `C:\foobar.properties`.

```
setup.exe -record -inputresponsefile "C:\foobar.properties"
```

The SAS Deployment Wizard reads the responses in `C:\foobar.properties` and uses them to seed the default responses as it records a new response file. The new response file is named `sdwresponse.properties` and is stored in your home directory.

```
setup.exe -record -responsefile "C:\mylogs\ResponseFile.properties" -  
inputresponsefile "C:\foobar.properties"
```

The SAS Deployment Wizard reads the responses in `C:\foobar.properties` and uses them to seed the default responses as it records a new response file. The new response file is located at `C:\mylogs\ResponseFile.properties`.

Quiet Playback Mode

You can suppress the user interface for the SAS Deployment Wizard by running in quiet playback mode. The mode requires an existing response file. If the SAS Deployment Wizard encounters a page for which there is not a valid response in the response file, a message is recorded in the log file and the SAS Deployment Wizard returns an error code of -1. There is no visual feedback while the SAS Deployment Wizard is running in this mode. SAS recommends that you check your log file after the installation to determine whether any errors occurred. The location of the log files is described in [“Record Mode” on page 15](#).

Note: If the SAS Deployment Wizard is forced to reboot your machine in order to install required software, then SAS Deployment Wizard is no longer in quiet playback mode when it restarts.

Usage

```
-quiet
```

The response file must already exist. The response file defaults to the user's home directory on all platforms with a file name of `sdwresponse.properties`.

You can specify the response file by adding an additional command-line argument:

```
-responsefile "full-path-to-the-response-file"
```

Note: Because the response file that is created automatically by the SAS Deployment Wizard does not contain values for the passwords, SAS recommends using the `-quiet` command-line option only with a response file

that was created by using the `-responsefile` command-line option described in [“Record Mode” on page 15](#).

Example

```
setup.exe -quiet -responsefile "C:\sdwresponse.properties"
```

Windows Usage

Windows users can also use the `-wait` option. The `-wait` option forces the `setup.exe` process to remain in the task list until the SAS Deployment Wizard completes the process, which is important with any provisioning software such as Microsoft Configuration Manager or IBM Tivoli. The following is an example of using the `-wait` option:

```
setup.exe -wait -quiet -responsefile "C:\sdwresponse.properties"
```

Partial Prompting

When you run the SAS Deployment Wizard in partial prompting mode, the only pages that are displayed are those that do not have a valid response in the response file. This mode is used when the SAS Deployment Wizard resumes after being interrupted by a reboot and the values originally supplied are no longer valid. This can occur when mapped drives are lost after rebooting on Windows. This mode can also be used by administrators to supply some of the deployment information for their users.

Monitor the SAS Deployment Wizard during Quiet Playback

Running the SAS Deployment Wizard in quiet mode makes it more difficult to monitor the installation and to notice errors that occur. To address this concern, you can use the `-quietstatus` option on Windows or periodically issue the `ps` command on UNIX and z/OS to track whether the SAS Deployment Wizard is running.

Windows

On Windows, specify the `-quietstatus` option when you invoke the SAS Deployment Wizard in quiet mode to display a status page to help identify when the deployment is complete. In addition, you can add `-minimize` in order to force the status page to open in a minimized state.

Usage

```
-quietstatus -minimize
```

Example

```
setup.exe -wait -quiet -responsefile "C:\sdwresponse.properties" -  
quietstatus -minimize
```

UNIX and z/OS

As with most processes on UNIX and z/OS, issue the `ps` command to monitor the SAS Deployment Wizard when it is running in quiet mode. Remember that output from a `ps` command can be misleading because the process name returned is not always named `setup.sh` because the actual script that the SAS Deployment Wizard is running at any given time varies. However, the process ID remains the same.

For example, if you run the SAS Deployment Wizard and immediately issue a `ps` command (before the language page is displayed), you see output similar to the following:

```
31762 pts/2 S 0:00 /bin/sh /depot/setup.sh
```

The shell `/bin/sh` runs the initial script `/depot/setup.sh`. The shell is the parent process, and in this example it has a process ID of 31762. When `setup.sh` is finished executing, it passes control to the script, `deploywiz.sh`. If you then look at the process list while the SAS Deployment Wizard is running, you see something similar to the following:

```
31762 pts/2 S 0:00 /bin/sh
/tmp/_setup31762/products/deploywiz__9220__prt__xx__sp0__1/deploywiz.sh
-startuplocation /depot
-templocation /tmp/_setup31762
```

The shell `/bin/sh` is still running and retains the same process ID. However, this shell is now running a different script, `deploywiz.sh`.

Interactive Playback Mode

The response file can also be used to use the default values for all the prompts in the SAS Deployment Wizard. In this mode, all the pages in the SAS Deployment Wizard are displayed and the default values are loaded from the response file.

Note: Even if you are using `-responsefile` to install your software on a UNIX system, you must still install a windowing environment, such as X11. Using `-responsefile` still invokes a graphical user interface.

Usage

```
-responsefile "full-path-to-the-response-file"
```

Example

```
setup.exe -responsefile "C:\sdwresponse.properties"
```

Logging

You can use the command line to specify the level of detail that you want to use in the log files for your deployment. There are three levels of logging:

- log level 0 sets the SAS Deployment Wizard logging to its lowest detail, providing only cursory information about the deployment
- log level 1 sets the SAS Deployment Wizard logging to its default level of detail, verbose mode
- log level 2 sets the SAS Deployment Wizard logging to its highest level, debug mode

Usage

```
-loglevel value-between-0-and-2
```

Example

```
setup.exe -loglevel 2
```

Hot Fixes

For more information about the hot fix process, see [Chapter 5, “Find and Apply Hot Fixes,”](#) on page 39.

Exclude Hot Fixes

If you prefer not to install the hot fixes in your order, you should use the `-nohotfix` command-line option when you start the SAS Deployment Wizard.

.....
Note: Using the `-nohotfix` option prevents you from receiving automatic security updates that are included in your software order. To find and install those security fixes, see [Applying SAS Security Updates and Hot Fixes](#).
.....

Usage

```
-nohotfix
```

Example

```
setup.exe -nohotfix
```

Include Hot Fixes (z/OS Only)

If you want to allow hot fixes in your order to be installed during later installations of software in addition to that in your original order, you should use the `-hotfixupdate` command-line option. This option creates an exception to the rule that hot fixes included with an order can be installed only in a clean SASHOME directory.

Usage

`-hotfixupdate`

Example

`sasdm.rexx -hotfixupdate`

Check System Requirements (Windows Only)

The SAS Deployment Wizard enables you to check your Windows order to determine which system requirements need to be met before you can use SAS software. This system requirements check is usually performed during a normal deployment but is immediately followed by the installation of the requirements and then the SAS software. You can use the `-srwonly` command-line option to install only the system requirements or to install nothing but instead create a batch file that can be used on different machines throughout your deployment.

.....

Note: The batch file that is created should be used only on machines that are running the same version of Windows and that will have the same SAS products installed on them.

.....

Usage

`-srwonly`

Example

`setup.exe -srwonly`

Procedure

To check your Windows machine for system requirements:

- 1 Start the SAS Deployment Wizard with the `-srwonly` command-line option:

`setup.exe -srwonly`

- 2 The **Choose Language** page opens. Choose the language in which you want to run the SAS Deployment Wizard. Click **OK**.

- 3 The **Select System Requirements Task** page opens. Select **Install System Requisites Now** to perform the check and then install the requisite software. Select **List System Requirements to Install Later** to create a batch file for later use on this or any other machine using the same Windows version. Click **Next**.

If you are performing a planned deployment, the **Select Deployment Type** page opens. (If you are performing a basic deployment, skip to [Step 6](#).)

- 4 Select **Perform a Planned Deployment** if you want to use a plan to filter the products that you want to check. (You cannot select **Configure SAS Software** because you have indicated by using the command line that you want to check only the system requirements). If you do not want to use a filter, select **Install SAS Foundation and Related Software**. Click **Next**.

If you selected **Perform a Planned Deployment**, the **Specify Deployment Plan** page opens. (If you selected **Install SAS Foundation and Related Software**, go to [Step 6](#).)

- 5 Do one of the following:
 - if you have a plan that has been provided to you by consultants or other SAS representative, select **Specify the full path to a customized deployment plan**. If you select this option, you must also enter the location of the deployment plan in the field or use **Browse** to search for it.
 - If you do not have a customized deployment plan, you must select the **Select a standard deployment plan** option. You can scroll through the list of available standard plans or use **Search** to find a plan based on words in the plan name.

Click **Next**.

- 6 The **Select Products to Install** page opens, listing all the products in the software order that you are working with are listed. If you are using a basic deployment, ensure that **SAS Foundation and related software** is selected in the **Products to install** list. If you are using a planned deployment, select the machine for which you want to check system requirements.

Scroll through the list of products and select the ones for which you want to check the system requirements. You can use **Select All** to choose every product and **Clear All** to remove the selection from every product. Click **Next** to continue.

If you selected SAS Foundation, the **Select SAS Foundation Products** page opens. (If you did not select SAS Foundation, skip to [Step 8](#).)

- 7 Select the SAS Foundation products for which you want to check the system requirements. You can use **Select All** to choose every product and **Clear All** to remove the selection from every product. Click **Next**.
- 8 The **Select Language Support** page opens. Because different languages have different requirements, you must select the language or languages for which you want to check the system requirements because different languages have different requirements. You can select **Select All** to choose every

language or **Clear All** to remove the selection from every language. Click **Next**.

- 9 The **Select Regional Settings** page opens. Because different regional settings have different requirements, you must indicate the setting for which you want to check the system requirements. If you want the machine to support several languages that cannot be included with a single encoding, select **Configure as a Unicode Server** in order to force the software to use the UTF-8 encoding for all cases. Click **Next**.

- 10 The **Required System Requisites to Install** page opens, listing the requisite software for the products that you selected in [Step 6](#) and [Step 7](#) is listed. Click **Next**.

If the products that you selected in [Step 6](#) and [Step 7](#) do not require the use of all the system requirements that are associated with all the products in the order, the **Optional System Requisites to Install** page opens. (If the **Optional System Requisites to Install** page does not open, skip to [Step 12](#).)

- 11 The **Optional System Requisites to Install** page lists additional system requirements for those products that you did not select so that you can also check them. Select the requisites for which you want to check. You can select **Select All** to choose every requisite or **Clear All** to remove the selection from every requisite. Click **Next**.
- 12 The **Checking System** window opens, indicating that the SAS Deployment Wizard is scanning your machine to ensure that it has enough space to install the requisite products that you selected in [Step 10](#) and [Step 11](#). Usually, the space required is nominal, so there should be an empty lower pane when the scan is complete. Click **Next**.

- 13 The **Deployment Summary** window opens, listing the requisite software that you have chosen to install or add to the batch file, depending on your selection in [Step 3](#). Click **Start** to initiate the action.

A progress page opens, indicating success or failure for each product being installed.

- 14 Review the information in the **Deployment Complete** window. All the software that the SAS Deployment Wizard attempted to install is listed, and the results or the requisite software to be added to the batch file are indicated, depending on your selection in [Step 3](#).

- If you selected **Install System Requisites Now** in [Step 3](#), the window describes the installation status of the requisite software.
 - A green icon indicates that the requisite was installed successfully.
 - A yellow icon means that the requisite was not needed for any of the products that you selected because of the operating system on which the machine is running and the language and encoding choices that you made.
 - A red icon means that the requisite was installed but with errors.
 - A blue icon indicates that the requisite was not needed because it had already been installed on the machine.

- If you selected **List System Requirements to Install Later** in [Step 3](#), the window describes the status of adding the requisites to the batch file.
- A green icon means that the requisite was successfully added to the batch file.
- A yellow icon indicates that the requisite was not needed for any of the products that you selected because of the operating system on which the machine is running and the language and encoding choices that you made.
- A red icon means that an error occurred when adding the requisite to the batch file.

Click **Next**.

- 15 The **Additional Resources** page opens, listing documentation that can help you with your deployment. If you chose to create a batch file rather than installing the requisites, the **Additional Resources** page also lists the location of the batch file that you created, under **SAS System Requisite Batch File**. Click **Finish** to close the SAS Deployment Wizard.

If a batch file was created, that file contains the order number for which the system requirements check was performed, the Windows operating system for the machine, and the products that were used to check against. The batch file can be used on machines other than the one on which the check was performed, but it should be used only with the same order and the same selected products on the same Windows operating system.

Subset an Order

Subset an Order Without SAS Foundation

If you choose to move or copy a depot, you can subset the orders in that depot so that only a part is moved or copied (see [“Move between Shared Networked Locations” on page 9](#)). One of the ways that you can subset the order being moved is by Foundation product. That is, by SAS products that are usually installed on a server, such as SAS/GRAPH and SAS/STAT. The `-subsetclients` command-line option makes it possible for you to subset by client products that are not configurable, such as SAS Enterprise Guide and SAS Add-In for Microsoft Office. If you use the `-subsetclients` command-line option, the **by Foundation product** choice becomes **by product**. Also, note that if you use this command-line option, only non-configurable client software is listed on this page.

Note: `-subsetclients` always includes SAS Management Console.

Usage

```
-subsetclients
```

Example

```
setup.exe -subsetclients
```

Subset an Order with SAS Foundation

You can subset an order to include both SAS Foundation products and the non-configurable clients described in [“Subset an Order Without SAS Foundation”](#) by using the `-subsetnonconfig` command-line option. If you use the `-subsetnonconfig` option, the **by Foundation product** choice becomes **by product**.

Usage

```
-subsetnonconfig
```

Example

```
setup.exe -subsetnonconfig
```

Create a Report of Subsetted Products

If you intend to subset an order using either command line options or the pages in the SAS Deployment Wizard, you might also want to create a report of what products were included and excluded from the resulting subsetted order. To create this report, use the `-listdepot` command-line option when you start the SAS Deployment Wizard. The following is an example of the report:

```
Date: 2011 Sep 25 10:02:56
Depot: /SASHOME

Order: 099SPS
+ Base SAS [base__93ts1m0__mvs__ne__sp0__1]
+ Base SAS [base__93ts1m0__mvs__w0__sp0__1]
+ Base SAS Help and Documentation [basedoc__93110__prt__xx__sp0__1]
+ Base SAS JAR Files [basejars__93110__prt__xx__sp0__1]
<...>

Order: 099SQ2_2011-07-19-12.27.01
+ Advanced Analytics Common Components [aacomp__93110__wx6__en__sp0__1]
+ DATA Step DS2 Translator [accelmva__93160__wx6__en__sp0__1]
+ Microsoft Office Access Database Engine 2010 [ace__93112__prt__xx__sp0__1]
- SAS/GRAPH ActiveX Control [activexgraph__93230__win__de__sp0__1]
+ SAS/GRAPH ActiveX Control [activexgraph__93230__win__en__sp0__1]
- SAS/GRAPH ActiveX Control [activexgraph__93230__win__es__sp0__1]
```

The `Date` field indicates when the report was created. The `Depot` field indicates the location where the subsetted order has been placed by the SAS Deployment Wizard. The `Order` field gives the order number for the original order that is being subsetted.

In the list of products, a + symbol indicates that the product was in the original order and is included in the subsetted order in the location named in the Depot field. A - symbol indicates that the product was included in the original order and has not been included in the subsetted order.

Usage

```
-listdepot location-to-create-report\output-file-name
```

Example

```
setup.exe -listdepot "C:\temp\SASDepotList.txt"
```

Configure the SAS Deployment Agent

The SAS Deployment Agent is a tool in SAS 9.4 that is used to support configuration operations associated with multi-machine middle-tier topologies and middle-tier clustering. SAS products can communicate with the SAS Deployment Agent in order to run remote processes and copy content over the SAS Deployment Agent connection to perform configuration management operations. Configuring the SAS Deployment Agent consists of assigning a port for remote communication and making security specifications.

Two command-line option options that are associated with configuring the SAS Deployment Agent can be used with the SAS Deployment Wizard.

Skip Configuration

Use `-skipagentcfg` in order to install the SAS Deployment Agent but skip all its configuration steps. The configuration steps should be completed later using the SAS Deployment Manager. See [“Manage SAS Deployment Agent Service” on page 60](#).

Usage

```
-skipagentcfg
```

Example

```
setup.exe -skipagentcfg
```

Force Configuration

Use `-forceagentcfg` to override any SAS Deployment Agent that is already installed and to be able to provide input on the wizard pages about SAS Deployment Agent in order to overwrite any existing properties. However, using `-forceagentcfg` does not force the credentials to be regenerated. Regenerating credentials can be performed only by completing the SAS Deployment Manager

configuration task. For details, see [“Configure SAS Deployment Agent Communication Options” on page 60](#).

Note: The SAS Deployment Agent pages appear only during installation. If you do not choose the install path on the **Select Deployment Type** page, the SAS Deployment Agent pages are not included.

Usage

`-forceagentcfg`

Example

`setup.exe -forceagentcfg`

Miscellaneous Command-Line Options

Deploy on Linux 10 and Later (UNIX Only)

When you deploy SAS 9.4M7 or SAS 9.4M8 on Red Hat Enterprise Linux or Oracle Enterprise Linux 10.x operating systems, you must use the `skiposlevelcheck` command-line option.

Usage

`-skiposlevelcheck`

Example

`setup.sh -skiposlevelcheck`

Configure a Host Name

If you are performing an update or upgrade, the SAS Deployment Wizard must be run on the same host that the original configuration was performed on. Over time, that host name might be changed, resulting in errors when an update is attempted. Using the `-confighostname` option enables you to change the local host name that the SAS Deployment Wizard validates against to the value specified in the option.

Usage

`-confighostname host-name`

Example

`setup.exe -confighostname hostname.companyname.com`

Specify Different SASUSER and WORK Directories (Windows and UNIX Only)

SASUSER

SASUSER is a SAS library in which users store permanent SAS data sets, catalogs, preferences, profile information, and changes to ODS templates. By default, SASUSER is **Documents\My SAS Files\9.4** on Windows and **~/sasuser.v94** on UNIX. If you want to change the location that is used for SASUSER, you should use the `-sasuser` command-line option. The path that you use in the option must already exist or the deployment reverts to the default value with a warning message.

Usage

```
setup.exe -sasuser "existing-directory-path" (Windows)
```

```
setup.sh -sasuser "existing-directory-path" (UNIX)
```

Example

```
setup.exe -sasuser "C:\SASFILES\!USERNAME" (Windows)
```

```
setup.sh -sasuser "~/sasfiles" (UNIX)
```

For Windows, you can use the variable `!USERNAME` in the directory path for a user that runs SAS Foundation after the deployment. If you use the `!USERNAME` variable, the SAS Deployment Wizard does not validate the directory path. However, at start-up, SAS Foundation creates the specified path and makes it usable. For example, suppose you use `-sasuser C:\SASFILES\!USERNAME` but `C:\SASFILES` does not exist. At start-up, SAS Foundation creates the path `C:\SASFILES\user-ID-of-the-person-that-starts-SAS-Foundation`.

WORK

WORK is the work directory in which temporary processes are run. By default, WORK is **C:\temp\SAS Temporary Files** on Windows and the directory that the JVM sets, usually **/tmp**, on UNIX. If you want to change the location that is used for WORK, you should use the `-work` command-line option. The path that you use in the command-line option must already exist or the deployment reverts to the default value with a warning message.

Usage

```
setup.exe -work "existing-directory-path" (Windows)
```

```
setup.sh -work "existing-directory-path" (UNIX)
```

Example

```
setup.exe -work "C:\SASWORK\!USERNAME" (Windows)
```

```
setup.sh -work "~/saswork" (UNIX)
```

For Windows, you can use the variable !USERNAME in the directory path for a user that runs SAS Foundation after the deployment. If you use the !USERNAME variable, the SAS Deployment Wizard does not validate the directory path. However, at start-up, SAS Foundation create the specified path and makes it usable. For example, suppose you use -work C:\SASWORK\!USERNAME but C:\SASWORK does not exist. At start-up, SAS Foundation creates the path C:\SASWORK\user-ID-of-the-person-that-starts-SAS-Foundation.

Use a Text-Based Interface (UNIX Only)

Note: Beginning with SAS 9.4, console mode is the default mode for using the SAS Deployment Wizard on z/OS.

If you do not want to rely on an X11 server for UNIX, you can use the SAS Deployment Wizard in console mode, which allows for the use of a headless system.

If you use console mode, then each page that is used in the installation of your SAS software is represented in text, as in the following example:

Select a language in which to view the SAS Deployment Wizard.

```
( ) 1 - German
(*) 2 - English
( ) 3 - Spanish (Castillian)
( ) 4 - French
( ) 5 - Italian
( ) 6 - Japanese
( ) 7 - Korean
( ) 8 - Chinese Traditional
( ) 9 - Chinese Simplified
```

The * character indicates the current selection.

You can change the selection by specifying a number below.

Enter <q> to quit.

Press Enter to accept the current selection and continue.

Selection:

Note: If you are instructed to enter a sequence that includes angle brackets, such as Enter <q> to quit, you must include those symbols.

You can use the -console command-line option with other options at the same time, such as recording or playing back a response file.

Note: If you intend to run the SAS Deployment Wizard in console mode to perform a deployment without a graphical display, ensure that the `DISPLAY` environment variable is unset, as opposed to it being set to a blank value (that is, `DISPLAY=`).

The `-console` command-line option also supports two options that specify the size of the output of the SAS Deployment Wizard. Use `-pagesize` to specify the number of lines to display before pausing the output and `-pagewidth` to specify the number of characters to display on a line before wrapping to another line. The `-pagesize` and `-pagewidth` options do not work with any other command-line option.

Usage

```
-console [-pagesize #] [-pagewidth #]
```

Example

```
setup.sh -console -pagesize 20 -pagewidth 50
```

Specify a Graphic Interface (z/OS Only)

By default, the SAS Deployment Wizard uses console mode when it runs on a z/OS machine. If you are deploying your software on z/OS and use an X11 server, you can use the `-x11` command-line option to use the graphical user interface that is the default for Windows and UNIX.

Usage

```
-x11
```

Example

```
setup.rexx -x11
```

Submit Jobs Automatically (z/OS Only)

By default, z/OS users must manually submit jobs. The `-jobsubmit` command-line option enables the SAS Deployment Wizard to automatically submit jobs.

Usage

```
-jobsubmit
```

Example

```
setup.rexx -jobsubmit
```

Unchain Install Jobs (z/OS Only)

By default, SAS install jobs are chained. To force each job to be submitted manually, use the `-nojobchain` option. The `-nojobchain` option is ignored if `-jobsubmit` is specified.

Usage

```
-nojobchain
```

Example

```
setup.rexx -nojobchain
```

Turn Off Pre-Installation Validation (z/OS Only)

By default, SAS validates data set allocation parameters for z/OS (high-level qualifier, SMS classes, disk unit, disk volume, and temp unit) before the installation begins. To turn off the pre-installation validation of these parameters, use the `-nozospcheck` option.

Usage

```
-nozospcheck
```

Example

```
setup.rexx -nozospcheck
```

Optimize a SAS Software Depot

If you are concerned about the size of your SAS Software Depot, you can use the `-compressdepot` command-line option to reduce the size of the JAR file repository by 30% to 50%. Additional orders can be added to a depot that has been optimized. An optimized depot to which orders have been added can use the command-line option again to account for the files that were added after the initial optimization.

Usage

```
-compressdepot -console
```

Note: SAS recommends that you use the `-console` command-line option with `-compressdepot` so that you can monitor the progress of the optimization. The `-console` command-line option is not supported on Microsoft Windows, so those users do not see a console progress indicator.

Example

```
setup.sh -compressdepot -console
```

Verify an Optimized Depot

If you optimize your depot, you might want to verify the following elements of that depot:

- total number of files found in a depot
- list of files found and their directory paths
- list of and total number of files missing from the depot and the paths where the missing files should be found

- list of and total number of orders found
- list of and total number of SAS installation data files found
- list of files that are the wrong size, and their incorrect and correct sizes
- list of files in which checksums are incorrect, and their correct and incorrect checksums

You can obtain this information by using the SAS Software Depot Check Utility described in [“SAS Software Depot Check Utility” on page 87](#).

Create an Alternate Temporary Directory

The SAS Deployment Wizard runs from a temporary directory that it creates and then removes upon completing its run. If you are concerned that the temporary space might be too small for the SAS Deployment Wizard to run, you can use the `-templocation` command-line option to specify a temporary directory of your choosing.

Note: When the SAS Deployment Wizard closes, it deletes the temporary directory and all its contents. When you select a temporary directory, ensure that there is nothing already in that location that you do not want to be deleted.

Usage

`-templocation directory-location`

Example

`setup.exe -templocation "C:\temp\SDW"`

Update Product Documentation

The SAS Deployment Wizard enables you to install only newly released documentation, such as help files. The wizard skips all SAS product maintenance updates that have occurred after your original order and installs updates to only your SAS product documentation.

Note: Using the `-docupdate` command-line option with the SAS Deployment Wizard installs only the updated product documentation. After the installation is complete, you must run the SAS Deployment Manager, selecting the tasks described in [“Rebuild Web Applications” on page 51](#), and then in [“Deploy Web Applications”](#).

Usage

`-docupdate`

Example

`setup.exe -docupdate`

Help with Command-Line Options

For a list of command-line options that can be used with the SAS Deployment Wizard, use `-help`. This command-line option opens a message window that describes other command-line options without starting the SAS Deployment Wizard.

Usage

`-help`

Example

`setup.exe -help`

SAS Deployment Wizard: Basic Troubleshooting

<i>Suspend and Resume a Deployment</i>	35
<i>SAS Deployment Wizard Stops without Error Message</i>	36
<i>SAS Deployment Wizard Log Files</i>	37
<i>Installation Log Files</i>	37

Suspend and Resume a Deployment

The SAS Deployment Wizard on Windows and on UNIX has a feature that enables you to exit the SAS Deployment Wizard during configuration or installation in order to remediate issues that caused a failure. After the remediation, you can then resume where you left off during your deployment. With this feature, a deployment that has been restarted does not have to go through wizard pages again, with the exception of pages pertaining to passwords. If you attempt to retry a previously suspended deployment, the SAS Deployment Wizard prompts whether you want to resume your previous deployment or to start over.

There are a few caveats to consider if you decide to use this feature.

- Suspend and resume are not supported on z/OS.
- All failed installation steps that are bypassed in the initial deployment are rerun in the resumed deployment. Those steps cause the post-processing step to be rerun.
- All configuration steps that are bypassed in the initial deployment are also bypassed in the resumed deployment.
- The resume functionality is not intended to remediate invalid or improper page responses, such as an unusable port. This feature is intended only for addressing environmental issues that prevent the SAS Deployment Wizard from continuing.

- In order to resume a previous unfinished deployment, you must use the same order number.
- All configuration steps that are bypassed by the user in the initial deployment are also bypassed in the resumed deployment.
- You cannot resume an unfinished deployment in silent mode. Because you must choose between resuming a failed deployment or starting again, you must resume a failed silent deployment in either interactive or console mode.
- If multiple users share the same local user space, you might unexpectedly receive a prompt to resume deployment due to the presence of files from another user's unfinished deployment.

SAS Deployment Wizard Stops without Error Message

When you are installing your software, the SAS Deployment Wizard might stop without generating an error message. Use the following list to troubleshoot this issue:

- ☐ Was SAS software previously installed on this system?
If SAS software was previously installed, be sure to close all SAS programs when you re-install the software.
- ☐ Is antivirus software running?
Close and deactivate all antivirus software before starting your installation.
- ☐ Does your account have the appropriate permissions?
For Windows, the installer account must have Administrator rights. The user must be a local administrator on the machine, a member of the administrators group, or both. For more details, see <https://support.sas.com/techsup/notes/v8/5/055.html>.
For UNIX, the installer account must be the sas account. You must not use the root account.
- ☐ Are you installing from a SAS Software Depot or from the original CDs?
Retry the installation from a different medium than the one from which you first attempted the installation.

Problems have been reported when users try to copy a SAS Software Depot from one machine to another. Instead of copying the depot, use the SAS Deployment Wizard to create a SAS Software Depot on your machine. If you copied the depot from one location to another instead of using the SAS Deployment Wizard to install SAS, try installing from the original SAS Software Depot.

SAS Deployment Wizard Log Files

The SAS Deployment Wizard keeps a log of its activities, including both successful operations and notes about any failures that might occur. Although the information contained in those logs is probably too complex for a user to interpret, they are invaluable tools if you need to contact SAS Technical Support.

By default, the log files are in the following locations.

Windows

`%USERPROFILE%\AppData\Local\SAS\SASDeploymentWizard\`

or

`C:\Users\<userid>\AppData\Local\SAS\SASDeploymentWizard`

Some files and folders are hidden by default. You might need to change your settings to view them.

To view hidden files and folders:

- 1 On your Windows machine, select **Organize**, then **Folder and Search Options**, then **View**.
- 2 Select **Show hidden files and folders**.
- 3 Clear **Hide extensions** and **Hide protected**.

UNIX

`$HOME/.SASAppData/SASDeploymentWizard/`

or

`~/ .SASAppData` of the user running the depot

Installation Log Files

As each component of your SAS Software installs, a separate log file is created with information about the installation of that component. The installation logs have more detail about each component, whereas the SAS Deployment Wizard log file notes only the success or failure of each component installation. If you have an installation problem and contact SAS Technical Support, they might ask you to check the installation logs for more information.

The installation logs are located at `SASHOME\InstallMisc\InstallLogs`.

Find and Apply Hot Fixes

<i>Apply Hot Fixes during Any Installation</i>	39
<i>Apply Hot Fixes outside of an Installation</i>	40
Find Applicable Hot Fixes	40
Apply Hot Fixes	40
Command-Line Options for Hot Fixes	43
Additional Notes for z/OS	46
<i>Hot Fix Logs</i>	47

Apply Hot Fixes during Any Installation

When you install your software, the SAS Deployment Wizard also installs any hot fixes included in the order. Installation includes initial installation, add-on installations, and upgrades. Orders that you download include hot fixes that are appropriate for the SAS Deployment Wizard to install during a deployment.

When you are ready to install your software, you can refresh the hot fixes you already have and retrieve new hot fixes that are appropriate to install. You should also refresh your hot fixes if you downloaded your software but are installing it at a later time. In SAS Deployment Wizard, select the **Manage this SAS Software Depot** task on the **Select Deployment Task** page, and then select **Retrieve Hot Fixes**. In order to get the latest hot fixes, the SAS Deployment Wizard must have internet access.

Note: When you are retrieving hot fixes, you must use the user ID that was used to create the depot.

The SAS Deployment Wizard has command-line options that are specific to hot fixes, described in [“Hot Fixes” on page 20](#).

Apply Hot Fixes outside of an Installation

Note: Installation includes initial installation, add-on installations, and upgrades.

Find Applicable Hot Fixes

The hot fixes that are included in your order are those you can safely apply at the same time that you install your software. There might be other hot fixes that should be applied only after installation is complete. In addition, after you use the software for a while, you might want to determine what new hot fixes are available for your software.

You can use the SAS Hot Fix Analysis, Download and Deployment Tool to evaluate your software deployment and generate a report that includes information and links to hot fixes that are available for your software. The tool is available at [SAS Hot Fix Analysis, Download and Deployment Tool](#). Be sure to read the usage guide, available at the same location, before you download and use the tool.

Apply Hot Fixes

After you download the hot fixes, apply them to your SAS software with the SAS Deployment Manager. If you are interested in quiet installation of hot fixes, see “[-silenthotfix](#)” on page 44.

The SAS Deployment Manager is located in your SASHOME directory, in the `\SASDeploymentManager\9.4` folder.

Before you begin, ensure that you are logged on with the same user ID that was used to install the software. Ensure that SAS services and processes have been halted. In addition, since you are about to make changes to a working deployment, consider backing up your installation before you apply the hot fixes.

- 1 Based on your operating system, do one of the following to start the SAS Deployment Manager:
 - On Windows: Double-click sasdm.exe. If your Windows operating system is Windows Vista and after, you might need to right-click sasdm.exe and select **Run as administrator**.
 - On UNIX: Execute sasdm.sh.

- On z/OS: Execute sasdm.rexx. In SAS 9.4, the metadata server runs only in 64-bit mode, so if you are running the metadata server as a 64-bit application, you should add the `-z64` command-line option.
- 2 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
 - 3 The **Select SAS Deployment Manager Task** page opens. In the **Administration Tasks** section, select **Apply Hot Fixes**. Click **Next**.
 - 4 The **Apply Hot Fixes** page opens. Select **Install SAS hot fix**, **Configure SAS hot fix**, or both. In order to configure SAS hot fixes, you must either have already applied configurable hot fixes or you must select **Install SAS hot fix**. If you select **Install SAS hot fix**, enter the location of the hot fix package that you have downloaded into the text box or use **Browse** to search for the hot fix package. When you are finished, click **Start**.
 - 5 The **Checking System** page, follow the instructions for any locked files that are listed on the page. If there are no files listed, or after you have completed the instructions, click **Next**.
 - 6 The **Review Hot Fix Updates** page opens, describing the hot fixes that are about to be applied. Click **Next**.
 - 7 If you chose **Configure SAS hot fix** in [Step 4](#), the **Select Configuration Directory/Level** page opens. Select one of the following:
 - To select a directory from a list that the SAS Deployment Manager builds, choose **Select Configuration Directory**. This pane is populated with configuration directories and levels that have been previously configured. If a configuration directory has more than one level, it is listed multiple times, once for each level the directory has. Select the configuration directory and level by highlighting it.
 - To specify the configuration directory manually, choose **Enter Configuration Directory and Level**. You can either enter the location of the directory by hand into the **Configuration Directory** text box or click **Browse** to search for a directory. When you have entered the directory location, use the **Configuration Level** select list to specify the configuration level that you want to work with.

Note: You should complete the full set of steps in this procedure for every configuration directory in order to configure the hot fix before you use the updated services. For each configuration directory after the initial one, you should select only **Configure SAS hot fix** in [Step 4](#).

When you have specified the location of the configuration directory and its level, click **Next**.

- 8 If you chose **Configure SAS hot fix** in [Step 4](#), the **Specify Connection Information** page opens. Enter a user ID and password for the metadata server that is being used for this configuration directory and level. The SAS Deployment Manager attempts to fill in the **Host** and **Port** text boxes based on

your configuration properties file. Enter the appropriate information in the **User ID** and **Password** fields (and the **Host** and **Port** fields if necessary).

Click **Next**.

- 9 If you chose to **Configure SAS hot fix** in [Step 4](#), the **Select Product Configurations on Which to Apply Hot Fixes** page opens. The table lists the configurations in the configuration directory and level that you specified in [Step 7](#). Both the name that you gave the configuration and the SAS product for which it is intended are included for ease in identification. The **Configured Hot Fix** column shows the latest hot fix that has been configured for the product on that row. If the column reads `Not applicable` or `None configured`, then no hot fix has been applied to the configuration. The **Available Hot Fix** column lists the latest hot fix in the package directory (that is, available on your system) that can be applied to the configuration. If this column lists `Not applicable`, then there is no new hot fix available on your system for the configuration in that row.

Note: If the **Available Hot Fix** column has a status of `Not applicable`, this does not mean that there are no hot fixes for this product available at all. Instead, it means that there are no hot fixes available for this product in the hot fix directory that you designated in [Step 4](#). If you think you should have a hot fix for a product and cannot find it, then either go back to [Step 4](#) and enter a different directory location, or return to the hot fix download page and download the correct hot fixes. Be aware that hot fixes requiring configuration are not common, so your hot fixes might not need to be configured.

If a hot fix is listed in the **Available Hot Fix** column, then the **Status** column describes the condition of that hot fix. `Up to date` indicates that the latest hot fix has been configured. You should not configure hot fixes that are up to date again unless specifically directed to by SAS Technical Support. `Ready to configure` means that there is a newer hot fix than the one listed in the **Configured Hot Fix** column, and it can be configured by this task.

Select the check boxes beside the the product configurations that you want to work with. Click **Select All** to select all the configurations in the list. Click **Clear All** to deselect all the configurations in the list.

Click **Next**.

- 10 If a product configuration that you selected in [Step 9](#) is a web application, the **Select Web Applications to Deploy for Hot Fix Configuration** page opens. (If you did not select a web application, go to [Step 12](#).) The page lists all web applications that you selected in [Step 9](#). Select each product that you want to redeploy after the hot fix configuration is complete. Click **Next**.
- 11 If a web application that you selected in [Step 10](#) is running, the **Stopping Application Server Warning** page opens. (If no web application that you selected is running, the SAS Deployment Manager goes to the page described in [Step 12](#).) Select **Allow the application server to stop** to permit the SAS Deployment Manager to stop the application server. If you do not select this option, you cannot complete this procedure. After you select the option, click **Next**.

- 12 The **Deployment Summary** page lists the steps in the process that the SAS Deployment Manager is about to begin. Click **Start** to begin performing the listed tasks.
- 13 In the progress window that shows that the SAS Deployment Manager is applying your hot fixes, click **Next** when the tasks are complete.
- 14 The **Hot Fix Updates Complete** page opens, describing what has been applied and providing logs for any hot fixes that were configured. Click **Next**.
- 15 The **Additional Resources** page opens, listing links to important documentation about deploying SAS software. Click **Finish** to close the SAS Deployment Manager.
- 16 If you configured any hot fixes, an HTML page opens that describes the location of the logs and any additional manual configuration steps that are required. You should perform any manual steps that are listed before you attempt to run the software that was just updated.

Command-Line Options for Hot Fixes

You can use the following command-line options for hot fixes with the SAS Deployment Manager.

`-reinstallhotfix`

By default, after the SAS Deployment Manager installs a hot fix on a machine, the deployment registry is updated to indicate the inclusion of that hot fix. On subsequent uses of the SAS Deployment Manager, hot fixes are checked against the deployment registry so that previously installed hot fixes are not re-installed. If you want the SAS Deployment Manager to ignore that hot fixes have already been installed on a machine and to include them in another installation pass, use the `-reinstallhotfix` command-line option.

Example

```
sasdm.exe -reinstallhotfix
```

`-skipusercheck`

The hot fix installer performs a check to ensure that the user ID that performed the initial deployment is also the user ID that is applying the hot fixes. The `-skipusercheck` command-line option forces the hot fix installer to skip that check so that another user ID is accepted. Note that the user that is logged in should have the same permissions as the user that performed the deployment; otherwise, permission conflicts might arise. However, if permissions are set appropriately, a different user can update files that were installed using a different user ID.

On UNIX, the ownership of the entire SAS tree must be changed to the new installer ID by issuing a command like this:

```
chown -Rh new-user-ID:group-name $ASHOME-location
```

Example

```
sasdm.exe -skipusercheck
```

On z/OS, when using UNIX System Services, the ownership of the entire SAS tree also must be changed to the new installer ID by issuing a command like this:

```
chown -Rh new-user-ID:group-name $ASHOME-location
```

The user ID that is used to install the hot fix must have the authority to create new data sets with the same high-level qualifier as the existing installation, and to modify the existing data sets. Also, if the `-nojubsubmit` command-line option is not used, the hot fix installer automatically runs the installation jobs under the original installer ID, based on data (such as jobcards and user ID) that is stored in the `install.properties` file.

Example

```
sasdm.rexx -skipusercheck
```

`-hotfixdir`

By default, the launcher script looks for the hot fixes in **`$ASHOME/InstallMisc/HotFixes/New`**. The `-hotfixdir` command-line option enables you to specify a different directory as the default location for the hot fixes. This option must be followed by a directory path to the hot fixes that you want to apply.

Example

```
sasdm.exe -hotfixdir "C:\Downloads\HotFix"
```

Note: If you install multiple hot fixes on a z/OS machine, all hot fixes are installed to a set of staging hot fix libraries that incorporate the name of the first alphanumeric value of the hot fixes. For example, if there are two hot fixes named A01 and B06, the staging name is A01 with the contents of both A01 and B06 included in that image.

`-silenthotfix`

You can suppress the user interface for installing hot fixes by using `-silenthotfix`. This is especially useful for enterprise-wide deployments. If you stored your hot fixes in a location other than the default (**`$ASHOME/InstallMisc/HotFixes/New`**), you should also use the `-hotfixdir` command-line option to identify the location of the hot fixes.

IMPORTANT The `-silenthotfix` command-line option installs only hot fixes. The SAS Deployment Manager log indicates whether a hot fix that has been installed also requires configuration. In order to configure hot fixes silently, you must create a response file and use it with the `-quiet` option. For more information about response files and the `-quiet` command-line option, see [“Record and Playback” on page 76](#).

The hot fix download site that is described in the report created by the SAS Hot Fix Analysis, Download and Deployment Tool indicates whether a hot fix requires configuration.

Example

```
sasdm.exe -silenthotfix
```

-console (UNIX only)

Note: on z/OS, console mode is the default for using the SAS Deployment Manager.

If you do not want to rely on an X11 server for UNIX, you can use the SAS Deployment Manager in console mode, enabling you to use a headless system to install hot fixes. You cannot use console mode on your middle tier. If you use console mode, each page used in the deployment of your SAS software is represented in text.

Note: If you are instructed to enter a sequence that includes angle brackets, such as Enter <q> to quit, you must include those symbols.

The -console command-line option also supports two options to specify the size of the output of the SAS Deployment Manager. Use -pagesize # to specify the number of lines to display before pausing the output and -pagewidth # to specify the number of characters to display on a line before it wraps to another line. Note that -pagesize and -pagewidth do not work with any other command-line options.

Usage

```
-console [-pagesize #] [-pagewidth #]
```

Example

```
sasdm.sh -console -pagesize 20 -pagewidth 50
```

-x11 (z/OS only)

By default, z/OS machines use console mode when applying hot fixes. If you are deploying hot fixes on a z/OS machine and have an X11 server, you can use the -x11 command-line option to use the graphical user interface that is the default for Windows and UNIX.

Example

```
sasdm.rexx -x11
```

-z64 (z/OS only)

If you are installing hot fixes for your 64-bit SAS Metadata Server, sasdm.rexx must be followed with the -z64 command-line option.

Example

```
sasdm.rexx -z64
```

Note: If your hot fixes are not in the default location, then you must indicate where the hot fixes you want to install are located by using the -hotfixdir command-line option described in [“-hotfixdir”](#).

-jobsubmit (z/OS only)

By default on z/OS machines, the hot fix installer does not submit batch jobs to complete the application of your hot fixes, enabling you to edit and submit the batch jobs yourself. If you use the -jobsubmit command-line option, the hot fix installer submits batch jobs to complete the application of your hot fixes. Do not use the -jobsubmit command-line option if any of the following statements is true:

- Your FTP server is configured for JESINTERFACELEVEL=2.
- The SAS installer ID is not authorized to use FTP.
- You need to make site-specific changes to the JCL or you want to review the JCL before it is submitted.
- The FTP JES interface's requirement that the jobname be the user ID that is performing the install, suffixed with a single letter or digit, is incompatible with your site's jobname requirements.

If none of these conditions apply at your site, you can use the `-jobsubmit` command-line option.

Example

```
sasdm.rexx -jobsubmit
```

`-hotfixupdate` (z/OS only)

By default, you can install hot fixes included with an order only in a clean SASHOME directory. If you want to install hot fixes in orders after your original order, use the `-hotfixupdate` command-line option with those subsequent orders.

Because an installation that includes a metadata server on z/OS requires two passes of the SAS Deployment Wizard (one for 64-bit SAS software and then a second for 31-bit SAS software), if you installed hot fixes during the 64-bit installation, you should force the SAS Deployment Wizard to install hot fixes during the 31-bit installation into your existing SASHOME directory. Use the `-hotfixupdate` command-line option for the 31-bit installation to enable the 31-bit installation into your existing SASHOME directory to include the 31-bit hot fixes. Doing so enables you to avoid having to use the SAS Deployment Manager process for hot fixes in your order.

Example

```
sasdm.rexx -hotfixupdate
```

Additional Notes for z/OS

- If you do not use the `-jobsubmit` option, the list of hot fix jobs to execute is written to member JOBINDEX in *high-level-qualifier.hotfix-ID.INSTALL.CNTL*. Submit the first job in the list, and the entire set of HOTFIXn jobs is run automatically (each job submits the next job in the chain).

Note: You cannot open the hot fix CNTL library in Edit mode after you submit the jobs. Some hot fix jobs need exclusive access to the CNTL library for updates.

The PROMOTE job is not run as part of this sequence. You should not submit this job until you are ready to move the staged data sets into production. If you want to test the hot fixes before promoting them to production, you can use the JCL, CLISTS, or REXX execs that were created in *high-level-*

qualifier.E80002.PROCLIB, CLIST, or SASRX, respectively. These execs concatenate the staged data sets before the production data sets.

- If the hot fix installation created `&prefix.hot-fix-number.LIBRARY` and it contains a `SASHOST`, `SASXAL`, or `SASXA1` module, and if you set SAS system options by assembling the `DEFAULT OPTIONS TABLE` using the `BAOPTS1` member of the original `CNTL` data set, then you must re-assemble this table after you apply your hot fixes. To re-assemble this table:
 - 1 Edit the `BAOPTS1` member in the original `CNTL` data set.
 - 2 Change the `SYSLMOD DD` in all three `LINK EDIT` steps to point to the new *high-level-qualifier.LIBRARY*.
 - 3 Rerun `BAOPTS1`.
- If the hot fix installation created a `&prefix.hot-fix-number.LIBRARY` and you run with an entry point of `SASLPA`, then you must look in the unloaded library to determine whether any of the new modules are installed in your LPA. If so, then you must replace them with the new modules and refresh the LPA.
- In [Configuration Guide for SAS 9.4 Foundation for z/OS](#), the following modules are recommended for installation in the LPA:
 - ☐ `SASXAL`
 - ☐ `SABXSPL`
 - ☐ `SABODSL`
 - ☐ `SABXDML`
 - ☐ `SABDS`
 - ☐ `SABSCLL`
 - ☐ `SABDBGM`
 - ☐ `SABZPLH`
 - ☐ `SABXGPH`

If you use the `BNDLSUFEX` option, you must rename the modules appropriately in your LPA. For more information about the LPA bundled configuration, and for information about using the `BNDLSUFEX` option, see "Installing SAS 9.4 Foundation into the LPA/ELPA" in [Configuration Guide for SAS 9.4 Foundation for z/OS](#).

Hot Fix Logs

A hot fix installation log is created in `SASHOME/InstallMisc/InstallLogs/IT-date-and-time-stamp.log` (for example, `/sas94/InstallMisc/InstallLogs/IT_2011-07-19-13.54.19.log`). Each attempt to install a hot fix results in the creation of a new log file with detailed information about the installation process.

In addition, hot fix installation is recorded in the SAS Deployment Registry. The deployment registry report is described in [“View Registry” on page 89](#).

SAS Deployment Manager Tasks

Overview	50
Administration Tasks	50
Update Passwords	50
Rebuild Web Applications	51
Deploy Web Applications	51
Remove Existing Configuration	51
Update SID File in Metadata (Windows and UNIX Only)	51
Manage SAS File Types (Windows Only)	52
Update Host Name References	53
Apply Hot Fixes	53
Update Existing Configuration	53
Specify New Passphrase	53
Change Locale and Region Settings (Windows and UNIX Only)	54
Configure Autoload Directory for SAS Visual Analytics	55
Uninstall SAS Software (Graphical User Interface Uninstall Tool)	57
Renew SAS Software (Windows and UNIX Only)	59
Manage SAS Deployment Agent Service	60
Configure SAS Deployment Agent Communication Options	60
Add SAS Deployment Agent Service (Windows Only)	62
Start SAS Deployment Agent Service	63
Stop SAS Deployment Agent Service	63
Remove SAS Deployment Agent Service (Windows Only)	64
Upload SAS Deployment Agent Credentials to a SAS Metadata Server	64
Download SAS Deployment Agent Credentials from a SAS Metadata Server	65
SAS/IntrNet Service Tasks	67
Create Socket Service	67
Create Launch Service	68
Configure Load Manager	68
Create Pool Service	69
Configure Spawner (UNIX Only)	69
Hadoop Configuration	70
Update Metadata Configuration for Hadoop Client Files (Windows and UNIX Only)	70
Repair Tasks	70
SAS Foundation Post-Install Tasks	70
Manage Trusted CA Bundle	71
Overview	71

Add Certificate to Trusted CA Bundle	72
Create a CA Chain of Trust File	73
Remove Certificate from Trusted CA Bundle	74

Overview

The SAS Deployment Manager is a tool that is included with each SAS software order. It enables you to perform some administrative and configuration tasks. The SAS Deployment Manager is located in your SASHOME directory, in the `\SASDeploymentManager\9.4` folder.

Before you begin, ensure that you are logged on with the same user ID that was used to install the software. Based on your operating system, perform the following step to start the SAS Deployment Manager:

- Windows users should double-click `sasdm.exe`. Depending on your settings, you might have to right-click the `sasadm.exe` file and select **Run as administrator**.
- UNIX users should execute `sasdm.sh`.
- z/OS users should execute `sasdm.rexx`. If you are using 64-bit z/OS, you should add a command line option, `-z64`.

The following topics describe the SAS Deployment Manager tasks and how to perform them. In some cases, the tasks might be associated with planned deployments, so references to the appropriate documentation for those tasks are also provided.

Administration Tasks

Update Passwords

Choose this option to update passwords for selected users in an existing configuration. For more information, see [“Update a Managed Password” in SAS Intelligence Platform: Security Administration Guide](#).

Rebuild Web Applications

Choose this option to rebuild web applications that were previously configured in an existing configuration. For more information, see [“Rebuild the SAS Web Applications”](#) in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

Deploy Web Applications

Choose this option to deploy web applications that were previously configured in an existing configuration. For more information, see [“Redeploy SAS Web Applications”](#) in *SAS Intelligence Platform: Middle-Tier Administration Guide*.

Remove Existing Configuration

Choose this option to remove configuration content for an existing configuration. Installed products are not removed by this option. For more information, see [“Removing a SAS Configuration”](#) in *SAS Intelligence Platform: Installation and Configuration Guide*.

Update SID File in Metadata (Windows and UNIX Only)

Choose this option to update the SID file in metadata to license SAS middle-tier products. SAS Foundation software is not affected by this option. For more information, see *Software License Renewal Instructions: SAS 9.4 Foundation for Microsoft Windows Planned Deployment* at https://support.sas.com/documentation/installcenter/en/ikwinplannedri/66607/PDF/default/setinit_planned.pdf or *Software License Renewal Instructions: SAS 9.4 Foundation for UNIX Environments Planned Deployment* at https://support.sas.com/documentation/installcenter/en/ikunixplannedri/66610/PDF/default/setinit_planned.pdf.

Manage SAS File Types (Windows Only)

Choose this option on Windows in order to manage the products that are associated with various file types. This option is available only if there are installed products that use file type associations.

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to view the SAS Deployment Manager. Click **OK**.
- 2 The **Select SAS Deployment Manager Task** page opens. Under **Administration Tasks**, select **Manage SAS File Types**. Click **Next**.
- 3 The **Default Product for SAS File Types** page opens. The left-hand column of the table lists the file extensions for files in your SASHOME directory that can be opened with more than one SAS product. The right-hand column describes what types of files use those extensions. Beneath the table is a list of the software installed in your SASHOME directory that you can select as the default product for those file types. Select the product that you want to be the default product for the file extensions that are listed, or select **Advanced** to assign a default SAS application to each file type. Click **Next**. If you selected **Advanced**, go to [Step 5](#).
- 4 The **Manage SAS File Extensions** page opens. The left-hand column of the table lists file extensions that can be opened by more than one SAS product in the left-hand column. The right-hand column lists the products that are currently assigned as the default product (SAS or third-party) for that file extension. To change the default product for a file type, use the drop-down menu to select another product.

Note: If you move an extension that is currently associated with a third-party product to a SAS product, several things happen:

- The association to the third-party product is reset to use the chosen SAS product but the changes take effect only for the user who is running the SAS Deployment Manager. All other users continue to see the extension that is associated with the third-party product.
- The third-party product is no longer displayed as a selection in future invocations of the SAS Deployment Manager unless you re-associate the extension to another third-party product by using Windows tools.

Although you can reset an extension that is currently associated with a third-party product to a SAS product, the reverse is not true. You cannot reassign an extension association from a SAS product to a third-party product.

When you have selected a default product for each file extension, click **Next**.

- 5 The **Default Product Changes Summary** page opens. The first column in the table, **File Extension**, lists the file extensions that are being updated. The second column, **Old Product**, shows which application is currently the default product that is associated with that file type. The third column, **New Product**,

lists the new default product that you have selected. Review your selections, and click **Back** to go back and make more changes as needed. When the page describes the changes that you want to make, click **Next**.

- 6 The **File Type Associations Complete** page describes the changes that you have made. Click **Finish** to close the SAS Deployment Manager.

Update Host Name References

Choose this option to update host name references in an existing configuration. For more information, see [“Using the SAS Deployment Manager to Update Host Name References” in *SAS Intelligence Platform: System Administration Guide*](#).

Apply Hot Fixes

For information about how to find hot fixes and install them by using the SAS Deployment Manager, see [Chapter 5, “Find and Apply Hot Fixes,” on page 39](#).

Update Existing Configuration

Choose this option to configure SAS products that have been updated or upgraded. For more information, see [“Configure Updated or Upgraded SAS Products” in *SAS Intelligence Platform: Installation and Configuration Guide*](#).

Specify New Passphrase

Choose this option to modify the passphrase that is used to encrypt your passwords. Using a passphrase and encrypted passwords provides a thorough, secure, and efficient approach for an unrestricted user to address situations such as the following:

- For greater security, you want to re-encrypt stored passwords by using a passphrase as the encryption key instead of by using the default fixed key.
- You suspect one or more stored passwords have been compromised, so you want to re-encrypt using a new passphrase.
- You have upgraded the encryption type with which new or updated passwords are stored, and you also want to upgrade the format of currently stored passwords.

- You are preparing to discontinue use of SAS/SECURE, so you must downgrade the format of currently stored passwords.

Note: When you introduce, change, or clear a passphrase, all passwords in login objects within the specified metadata server are affected.

For details, see [“How to Re-encrypt Stored Passwords” in SAS Intelligence Platform: Security Administration Guide](#).

Change Locale and Region Settings (Windows and UNIX Only)

Use this option to change the locale and region settings for your SAS software. These settings control how SAS software displays text, numbers, currencies, and date and time values.

The following guidelines apply when you change the region settings:

- If you change your region setting so that it requires the encoding to change for SAS Foundation, you receive a warning but you can continue. If SAS Foundation is used as a server in a planned and configured deployment, you must create a new configuration to include the new setting.
 - If you specify a region setting that requires a different sasv9.cfg file to be loaded for another language, the default language for SAS Foundation changes. If a supporting language is not installed for the selected regional setting change, one of the following happens.
 - If the regional setting is for a SBCS language, then English is the default language.
 - If the regional setting is for a DBCS language, then English with DBCS is the default language.
 - The deployment registry reflects the regional settings change only if you change the regional settings for all Java products as well as for SAS Foundation.
- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.
 - 2 The **Select SAS Deployment Manager Task** page opens. Under **Administration Tasks**, select **Locale Setup Manager**. Click **Next**.
 - 3 The **Locale Setup Manager** page opens. In the **Language** list, select the region and locale setting that you want to use. Then, in the lower pane, select the products that you want to which you want to apply the new settings. Click **Select All** to choose every product, or click **Clear All** to remove the selection from every product. When you have completed your selections, click **Next**.

Note: If you configured the machine that you are working with as a Unicode server, you cannot change the default language for SAS Foundation.

- 4 The **Summary** page describes the changes that you have made, including the region and locale that you selected and the products that are affected. Click **Finish** to close the SAS Deployment Manager.

Configure Autoload Directory for SAS Visual Analytics

Use this option to set up autoload for SAS Visual Analytics. For more information about what autoload is, see [SAS Visual Analytics: Administration Guide](#).

You can complete this task only on machines that have been deployed under the following conditions:

- The task must be run on the machine that contains the compute tier.
- The compute tier must have at least one application server context with a SAS Workspace Server configured.
- The compute tier is on either a Linux or Microsoft Windows for x64 machine.
- SAS Visual Analytics High-Performance Configuration is configured in the environment.

IMPORTANT If your deployment does not meet each of these criteria, do not attempt to perform this task.

Note: The SAS Migration Utility does not migrate files and directories that were created by using this task. The migration utility migrates only the autoload metadata objects. For more information, see “[SAS Visual Analytics Autoload Post-Configuration Task](#)” in *SAS 9.4 Intelligence Platform: Migration Guide*.

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.
- 2 The **Select SAS Deployment Manager Task** page opens. Under **Administration Tasks**, select **Configure Autoload Directory for SAS Visual Analytics**. Click **Next**.
- 3 The **Select Configuration Directory/Level** page opens, on which you to identify the configuration that you are working with.
 - If the configuration directory that you want to use appears in the list, choose **Select Configuration Directory**, and then select that configuration directory.

- If the configuration directory that you want to use does not appear in the list, choose **Enter Configuration Directory and Level**, enter the configuration directory location in the text box, and select the configuration level from the list. You can also use **Browse** to search for the configuration directory.

When you have specified a configuration directory and level, click **Next**.

- 4 The **Specify Connection Information** page opens. Enter a valid user ID for the SAS Metadata Server that you are working with, and then enter the password for that user ID. Click **Next**.
- 5 The **SAS LASR Artifacts** page opens. Select the type of LASR artifacts that you use from the list.
 - If you are using LASR artifacts that already exist, select **Pre-existing**. Click **Next** and skip to [Step 7](#).
 - If the LASR artifacts need to be created, select either **Distributed** or **Non-Distributed**, depending on how they are deployed. Click **Next**.
- 6 The **SAS High-Performance Analytics Server** page opens. Ensure that the appropriate information for the server that you are about to create is included in each field. Click **Next**.
- 7 The **SAS High-Performance Analytics Library** page opens.
 - If you selected **Pre-existing** in [Step 5](#), only a **Library Name** list is displayed. Select the correct library from the list or, if you do not see the library that you want, consider changing the metadata location to get a different list of available libraries.
 - If you selected **Distributed** or **Non-distributed** in [Step 5](#), the page includes **Library Name** and **Libref** fields for the library to be created, and an **Application Server Context** list. Ensure that the appropriate information is included in each field.

When each field has an entry, click **Next** to continue.

- 8 The **SAS High-Performance Analytics Autoload Location** page opens. In the **Autoload Location** field enter the fully qualified path of the host directory where users place tables for loading to memory. You can also click **Browse** to search for the host directory. Click **Next**.
- 9 The **Summary** page opens, describing the action that is about to be taken. Click **Start** to complete the task.
- 10 The **In Progress** page opens, indicating that the task has been started. When the SAS Deployment Manager is finished, the **Deployment Complete** page opens. Click **Finish** to exit the SAS Deployment Manager.

Uninstall SAS Software (Graphical User Interface Uninstall Tool)

Instructions

The Graphical User Interface Uninstall tool provides a wizard interface to the uninstall process as well as the capability to uninstall products that were installed within a SASHOME directory. The following is a list of products that are not available to be uninstalled via the Graphical User Interface Uninstall tool.

- Individual SAS Foundation products are not available for selectable uninstallations. SAS Foundation can be uninstalled only as a set of MVA products.
- SAS Foundation on z/OS is not available to be uninstalled.
- Some DataFlux products are not available to be uninstalled.
- Third-party software is not available to be uninstalled. This software includes system requirement packages such as Microsoft Runtime Components as well as Java.

The Graphical User Interface Uninstall tool also supports quiet uninstalls using the command-line options described in [Chapter 7, “SAS Deployment Manager: Command-Line Options,” on page 75](#).

The Graphical User Interface Uninstall tool currently supports the following platforms.

- all Windows platforms
- all UNIX platforms
- UNIX System Services for z/OS to uninstall vertical multi-platform products

In addition to starting the Graphical User Interface Uninstall tool as described in [Step 1](#) and [Step 2](#), Windows platforms can also reach it via the Windows **Add/Remove** control panel application. On the **Add/Remove** panel, select **SAS 9.4**.

To remove SAS software from your system:

Note: On a Windows machine, if the SAS Deployment Agent is installed and you are running it as a service, you must stop that service before attempting to uninstall it.

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.

- 2 The **Select SAS Deployment Manager Task** page opens. Under **Administration Tasks**, ensure that **Uninstall SAS Software** is selected. Click **Next**.
- 3 The **Select SAS Products to Uninstall** page opens.
 - a The **Products to uninstall** field describes the set of products from which you choose the ones to uninstall.
 - Select **All SAS software** to include any software that is already deployed.
 - Select **Earlier SAS software versions** to force the SAS Deployment Manager to look for duplicate products and list only the products that are older than the latest installed. This selection enables you to uninstall older versions of software while keeping the most current installed. If only one version of a product is installed, it is not listed in the products that can be uninstalled.
 - b Ensure that all the products you want to uninstall are selected in the list. Windows users are notified if any product that you choose to uninstall requires a Windows service to be stopped. Click **Next**.
- 4 The **Checking System** page opens. The SAS Deployment Manager ensures that no file that is being removed is being used by your system. If any files are listed on this page, follow the instructions on the page. After you have addressed any issues, click **Next** to continue.
- 5 The **Summary** page opens, describing which products are about to be removed. Click **Start** to begin the removal of your SAS software.
- 6 The **Deployment in Progress** page opens, indicating that the removal is taking place. When the SAS Deployment Manager is finished, the **Deployment Complete** page opens, listing what has been removed. Click **Finish** to exit the SAS Deployment Manager.

After the uninstall tool is finished, a few files and directories remain on your system that you can safely remove manually. The following list shows examples of the types of files that are left after the uninstall tool process is complete. This list is not exhaustive.

- **SASHOME\InstallMisc\InstallLogs** contains the log files for both installation and uninstallation. These log files remain for troubleshooting any issues with the uninstallation process. In some cases, the installation logs are just as important as the uninstallation logs for determining an uninstallation issue.
- **SASHOME\ReportFontsforClients\9.4\SystemFonts\backup** contains fonts that are backed up so that you can restore the fonts that were replaced during the installation process.
- **SASHOME\deploymentreg** contains the deployment registry.

Also, most DataFlux software is not removed by the uninstall wizard and requires removal by using tools from DataFlux.

Finally, the uninstall tool itself remains on your system after it has completed uninstalling the rest of your SAS software. For a complete removal of all SAS software, you should then delete the SAS Deployment Manager directory and all of its contents from your SASHOME directory. Windows users should also delete the

SAS Deployment Manager entry from the **Start** menu located at `C:\Users\All Users\SAS\SAS Deployment Manager`.

Note: SAS 9.3 and SAS 9.4 on Windows share some components that are stored in the SAS 9.3 SASHOME directory. If you remove SAS 9.3 but intend to keep an existing SAS 9.4 deployment, do not remove any files from the SAS 9.3 SASHOME directory manually after the SAS Deployment Manager completes its task.

Note: If you uninstall Base SAS, SAS Enterprise Guide, or SAS Universal Viewer from a Windows machine, you should consider performing the **Manage SAS File Types** task in order to reset the default product for any shared SAS file types. For details, see [“Manage SAS File Types \(Windows Only\)” on page 52](#).

Quiet Removal of SAS Software

A quiet uninstallation enables you to provide all of the responses that would normally be supplied to the SAS Deployment Manager when it is running interactively, but without the presence of a user. It is intended for use in any context that does not require a user to be present at the machine.

In order to perform a quiet uninstallation, you should first create a response file as described in [“Record Mode” on page 76](#). After you have created a response file, you should use the information in [“Quiet Playback Mode”](#) to perform the quiet deployment on the target machine.

Renew SAS Software (Windows and UNIX Only)

Choose this option in order to renew the license file for your installed SAS Foundation software. For more information, refer to the document in the following list that is most appropriate for your deployment:

Windows Basic Deployment

Software License Renewal Instructions: SAS 9.4 Foundation for Microsoft Windows Basic Deployment at https://support.sas.com/documentation/installcenter/en/ikwinbasicri/66608/PDF/default/setinit_basic.pdf

Windows Planned Deployment

Software License Renewal Instructions: SAS 9.4 Foundation for Microsoft Windows Planned Deployment at https://support.sas.com/documentation/installcenter/en/ikwinplannedri/66607/PDF/default/setinit_planned.pdf

UNIX Basic Deployment

Software License Renewal Instructions: SAS 9.4 Foundation for UNIX Environments Basic Deployment at https://support.sas.com/documentation/installcenter/en/ikunixbasicri/66609/PDF/default/setinit_basic.pdf

UNIX Planned Deployment

Software License Renewal Instructions: SAS 9.4 Foundation for UNIX

Environments Planned Deployment at https://support.sas.com/documentation/installcenter/en/ikunixplannedri/66610/PDF/default/setinit_planned.pdf

Manage SAS Deployment Agent Service

The SAS Deployment Agent works with metadata servers and therefore is used only in planned deployments. For a full description of the SAS Deployment Agent, see [Chapter 8, “SAS Deployment Agent,” on page 83](#).

Configure SAS Deployment Agent Communication Options

This task configures port access and security for the SAS Deployment Agent. In addition, you can create a new keystore and truststore on the **Regenerate Security Credentials** if you think that your security has been compromised or your credentials have become corrupted.

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.
- 2 The **Select SAS Deployment Manager Task** page opens. Under **Manage SAS Deployment Agent Service**, ensure that **Configure SAS Deployment Agent Communication Options** is selected. Click **Next**.
- 3 The **Select Configuration Directory/Level** page opens, on which you identify the configuration that you are working with.
 - If the configuration directory that you want to use appears in the list, choose **Select Configuration Directory**, and then select that configuration directory.
 - If the configuration directory that you want to use is not in the list, choose **Enter Configuration Directory and Level** to specify a configuration directory. Then, enter the configuration directory location in the text box and select the configuration level from the list. You can also use **Browse** to search for the configuration directory.

When you have specified a configuration directory and level, click **Next**.

- 4 The **Specify Connection Information** page opens. Enter a valid user ID for the SAS Metadata Server that you are working with, and then enter the password for that user ID. Click **Next**.
- 5 The **Specify Remote Configuration Communication** page opens.

- Ensure that the port that you want the SAS Deployment Agent to use for communications is entered in the **Port** text box.
- In the **Specify how to secure the remote connection** list, select the security measures that you want to take. Select **Do not secure the connection** if a keystore and truststore are not required. Select **Generate the credentials to secure the connection** if you want to use a keystore and truststore but do not have them set up. Select **Specify existing credentials to secure the connection** if you already have a keystore and truststore available.

Note: SAS supports only the JKS format for the keystore and truststore.

Click **Next**. If you selected **Do not secure the connection**, go to [Step 11](#). If you selected **Generate the credentials to secure the connection**, go to [Step 6](#). If you selected **Specify existing credentials to secure the connection**, go to [Step 7](#).

- 6 The **Regenerate Security Credentials** page opens. If you select the **Enable regeneration of security credentials** option, the SAS Deployment Manager creates a new keystore and truststore. Make your selection and click **Next** to continue. Go to [Step 11](#).

Note: If you regenerate the credentials, all other server and middle-tier machines that use the same metadata server must be updated to use the newly generated credentials by using “[Download SAS Deployment Agent Credentials from a SAS Metadata Server](#)” on page 65.

- 7 The **Specify SAS Deployment Agent Keystore Credentials** page opens.
 - Enter the directory location for the keystore .jks file in the **Agent Keystore Location** text box, or click **Browse** to look for it.
 - Enter the password for the keystore in the **Agent Keystore Password** text box, and then re-enter the password in the **Confirm Agent Keystore Password** text box.

Click **Next**.

- 8 The **Specify SAS Deployment Agent Truststore Credentials** page opens.
 - Enter the directory location for the truststore .jks file in the **Agent Truststore Location** text box, or click **Browse** to look for it.
 - Enter the password for the truststore in the **Agent Truststore Password** text box, and then re-enter the password in the **Confirm Agent Truststore Password** text box.

Click **Next** to continue. If installed the SAS Remote Deployment Agent Client is installed on the same machine, continue with [Step 9](#). If not, skip to [Step 11](#).

- 9 The **Specify SAS Remote Deployment Agent Client Keystore Credentials** page opens.
 - Enter the directory location for the SAS Remote Deployment Agent Client keystore .jks file in the **Remote Client Keystore Location** text box, or click **Browse** to look for it.

- Enter the password for the keystore in the **Remote Client Keystore Password** text box, and then re-enter the password in the **Confirm Remote Client Keystore Password** text box.

Click **Next**.

- 10 The **Specify SAS Remote Deployment Agent Client Truststore Credentials** page opens.

- Enter the directory location for the SAS Remote Deployment Agent Client truststore .jks file in the **Remote Client Truststore Location** text box, or click **Browse** to look for it.
- Enter the password for the truststore in the **Remote Client Truststore Password** text box, and then re-enter the password in the **Confirm Remote Client Truststore Password** text box.

Click **Next**.

- 11 The **Summary** page opens, describing the action that is about to be taken. Click **Start** to complete the task.
- 12 The **In Progress** page opens, indicating that the task has been started. When the SAS Deployment Manager is finished, the **Deployment Complete** page opens. Click **Finish** to exit the SAS Deployment Manager.

After the SAS Deployment Manager completes the configuration, the SAS Deployment Agent is automatically started. However, if you are using a UNIX machine and it is rebooted, the SAS Deployment Agent should be restarted by completing the **Start SAS Deployment Agent Service** task described at [“Start SAS Deployment Agent Service” on page 63](#).

Add SAS Deployment Agent Service (Windows Only)

This task adds the SAS Deployment Agent to the list of services on a Windows machine.

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.
- 2 The **Select SAS Deployment Manager Task** page opens. Under **Manage SAS Deployment Agent Service**, ensure that **Add SAS Deployment Agent Service** is selected. Click **Next**.
- 3 The **Select SAS Deployment Agent Start-up Option** page opens. Select the **Start SAS Deployment Agent After Configuration** check box in order to restart the SAS Deployment Agent when this configuration is complete. You can also select the **Start SAS Deployment Agent Automatically when Windows Starts** check box in order to restart the SAS Deployment Agent whenever Windows is started. After you have made your selections, click **Next**.

- 4 The **Summary** page opens, describing the action that is about to be taken. Click **Start** to complete the task.
- 5 The **In Progress** page opens, indicating that the task has been started. When the SAS Deployment Manager is finished, the **Deployment Complete** page opens. Click **Finish** to exit the SAS Deployment Manager.

Start SAS Deployment Agent Service

This task starts the SAS Deployment Agent as a service or daemon. Note that you cannot start the service or daemon if you have not configured the communication options, either by deploying with the SAS Deployment Wizard or by completing the **Configure SAS Deployment Agent Communication Options** task described at [“Configure SAS Deployment Agent Communication Options” on page 60](#).

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.
- 2 The **Select SAS Deployment Manager Task** page opens. Under **Manage SAS Deployment Agent Service**, ensure that **Start SAS Deployment Agent Service** is selected. Click **Next**.
- 3 The **Summary** page opens, describing the action that is about to be taken. Click **Start** to complete the task.
- 4 The **In Progress** page opens, indicating that the task has been started. When the SAS Deployment Manager is finished, the **Deployment Complete** page opens. Click **Finish** to exit the SAS Deployment Manager.

Stop SAS Deployment Agent Service

This task stops the SAS Deployment Agent service or daemon.

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.
- 2 The **Select SAS Deployment Manager Task** page opens. Under **Manage SAS Deployment Agent Service**, ensure that **Stop SAS Deployment Agent Service** is selected. Click **Next**.
- 3 The **Summary** page opens, describing the action that is about to be taken. Click **Start** to complete the task.
- 4 The **In Progress** page opens, indicating that the task has been started. When the SAS Deployment Manager is finished, the **Deployment Complete** page opens. Click **Finish** to exit the SAS Deployment Manager.

Remove SAS Deployment Agent Service (Windows Only)

This task removes the SAS Deployment Agent from the list of services on a Windows machine.

Note: If you are removing a configuration from a machine in order to reconfigure it, do not remove the SAS Deployment Agent from that machine. Reconfiguring does not re-install the SAS Deployment Agent, and your configuration fails until SAS Deployment Agent is re-installed. Instead, while you are reconfiguring a machine, leave the SAS Deployment Agent service running, or at the very least, do not uninstall it. Uninstall the SAS Deployment Agent only when you are removing all of the SAS software from the machine.

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.
- 2 The **Select SAS Deployment Manager Task** page opens. Under **Manage SAS Deployment Agent Service**, ensure that **Remove SAS Deployment Agent Service** is selected. Click **Next**.
- 3 The **Summary** page opens, describing the action that is about to be taken. Click **Start** to complete the task.
- 4 The **In Progress** page opens, indicating that the task has been started. When the SAS Deployment Manager is finished, the **Deployment Complete** page opens. Click **Finish** to exit the SAS Deployment Manager.

Upload SAS Deployment Agent Credentials to a SAS Metadata Server

This task adds information about the keystore and truststore for the machine that you are using to the metadata on a configured SAS Metadata Server. This task is most often used to synchronize metadata about the same machine on different metadata servers or in different configurations on the same metadata server.

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.

- 2 The **Select SAS Deployment Manager Task** page opens. Under **Manage SAS Deployment Agent Service**, ensure that **Upload SAS Deployment Agent Credentials to a SAS Metadata Server** is selected. Click **Next**.
- 3 The **Select Configuration Directory/Level** page opens, on which you identify the SAS Metadata Server to which the credential information is to be copied. Because each configuration directory and level combination includes information about a metadata server, when you select a combination on this page, you are identifying the metadata server as well.
 - if the configuration directory that you want to use appears in the list, choose **Select Configuration Directory**, and then select that directory.
 - if the configuration directory that you want to use is not in the list, choose **Enter Configuration Directory and Level** in order to specify a configuration directory. Then, enter the configuration directory location in the text box, and select the configuration level from the list. You can also click **Browse** to search for the configuration directory.

Click **Next**.

- 4 The **Specify Connection Information** page opens. Enter the password for the metadata server and user ID that you specified with the combination of configuration directory and level in [Step 3](#). If the wrong metadata server is described by the fields on this page, click **Back** to enter the configuration directory and level information for the appropriate machine. When the information in the text fields is correct, click **Next**.

Note: All the fields on this page are editable, but the **Host Name**, **Port**, and **User ID** values are filled in based on the combination of configuration directory and level that you chose previously. You can use this page to identify a completely different metadata server as long as you provide the correct information for that metadata server in each field.

- 5 The **Summary** page opens, describing the action that is about to be taken. Click **Start** to complete the task.
- 6 The **In Progress** page opens, indicating that the task has been started. When the SAS Deployment Manager is finished, the **Deployment Complete** page opens. Click **Finish** to exit the SAS Deployment Manager.

Download SAS Deployment Agent Credentials from a SAS Metadata Server

This task copies keystore and truststore information from a SAS Metadata Server to the machine that you are working with. This task is especially useful after credentials have been regenerated by one of the configuration tasks.

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.
- 2 The **Select SAS Deployment Manager Task** page opens. Under **Manage SAS Deployment Agent Service**, ensure that **Download SAS Deployment Agent Credentials from a SAS Metadata Server** is selected. Click **Next**.
- 3 The **Select Configuration Directory/Level** page opens, on which you identify the SAS Metadata Server from which the credential information is to be copied. Because each configuration directory and level combination includes information about a metadata server, when you select a combination on this page, you are identifying the metadata server as well.

Choose the **Select Configuration Directory** option if you see the configuration directory that you want to use in the list, and then select that configuration directory. If you do not see the configuration directory that you want to use, select the **Enter Configuration Directory and Level** option in order to specify a configuration directory. Then enter the configuration directory location in the text box and select the configuration level from the list. You can also use **Browse** in order to search for the configuration directory. When you have specified a configuration directory and level, click **Next** to continue.

- If the configuration directory that you want to use appears in the list, select **Select Configuration Directory**, and then select that configuration directory.
 - If the configuration directory that you want to use is not in the list, select **Enter Configuration Directory and Level**, and specify a configuration directory. Then, enter the configuration directory location in the text box, and select the configuration level from the list. You can also click **Browse** to search for the configuration directory.
- 4 The **Specify Connection Information** page opens. Enter the password for the metadata server and user ID that you specified with the combination of configuration directory and level in [Step 3](#). If the wrong metadata server is described by the fields on this page, click **Back** to enter the configuration directory and level information for the appropriate machine. When the information in the text fields is correct, click **Next**.

Note: All the fields on this page are editable, but the **Host Name**, **Port**, and **User ID** fields are filled in based on the combination of configuration directory and level that you chose previously. You can use this page to identify a completely different metadata server, as long as you provide the correct information for that metadata server in each field.

- 5 The **Summary** page opens, describing the action that is about to be taken. Click **Start** to complete the task.
- 6 The **In Progress** page opens, indicating that the task has been started. When the SAS Deployment Manager is finished, the **Deployment Complete** page opens. Click **Finish** to exit the SAS Deployment Manager.

SAS/IntrNet Service Tasks

The selections in this topic are available only if SAS/IntrNet is installed.

Create Socket Service

A socket service runs the application server continuously, waiting for new requests, and refers to the protocol that is used (TCP/IP sockets) to communicate between the server and the Application Broker. Using this type of service, many servers can run at the same time, and the Application Broker balances the load. Select this option to configure the socket service.

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.
- 2 The **Select SAS Deployment Manager Task** page opens. Under **Administration Tasks**, select **Create Socket Service**. Click **Next**.
- 3 The **Specify Service Name** page opens. Use the guidelines on that page to enter a name for your socket service in the text box. Click **Next**.
- 4 The **Specify Service Directory** page opens. Enter the location where you want the socket service to be stored in the text box. You can also click **Browse** to search for a location. Click **Next**.
- 5 The **Specify Service Ports** page opens. Enter the ports for the servers that you want to make up the socket service in the text box. Click **Next**.
- 6 The **Specify Administrator Password** page opens. If you want the administrator of the socket service to be protected by a password, enter it into the **Password** text box and re-enter it in the **Confirm Password** text box. If you do not want to use a password, leave both text boxes empty. Click **Next**.
- 7 The **Summary** page opens, describing the action the SAS Deployment Manager is about to take. Click **Start** to begin this action.
- 8 The **Deployment in Progress** page opens, indicating that the action is taking place. When the SAS Deployment Manager is finished, the **Deployment Complete** page opens, listing what has been done. Click **Finish** to exit the SAS Deployment Manager.

Create Launch Service

The launch service starts a new server for each request. Although this method can require more time than a socket service because of the application server start-up time, it is easier to administer and provides some security advantages.

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.
- 2 The **Select SAS Deployment Manager Task** page opens. Under **Administration Tasks**, select **Create Launch Service**. Click **Next**.
- 3 The **Specify Service Name** page opens. Use the guidelines on that page to enter a name for your launch service in the text box. Click **Next**.
- 4 The **Specify Service Directory** page opens. Enter the location where you want the launch service to be stored in the text box. You can also click **Browse** to search for a location. Click **Next**.
- 5 The **Summary** page opens, describing the action the SAS Deployment Manager is about to take. Click **Start** to begin this action.
- 6 The **Deployment in Progress** page opens, indicating that the action is taking place. When the SAS Deployment Manager is finished, the **Deployment Complete** page opens, listing what has been done. Click **Finish** to exit the SAS Deployment Manager.

Configure Load Manager

The Application Load Manager is a separate, optional process that can be used to enhance the distribution of Application Dispatcher resources on a network. It records the state of all application servers and maintains a separate dynamic pool of available servers. These capabilities enable the Load Manager to distribute Application Dispatcher requests most efficiently.

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.
- 2 The **Select SAS Deployment Manager Task** page opens. Under **Administration Tasks**, select **Create Load Manager**. Click **Next**.
- 3 The **Specify Port** page opens. Enter the name or number of the port that you want the load manager to use in the text box. Click **Next**.
- 4 The **Summary** page opens, describing the action the SAS Deployment Manager is about to take. Click **Start** to begin this action.

- 5 The **Deployment in Progress** page opens, indicating that the action is taking place. When the SAS Deployment Manager is finished, the **Deployment Complete** page opens, listing what has been done. Click **Finish** to exit the SAS Deployment Manager.

Create Pool Service

Using the Application Load Manager, the pool service starts servers from the pool as needed to handle queued jobs. When a job completes, the server becomes available for new requests until an optional idle time-out is reached, at which time the server shuts down.

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.
- 2 The **Select SAS Deployment Manager Task** page opens. Under **Administration Tasks**, select **Create Pool Service**. Click **Next**.
- 3 The **Specify Service Name** page opens. Use the guidelines on that page to enter a name for your pool service in the text box. Click **Next**.
- 4 The **Specify Service Directory** page opens. Enter the location where you want the pool service to be stored in the text box. You can also click **Browse** to search for a location. Click **Next**.
- 5 The **Specify Administrator Password** page opens. If you want the administrator of the pool service to be protected by a password, enter it into the **Password** text box and then re-enter it in the **Confirm Password** text box. If you do not want to use a password, leave both text boxes empty. Click **Next**.
- 6 The **Summary** page opens, describing the action the SAS Deployment Manager is about to take. Click **Start** to begin this action.
- 7 The **Deployment in Progress** page opens, indicating that the action is taking place. When the SAS Deployment Manager is finished, the **Deployment Complete** page opens, listing what has been done. Click **Finish** to exit the SAS Deployment Manager.

Configure Spawner (UNIX Only)

The SAS spawner is used to start new application servers on behalf of the connecting client. A spawner is assigned to a single port on the server and listens for requests for connection to the server. The spawner is used with a pool service but it is optional. If the application servers are not on the same machine as the load manager, you must use a spawner to start your application servers.

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.
- 2 The **Select SAS Deployment Manager Task** page opens. Under **Administration Tasks**, select **Configure Spawner**. Click **Next**.
- 3 The **Specify Port** page opens. Enter the name or number of the port that you want the spawner to use in the text box. Click **Next**.
- 4 The **Specify Service Directory** page opens. Enter the location where you want the spawner to be stored in the text box. You can also click **Browse** to search for a location. Click **Next**.
- 5 The **Summary** page opens, describing the action the SAS Deployment Manager is about to take. Click **Start** to begin this action.
- 6 The **Deployment in Progress** page opens, indicating that the action is taking place. When the SAS Deployment Manager is finished, the **Deployment Complete** page opens, listing what has been done. Click **Finish** to exit the SAS Deployment Manager.

Hadoop Configuration

Update Metadata Configuration for Hadoop Client Files (Windows and UNIX Only)

For more information, see [“Step 2: Update SAS Metadata for Hadoop Client Files” in SAS Data Loader for Hadoop: Installation and Configuration Guide](#).

Repair Tasks

SAS Foundation Post-Install Tasks

The SAS Foundation Post-Install Tasks is a group of four utilities that repair specific aspects of SAS Foundation. Consult SAS Technical Support before you attempt to perform any of these tasks.

Use the following procedure to invoke any or all of these tasks:

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.
- 2 The **Select SAS Deployment Manager Task** page opens. Under **Repair**, ensure that **Uninstall SAS Foundation Post-Install Tasks** is selected. Click **Next**.
- 3 The **Select SAS Foundation Post-Install Tasks** page opens. Ensure that all the tasks that you want to perform are selected. Click **Next**.
- 4 The **Summary** page opens, describing the tasks that are about to be performed. Note that if you selected **Re-register SAS Fonts**, there are two entries in the summary, **Re-register SAS Fonts** and **Re-register Reports Fonts for Clients**. Click **Start** to perform the listed tasks.
- 5 The **In Progress** page opens, indicating that the tasks are being performed. When the SAS Deployment Manager is finished, the **Deployment Complete** page opens, listing what has been performed. Click **Finish** to exit the SAS Deployment Manager.

Manage Trusted CA Bundle

Overview

CAUTION

Security and certification processes can be highly technical. You should not perform any of the tasks described in this topic without a solid understanding of security procedures. Inappropriate changes can have extremely harmful effects on not only your SAS software, but any software that you are using.

Certificates are used to authenticate a server process or a human user. A certificate authority (CA) is an authority in a network that issues and manages security credentials and public keys for message encryption. As part of a public key infrastructure (PKI), a CA checks with a registration authority to verify information provided by the requestor of a digital certificate. If the registration authority verifies the requestor's information, the CA can then issue a certificate. The large collection of public CA certificates (Root and Intermediate levels) for all commercial CAs is referred to as the trusted CA bundle. The trusted CA bundle can be used to digitally sign your private identity certificates. You can also maintain your own internal certificate authority, and you might need to add your CA's public certificates to the trusted CA bundle that is provided by SAS.

The SAS Deployment Manager includes tools that enable you to add certificates to the trusted CA bundle manually and also to remove any that you have added. Procedures to use those tools are described in the following topics.

The trusted CA bundle that SAS redistributes is from Mozilla, and the list of included root CAs can be found at https://wiki.mozilla.org/CA/Included_Certificates. The trusted CA bundle is provided in the following formats for use in different SAS SSL Client contexts.

- a text file format, with Base64 encoded contents (also known as PEM format) for use by SAS Foundation servers (for example, SAS Metadata Server or SAS Workspace Server) and identified by using the SSLCALISTLOC option
- a JKS keystore archive format for use by all SAS Java applications through a keystore file (also known as a truststore if it does not contain private key entries) called jssecacerts

The SAS Deployment Manager tasks described in the following topics update both these files. These tasks must be used when your security framework includes self-signed or site-signed CA certificates or client CA certificates. Certificate management must be performed on each machine in a deployment.

On Windows and UNIX, the jssecacerts file is placed into the SAS Private JRE in the `SASHOME\SASPrivateJavaRuntimeEnvironment\9.4\jre\lib\security` directory. The jssecacerts file is managed directly by the tasks, and you should not manually update or change them. SAS does not support a private JRE on z/OS, so there is no jssecacerts file on z/OS. On z/OS, SAS creates a JKS truststore, but it is needed only if you are running Java applications from UNIX System Services.

If you are upgrading from a release earlier than SAS 9.4M3, any self-signed or site-signed CA certificates that have previously been manually added to the SAS Private JRE's cacerts file must also be added to the new trusted CA bundle by following the instructions in “[Add Certificate to Trusted CA Bundle](#)” on page 72. Repeat this task for each machine in the deployment.

Add Certificate to Trusted CA Bundle

The SAS Deployment Manager can add certificates either individually or as a chain of trust list. In either case, they must be X.509 certificates, formatted in Base64 encoding (ASCII), with .pem, .crt, or .cer extensions. For more information about creating the chain of trust list, see “[Create a CA Chain of Trust File](#)” on page 73.

To add a certificate:

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.
- 2 The **Select SAS Deployment Manager Task** page opens. Under **Manage Trusted CA Bundle**, select **Add Certificate to Trusted CA Bundle**. Click **Next**.
- 3 The **Specify Certificate to Add** page opens. Enter the location of the certificate or chain of trust file that you want to add to your trusted CA bundle in the text box. You can also click **Browse** to search for the certificate. The **Distinguished**

Name that is defined within each certificate is used as the alias within the truststore.

Click **Next**.

- 4 The **Summary** page opens, describing the action that is about to be taken. Click **Start** to complete the task.
- 5 The **In Progress** page opens, indicating that the task has been started. When the SAS Deployment Manager is finished, the **Deployment Complete** page opens. Click **Finish** to exit the SAS Deployment Manager.

After the task has completed, a log describing the actions that were taken is placed in `SASHOME\InstallMisc\InstallLogs` with a file name that begins with `certframe`.

Create a CA Chain of Trust File

If you are adding only one certificate, creating a chain of trust file is inappropriate. Instead, you should just point the SAS Deployment Manager to that certificate. If you have multiple certificates, you can copy and paste the contents of all the certificates to be trusted into a new file. These CAs can be primary, intermediate, or root certificates.

To manually create a new trust list, use the following template:

```
(your intermediate certificates)
-----BEGIN CERTIFICATE-----
<base64-encoded certificate>
-----END CERTIFICATE-----

(your root CA certificate)
-----BEGIN CERTIFICATE-----
<base64-encoded certificate>
-----END CERTIFICATE-----
```

The issuer of your server certificates, your intermediate CA certificate, should be the first in the file. The certificates that follow should be ordered such that the issuer of one certificate is the subject of the following one and so on until you get to the root CA certificate. The root CA certificate should be the last certificate in the file.

The content of each certificate is delimited with a `-----BEGIN CERTIFICATE-----` and `-----END CERTIFICATE-----` pair. All text outside the delimiters is ignored. Therefore, you might not want to use delimited lines for descriptive comments.

You can save the file with any name, but it must have a `.pem` extension.

Remove Certificate from Trusted CA Bundle

The SAS Deployment Manager can remove certificates either individually or as a chain of trust list. In order to remove customer certificates from the trusted CA bundle, you must have the permissions necessary to access the truststore location and delete the certificate file. Only certificates that have been added with the SAS Deployment Manager **Add Certificate to Trusted CA Bundle** task can be removed in this way.

If you remove certificates individually, you should not remove any intermediate certificates from a chain of trust without either replacing them with another certificate or removing the chain entirely.

To remove a certificate:

- 1 Start the SAS Deployment Manager. On the **Choose Language** page, choose the language in which you want to perform the configuration of your software. Click **OK**.
- 2 The **Select SAS Deployment Manager Task** page opens. Under **Manage Trusted CA Bundle**, select **Remove Certificate from Trusted CA Bundle**. Click **Next**.
- 3 The **Specify Certificate to Be Removed** page opens. Click **Browse** in order to search for the certificate that you want to delete.

Note: You cannot type the location of the certificate. You must use the **Browse** function.

Click **Next** to continue.

- 4 The **Summary** page opens, describing the action that is about to be taken. Click **Start** to complete the task.
- 5 The **In Progress** page opens, indicating that the task has been started. When the SAS Deployment Manager is finished, the **Deployment Complete** page opens. Click **Finish** to exit the SAS Deployment Manager.

SAS Deployment Manager: Command-Line Options

<i>Quiet Deployment</i>	75
<i>Record and Playback</i>	76
Record Mode	76
Quiet Playback Mode	77
Partial Prompting	77
Monitor the SAS Deployment Manager during Quiet Playback	78
Interactive Playback Mode	79
<i>Uninstall All Products</i>	79
<i>Miscellaneous Command-Line Options</i>	79
Configure a Host Name	79
Use a Text-Based Interface (UNIX Only)	80
Specify a Graphic Interface (z/OS Only)	80
Automatically Submit Jobs (z/OS Only)	81

This chapter contains command-line options that can be used with the SAS Deployment Manager, including those required for a quiet removal of your SAS software.

Quiet Deployment

A quiet deployment enables you to provide all of the responses that would normally be supplied to the SAS Deployment Manager when it runs interactively, but without the presence of a user. It is intended for use in any context that does not require a user to be present at the machine.

In order to perform a quiet deployment, you should first create a response file as described in [“Record Mode” on page 76](#). After you have created a response file, use the information in [“Quiet Playback Mode” on page 77](#) to perform the quiet deployment on the target machine.

Note: You cannot use these command-line options for the quiet installation of hot fixes. If you want to quietly installing hot fixes, see [Chapter 5, “Find and Apply Hot Fixes,”](#) on page 39.

Record and Playback

Record and playback is a feature in the SAS Deployment Manager that is used to save responses that are made on a wizard page to a file and to then load those responses at a later time. The SAS Deployment Manager provides three different modes for record and playback.

Record Mode

Note: The response file that is generated with `-record` might contain passwords in plain or encrypted format. You should secure the response file as you would any other sensitive information.

When you run the SAS Deployment Manager in record mode, it creates a response file that contains values for each of the prompts that the user sees when running the SAS Deployment Manager. The SAS Deployment Manager must run to completion when the response file is created in this mode.

Usage

`-record`

The response file is created in the user's home directory on all platforms with the file name `sdwresponse.properties`.

Specify the response file location by adding an additional command-line argument:

`-responsefile "full-path-to-the-response-file"`

Note: If you specify a file location where a file already exists, the existing file is overwritten by the SAS Deployment Manager.

Example

```
sasdm.exe -record -responsefile "C:\sdwresponse.properties"
```

By default, no deployment occurs when running in record mode. In order to force a deployment while recording, use `-deploy`.

Note: If you use any other command-line options while using record and playback, those options are not included in the response file. To properly use

the response file, you must repeat those same command-line options with the playback.

Quiet Playback Mode

You can suppress the user interface for the SAS Deployment Manager by running in this mode. The mode requires an existing response file. If the SAS Deployment Manager encounters a window for which there is not a valid response in the response file, a message is recorded in the log file. The SAS Deployment Manager also returns an error code of -1. There is no visual feedback while the SAS Deployment Manager is running in this mode. SAS recommends that you check your log file after the deployment to determine whether any errors occurred.

Note: You cannot use this command-line option for the quiet installation of hot fixes. If you are interested in quietly installing hot fixes, [“Command-Line Options for Hot Fixes” on page 43](#).

Usage

`-quiet`

The response file must already exist. The command-line option defaults to your home directory on all platforms with the file name `sdwresponse.properties`. Specify the response file by adding an additional command-line argument:

`-responsefile "full-path-to-the-response-file"`

Note: Because the response file that is automatically created by the SAS Deployment Wizard does not contain values for the passwords, SAS strongly recommends using the `-quiet` command-line option only with a response file that was created by using the `-responsefile` command-line option.

Example

```
sasdm.exe -quiet -responsefile "C:\sdwresponse.properties"
```

Windows users can also use the `-wait` option. The `-wait` option forces the `sasdm.exe` process to remain in the task list until the SAS Deployment Manager completes. The following is an example using the `-wait` option:

```
sasdm.exe -wait -quiet -responsefile "C:\sdwresponse.properties"
```

Partial Prompting

When you run the SAS Deployment Manager in partial prompt mode, you see only pages that do not have a valid response in the response file. Use this mode when the SAS Deployment Manager resumes after being interrupted by a reboot and values that were originally supplied are no longer valid. This situation can occur

when mapped drives are lost after rebooting on Windows. Administrators can also use this mode to supply some of the deployment information for their users.

The response file must already exist.

Usage

```
sasdm.exe -partialprompt
```

The command-line option defaults to the user's home directory on all platforms with the file name `sdwresponse.properties`. Specify the response file by adding an additional command-line argument:

```
-responsefile full-path-to-the-response-file
```

Example

```
sasdm.exe -partialprompt -responsefile "C:\sdwresponse.properties"
```

Monitor the SAS Deployment Manager during Quiet Playback

Running the SAS Deployment Manager in quiet mode makes it more difficult to monitor the deployment and to notice if errors occur. However, you can use the Task Manager on Windows or periodically issue the `ps` command on UNIX to track whether the SAS Deployment Manager is running.

On Windows, specify the `-wait` option when you invoke the SAS Deployment Manager in quiet mode to cause `sasdm.exe` to display and remain in the Windows Task Manager process list. For example

```
sasdm.exe -quiet -wait -responsefile "C:\sdwresponse.properties"
```

If you do not use `-wait`, monitor the process named `java.exe`.

Note: Network management software (such as Microsoft Configuration Manager or IBM Tivoli) might require you to use the `-wait` option when you run the SAS Deployment Manager in quiet mode so that it can determine when the SAS Deployment Manager finishes executing. Refer to your network management platform documentation for more information.

As with most processes on UNIX, issue the `ps` command to monitor the SAS Deployment Manager when it is running in quiet mode. Remember that output from a `ps` command can be misleading because the process name that is returned is not always named `sasdm.sh` because the actual script that the SAS Deployment Manager is running at any given time varies. However, the process ID remains the same.

Interactive Playback Mode

You can also use the response file to accept all the default values for the prompts in the SAS Deployment Manager. In this mode, all the pages in the SAS Deployment Manager are displayed and the default values are loaded from the response file.

Note: Even if you are using `-responsefile` to deploy your software on a UNIX system, you must still deploy a windowing environment, such as X11. Using `-responsefile` still invokes a graphical user interface.

Usage

```
-responsefile "full-path-to-the-response-file"
```

Example

```
sasdm.exe -responsefile "C:\sdwresponse.properties"
```

Uninstall All Products

If you want to quietly remove all of your SAS products from your machine, you can use the `-uninstallall` command-line option with the `-quiet` command-line option. Used together, these command-line options enable you to automate the software removal process without having to create a response file.

Usage

```
-quiet -uninstallall
```

Example

```
sasdm.exe -quiet -uninstallall
```

Miscellaneous Command-Line Options

Configure a Host Name

If you are performing an update or an upgrade, you must run the SAS Deployment Manager on the same host that the original configuration was performed on. If that host name changes, errors will occur when you attempt an update or an upgrade.

You can use the `-confighostname` option to change the local host name that the SAS Deployment Manager validates against to the value in the option.

Usage

```
-confighostname host-name
```

Example

```
./sasdm.sh -confighostname hostname.companyname.com
```

Use a Text-Based Interface (UNIX Only)

Note: Beginning with SAS 9.4, console mode is the default mode for using the SAS Deployment Manager on z/OS.

If you do not want to rely on an X11 server for UNIX, you can use the SAS Deployment Manager in console mode. Console mode enables you to use a headless system to configure your server. If you use console mode, each window that is used in the deployment of your SAS software is represented in text.

Note: If you are instructed to enter a sequence that includes angle brackets, such as Enter `<q>` to quit, you must include those symbols.

You can use the `-console` command-line option with other options at the same time, such as when recording or playing back a response file.

The `-console` command-line option also supports two options to specify the size of the output of the SAS Deployment Manager. Use `-pagesize #` to specify the number of lines to display before pausing the output and `-pagewidth #` to specify the number of characters to display on a line before wrapping to another line. Note that `-pagesize` and `-pagewidth` do not work with any other command-line options.

Usage

```
-console [-pagesize #] [-pagewidth #]
```

Example

```
sasdm.sh -console -pagesize 20 -pagewidth 50
```

Specify a Graphic Interface (z/OS Only)

By default, the SAS Deployment Manager uses console mode when it is running on a z/OS machine. If you are deploying your software on z/OS and have an X11 server, you can use the `-x11` command-line option to use the graphic user interface that is the default for Windows and UNIX.

Usage

```
-x11
```

Example

```
sasdm.rexx -x11
```

Automatically Submit Jobs (z/OS Only)

By default, z/OS users must manually submit jobs. The `-jobsubmit` command-line option enables the SAS Deployment Manager to automatically submit jobs.

Usage

```
-jobsubmit
```

Example

```
sasdm.rexx -jobsubmit
```


SAS Deployment Agent

<i>Overview</i>	83
<i>Security Considerations</i>	84
<i>Add Services to the SAS Deployment Agent (UNIX Only)</i>	85
<i>Check the Status of the SAS Deployment Agent (UNIX Only)</i>	85

Overview

The SAS Deployment Agent works with metadata servers and is therefore used only in planned deployments.

The SAS Deployment Agent is used in SAS 9.4 to support configuration operations associated with multi-machine middle-tier topologies and middle-tier clustering. The agent also facilitates synchronizing backup and restore operations for server and middle-tier machines. SAS products can communicate with the SAS Deployment Agent in order to run remote processes and copy content over the SAS Deployment Agent connection to perform configuration management operations.

If you do not use the agent, you must manually perform complex and time-consuming configuration steps for multi-machine middle-tier topologies and middle-tier clustering. In addition, you cannot use the SAS Deployment Backup and Recovery tool for your deployment. Instead, you must use operating system commands or third-party tools to back up and restore resources such as the SAS Content Server, the SAS Web Infrastructure Platform Database Server databases, and configuration files for compute servers.

Note: You could still use the metadata server backup facility to back up the metadata server because that facility does not depend on the SAS Deployment Agent. For more information, see “[Best Practices for Backup and Restore](#)” in *SAS Intelligence Platform: System Administration Guide*.

Using the SAS Deployment Agent is not required. If you review the security considerations and decide that you do not want to use the SAS Deployment Agent,

then you must manually complete the following deployment and configuration tasks:

- configure SAS Web Infrastructure Platform
- configure a SAS Web Application Server cluster
- start SAS Web Application Server and SAS Web Application Server clusters
- change passwords on SAS Web Application Server and SAS Web Application Server clusters

Security Considerations

The SAS Deployment Agent and SAS Remote Deployment Agent Client take advantage of the Java Secure Socket Extension (JSSE) to enable secure internet communications. JSSE provides a framework and an implementation for a Java version of the Transport Layer Security (TLS) protocol. It also includes functionality for data encryption, server authentication, message integrity, and optional client authentication. Using JSSE provides for the secure passage of data between a client and a server by using keystores and truststores in order to authenticate incoming and outgoing messages.

During installation of the SAS Deployment Agent and SAS Remote Deployment Agent Client, you have several options for defining how to secure your communication:

- **Do not secure the connection:** Choose this option if a keystore and truststore are not required. You can always reconfigure the security at a later time by using the SAS Deployment Agent configuration tasks.
- **Generate the credentials to secure the connection:** This option gives SAS permission to manage your credentials by creating a keystore and truststore for you. The generated credentials are self-signed certificates, and they use the name and site number from your SAS installation data file (SID file) that was used to license your software. The generated certificates are valid for 100 years. You can also generate new credentials by using the SAS Deployment Agent configuration tasks described in [“Manage SAS Deployment Agent Service” on page 60](#).
- **Specify existing credentials to secure the connection:** This option enables you to use a keystore and truststore that you created by using other Java tools. Note that SAS supports only the JKS format for the keystore and truststore.

Beginning with the 9.4M9 release on Windows, files located in `SASHome\SASRemoteDeploymentAgentClient\2.1\config` are secured with explicit file permissions. Only the following entities have access to the files:

- “System” group
- Windows Administrators group
- SAS software Installer account

TIP When you finish administering your deployment, shut down the Deployment Agent Windows service to reduce potential exposure created by remote processes.

Add Services to the SAS Deployment Agent (UNIX Only)

If the SAS Deployment Agent is installed on a Windows machine, it has services to start, stop, restart, and display the status of the SAS Deployment Agent. In order to have the same functionality on UNIX, you must add a script to the machine's system configuration. Use the following procedure to correctly place the script.

Note: Only a user ID with root level permissions should perform this task. Ensure that your user ID has those permissions.

- 1 Go to the `SASHome/SASDeploymentAgent/9.4` directory.
- 2 Open the `sas.deployd` script and complete the operating system-specific instructions within the comments at the beginning of the script.
- 3 Issue the following command to start the service:

```
service sas.deployd start
```

The `stop`, `status`, and `restart` commands are also supported.

Check the Status of the SAS Deployment Agent (UNIX Only)

On UNIX machines, you can also issue the following command on the machine on which the agent is running to determine the status of the agent:

```
agentadmin.sh stat up
```


Additional Tools

<i>SAS Software Depot Check Utility</i>	87
<i>View Registry</i>	89
Overview	89
Generate the ViewRegistry Report	89
Command-Line Options	91
<i>SAS Update File Cleanup Utility (Windows and UNIX Only)</i>	92

SAS Software Depot Check Utility

The SAS Software Depot Check Utility works on depots that have not been optimized, as well as on depots that have been optimized by using the `-compressdepot` command-line option. The utility scans a depot for the following information, and then provides it in a report:

- total number of files found in a depot
- list of files found and their directory paths
- list of and total number of the files missing from the depot, and the paths where the missing files should be found
- list of and total number of the orders found
- list of and total number of the SAS installation data files found
- list of the files that are the wrong size, and their incorrect and correct sizes
- list of the files in which checksums are incorrect, and their correct and incorrect checksums

To use the SAS Software Depot Check Utility:

Note: You must execute the SAS Software Depot Checker using the user ID that created the SAS software depot.

- 1 Start the utility by using either of the following two methods:

- Your SAS Software Depot contains an executable that starts the SAS Depot Check Utility. Go to the `\utilities\depotchecker` directory and execute the `SASDepotCheck.XXX` file that is appropriate for the operating system that you are using.
- Issue the SAS Deployment Wizard setup executable command with the `-depotchecker` command-line option.

On UNIX, use the following command:

```
setup.sh -depotchecker
```

On z/OS, use the following command:

```
setup.rexx -depotchecker
```

Note: On z/OS, you must execute the SAS Software Depot Checker from OMVS or from a PUTTY or rlogin session. You cannot execute the utility from the ishell.

You can also use other SAS Deployment Wizard command-line options, such as the `-x11` command-line option to use the graphic user interface on z/OS, and `-console` on UNIX.

- 2 The **Specify SAS Software Depot Directory** page appears. Enter the location of your SAS Software Depot in the text box, or click **Browse** to search for it. Then, click **Next**.
- 3 The **Final Review** page appears. Verify that the location for the SAS Software Depot is correct, and then click **Start**.
- 4 The **SAS Depot Check Utility** page appears. As the utility runs, its results are displayed. You can temporarily halt the report at any time by clicking **Stop**. If you halt the utility, it can be restarted only by restarting the utility itself.
- 5 When the utility has been halted or has completed its scan, you can review and print the utility's report in one of three ways:
 - Click **Save Report** to open a Save window in which you can save a copy of the report.
 - Click **View in Browser** to open the report in the default browser for the machine that you are running the utility on.
 - Click **Print Report** to open a Print window.
- 6 When you have completed the tasks that you want to perform with the utility report, click **Finish** to close the utility.

View Registry

Overview

The installation of SAS 9.4 products is recorded in the SAS Deployment Registry. ViewRegistry (sas.tools.viewregistry.jar) is a reporting utility that processes the SAS Deployment Registry to generate the ViewRegistry report. The report identifies all SAS 9.4 software that is installed in the current SASHome location. Installed hot fixes are also logged in the SAS Deployment Registry and reported in the ViewRegistry report. Here is an example of the ViewRegistry report.

```
Host: s64
Product Code: base
Version: 9.4
Display Name: Base SAS
Display Version: 9.4
Hotfix Entry: Hotfix A01002
Hotfix Entry: Hotfix A01012
Hotfix Entry: Hotfix A01021
Hotfix Entry: Hotfix A50001
Hotfix Entry: Hotfix A50005
Hotfix Entry: Hotfix A50016
```

```
Host: s64
Product Code: stat
Version: 9.4
Display Name: SAS/STAT
Display Version: 9.4
```

Two output files are produced by the reporting utility, DeploymentRegistry.html and DeploymentRegistry.txt. The HTML and TXT output files are written in the <SASHome>/deploymntreg directory by default.

Generate the ViewRegistry Report

The ViewRegistry utility is installed by default in <SASHome>/deploymntreg. The sas.tools.viewregistry.jar must be executed from the <SASHome>/deploymntreg directory.

Windows

- 1 The ViewRegistry utility can be used in either the command prompt or PowerShell. Be sure to start whichever application you use to run the ViewRegistry utility as an administrator.
- 2 In the command prompt, change directories to `<SASHome>/deploymntreg`. For example, if your SASHOME is located at `C:\Program Files\SASHome\`, the command would look like this:

```
cd C:\Program Files\SASHome\deploymntreg
```

- 3 Invoke `sas.tools.viewregistry.jar` using the SAS Private Java Runtime Environment. Here is an example command:

```
"C:\Program Files\SASHome\SASPrivateJavaRuntimeEnvironment\9.4\jre\bin\java.exe" -jar sas.tools.viewregistry.jar
```

UNIX

Reports generated by the ViewRegistry utility are stored in `<SASHome>/deploymntreg` by default. On UNIX, to store the reports in SASHOME, you must have WRITE permission for the SASHOME directory. If you do not have that permission, use the `-out` option to specify an alternative output directory. For more information, see [“Output Directory” on page 91](#).

The ViewRegistry utility should be run with the Installer ID, the ID used to perform all the administrative tasks.

- 1 Change the directory to `<SASHome>/deploymntreg`. Here is an example:

```
cd /opt/sas/SASHome/deploymntreg
```

- 2 Invoke `sas.tools.viewregistry.jar` using the SAS Private Java Runtime Environment. Here is an example command:

```
/opt/sas/SASHome/SASPrivateJavaRuntimeEnvironment/9.4/jre/bin/java -jar sas.tools.viewregistry.jar
```

z/OS

- 1 Change the directory to `<SASHome>/deploymntreg`. Here is an example command:

```
cd SASHome/deploymntreg
```

- 2 Invoke `sas.tools.viewregistry.jar` using Java. Here is an example that assumes that Java is installed at `/usr/lpp/java/J6.0`:

```
/usr/lpp/java/J6.0/bin/java -jar sas.tools.viewregistry.jar
```

Command-Line Options

The ViewRegistry utility provides command-line options to customize the content and location of your ViewRegistry report. These options can be used to tailor your ViewRegistry report to your specific needs.

Products with Hot Fixes

This option reports only the product components to which hot fixes have been applied, including the hot fix IDs. No parameter is accepted.

IMPORTANT Do not use the `-hotfix` option if you are generating the ViewRegistry Report to be used with the SAS Hot Fix Analysis, Download and Deployment Tool (SASHFADD).

Usage

`-hotfix`

Example

```
"C:\Program Files\SASHome\SASPrivateJavaRuntimeEnvironment\9.4\jre  
\bin\java.exe" -jar sas.tools.viewregistry.jar -hotfix
```

Output Directory

This option specifies an alternative output directory for DeploymentRegistry.html and DeploymentRegistry.txt. This option should be used if you do not have Write access to the SASHOME directory, which is the default output location.

Usage

`-out path-to-new-output-directory`

Example

```
"C:\Program Files\SASHome\SASPrivateJavaRuntimeEnvironment\9.4\jre  
\bin\java.exe" -jar sas.tools.viewregistry.jar -out "C:\Output"
```

Include All Products

This option reports all product components that have been installed. The report might include multiple releases of a product component that has been upgraded. No parameter is accepted.

IMPORTANT Do not use the `-all` option if you are generating the ViewRegistry Report to be used with the SAS Hot Fix Analysis, Download and Deployment Tool (SASHFADD).

Usage

`-all`

Example

```
"C:\Program Files\SASHome\SASPrivateJavaRuntimeEnvironment\9.4\jre
\bin\java.exe" -jar sas.tools.viewregistry.jar -all
```

SAS Update File Cleanup Utility (Windows and UNIX Only)

When the SAS Deployment Wizard performs updates to an existing deployment, or when SAS Deployment Manager applies a hotfix, they create backup files that you can use if you need to roll back the updates. However, when you are confident that the updates do not need removal, you can remove the backup files and free up space by using the SAS Update File Cleanup Utility. The SAS Update File Cleanup Utility is available for only Windows and UNIX users.

To use the SAS Update File Cleanup Utility

- 1 Do one of the following:
 - On Windows: Double-click `cleanup.exe` in `SASHOME\InstallMisc\9.4`.
 - On UNIX: Start `cleanup.sh`.
- 2 The SAS Update File Cleanup Utility opens, listing the SASHOME directory that will be cleaned up. The utility can be used only in the SASHOME directory where it is located. If you want to clean up a SASHOME directory on a different machine, you must use the SAS Update File Cleanup Utility that was placed on those machines when an update was performed on it.
- 3 Note that any files that are removed by the utility cannot be recovered. If you accept this condition, click **Remove Backup Files** to start the utility. The **Results** pane shows where the utility is scanning, what files are being deleted, and how much space is being cleared.
- 4 When the utility finishes running, click **Close** to close the utility.

Note: For information about files not cleaned up by the utility, see [Removing files that are backed up during hot fix installation](#).

Appendix 1

Independent Installation of SAS Products

<i>Overview</i>	93
<i>Installation</i>	95
<i>Command-Line Options</i>	97
Independent Record	97
Quiet Independent Install	97
<i>Uninstallation</i>	98
<i>Apply Hot Fixes</i>	98

Overview

Beginning with SAS 9.4, some SAS products are delivered in two formats: the standard format to be installed by the SAS Deployment Wizard, and an independent format that does not require using the SAS Deployment Wizard. The independent format is much smaller, which makes it easier to install over a distributed deployment, especially if you use provisioning tools such as Microsoft Microsoft Configuration Manager. The three products that take advantage of the smaller format are SAS Enterprise Guide, SAS Add-In for Microsoft Office, and SAS Visual Analytics Add-In for Office (a subset of SAS Add-In for Microsoft Office that is used to open SAS Visual Analytics reports). These products are available only on Microsoft Windows.

Users of SAS Viya 3.X can take advantage of the same format for these products to deploy them independently on Windows machines separate from their SAS Viya deployments.

IMPORTANT The independent installation format is intended for a user to easily distribute only SAS Enterprise Guide and SAS Add-In for Microsoft Office to client machines. If you intend to install other SAS 9.4 software or have already installed other SAS 9.4 software on the machine, then you must use the SAS Deployment Wizard to install these products. Installing the independent installation formats on machines with software later than SAS 9.4 is permitted.

For SAS 9.4 users, the smaller versions of these products are available only with enterprise server environment orders that already include SAS Enterprise Guide, SAS Add-In for Microsoft Office, or SAS Visual Analytics Add-In for Office. If any of these products are in your order, then the corresponding executable files are in the **standalone_installs** directory at the top level of your SAS Software Depot with the file names described below. The **standalone_installs** directory is not available if the order is for workstation environments.

Note: The **standalone_installs** directory is only available in software depots that have been created using a full order. If you subset your software order in any way, the resulting software depot does not contain the **standalone_installs** directory.

For SAS Viya 3.X users, the **standalone_installs** directory is available after you complete the steps described in your Software Order Email (SOE).

These are the file names for the independent installers:

SASAddInForMicrosoftOfficeversion-number_x86_x64.exe

SAS Add-In for Microsoft Office for the version number that is used in the file name (such as 7.1 for version 7.1).

VisualAnalyticsAddInForOfficeversion-number_x86_x64.exe

SAS Visual Analytics Add-In for Microsoft Office for the version number that is used in the file name.

Note: The independent installation for SAS Visual Analytics Add-In for Office is included with SAS Add-In for Microsoft Office. To install SAS Visual Analytics Add-In for Office, you should complete the instructions to deploy SAS Add-In for Microsoft Office.

SASEnterpriseGuideversion-number_x86_x64.exe

SAS Enterprise Guide for the version number that is used in the file name.

Note: If you have a SAS 9.4 deployment and you expect to find the executable for an independent version of SAS Add-In for Microsoft Office but you do not, it is likely that you do not have the full SAS add-in product. For some product combinations, SAS provides an add-in that works only with Microsoft Excel. There is no independent installation available for the version of the add-in for Microsoft Excel. If you want the full SAS add-in product, including the independent version of the SAS Add-In for Microsoft Office, you should contact your SAS Site Representative who in turn must contact their SAS Sales Representative or the SAS Contracts department.

If you are installing to a system on which a previous version of an independent product is already installed, then the executables update the product to the version that is used in the name of the file.

In addition, all of the Microsoft requirements for the installation of the products are included except for the Microsoft .NET Framework, which has been excluded due to its size. If you intend to use the independent version of the installers, you should install the version of Microsoft .NET Framework that is appropriate for the version of the independent installer on your machine.

Table A1.1 *Required Versions of Microsoft .NET Framework*

Version of independent installer	Required version of Microsoft .NET Framework
6.1, 6.1M1, 6.1M2	4.0
7.1, 7.11, 7.12, 7.13, 7.14, 7.15, 8.0	4.5.1 or later version in the .NET 4.x family
8.1, 8.2	4.7.1 or later version in the .NET 4.x family
8.3, 8.4	4.8 or later version in the .NET 4.x family

Installation

Complete the following steps to install your independent package:

Note: SAS Add-In for Microsoft Office and SAS Visual Analytics Add-In for Office cannot be installed on the same machine.

- 1 In the SAS Software Depot that you created by completing the instructions from your SOE, select the package that you want to install. Double-click the executable file for the package that you have selected.

Note: If you want to install both SAS Enterprise Guide and one of the other independent products, you must go through this procedure twice, once for each product.

- 2 The **Ready to Install** page opens. Click **Install** to continue.
- 3 The **Initializing and Installing** page opens, indicating that files are being moved to a temporary space. When the files have been moved, the **Choose Language** page opens. Select the language in which you want to install, and then click **OK**.

- 4 The **Specify SAS Home** page opens. Enter the location to which you want to install the software, or click **Browse** to search for a location. Do not select a SASHOME location that contains a SAS Software Depot. When you have entered a location, click **Next**.

Note: If you install 32-bit SAS Enterprise Guide, SAS Add-In for Microsoft Office, or SAS Visual Analytics Add-In for Office on a 64-bit Windows OS, and you select a destination location in C:\Program Files\, then the application is installed in C:\Program Files (x86)\ instead (with no other path changes). The MSI technology used to install these applications enforces the recommended standard of installing 32-bit applications in the 32-bit Program Files location, C:\Program Files (x86)\.

- 5 If you are installing SAS Add-In for Microsoft Office or SAS Visual Analytics Add-In for Office but Microsoft Office is not installed on the machine, the **Select SAS Add-in for Microsoft Office Mode** page opens. On this page, specify whether you want to install SAS Add-In for Microsoft Office in 32-bit compatibility mode or 64-bit native mode. Your selection should be based on the bitness of Microsoft Office that you intend to install and not on the operating system. When you have made your selection, click **Next**.
- 6 The **Select Language Support** page opens. Specify the languages that you want to install with your product. You can use **Select All** to choose all of the languages or **Clear All** to remove the selection from all of the languages except English. Click **Next**.
- 7 If you are installing SAS Add-In for Microsoft Office or SAS Visual Analytics Add-In for Office, the **Select Microsoft Office Applications** page opens. Select each Microsoft Office product that activates SAS Add-In for Microsoft Office. Click **Next**.
- 8 The **Checking System** page opens as the installer ensures that the machine has the resources necessary for the package that you are working with. After it finishes its check, click **Next** to continue, or click **Back** to change your selections.

Note: The independent installer includes all the third-party software that you need from Microsoft in order to install and run your software, except for Microsoft .NET Framework. During the system check, if the installer determines that you either do not have Microsoft .NET Framework or you have an insufficient version of it, a warning message appears. If you get the warning message, you should exit the installation, download and install the appropriate version of Microsoft .NET Framework, and then restart the installation at [Step 1](#) above.

- 9 The **Deployment Summary** page opens, listing what is about to be installed on your machine. The list includes more products than just SAS Enterprise Guide or SAS Add-In for Microsoft Office because the installation also includes other SAS software that is required for the successful installation and use of your package. Click **Start**.

- 10 A progress page opens, indicating success or failure for each product being installed. When the installation is complete, the **Deployment Complete** page opens. Click **Next**.
- 11 The **Additional Resources** page opens, listing documentation and websites that might be useful to your deployment. When you are ready, click **Finish** to close the installer.
- 12 The **Completed X Installation** page opens, where X is the name of the product that you just installed. Click **Finish** to close the Microsoft installation wrapper.

When the installer closes, it removes all the files that had been placed in temporary space, leaving a footprint only in the location where the software has been installed.

Command-Line Options

Independent Record

Usage

```
file-name.exe -- -record -responsefile "full-path-to-the-response-file"
```

file-name represents the appropriate independent installer executable file for your package.

IMPORTANT The command line includes two hyphens followed by -record with a space between them.

Example

```
SASEnterpriseGuide61_x64.exe -- -record -responsefile  
"C:\sdwresponse.properties"
```

Quiet Independent Install

Usage

```
file-name.exe /verysilent [-- -responsefile "full-path-to-the-response-file"]
```

file-name represents the appropriate independent installer executable file for your package.

IMPORTANT The command line includes two hyphens followed by -record with a space between them.

Example

```
SASEnterpriseGuide61_x64.exe /verysilent -- -responsefile  
"C:\sdwresponse.properties"
```

Uninstallation

Because the independent products include the SAS Deployment Manager, complete the instructions at [“Uninstall SAS Software \(Graphical User Interface Uninstall Tool\)” on page 57](#) to remove them from your deployment.

Apply Hot Fixes

Because the independent products include the SAS Deployment Manager, follow the instructions at [“Apply Hot Fixes outside of an Installation” on page 40](#) to apply hot fixes to them and to their associated products.

Appendix 2

Windows Administration

<i>Prepare for a SAS Installation in a Terminal Server Environment or on Citrix</i>	99
<i>Install SAS 9.4 in a Terminal Server Environment or on Citrix</i>	100

Prepare for a SAS Installation in a Terminal Server Environment or on Citrix

To properly install SAS 9.4 on a server with Remote Desktop Services, you must complete the following steps:

- 1 Log on as an administrator on the Remote Desktop Server on which you will install SAS 9.4.
- 2 Install mode is required for installing applications on Windows Terminal Servers. There are two ways to place the system in install mode:
 - Click **Add/Remove Programs Control Panel** and select **Install**. When you are prompted to change the user option, select the option that enables all users to begin with common application settings.
 - At a command prompt (cmd.exe), type **change user /install**. A message informs you whether the install mode is set correctly.
- 3 Before you begin the installation, instruct all users to log off of the terminal server to minimize user interruption. (Installing SAS 9.4 on a Terminal Server might require system reboots.) A remote terminal session can be used to install SAS software to a Terminal Server, but it is not a recommended practice due to the potential for reboots.

Also before the installation, SAS recommends that you close your anti-virus and firewall software. Some anti-virus and firewall configurations can prevent an application from installing successfully. If those types of software are running,

the possibility that one or more reinstallations of SAS software will be necessary is increased. If you are unable to close the anti-virus or firewall software, ensure that the configuration permits you to install software and to update the registry. If your SAS installation fails and mandatory anti-virus or firewall software is running, check with your system administrator.

- 4 If a reboot is required, you must reestablish the connection to the terminal server after the reboot is complete. You might also need to put the server back in install mode. After you log on to the terminal server session, the setup process should restart and continue the installation. If the setup process does not restart, start it, and it resumes where it left off before the reboot.

Install SAS 9.4 in a Terminal Server Environment or on Citrix

There are no special instructions for installing SAS 9.4 on a server with Terminal Services. The process is the same as installing SAS 9.4 on any server.