

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



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

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Chapter 1 — Overview of the SAS Deployment Wizard, the SAS Deployment Manager, and the User's Guide

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 the SAS Deployment Wizard is exercised 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. The same version restrictions apply for the SAS Deployment Manager as described in the note for the SAS Deployment Wizard immediately above.

Using this Guide

This *User's Guide* is a high-level document providing support information for the SAS Deployment Wizard and its processes. It is our expectation that this document, combined with the Help information available from each SAS Deployment Wizard dialog, 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, SAS has created the *SAS 9.4 Intelligence Platform: Installation and Configuration Guide*, available at <http://support.sas.com/94administration>. As always, if you cannot find the answers to your questions, SAS Technical Support is available to assist you.

Definition of Terms

As the installation process for SAS software has matured, we have introduced several new ideas in order to facilitate our advances. This section defines terms key to 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, you should go to the web site <http://support.sas.com/adminservices-SID> to have it re-sent to the SAS Installation Representative at your site.

SAS Software Depot

The *SAS Software Depot* is a centralized disk copy of your installation media. The SAS Deployment Wizard can invoke a process that will automatically create a SAS Software Depot from any SAS 9.4 installation media you might have.

SAS Installation Data file (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 is named something like `sas94_XXXXXX_YYYYYYYY_zzz.txt`, where `XXXXXX` is your order number, `YYYYYYYY` is your setnumid (also sometimes referred to as "site number," a unique identifier that Tech Support uses), and `zzz` is the operating system the order is licensed for.

The SID file for your software (order) will be located in the `sid_files` directory at the root of your SAS Software Depot or, if you have received media, on the first disk of that installation media.

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 a field described as "Order Type." The value in the field will be 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 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, and that location will become the default installation location for any other SAS software you install on the same machine. For Windows users, this means that you will only be prompted for the SASHOME location the first time you use the SAS Deployment Wizard on a machine.

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

If you would like 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 will also have to 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 only register file types to a single version.

Deployment Plan

Most installations of Basic orders will not require a deployment plan. A *deployment plan* is a pre-selection 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`.

The SAS Deployment Wizard contains a set of standard deployment plans that may be used with little customization. If you are working with a SAS consultant in the deployment of your software, that consultant has access to a tool to create a customized deployment plan for your installation.

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. For example:

```
C:\SAS\Config\Lev1\Utilities\plan.2011-01-24-02.24.xml
```

Note about Large Fonts

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

Note about Running Simultaneously with SAS Download Manager

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

Note about Deployment Registry

In order to support updates to the SAS software, installation data is stored in a deployment registry created in your SASHOME directory and located under `<SASHOME>\deplymntreg`. This registry should not be moved, modified, or deleted in any way while you have SAS software installed in order to ensure successful application of updates. The registry should only be deleted if you are performing a complete removal of all SAS software from the machine.

Note about UNIX Installer Account

For UNIX, the installer account must be the sas account with a umask of 022. The root account should not be used since it will cause 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 may know how to log into the environment using the UNIX installer account, making it difficult to look at the normal logs and 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 onto the UNIX installer account directly. The following steps describe this process for a system administrator.

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 allow you to operate as the UNIX installer account. This example assumes 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.

Note: *Not all organizations have sudo, or sudo may be rigorously protected since it uses root privileges. Check with your system administrator before attempting to use sudo.*

Note for Windows Terminal Server Users

If you are using a Windows terminal server, you **must** use the same account for every installation on the terminal server and for any subsequent updates to the terminal server.

Note about 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, refer to the "Using a Text-Based Interface" section in Chapter 3, "SAS Deployment Wizard: Command Line Options" or in Chapter 7, "SAS Deployment Manager: Command Line Options".

Note about 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.

Chapter 2 — Best Practices

This chapter contains suggestions about how best to use the SAS Deployment Wizard and SAS Software Depot.

Using Defaults

As you use the SAS Deployment Wizard, SAS recommends that you accept the defaults provided to you throughout the dialogs. As long as the SAS Deployment Wizard remains open, you can go back through the dialogs to see and change your entries. Use the **Help** button to get more information about what the defaults are for individual pages.

If you do change any initial defaults, your responses become the defaults for each subsequent pass with the SAS Deployment Wizard.

The SAS Software Depot

The SAS Software Depot is a centralized disk copy of your installation media.

Directory Structure

The SAS Software Depot has a common directory structure across all orders. The following is a description of the directories at the root of each SAS Software Depot and their contents. SAS strongly recommends not changing the directory structure in any way manually, instead using the SAS Deployment Wizard for any directory manipulation that may be required.

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

- `sid_files` – This is the subdirectory that contains the SAS Installation Data file (SID file) for your order or orders. The SAS Deployment Wizard will ask for the location of your SID file during the install process and will point to this directory by default. When you receive a new SID file upon renewing your software, usually annually, you should store it in the `sid_files` directory as well. Tech Support recommends not deleting your original SID file.
- `third_party` – This subdirectory contains any third-party software required for your order that SAS can provide, as well as the documentation for installing it. The QuickStart Guide for your order will direct 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 either in the `ReadmeFiles` subdirectory described below or in 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`, which is the full list of the products contained in your order.

If your order includes a `third_party` or `standalone_installs` subdirectory, the readme documents describing how to install software in those subdirectories will be available in the `/install_doc/<order number>/ReadmeFiles` folder.

Creating Media from SAS Software Depots

The SAS Deployment Wizard has a process by which you can create media from an existing SAS Software Depot. This process can only duplicate what was in the original order, since it is what is described in the order's data. Adding files, such as renewal SID files, to the SAS Software Depot will not result in their automatically being included in the automated duplication process since such manual movement is not recorded into the order data. Note that this process will not actually create the media, but prepare images that you should burn for yourself, using whatever media burning software you have installed. Use the following steps to copy your SAS software to media:

1. Start the SAS Deployment Wizard from the SAS Software Depot containing the desired order, and at the opening **Select Deployment Task** dialog, select **Manage this SAS Software Depot** and click **Next**.
2. The **Manage SAS Software Depot** page opens. Select the software order you want to copy and click **Create Media-Ready Image....**
3. The **Create Media** page opens. In the **Media Type** field, select the type of media want to create. In the **Target Directory** field, enter the location where the media-ready images will be created. You can use the **Browse...** button to find an appropriate directory. Click **Start** to begin creating the media-ready images.
4. When the SAS Deployment Wizard has finished creating the images, close the **Create Media** dialog and click **Finish** on the SAS Software Depot.
5. Go to the target directory you selected in step 3. The SAS Deployment Wizard has created a directory structure consisting of a `labels.txt` file and at least one subdirectory. The `labels.txt` file contains a list of the created subdirectories and names for them as well as information about those names. It will also list any additional steps that may be required based on your specific software order.

Find as many pieces of media as there are subdirectories in your target directory. Label each piece of media according to the `labels.txt` file.

6. Using your media burning software, burn the contents of each subdirectory onto the correspondingly labeled media.

***Note:** Do not burn the subdirectory itself on to the media, but open it and burn its contents onto the media. Use of the media you make relies on some of the files being at the top of the media. Burning the subdirectory inserts an extra directory level on the media that will hamper its use.*

Note on Hot Fixes and Media Creation

Any hot fixes in the order that you are burning to media will not be included in this process. To retrieve the latest hot fixes for the software in the order, create a SAS Software Depot from the media you just created and start the SAS Deployment Wizard. At the **Select Deployment Task** page, select **Manage this SAS Software Depot** and then select **Retrieve Hot Fixes** on the **Manage SAS Software Depot** page in order to find and download the latest hot fixes.

Note on Media Burning

During the development and testing of the SAS Deployment Wizard, SAS discovered inconsistencies between media-burning applications, sometimes resulting in unexpected errors. Note, however, that

the SAS software, including the SAS Deployment Wizard, was not the cause of the errors. Instead, the errors occurred as a result of failures in the burning process or as a result of different specifications between the drives burning the media and the drives reading the media.

Try to use the exact same type of drive for burning and reading the media you create. If you use a different drive to read the media, unexpected errors like installation hangs and messages about corrupted files may occur. Testing has shown that, in every case, corruptions that occur are a result of the burning process and that the hangs are a result of the reader not being able to read the burned media. Please note, though, even using the same type of drive is not a guarantee that the errors will not occur; it just makes them less likely. Also ensure the media creation software you use preserves the directory and file names used in the media target directory structure; that is, it does not truncate pathname components.

Note also that much of the burning software is operating system-specific. If you intend to use your burned media on a different operating system than the one used to create it, ensure that your burning software is capable of supporting that operating system.

Finally, the quality of the media affects the quality of the burning process. Using lower quality media usually results in fewer successful attempts to burn and read that media.

Moving SAS Software Depots

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

Moving Between Shared Networked Locations

The SAS Deployment Wizard allows you to copy a SAS Software Depot from an existing one by choosing the **Create or Add to a SAS Software Depot** at the opening **Select Deployment Task** page. If you choose to use the **Create or Add to a SAS Software Depot** option, the SAS Deployment Wizard also allows you to subset orders within the SAS Software Depot being copied 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.

Moving Between Non-Shared Network Locations

If you are moving a SAS Software Depot between locations that are not networked, SAS has created the SAS Software Depot Copy Utility for Windows and UNIX that uses FTP processes in order to move a depot.

Note: *The SAS Software Copy Utility for UNIX uses FTP libraries. If you only have SFTP enabled on your UNIX machine, you can use the media creation process to copy a depot, described below. Future releases of SAS 9.4 will include a SAS Software Depot Copy utility that will work with SFTP.*

SAS Software Depot Copy Utility

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

The SAS Software Copy Depot Utility is located in the `\utilities\depotcopier` directory of your SAS Software Depot. Windows users should double-click `SASDepotCopierUtility.exe` while UNIX users should execute `SASDepotCopierUtility.sh`. The Command Prompt window will open for Windows users, while UNIX users will see the questions in their xterm window.

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

1. The Copy Utility asks you to 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.
2. The Copy Utility asks for the user ID for the machine you are copying to. Type the user ID and press ENTER.
3. The Copy Utility asks for the password for the user ID you described in the step above. Type that password and press ENTER. For security reasons, you will not see your password as you type it.
4. The Copy Utility asks for the location of the software depot on the machine you are working from. Type the location and press ENTER.
5. The Copy Utility asks for the location on the remote machine where you want to place the copied software depot. Type that location and press ENTER. When you press ENTER, the copying process begins.

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

6. When the copying process is complete, you will 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 will need to be set manually. After the copy process is complete, issue the following command:*

```
chmod -R 755 <depot location>
```

Using the Media Creation Process (UNIX only)

If your UNIX system only has SFTP enabled, you should use the media creation process described above to help with that task. It is important that whatever tool you use to move/copy the depot will not affect the case of any files and that it will not truncate long filenames to 8.3 format.

1. Perform the steps described in the "Creating Media from SAS Software Depots" section above.
2. Take your media to the machine you wish to install the SAS Software Depot on. Insert the first piece of media, and select the executable that corresponds to the operating system of the machine to start the SAS Deployment Wizard (for example, Windows users should use the `setup.exe` file). If you are working from a single piece of media, at the opening **Select Deployment Task** dialog, select **Create a SAS Software Depot** and click **Next**. Follow the instructions in the SAS Deployment Wizard to move your software from the media to the new location.

If you have more than one piece of media, the SAS Deployment Wizard will automatically begin with the dialogs to create a SAS Software Depot.

Deleting SAS Software Depots

SAS strongly recommends not removing SAS Software Depots. When you keep your SAS 9.4 depot, applying maintenance and upgrades become easier because you only need to download the changed depot files instead of having to download an entire SAS order again.

For space reasons, you may want to remove a SAS Software Depot after your software has been installed. If you decide to remove a SAS Software Depot, SAS strongly recommends that you make a backup of your SAS Software Depot on media so that you will have a copy of the installation files should they be required. You can create media by using the process described the "Creating Media from SAS Software Depots" section above.

Note that 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.

Deleting Software Orders from SAS Software Depots

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. At the opening **Select Deployment Task** dialog, 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 you want to delete in the **Select a SAS Software Order** pane, then click **Delete Order**.
5. The **Confirm Order Delete** window opens, asking if you are sure you want to delete the order. Click **Yes**.
6. The **Delete Order** window opens indicating that the work is being done. When the window closes, the order is no longer present in the **Select a SAS Software Order** window.

Changing Software Order Details in SAS Software Depots

To change the information 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. At the opening **Select Deployment Task** dialog, 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, then click the **Change Details** button.

5. The **Order Details** window 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 will help you with using the order in the future. After those fields contain the information you want included, click **OK**.
6. If you changed the description, the Order Description will change in the **Manage SAS Software Depot** page. Click **Finish** to close the SAS Deployment Wizard.

Managing Your SID Files

As noted above, there really are only two rules of thumb for managing your SID files. First, use the default location for storing your SID files or keep an accurate record of where you store your SID files. Second, ensure that subsequent SID files that you receive are kept in the same location. Storing your SID files in the `sid_files` subdirectory described above meets both of these objectives.

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

Storing and Using Deployment Plan Files

By default, any deployment plan files shipped with your software will be 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 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 one should be performed with only the **Configure SAS Software** option selected (leaving the **Install SAS Software** option unselected) on the **Select Deployment Type** page.*

After your SAS software is installed, your deployment plan files are no longer strictly necessary, but you may want to keep them on hand for record-keeping purposes, for possible future re-installation and re-configuration tasks, or for the addition of products.

Chapter 3 — SAS Deployment Wizard: Command Line Options

Note that 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 allows you to provide 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 "Record Mode" section of "Record and Playback" below. After you have created a response file, you should use the information in the "Quiet Playback Mode" section below to perform the quiet installation on the target machine.

Windows users should also consider the "Restarting" command line options in the following section for use with any reboots that may occur.

The MIF File in Quiet Mode (Windows only)

The Management Information File (MIF file) is created during Quiet Mode to allow you to determine the success or failure of either the System Requirements Wizard or SAS Setup. This file contains information typically used by Microsoft SCCM, but 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 on the results of the installation. In this example, the installation was successful, as indicated by the bold items above. For a failure, the fields above might be set as follows:

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

If the MIF file indicates success, then there is no need to be concerned with the log file. If the MIF file indicates that the installation failed, and you feel more troubleshooting is necessary, you will need to review the log file.

Record and Playback

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

Note that using any of the command line options in the "Record and Playback" section while creating/managing a SAS Software Depot is not supported.

Record Mode

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

Beginning with SAS 9.4 maintenance 2, by default, every time that the SAS Deployment Wizard is run it creates a response file that contains values for each of the prompts the user sees when running the SAS Deployment Wizard. This file is named `ResponseRecord_<timestamp>.log` and is located in the same directory as the SAS Deployment Wizard log files:

Windows

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

UNIX

```
$HOME/.SASAppData/SASDeploymentWizard/SDW_<year-month-day-hour-minutes-seconds>.log
```

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, your response file will not record those manual responses. Therefore a response file created in this fashion will be insufficient for use with any method of playback (quiet or interactive).*

Usage

```
-record
```

A second, non-default response file will be created in the user's home directory on all platforms with a file name of `sdwresponse.properties`. 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 where a file already exists, the pre-existing file will be 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 will be recording an installation on a specific machine. Therefore, the response file that is created may not be appropriate for use on other machines. SAS recommends response files created using the two options simultaneously only be used on other machines with caution. More specifically, 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 **will fail**.*

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

Finally, 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 will overwrite the existing file with a new one. You will not be warned that you are overwriting a file.

```
setup.exe -record
```

The SAS Deployment Wizard will record a response file named `sdwresponse.properties` and store it in your home directory.

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

The SAS Deployment Wizard will deploy your software and record a response file named `sdwresponse.properties` that will be stored in your home directory.

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

The SAS Deployment Wizard will record a response file named `foobar.properties` and store it at `C:\foobar.properties`.

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

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

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

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

Quiet Playback Mode

Users can suppress the user interface for the SAS Deployment Wizard by running in this mode. The mode requires an existing response file. If the SAS Deployment Wizard encounters a dialog for which there is not a valid response in the response file, a message will be recorded in the log file and the SAS Deployment Wizard will return 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 if any errors occurred.

The location of the log files is described in the "SAS Deployment Wizard Log Files" section below.

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

Usage

```
-quiet
```

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

The response file can be specified by adding an additional command line argument:

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

Note: Because the response file created automatically 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 has been created using the `-responsefile` command line option described above.

Example

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

Note on Windows Usage

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

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

Partial Prompting

When running the SAS Deployment Wizard in partial prompt mode, the user only sees dialogs 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 values originally supplied are no longer valid. This can occur when mapped drives are lost after rebooting on Windows. This mode may also be used by administrators to supply some of the deployment information for their users.

Usage

```
-partialprompt
```

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

The response file can be specified by adding an additional command line argument:

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

Example

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

Monitoring 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 if errors occur. To address this concern, you can use `-quietstatus` option on Windows and 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 invoking the SAS Deployment Wizard in quiet mode to display a small status dialog to help identify when the deployment is complete. In addition, you can add `-minimize` in order to force the status dialog 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 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`, since 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 were to run the SAS Deployment Wizard and immediately issue a `ps` command (before the language dialog box would be displayed), you would see output similar to

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

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

```
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 running a different script now, `deploywiz.sh`.

Interactive Playback Mode

The response file can also be used to default all the prompts in the SAS Deployment Wizard. In this mode, all the dialogs 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 you would like to use in the log files for your deployment. There are three levels of logging:

- log level 0 – This level sets the SAS Deployment Wizard logging to its lowest detail, providing only cursory information about the deployment.
- log level 1 – This level sets the SAS Deployment Wizard logging to its default detail, verbose mode.
- log level 2 – This level 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 the “Finding and Applying Hot Fixes” chapter.

Excluding Hot Fixes

If you would prefer not to install the hot fixes in your order, you should use the `-nohotfix` command line 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, go to https://tshf.sas.com/techsup/download/hotfix/HF2/SAS_Security_Updates.html.

Usage

```
-nohotfix
```

Example

```
setup.exe -nohotfix
```

Including 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 your original order, you should use the `-hotfixupdate` command line option. This command line creates an exception to the rule that hot fixes included with an order can only be installed in a clean SASHOME.

Usage

```
-hotfixupdate
```

Example

```
sasdm.rexx -hotfixupdate
```

Checking System Requirements (Windows only)

Beginning with release SAS 9.4 TS1M1 Rev. 940_14w11, the SAS Deployment Wizard enables you to check your Windows order to determine what 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. Using the `-srwonly` command line option allows you the choice of installing only the system requirements or not installing anything at all but instead creating a batch file that can be used on different machines throughout your deployment.

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

Usage

```
-srwonly
```

Example

```
setup.exe -srwonly
```

Procedure

Use the following steps 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** in order to perform the check and then install the requisite software or select **List System Requirements to Install Later** in order to create a batch file for later use on this or any other machine using the same Windows version. After you have made your selection, click **Next** to continue.
4. If you are performing a planned deployment, the **Select Deployment Type** page opens. (If you are performing a basic deployment, skip to step 6.) Select **Perform a Planned Deployment** if you want to use a plan to filter the products you would like to check. (Note that you cannot select **Configure SAS Software** since you have indicated by using the command line that you only wish to check the system requirements). If you do not want to use a filter, select **Install SAS Foundation and Related Software**.

When you have made your selection, click **Next** to continue.

5. If you selected **Perform a Planned Deployment** in the previous step, the **Specify Deployment Plan** page opens. (If you selected **Install SAS Foundation and Related Software**, go to step 6.) Select **Specify the full path to a customized deployment plan** if you have a plan that has been provided to you by consultants or other SAS representative. 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 custom deployment plan, you must use the **Select a standard deployment plan** option. If you choose this 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.

When you have selected the plan you want to use, click **Next** to continue.

6. The **Select Products to Install** page opens, listing all the products in the software order you are working with. If you are using a basic deployment, ensure that **SAS Foundation and related software** is selected from 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. When the correct products are selected, click **Next** to continue.

7. If you selected SAS Foundation in step 6, the **Select SAS Foundation Products** page opens (if you did not select SAS Foundation, skip to step 8). 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. When the correct products are selected, click **Next** to continue.
8. The **Select Language Support** page opens. Because different languages have differing requirements, you must select the language or languages for which you want to check the

system requirements. You can use **Select All** to choose every language and **Clear All** to remove the selection from every language. When the correct languages are selected, click **Next** to continue.

9. The **Select Regional Settings** page opens. Because different regional settings have differing 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. When you have made your selection, click **Next** to continue.
10. The **Required System Requisites to Install** page opens, listing the requisite software for the products you selected in steps 6 and 7. Click **Next** to continue.
11. If the products selected in steps 6 and 7 did not require use of all the system requirements 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). This page lists additional system requirements for those products not selected in order that you can choose to check them also. Select the requisites for which you want to check. You can use **Select All** to choose every requisite and **Clear All** to remove the selection from every requisite. When the correct requisites are selected, click **Next** to continue.
12. The **Checking System** window opens, indicating that the SAS Deployment Wizard is scanning your machine to ensure it has enough space to install the requisite products you selected in steps 10 and 11. Usually, the space required is nominal, so you should have an empty lower pane when the scan is complete. Click **Next** to continue.
13. The **Deployment Summary** windows opens, listing the requisite software you have chosen to install or add to the batch file, depending on your selection in step #3. Click **Start** to initiate the action.
14. A progress page opens, indicating success or failure for each product being installed. When the installation is complete the **Deployment Complete** window opens, listing the software that the SAS Deployment Wizard attempted to install and the results or the requisite software to be added to the batch file, 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 you made previously. A red icon means that the requisite 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 added to the batch file successfully. 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 you made previously. A red icon means that an error occurred when adding the requisite to the batch file.

After reviewing the page, click **Next** to continue.

15. The **Additional Resources** page opens, listing documentation that can help with your deployment. If you chose to create a batch file rather than installing the prerequisites, the **Additional Resources** page also lists the location of the batch file 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 other machines than the one where the check was performed, but it should **only** be used with the same order and the same selected products on the same Windows operating system.

Configuring the SAS Deployment Agent

The SAS Deployment Agent is a new tool in SAS 9.4 used to support configuration operations associated with multi-machine mid-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.

The SAS Deployment Wizard also has two new command lines associated with this configuration.

Skipping Configuration

Use `-skipagentcfg` in order to install the SAS Deployment Agent but skip all configuration steps for it. The configuration steps should be performed later using the SAS Deployment Manager (see the "Manage SAS Deployment Agent Service" section in chapter 6 below).

Usage

```
-skipagentcfg
```

Example

```
setup.exe -skipagentcfg
```

Forcing Configuration

Use `-forceagentcfg` in order to override any already installed SAS Deployment Agent and respond again to the dialogs in order to overwrite any existing properties. However, using `-forceagentcfg` will not force the credentials to be regenerated. Regenerating credentials can only be performed through the SAS Deployment Manager configuration task (see the "Manage SAS Deployment Agent Service" section in chapter 6 below).

Note: *The SAS Deployment Agent pages are install-time only. If you do not choose the install path at the **Select Deployment Type** page, you will not see the SAS Deployment Agent dialogs.*

Usage

```
-forceagentcfg
```

Example

```
setup.exe -forceagentcfg
```

Miscellaneous

Specifying a Different SASHOME (Windows only)

When you first use the SAS Deployment Wizard on Windows, you are asked to specify the location where you would like to have your SAS software installed, referred to as SASHOME. The location you enter that first time is then used as the default for all subsequent usage. If you would like to use a different location for SASHOME than the default, use the `-changesashome` command to force the SASHOME dialog in the SAS Deployment Wizard. The SAS Deployment Wizard will then use this new SASHOME as the default.

Note: *Windows only allows one active SASHOME. If an already defined SASHOME contains active SAS software and you want that SAS software to remain active, then `-changesashome` should not be used. More than one SASHOME for the same SAS release is not supported on Windows.*

Usage

```
-changesashome
```

Example

```
setup.exe -changesashome
```

Configuring a Host Name

Note: *This SAS Deployment Wizard option is new with SAS 9.4 (TS1M6), Rev. 940_20w26.*

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 allows you to change the local host name that the SAS Deployment Wizard validates against to the value in the option.

Usage

```
-confighostname <host name>
```

Example

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

Using a Text-Based Interface (UNIX only)

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

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

Note: *Console mode cannot be used with physical media; that is, you cannot use console mode to create a software depot from DVDs. However, you can use console mode to install your software from any depot, including one that is created from physical media.*

If you use console mode, each dialog 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" above, you must include those symbols.

The `-console` command line option can be used 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 to 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. Note that `-pagesize` and `-pagewidth` will not work with any other command line option.

Usage

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

Example

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

Specifying a Graphic Interface (z/OS only)

By default, the SAS Deployment Wizard uses console mode when 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

```
setup.rexx -x11
```

Automatically Submitting Jobs (z/OS only)

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

Usage

```
-jobsubmit
```

Example

```
setup.rexx -jobsubmit
```

Unchaining 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
```

Optimizing a SAS Software Depot

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

Note that you cannot create media from a depot that has been optimized.

Usage

```
-compressdepot -console
```

Note: SAS recommends that you use the `-console` command line with `-compressdepot` in order that you can see the progress of the optimization. The `-console` command is not supported on Microsoft Windows or Microsoft Windows for x64 so those users will not see a console progress indicator.

Example

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

Verifying an Optimized Depot

If you optimize your depot, you may wish to verify any number of elements of that depot:

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

This information can be gathered by using the SAS Software Depot Check Utility described in “Chapter 9 – Additional Tools” below.

Specifying Different SASUSER and WORK Directories (Windows and UNIX only)

SASUSER

SASUSER is a SAS library where 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 would like to change the location that is used for SASUSER, you should use the `-sasuser` command line option. Note that the path you use in the command line option must already exist or the deployment will revert to the default value with a warning message.

Usage

```
setup.exe -sasuser "<existing directory path>"
```

Examples

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

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

Note that, for Windows, you can use the variable !USERNAME in the directory path for a user that will be running SAS Foundation after the deployment. If you use the !USERNAME variable, the SAS Deployment Wizard will not validate the directory path, but at start-up, SAS Foundation will create the specified path and make it usable. For example, suppose you use -sasuser C:\SASFILES\!USERNAME but C:\SASFILES does not exist. At start-up, SAS Foundation will create the path C:\SASFILES\<user ID of the person who starts SAS Foundation>.

WORK

WORK is the work directory where 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 would like to change the location that is used for WORK, you should use the -work command line option. Note that the path you use in the command line option must already exist or the deployment will revert to the default value with a warning message.

Usage

```
setup.exe -work "<existing directory path>"
```

Examples

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

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

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

Subsetting an Order without SAS Foundation

If you choose to move or copy a depot, additional dialogs allow you to subset the orders in the depot being considered, so that only a part is moved or copied (see "Moving Between Shared Networked Locations" section above). One of the ways you can subset the order being moved is "by Foundation product"; that is, by SAS products usually installed on a server, such as SAS/GRAPH and SAS/STAT. The -subsetclients command line changes that dialog so that you can 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, the "by Foundation product" choice becomes "by product." Also, note that if you use this command line, **only** non-configurable client software will be listed in this dialog.

Note: As of SAS 9.4 (TS1M1), Rev. 940_14w19, `-subsetclients` will always also include SAS Management Console.

Usage

`-subsetclients`

Example

`setup.exe -subsetclients`

Subsetting an Order with SAS Foundation

You can also subset an order to include both SAS Foundation products and the non-configurable clients described above by using the `-subsetnonconfig` command line. If you use the `-subsetnonconfig` command line, the “by Foundation product” choice becomes “by product.”

Usage

`-subsetnonconfig`

Example

`setup.exe -subsetnonconfig`

Creating a Report of Subsetted Products

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

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 to 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 describes when the report was created. The `Depot` field describes 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 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 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"
```

Creating 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 temp 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.

Usage

```
-templocation <directory location>
```

Example

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

Note: When the SAS Deployment Wizard closes, it will delete the temporary directory and all its contents. When you select a temporary directory, ensure there is nothing already in that location that you cannot afford to have deleted.

Updating Product Documentation

Beginning with SAS 9.4 maintenance 2, the SAS Deployment Wizard enables you to install only newly released documentation, such as help files. The wizard skips all SAS product maintenance updates which have occurred after your original order and installs updates to your SAS product documentation only.

Note: While the `-docupdate` command line option became available with SAS 9.4 maintenance 2, it will only be used initially with a few products and will increase in scope over the life of SAS 9.4.

Usage

```
-docupdate
```

Example

```
setup.exe -docupdate
```

Note: Using the `-docupdate` command line with the SAS Deployment Wizard only installs the updated product documentation. After the installation is complete, you must run the SAS Deployment

*Manager, selecting the **Rebuild Web Applications** task (see page 43) and then again using the **Deploy Web Applications** task (see page 43).*

Help with Command Lines

To see a useful list of command line options that can be used with the SAS Deployment Wizard, use `-help`. This command line option will open a message window describing other command line options without actually starting the SAS Deployment Wizard.

Usage

`-help`

Example

`setup.exe -help`

Chapter 4 — Finding and Applying Hot Fixes

There are two methods for determining what hot fixes are available for your software and applying them, during the installation of your software and as a process outside of installation. This chapter is divided into sections that describe both processes.

Applying Hot Fixes with the Initial Installation (Prior to the Fifth Maintenance Release of SAS 9.4)

When you first install your software into a clean SASHOME, the SAS Deployment Wizard will also install any hot fixes included in the order. Orders that are downloaded include hot fixes selected by SAS as being appropriate for the SAS Deployment Wizard to install during a deployment.

Note: Orders received on media do not initially include hot fixes.

For both kinds of order delivery, download or media, 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 with a dialog in the SAS Deployment Wizard (select the **Manage this SAS Software Depot** task at the **Select Deployment Task** page, then **Retrieve Hot Fixes**).

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

In situations where time has passed between the download and the initial installation, SAS recommends that you refresh the hot fixes using the process described in the paragraph above before that initial installation. In order to get the latest hot fixes, the SAS Deployment Wizard must have Internet access.

Note: To get the latest hot fixes for an order that arrives on media, you must first create a SAS Software Depot, then retrieve the hot fixes as described above.

Hot fixes can only be installed using this method when software is first installed into a clean SASHOME. After software has been installed in a SASHOME, you will have to use the method described below. Additional software added to a SASHOME after the initial installation will not have downloaded hot fixes installed either.

The SAS Deployment Wizard has command line options that are specific to hot fixes, described in the “Hot Fixes” section (page 17) of the “SAS Deployment Wizard: Command Line Options” chapter above.

Applying Hot Fixes with Any Installation (After the Fifth Maintenance Release of SAS 9.4)

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

Note: Orders received on media do not initially include hot fixes.

For both kinds of order delivery, download or media, 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 with a dialog in the SAS Deployment Wizard (select the **Manage this SAS Software Depot** task at the **Select Deployment Task** page, then **Retrieve Hot Fixes**).

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

In situations where time has passed between the download and the initial installation, SAS recommends that you refresh the hot fixes using the process described in the paragraph above before that initial installation. In order to get the latest hot fixes, the SAS Deployment Wizard must have Internet access.

Note: To get the latest hot fixes for an order that arrives on media, you must first create a SAS Software Depot, then retrieve the hot fixes as described above.

The SAS Deployment Wizard has command line options that are specific to hot fixes, described in the "Hot Fixes" section (page 17) of the "SAS Deployment Wizard: Command Line Options" chapter above.

Applying Hot Fixes after the Installation

Finding Applicable Hot Fixes

The hot fixes that are included in your order are those that SAS feels can be safely applied with your installation. There may be more hot fixes that should only be applied after installation is complete, or after using the software for a while, you may want to determine what new hot fixes are available for your software.

SAS Technical Support has created an application, 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 SAS Hot Fix Analysis, Download and Deployment Tool is available at <http://ftp.sas.com/techsup/download/hotfix/HF2/SASHFADD.html>. Be sure to read the usage guide, available at the same location, before downloading and using the tool.

Applying Hot Fixes

When you have downloaded the hot fixes you need, you should apply them to your SAS software with the SAS Deployment Manager. If you are interested in quiet installation of hot fixes, you must use the command line options described below.

The SAS Deployment Manager is located in your SASHOME, 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, you may want to back up your installation before applying the hot fixes.

1. Based on your operating system, perform the following step to start the SAS Deployment Manager:
 - Windows users should double-click `sasdm.exe` (if your Windows operating system is Windows Vista, Windows 7, or Windows Server 2008, you may have to right-click `sasdm.exe` and select **Run as administrator**).

- UNIX users should execute `sasdm.sh`.
 - z/OS users should 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. After starting the SAS Deployment Manager, the **Choose Language** page opens. 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. Under Administration Tasks, select **Apply Hot Fixes**. Click **Next** to continue.
 4. The **Apply Hot Fixes** page opens. Select whether you want to **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 have selected **Install SAS hot fix**. If you select **Install SAS hot fix**, type 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 have made your selection (and entered the location in the text box if needed), click **Start** to continue.
 5. The **Checking System** page opens while the SAS Deployment Manager checks for enough disk space and for locked files. If any files are listed in this window, follow the instructions on the page. If there are no files listed, or after any that were listed have been addressed, click **Next** to continue.
 6. The **Review Hot Fix Updates** page opens, describing the hot fixes that are about to be applied. Click **Next** to continue.
 7. If you chose to **Configure SAS hot fix** in step 4, the **Select Configuration Directory/Level** page opens. On this page, you can choose to **Select Configuration Directory** from a list that the SAS Deployment Manager builds. This pane is populated with configuration directories and levels that have been previously configured. Note that if a configuration directory has more than one level, it will be listed multiple times, once for each level the directory has. Select the configuration directory and level by highlighting it.

You can also choose to **Enter Configuration Directory and Level** in order to specify the configuration directory manually. You may 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 you wish to work with.

Note: You should perform this full set of procedures once for every configuration directory in order to configure the hot fix before using 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** to continue.

8. If you chose to **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 will try 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).

When the information is correct, click **Next** to continue.

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 you have given the configuration and the SAS product it is intended for 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 you designated in step 4. If you think you should have a hot fix for a product and cannot find it, you should 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 do not be alarmed if your hot fixes do not need to be configured.*

If the **Available Hot Fix** column has a hot fix listed in it, 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.

Indicate the product configurations you wish to work with by selecting the check box beside them. Clicking **Select All** forces check marks beside all the configurations in the list. Clicking **Clear All** deselects all the configurations in the list.

When you have selected the configurations you want to work with, click **Next** to continue.

Note: *If you are working with software that was released prior to SAS 9.4 (TS1M3), Rev. 940_15w29, and this page shows that no hot fixes have configuration available, return to step 4 and clear the **Configure SAS hot fix** option. Hot fixes that require configuration are rare, so you should not be concerned if you do not have any marked on this page.*

10. If a product configuration you selected in step 9 is a web application, the **Select Web Applications to Deploy for Hot Fix Configuration** 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 with a check box. Select each product that you want to redeploy after the hot fix configuration is complete. When you have made your selections, click **Next** to continue.
11. If a web application you selected in step 10 is running, the **Stopping Application Server Warning** page opens. (If no selected web application is running, the SAS Deployment Manager will go to step 12.) Select the **Allow the application server to stop** option to permit the SAS Deployment Manager to stop the application server. If you do not select this option, you will be unable to proceed any further in this procedure. After you have selected the option, click **Next** to continue.
12. The **Deployment Summary** page opens, listing the steps that the SAS Deployment Manager is about to take. Click **Start** to begin performing the listed tasks.

13. A window opens showing that the SAS Deployment Manager is applying your hot fixes. When the tasks are complete, click **Next**.
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** to continue.
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 attempting to run the software that has just been updated.

Command Line Options for Hot Fixes

There are a number of command line options that may be used 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 reinstalled. If you want the SAS Deployment Manager to ignore that hot fixes have already been installed on a machine and 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 applying the hot fixes. The `-skipusercheck` command line forces the hot fix installer to skip that check so that another user ID maybe used. Note that the logged in user should have the same permissions as the user that performed the deployment, otherwise permission conflicts may arise. However, if permissions are set appropriately, a different user can update files installed under a different user ID.

On UNIX, note that the ownership of the entire SAS tree must be changed to the new installer ID by issuing a command such as

```
chown -Rh <new_userid>:<group> <SASHOME>
```

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 such as

```
chown -Rh <new_userid>:<group> <SASHOME>
```

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

Example

```
sasdm.rexx -skipusercheck
```

-hotfixdir

By default, the launcher script will look for the hot fixes in `<SASHOME>/InstallMisc/HotFixes/New`. `-hotfixdir` allows you to specify a different directory as the default location for the hot fixes. `-hotfixdir` must be followed by a directory path to the hot fixes that you wish to apply.

Example

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

Note: *If you install multiple hot fixes on a z/OS machine, all hot fixes will be installed to a set of staging hot fix libraries incorporating 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 will be A01 with the contents of both A01 and B06 included in that image.*

-console (UNIX only)

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

If you do not wish to rely on an X11 server for UNIX, you can use the SAS Deployment Manager in console mode, allowing you to use a headless system to install hot fixes. **Console mode cannot be used on your middle tier.** If you use console mode, each dialog 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 wrapping to another line. Note that `-pagesize` and `-pagewidth` will not work with any other command line option.

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 graphic user interface that is the default for Windows and UNIX.

Example

```
sasdm.rexx -x11
```

-silenthotfix (see note below)

You can suppress the user interface for installing hot fixes (steps 3 and following above) by running in this mode. This is especially useful for enterprise-wide deployments. Note that if you have stored your hot fixes in some location other than the default (`<SASHOME>/InstallMisc/HotFixes/New`), you should also use the `-hotfixdir` option described below to identify the location of the hot fixes.

Example

```
sasdm.exe -silenthotfix
```

Note: The `-silenthotfix` command line option will only **install** hot fixes. The SAS Deployment Manager log will indicate if 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 the "Record and Playback" section of "Chapter 7 — SAS Deployment Manager: Command Line Options".

The hot fix download site described in the report created by the SAS Hot Fix Analysis, Download and Deployment Tool will indicate if a hot fix requires configuration.

-z64 (z/OS only)

If you are installing hot fixes for your 64-bit Metadata Server SAS software, `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 fix(es) you wish to install are located by using the `-hotfixdir` command line option described above.

-jobsubmit (z/OS only)

By default on z/OS machines, the hot fix installer will not submit batch jobs to complete the application of your hot fixes, allowing you to edit and submit the batch jobs yourself. If you use the `-jobsubmit` command line option, the hot fix installer will submit batch jobs to complete the application of your hot fixes. There are several reasons to not use `-jobsubmit`, including the following:

- Your site uses JES3 (not JES2)
- 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 wish to review the JCL before submission
- The FTP JES interface's requirement that the jobname be the user ID 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.

Note: Beginning with SAS 9.4 (TS1M4), Rev. 940_17w08, if you use the `-jobsubmit` option, the SAS Deployment Wizard will:

- no longer prompt for the host name, user ID, and password.
- allow you to use the `-jobsubmit` option with both JES2 and JES3.
- use the JES SYSOUT API (SAPI) to track the progress of each job, and in particular determine when jobs have completed.

Example

```
sasdm.rexx -jobsubmit
```

-hotfixupdate (z/OS only)

By default, hot fixes included with an order can only be installed in a clean SASHOME. If you want to install hot fixes in orders after your original order, you should 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. Using the `-hotfixupdate` command line option for the 31-bit install permits the 31-bit

installation into your existing SASHOME to include the 31-bit hot fixes, thereby allowing 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 will be 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 will run automatically (each job submits the next job in the chain).

Note: The hot fix CNTL library cannot be opened in Edit mode after submitting the jobs. Some hot fix jobs will need exclusive access to the CNTL library for updates.

The PROMOTE job is not run as part of this sequence. It should not be submitted 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 created in `<high-level-qualifier>.<E80002>.PROCLIB, CLIST, or SASRX, respectively`. These 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 applying your hot fixes. To re-assemble this table, perform the following steps:
 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 will need to look in the unloaded library to see if any of the new modules are installed in your LPA. If so, then you will need to replace them with the new modules and refresh LPA.
- In the configuration guide, the modules recommended for installation in the LPA are
 - SASXAL
 - SABXSPL
 - SABODSL
 - SABXDML
 - SABDS
 - SABSCLL
 - SABDBGM
 - SABZPLH
 - SABXGPH

Note that if you use the `BNDLSUFFIX` option, you will have to rename the modules appropriately in your LPA. For more information about the LPA bundled configuration and information about

using the BNDLSUFFIX option, refer to the "Installing SAS 9.4 Foundation into the LPA/ELPA" section in the *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 regarding the installation process.

In addition, hot fix installation is recorded in the SAS Deployment Registry. The deployment registry report is described in detail in the "Additional Tools" chapter, on page 76.

Chapter 5 — SAS Deployment Wizard: Basic Troubleshooting

Suspending and Resuming a Deployment

Beginning with SAS 9.4 (TS1M3), Rev. 940_15w29, the SAS Deployment Wizard on Windows and UNIX has added a feature to allow you to exit the SAS Deployment Wizard during configuration or installation in order to remediate issues that caused a failure, and then resume where you left off during your deployment. With this new feature, a deployment that has been restarted avoids having to go through dialogs again, with the exception of password dialogs. If you attempt to retry a previously suspended deployment, the SAS Deployment Wizard will ask if you want to resume your previous deployment, or start anew.

There are a few caveats to consider if you decide to take advantage of this new feature.

- **Suspend/resume is not supported on z/OS.** Support for suspend/resume on z/OS will be provided in the future.
- All failed installation steps bypassed in the initial deployment will be rerun in the resumed deployment, and cause the post-processing step to be rerun.
- All configuration steps bypassed in the initial deployment will be bypassed in the resumed deployment as well.
- The new functionality is not intended to remediate invalid or improper dialog responses, such as an unusable port. This feature is intended only for addressing environmental issues keeping the SAS Deployment Wizard from continuing.
- In order to resume a previous unfinished deployment, the same order number must be used.
- The SAS Deployment Wizard will not support suspend/resume when updating existing deployments in place (update mode). Resuming from any failure will result in the SAS Deployment Wizard executing in update mode again to install and configure any remaining products.

Note: Beginning with SAS 9.4 (TS1M7), Rev. 940_20w34, the SAS Deployment Wizard does support suspend/resume when updating existing deployments in place (update mode).

- All configuration steps bypassed by the user in the initial deployment will be bypassed in the resumed deployment as well.
- You cannot resume an unfinished deployment in silent mode. Since you must choose between resuming a failed deployment or starting again, a failed silent deployment must be resumed in either interactive or console mode.
- If multiple users share the same local user space, you may receive a prompt to resume deployment unexpectedly due to the presence of files from another user's unfinished deployment.

SAS Deployment Wizard Stopping without Error Message

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

- If you are installing from media, are the DVDs damaged?
Check the DVDs for scratches or smudges. Clean them with a soft cloth and try again. If the problem continues, copy the entire contents of the first DVD to a new empty folder on the

local drive. If you receive errors while copying the contents of the DVD to a local folder, then obtain new DVDs. If the copy works, then start the setup.exe file in the new folder or try the installation on another machine. If the installation does not start on another machine, then obtain new DVDs.

- Was SAS software previously installed on this system?
If SAS software was previously installed, when you reinstall the software, be sure to close all SAS programs.
- 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 (user must be a local administrator on the machine and/or a member of the administrators group). For more details, see <http://support.sas.com/kb/5/055.html>.
For UNIX, the installer account should be the sas account. The root account should not be used.
- Are you installing from a SAS Software Depot or from the original CDs? Retry the installation from a different media 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 have just 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 may occur. While the information contained in those logs is probably too complex for a user to interpret, they are invaluable tools should you need to contact SAS Technical Support.

The log files can be found, by default, in the following locations, by operating system.

Windows

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

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

1. Select **Organize**→**Folder and Search Options**→**View**.
2. Select **Show hidden files and folders**.
3. Clear **Hide extensions** and **Hide protected**.

UNIX

\$HOME/.SASAppData/SASDeploymentWizard/SDW_<year-month-day-hour-minutes-seconds>.log

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. These logs are different from the SAS Deployment Wizard log files, because they have more detail about each component, while the SAS Deployment Wizard log file only notes the success or failure of each component installation. If you have an installation problem and contact SAS Technical Support, they may ask you to check the installation logs for more information.

The installation logs are located at <SASHOME>\InstallMisc\InstallLogs.

Chapter 6 — SAS Deployment Manager Tasks

The SAS Deployment Manager is a tool that is included with each SAS software order. It allows you to perform some administrative and configuration tasks. The SAS Deployment Manager is located in your SASHOME, 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 may have to right-click the `sasadm.exe` 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 sections describe the SAS Deployment Manager tasks and how to perform them. In some cases, the tasks may be associated with planned deployments, so references to the appropriate documentation for those tasks are also listed below.

Administration Tasks

Update Passwords

Choose this option to update passwords for selected users in an existing configuration. For more information, refer to the “Update a Managed Password” topic in the *SAS 9.4 Intelligence Platform Security Administration Guide* located at <http://support.sas.com/documentation/onlinedoc/intellplatform/index.html>

Rebuild Web Applications

Choose this option to rebuild web applications previously configured in an existing configuration. For more information, refer to the “Rebuilding the SAS Web Applications” topic in the *SAS 9.4 Intelligence Platform: Middle-Tier Administration Guide* located at <http://support.sas.com/documentation/onlinedoc/intellplatform/index.html>

Deploy Web Applications

Choose this option to deploy web applications previously configured in an existing configuration. For more information, refer to the “Redeploying the SAS Web Applications” topic in the *SAS 9.4 Intelligence Platform: Middle-Tier Administration Guide* located at <http://support.sas.com/documentation/onlinedoc/intellplatform/index.html>

Remove Existing Configuration

Choose this option to remove configuration content for an existing configuration. Installed products will not be removed. For more information, refer to the “Removing a SAS Configuration” topic in the *SAS 9.4 Intelligence Platform: Installation and Configuration Guide* located at <http://support.sas.com/documentation/onlinedoc/intellplatform/index.html>

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, refer to the *Software License Renewal Instructions—SAS 9.4 for Microsoft Windows and Windows for x64 Planned Deployment* at http://support.sas.com/documentation/installcenter/en/ikwinplannedri/66607/PDF/default/setinit_planned.pdf or the *Software License Renewal Instructions—SAS 9.4 for UNIX Environments Planned Deployment* at http://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 associated with various file types. This option will only be available if there are installed products that use file type associations.

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. 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** to continue.
3. The **Default Product for SAS File Types** page opens. The left-hand column lists the file extensions for files in your SASHOME 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 that can be selected as the default product for those file types. Select which product should become the default for the file extensions that are listed or select **Advanced** in order to assign a default SAS application to each file type. When you have made a selection, click **Next** to continue.
4. If you selected **Advanced** in step 3, the **Manage SAS File Extensions** page opens. If you did not select **Advanced**, go to step 5.

The **Manage SAS File Extensions** page consists of a table. The left-hand column lists file extensions that can be opened by more than one SAS product. The right-hand column lists the products 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 use the Manage SAS File Types task for an extension that is currently associated with a third-party product to a SAS product, several things will happen:*

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

While you can use this task to reset an extension currently associated with a third-party product to a SAS product, the reverse is not true. You cannot use this task to 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** to continue.

5. The **Default Product Changes Summary** page opens. The first column, **File Extension**, lists the file extensions are being updated. The second column, **Old Product**, shows what application is currently the default product associated with that file type, while the third column, **New Product**, lists what you have selected as the new default product. Review your selections, using **Back** to go back and make more changes as needed. When the page describes the changes you want to make, click **Next** to continue.
6. The **File Type Associations Complete** page describes the changes that have been 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, refer to the “Using the SAS Deployment Manager to Update Host Name References” topic in the *SAS 9.4 Intelligence Platform: System Administration Guide* located at <http://support.sas.com/documentation/onlinedoc/intellplatform/index.html>

Apply Hot Fixes

For information about how to find hot fixes and install them using the SAS Deployment Manager, see the “Applying Hot Fixes” section on page 30.

Update Existing Configuration

Choose this option to configure SAS products that have been updated or upgraded. For more information, refer to the “Configure Updated or Upgraded SAS Products” section of the *SAS 9.4 Intelligence Platform: Installation and Configuration Guide*, located at <http://support.sas.com/documentation/onlinedoc/intellplatform/index.html>

Specify New Passphrase

Choose this option in order to modify the passphrase used to encrypt your passwords. This 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 using a passphrase as the encryption key, instead of 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.

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

For more information, refer to the “How to Re-Encrypt Stored Passwords” topic in the *SAS 9.4 Intelligence Platform Security Administration Guide* located at <http://support.sas.com/documentation/onlinedoc/intellplatform/index.html>

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.

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. 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** to continue.
3. The **Locale Setup Manager** page opens. Select the region and locale setting you wish to use from the **Language** list. Then, in the lower pane, select the products you wish to apply the new settings to. You can use **Select All** to choose every product and **Clear All** to remove the selection from every product. When the correct setting and products are selected, click **Next** to continue.

Note: If you have configured the machine 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 have been made, including the region and locale selected and the products affected. Click **Finish** to close the SAS Deployment Manager.

There are a few caveats to using the tool to change the region settings:

- If you change your region setting so that it requires the encoding to change for SAS Foundation, you will get a warning but be allowed to continue. If SAS Foundation is used as a server in a planned/configured deployment, you will need to create a new configuration to include the new setting.
- Specifying a region setting that requires loading a different `sasv9.cfg` file for another language will change the default language for SAS Foundation. If a supporting language is not installed for the selected regional setting change, one of the following will happen.
 - If the regional setting is for a SBCS language, then English will be the default language.
 - If the regional setting is for a DBCS language, then English with DBCS will be the default language.
- The deployment registry will reflect the regional settings change only if you change the regional settings for all Java products as well as SAS Foundation.

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 the *SAS Visual Analytics: Administration Guide*.

Note that this task can only be performed on machines that have been deployed in a specific manner. The following conditions must be met by the deployment in order for this task to be performed:

- the task must be run on the machine containing 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

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

Note: The SAS Migration Utility will not migrate files and directories that were created using this task. The migration utility migrates the autoloading metadata objects only. For more information, see the “SAS Visual Analytics Autoload Post-Configuration Task” topic in the “Server Tier Post-migration Tasks” chapter of the SAS 9.4 Intelligence Platform: Migration Guide.

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. 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** to continue.
3. The **Select Configuration Directory/Level** page opens, allowing you to identify the configuration you are working with. Choose **Select Configuration Directory** if you see the configuration directory you want to use in the list, then select that configuration directory. If you do not see the configuration directory you want to use, 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 use **Browse** in order to search for the configuration directory. When you have specified a configuration directory and level, click **Next** to continue.
4. The **Specify Connection Information** page opens. Enter a valid user ID for the SAS Metadata Server you are working with, then enter the password for that user ID. When the information in the text fields is correct, click **Next** to continue.
5. The **SAS LASR Artifacts** page opens. Select the kind of LASR artifacts from the list. If you are using LASR artifacts that already exist, select **Pre-existing**. If the LASR artifacts need to be created, select either **Distributed** or **Non-Distributed**, depending on how they are deployed. Click **Next** to continue. If you selected **Pre-existing** on this page, skip to step 7.
6. The **SAS High-Performance Analytics Server** page opens. Ensure the appropriate information for the server you are about to create is included in each field. When each field has an entry, click **Next** to continue.
7. The **SAS High-Performance Analytics Library** page opens.
If you selected **Pre-existing** in step 5, you will only see a **Library Name** list. Select the correct library from the list or, if you do not see the library 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 fields for the **Library Name** and **Libref** of the library to be created and an **Application Server Context** list. Ensure 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. Enter the fully qualified path of the host directory where users place tables for loading to memory in the **Autoload Location** field. You can also use **Browse** to search for the host directory. Click **Next** to continue.
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)

The Graphical User Interface Uninstall Tool provides a wizard interface to the uninstall process as well as selectable uninstalls for products installed within a SASHOME. The following is a list of products which are not available for uninstall via the Graphical User Interface Uninstall Tool.

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

The Graphical User Interface Uninstall Tool also supports quiet uninstalls utilizing the command line options described in Chapter 6.

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 steps 1 and 2 below, Windows platforms can also reach it via the Windows **Add/Remove** control panel application. From Add/Remove, users should select **SAS 9.4**.

Use the following steps to remove SAS software from your system.

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

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. 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 **Uninstall SAS Software** is selected. Click **Next** to continue.
3. The **Select SAS Products to Uninstall** page opens.
 - a. The **Products to uninstall** field describes the set of products from which you will choose the ones to uninstall.
 - Select **All SAS software** to include any software already deployed.
 - If you select **Earlier SAS software versions**, the SAS Deployment Manager will look for duplicate products and only list the products that are older than the latest installed. This selection allows you to uninstall older versions of software while keeping the most current installed. If you only have one version of a product installed, it will not be listed in the products that can be uninstalled.
 - b. Ensure that all the products you wish to uninstall are selected in the list. Windows users will be notified if any product that you choose to uninstall requires a Windows service to be stopped. Click **Next** to continue.
4. The **Checking System** page opens. The SAS Deployment Manager ensures that no file being removed is being used by your system. If any files are listed in this window, follow the

instructions on the page. If there are no files listed, or after any that were listed have been addressed, click **Next** to continue.

5. The **Summary** page opens, describing what 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 will remain on your system which can be safely removed manually. The following list shows examples of the kinds of files that will be left after the uninstall tool is complete. It should not be considered the complete list.

- <SASHOME>\InstallMisc\InstallLogs - contains the log files for both install and uninstall. These are left behind to troubleshoot any issues with the uninstall. In some cases the install logs are just as important as the uninstall logs for determining an uninstall issue.
- <SASHOME>\ReportFontsforClients\9.4\SystemFonts\backup - The fonts are backed up to allow a user to restore the fonts that were replaced during the install.
- <SASHOME>\deplymntreg - houses the deployment registry.

Also, most DataFlux software will not be removed by the uninstall wizard and will require removal using tools from DataFlux.

Finally, the uninstall tool itself will remain 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. 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. 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 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.

Quiet Removal of SAS Software

A quiet uninstallation allows you to provide all of the responses that would normally be supplied to the SAS Deployment Manager 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 uninstallation, you should first create a response file according to the "Record Mode" section of "Record and Playback" in "Chapter 7 — SAS Deployment Manager: Command Line Options." After you have created a response file, you should use the information in the "Quiet Playback Mode" section 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 from the list that is most appropriate for your deployment:

Windows basic deployment

Software License Renewal Instructions: SAS 9.4 Foundation for Microsoft Windows and Windows for x64 Basic Deployment at

http://support.sas.com/documentation/installcenter/en/ikwinbasicri/66608/PDF/default/setinit_basic.pdf

Windows planned deployment

Software License Renewal Instructions: SAS 9.4 for Microsoft Windows and Windows for x64 Planned Deployment at

http://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

http://support.sas.com/documentation/installcenter/en/ikunixbasicri/66609/PDF/default/setinit_basic.pdf

UNIX planned deployment

Software License Renewal Instructions: SAS 9.4 for UNIX Environments Planned Deployment at

http://support.sas.com/documentation/installcenter/en/ikunixplannedri/66610/PDF/default/setinit_planned.pdf

Manage SAS Deployment Agent Service

The SAS Deployment Agent is a new tool for SAS 9.4. It works with metadata servers and therefore is only used in planned deployments. For a full description of the SAS Deployment Agent, see “Chapter 8 – SAS Deployment Agent” below.

Configure SAS Deployment Agent Communication Options

Use this option in order to configure port access and security for the SAS Deployment Agent. In addition, you can use the **Regenerate Security Credentials** page to create a new keystore and truststore should you feel your security has been compromised or your credentials have become corrupted.

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
2. The **Select SAS Deployment Manager Task** page opens. Under Manage SAS Deployment Agent Service, ensure **Configure SAS Deployment Agent Communication Options** is selected. Click **Next** to continue.
3. The **Select Configuration Directory/Level** page opens, allowing you to identify the configuration you are working with. Choose **Select Configuration Directory** if you see the configuration directory you want to use in the list, then select that configuration directory. If you do not see the configuration directory you want to use, 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 use **Browse** in order to search for the configuration directory. When you have specified a configuration directory and level, click **Next** to continue.

4. The **Specify Connection Information** page opens. Enter a valid user ID for the SAS Metadata Server you are working with, then enter the password for that user ID. When the information in the text fields is correct, click **Next** to continue.
5. The **Specify Remote Configuration Communication** page opens. Ensure that the port you want the SAS Deployment Agent to use for communications is entered in the **Port** text box. Use the **Specify how to secure the remote connection** list to indicate the security measures you want to take. Select **Do not secure the connection** if you feel that 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 that SAS supports only the JKS format for the keystore and truststore).

After you have made your selections, click **Next** to continue. 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 will create 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 mid-tier machines using the same metadata server **MUST** be updated to use the newly generated credentials by using the **Download SAS Deployment Agent Credentials from a SAS Metadata Server** task described below.*

7. The **Specify SAS Deployment Agent Keystore Credentials** page opens. Enter the directory location for the keystore .jks file in the **Agent Keystore Location** box or use the **Browse** button to look for it. Enter the password for the keystore in the text box in the **Agent Keystore Password** text box, then repeat the password in the **Confirm Agent Keystore Password** text box. When the text boxes are filled out correctly, click **Next** to continue.
8. The **Specify SAS Deployment Agent Truststore Credentials** page opens. Enter the directory location for the truststore .jks file in the **Agent Truststore Location** box or use the **Browse** button to look for it. Enter the password for the truststore in the **Agent Truststore Password** text box, then repeat the password in the **Confirm Agent Truststore Password** text box.

When the text boxes are filled out correctly, click **Next** to continue. If you have installed the SAS Remote Deployment Agent Client 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** box or use the **Browse** button to look for it. Enter the password for the keystore in the text box in the **Remote Client Keystore Password** text box, then repeat the password in the **Confirm Remote Client Keystore Password** text box. When the text boxes are filled out correctly, click **Next** to continue.

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** box or use the **Browse** button to look for it. Enter the password for the truststore in the **Remote Client Truststore Password** text box, then repeat the password in the **Confirm Remote Client Truststore Password** text box. When the text boxes are filled out correctly, click **Next** to continue.
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 will be autostarted. However, if you are using a UNIX machine and it is rebooted, the SAS Deployment Agent should be restarted with the **Start SAS Deployment Agent Service** task described below.

Add SAS Deployment Agent Service (Windows only)

Use this option to add the SAS Deployment Agent to the list of services on a Windows machine.

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
2. The **Select SAS Deployment Manager Task** page opens. Under Manage SAS Deployment Agent Service, ensure **Add SAS Deployment Agent Service** is selected. Click **Next** to continue.
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 have the SAS Deployment Agent restart whenever Windows is started. After you have made your selections, 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.

Start SAS Deployment Agent Service

Use this option to start the SAS Deployment Agent as a service or daemon. Note that you will fail to start the service or daemon if you have not configured the communication options, either by deploying with the SAS Deployment Wizard or using the Configure SAS Deployment Agent Communication Options task described above.

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.

2. The **Select SAS Deployment Manager Task** page opens. Under Manage SAS Deployment Agent Service, ensure **Start SAS Deployment Agent Service** is selected. Click **Next** to continue.
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

Use this option to stop the SAS Deployment Agent service or daemon.

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
2. The **Select SAS Deployment Manager Task** page opens. Under Manage SAS Deployment Agent Service, ensure **Stop SAS Deployment Agent Service** is selected. Click **Next** to continue.
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)

Use this option to remove the SAS Deployment Agent from the list of services on a Windows machine.

Note: *If you are removing a configuration from a machine with the goal of reconfiguring it, do not remove the SAS Deployment Agent from that machine. Reconfiguring does not reinstall the SAS Deployment Agent, and your configuration will fail until SAS Deployment Agent is reinstalled. Instead, while reconfiguring a machine, leave the SAS Deployment Agent service running, or at the very least do not uninstall it. Only uninstall the SAS Deployment Agent when you are removing all of the SAS software from the machine.*

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
2. The **Select SAS Deployment Manager Task** page opens. Under Manage SAS Deployment Agent Service, ensure **Remove SAS Deployment Agent Service** is selected. Click **Next** to continue.
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

Use this task to add information about the keystore and truststore for the machine 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. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
2. The **Select SAS Deployment Manager Task** page opens. Under Manage SAS Deployment Agent Service, ensure **Upload SAS Deployment Agent Credentials to a SAS Metadata Server** is selected. Click **Next** to continue.
3. The **Select Configuration Directory/Level** page opens, allowing you to 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 will be identifying the metadata server as well.

Choose the **Select Configuration Directory** option if you see the configuration directory you want to use in the list, then select that configuration directory. If you do not see the configuration directory you want to use, choose the **Enter Configuration Directory and Level** option in order to specify a configuration directory, and 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.

4. The **Specify Connection Information** page opens. Enter the password for the metadata server and user ID you specified with the combination of configuration directory and level on the previous page. 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** to continue.

*Note: All the fields on this page are editable, but the **Host Name**, **Port**, and **User ID** are filled in based on the combination of configuration directory and level 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

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

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
2. The **Select SAS Deployment Manager Task** page opens. Under Manage SAS Deployment Agent Service, ensure **Download SAS Deployment Agent Credentials from a SAS Metadata Server** is selected. Click **Next** to continue.
3. The **Select Configuration Directory/Level** page opens, allowing you to 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 will be identifying the metadata server as well.

Choose the **Select Configuration Directory** option if you see the configuration directory you want to use in the list, then select that configuration directory. If you do not see the configuration directory you want to use, choose the **Enter Configuration Directory and Level** option in order to specify a configuration directory, and 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.

4. The **Specify Connection Information** page opens. Enter the password for the metadata server and user ID you specified with the combination of configuration directory and level on the previous page. 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** to continue.

*Note: All the fields on this page are editable, but the **Host Name**, **Port**, and **User ID** are filled in based on the combination of configuration directory and level 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/ACCESS Configuration

Configure SAS/ACCESS Interface to Greenplum (UNIX only)

Note: This SAS Deployment Manager task is not available for software released with SAS 9.4 (TS1M3), Rev. 940_15w29 or later.

This option is only available if you have installed SAS/ACCESS Interface to Greenplum on a UNIX system. Select this option to specify the location for the Microsoft SQL Server ODBC drivers that are required for SAS/ACCESS Interface to Greenplum.

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
2. The **Select SAS Deployment Manager Task** page opens. Under Administration Tasks, select **Configure SAS/ACCESS Interface to Greenplum**. Click **Next** to continue.
3. The **Specify Microsoft SQL Server ODBC Drivers Directory** page opens. Enter the location of the Microsoft SQL Server ODBC drivers in the text box. You can also use **Browse** to search for the location. When the location is entered in the text box, click **Next** to continue.
4. The **Summary** page opens, listing SAS/ACCESS Interface to Greenplum as about to be configured. Click **Start** to begin the configuration.
5. The **Summary** page changes to **Deployment Complete** with a green check beside SAS/ACCESS Interface to Greenplum. Click **Finish** to close the SAS Deployment Manager.

Configure SAS/ACCESS Interface to Microsoft SQL (UNIX only)

Note: If you are using SAS 9.4 (TS1M7) or later, this task is no longer required and will not be available in the SAS Deployment Manager.

This option is only available if you have installed SAS/ACCESS Interface to Microsoft SQL on a UNIX system. Select this option to specify the location for the Microsoft SQL Server ODBC drivers that are required for SAS/ACCESS Interface to Microsoft SQL.

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
2. The **Select SAS Deployment Manager Task** page opens. Under Administration Tasks, select **Configure SAS/ACCESS Interface to Microsoft SQL**. Click **Next** to continue.
3. The **Specify Microsoft SQL Server ODBC Drivers Directory** page opens. Enter the location of the Microsoft SQL Server ODBC drivers in the text box. You can also use **Browse** to search for the location. When the location is entered in the text box, click **Next** to continue.
4. The **Summary** page opens, listing SAS/ACCESS Interface to Microsoft SQL as about to be configured. Click **Start** to begin the configuration.
5. The **Summary** page changes to **Deployment Complete** with a green check beside SAS/ACCESS Interface to Microsoft SQL. Click **Finish** to close the SAS Deployment Manager.

Configure SAS/ACCESS Interface to MySQL (UNIX only)

Note: If you are using SAS 9.4 (TS1M6) or later, this task is no longer required and will not be available in the SAS Deployment Manager.

This option is only available if you have installed SAS/ACCESS Interface to MySQL on a UNIX system. Select this option to indicate the version of MYSQL that you are using with SAS/ACCESS Interface to MySQL.

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
2. The **Select SAS Deployment Manager Task** page opens. Under Administration Tasks, select **Configure SAS/ACCESS Interface to MySQL**. Click **Next** to continue.
3. The **Select MySQL Software Version** page opens. Select the version of MySQL that you are using. Click **Next** to continue.
4. The **Summary** page opens, listing SAS/ACCESS Interface to MySQL as about to be configured. Click **Start** to begin the configuration.
5. The **Summary** page changes to **Deployment Complete** with a green check beside SAS/ACCESS Interface to MySQL. Click **Finish** to close the SAS Deployment Manager.

Configure SAS/ACCESS Interface to Oracle (UNIX only)

Note: If you are using SAS 9.4 (TS1M7) or later, this task is no longer required and will not be available in the SAS Deployment Manager.

This option is only available if you have installed SAS/ACCESS Interface to Oracle on a UNIX system. Select this option to indicate the version of Oracle that you are using with SAS/ACCESS Interface to Oracle.

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
2. The **Select SAS Deployment Manager Task** page opens. Under Administration Tasks, select **Configure SAS/ACCESS Interface to Oracle**. Click **Next** to continue.
3. The **Select Oracle Software Version** page opens. Select the version of Oracle that you are using. Click **Next** to continue.
4. The **Summary** page opens, listing SAS/ACCESS Interface to Oracle as about to be configured. Click **Start** to begin the configuration.
5. The **Summary** page changes to **Deployment Complete** with a green check beside SAS/ACCESS Interface to Oracle. Click **Finish** to close the SAS Deployment Manager.

Configure SAS/ACCESS Interface to SAP ASE (UNIX only)

Note: If you are using SAS 9.4 (TS1M7) or later, this task is no longer required and will not be available in the SAS Deployment Manager.

Note: Prior to the release of SAS 9.4 (TS1M4), SAP ASE was known as Sybase. If you are using software older than SAS 9.4 (TS1M4), the administrative task is listed in the SAS Deployment Manager as "Configure SAS/ACCESS Interface to Sybase". For those users, every reference to "SAS/ACCESS Interface to SAP ASE" in this section can be replaced with "Configure SAS/ACCESS Interface to Sybase".

This option is only available if you have installed SAS/ACCESS Interface to SAP ASE on a UNIX system. Select this option to indicate the version of SAP ASE that you are using with SAS/ACCESS Interface to SAP ASE.

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
2. The **Select SAS Deployment Manager Task** page opens. Under Administration Tasks, select **Configure SAS/ACCESS Interface to SAP ASE**. Click **Next** to continue.
3. The **Select SAP ASE Software Version** page opens. Select the version of SAP ASE that you are using. Click **Next** to continue.
4. The **Summary** page opens, listing SAS/ACCESS Interface to SAP ASE as about to be configured. Click **Start** to begin the configuration.
5. The **Summary** page changes to **Deployment Complete** with a green check beside SAS/ACCESS Interface to SAP ASE. Click **Finish** to close the SAS Deployment Manager.

Configure SAS/ACCESS Interface to Sybase IQ (UNIX only)

Note: If you are using SAS 9.4 (1M6) or later, this task is no longer required and will not be available in the SAS Deployment Manager.

This option is only available if you have installed SAS/ACCESS Interface to Sybase IQ on a UNIX system. Select this option to indicate the version of Sybase IQ that you are using with SAS/ACCESS Interface to Sybase IQ.

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
2. The **Select SAS Deployment Manager Task** page opens. Under Administration Tasks, select **Configure SAS/ACCESS Interface to Sybase IQ**. Click **Next** to continue.
3. The **Select Sybase IQ Software Version** page opens. Select the version of Sybase IQ that you are using. Click **Next** to continue.
4. The **Summary** page opens, listing SAS/ACCESS Interface to Sybase IQ as about to be configured. Click **Start** to begin the configuration.
5. The **Summary** page changes to **Deployment Complete** with a green check beside SAS/ACCESS Interface to Sybase IQ. Click **Finish** to close the SAS Deployment Manager.

Hadoop Configuration

Configure Hadoop Client Files (Windows and UNIX only)

Choose this option to make Hadoop JAR and configuration files available to the SAS client machine. For more information, refer to the *SAS Hadoop Configuration Guide for Base SAS and SAS/ACCESS*, located at <http://support.sas.com/resources/thirdpartysupport/v94/hadoop/>

Deploy SAS In-Database Technologies for Hadoop (UNIX only)

Choose this option to configure Hadoop to work with the SAS Embedded Processes. For more information, refer to the “Deploying the In-Database Deployment Package Using the SAS Deployment Manager” chapter of the *SAS In-Database Products: Administrator's Guide*, located at <http://support.sas.com/documentation/onlinedoc/indbtech/>

Deploy SAS Data Management Accelerator for Spark - for SAS 9.4 (TS1M3) and earlier

For more information, refer to the “Deploying SAS Data Management Accelerator for Spark” chapter of the *SAS In-Database Products: Administrator's Guide (9.4 Maintenance 3)*, located at <http://support.sas.com/documentation/onlinedoc/indbtech/>

Deploy the SAS Quality Knowledge Base for Hadoop

For more information, refer to the “Deployment of SAS QKB Using SAS Deployment Manager” topic of the *SAS Data Loader for Hadoop: Installation and Configuration Guide*, located at <http://support.sas.com/documentation/onlinedoc/dmdd/>

Deploy SAS Grid Manager for Hadoop (Linux only)

Choose this option to configure Hadoop to work with SAS Grid Manager. For more information, refer to the “Using SAS Grid Manager for Hadoop” chapter of the *Grid Computing in SAS 9.4*, located at <http://support.sas.com/documentation/onlinedoc/gridmgr/>

Deploy Data Loader for Hadoop Spark Engine - for 9.4 (TS1M4) and later

Choose this option to deploy SAS Data Loader for Hadoop Spark Engine on a Hadoop cluster. For more information, refer to the “Deploying SAS Data Loader for Hadoop Spark Engine Using SAS Deployment Manager” topic of the *SAS Data Loader for Hadoop: Installation and Configuration Guide*, located at <http://support.sas.com/documentation/onlinedoc/dmdd/>

Update Metadata Configuration for Hadoop Client Files

For more information, refer to the “Update Metadata Configuration for Hadoop Client Files” topic of the *SAS Data Loader for Hadoop: Installation and Configuration Guide*, located at <http://support.sas.com/documentation/onlinedoc/dmdd/>

SAS/IntrNet Service Tasks

The selections under this heading are only available if you have installed SAS/IntrNet on this machine.

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, letting the Application Broker balance the load. Select this option to configure the socket service.

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
2. The **Select SAS Deployment Manager Task** page opens. Under Administration Tasks, select **Create Socket Service**. Click **Next** to continue.
3. The **Specify Service Name** page opens. Use the guidelines on that page to type a name for your socket service in the text box. Click **Next** to continue.
4. The **Specify Service Directory** page opens. Type the location where you want the socket service to be stored in the text box. You can also use **Browse** to search for a location. Click **Next** to continue.
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** to continue.
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 then again in the **Confirm Password** text box. If you do not want to use a password, leave both text boxes empty. Click **Next** to continue.
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. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
2. The **Select SAS Deployment Manager Task** page opens. Under Administration Tasks, select **Create Launch Service**. Click **Next** to continue.

3. The **Specify Service Name** page opens. Use the guidelines on that page to type a name for your launch service in the text box. Click **Next** to continue.
4. The **Specify Service Directory** page opens. Type the location where you want the launch service to be stored in the text box. You can also use **Browse** to search for a location. Click **Next** to continue.
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. If installed, 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. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
2. The **Select SAS Deployment Manager Task** page opens. Under Administration Tasks, select **Create Load Manager**. Click **Next** to continue.
3. The **Specify Port** page opens. Type the name or number of the port you want the load manager to use in the text box. Click **Next** to continue.
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. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
2. The **Select SAS Deployment Manager Task** page opens. Under Administration Tasks, select **Create Pool Service**. Click **Next** to continue.
3. The **Specify Service Name** page opens. Use the guidelines on that page to type a name for your pool service in the text box. Click **Next** to continue.

4. The **Specify Service Directory** page opens. Type the location where you want the pool service to be stored in the text box. You can also use **Browse** to search for a location. Click **Next** to continue.
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 again in the **Confirm Password** text box. If you do not want to use a password, leave both text boxes empty. Click **Next** to continue.
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 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. After starting the SAS Deployment Manager, the **Choose Language** page opens. Choose the language in which you want to perform the configuration of your downloaded software. Click **OK**.
2. The **Select SAS Deployment Manager Task** page opens. Under Administration Tasks, select **Configure Spawner**. Click **Next** to continue.
3. The **Specify Port** page opens. Type the name or number of the port you want the spawner to use in the text box. Click **Next** to continue.
4. The **Specify Service Directory** page opens. Type the location where you want the spawner to be stored in the text box. You can also use **Browse** to search for a location. Click **Next** to continue.
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.

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. None of these tasks should be undertaken except with the direct guidance of SAS Technical Support.

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

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. 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 **Uninstall SAS Foundation Post-Install Tasks** is selected. Click **Next** to continue.
3. The **Select SAS Foundation Post-Install Tasks** page opens. Ensure that all the tasks you want to perform are selected, based on their descriptions above. Click **Next** to continue.
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

Note: Security and certification processes can be highly technical. You should not perform any of the tasks described below 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 Certificate Authorities, that may be used to digitally sign our customers' private identity certificates is referred to as the Trusted CA Bundle. Customers may maintain their own internal Certificate Authority and may need to add their CA's public certificate(s) to the Trusted CA Bundle provided by SAS.

Beginning with SAS 9.4 (TS1M3), Rev. 940_15w29, the SAS Deployment Manager includes tools that allow 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 sections below.

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:IncludedCAs>. The trusted CA bundle is provided in multiple formats, for use in different SAS "SSL Client" contexts. There is a text file format, with base64 encoded contents (also known as PEM format) for use by SAS Foundation servers (for example, metadata server or Workspace Server) and identified using the SSLCALISTLOC option. It is also provided in a JKS keystore archive format for use by all SAS Java applications through a keystore file (also known as a truststore when it does not contain private key entries) called `jssecacerts`. The two SAS Deployment Manager tasks described below update both those 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 should not be updated or changed manually.

We do not support a private JRE on z/OS, so there is no `jssecacerts` file on z/OS. On z/OS, SAS will create a JKS truststore, but it is only needed if you are running Java applications from USS.

If you are upgrading from an earlier 9.4 release to 9.4M3, any self-signed or site-signed CA certificates that have previously been added to the SAS Private JRE's `cacerts` file manually must also be added to the new trusted CA bundle using the Add Certificate task, described below. This should be repeated 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 Base-64 encoding (ASCII), with `.pem`, `.crt`, or `.cer` extensions. For more information about creating the chain of trust list, see "Creating a CA Chain of Trust File" below.

Use the following steps to add a certificate:

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. 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** to continue.
3. The **Specify Certificate to Add** page opens. Type the location of the certificate or chain of trust file you want to add to your trusted CA bundle in the text box. You can also use **Browse** in order to search for the certificate. The Distinguished Name defined within each certificate will be used as the alias within the truststore.

When you have specified a certificate to be added, 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.

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

Creating a CA Chain of Trust File

If you are only adding one certificate, creating a chain of trust file is inappropriate, and 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 certificate[s])
-----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 the certificate in this example is represented as <PEM encoded certificate>. 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.

The file can be saved 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.

Use the following steps to remove a certificate:

1. After starting the SAS Deployment Manager, the **Choose Language** page opens. 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** to continue.
3. The **Specify Certificate to Be Removed** page opens. Click on **Browse** in order to search for the certificate you want to delete.

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

When you have specified a certificate to be deleted, 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.

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

Chapter 7 — SAS Deployment Manager: Command Line Options

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 allows you to provide all of the responses that would normally be supplied to the SAS Deployment Manager 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 deployment, you should first create a response file according to the "Record Mode" section of "Record and Playback" below. After you have created a response file, you should use the information in the "Quiet Playback Mode" section below to perform the quiet deployment on the target machine.

Note: These command line options cannot be used for the quiet installation of hot fixes. If you are interested in quietly installing hot fixes, refer to "Chapter 4 – Finding and Applying Hot Fixes" on page 29.

Record and Playback

Record and playback is a feature in the SAS Deployment Manager that is used to save dialog responses to a file and then load those responses at a later point. The SAS Deployment Manager provides three different modes for record and playback. Each mode is described in detail below.

Note that when using playback, the SAS Deployment Wizard should be at the same level of configuration prompting as was used in record mode. Manual revision of the response file should be attempted only with extreme caution by users with experience with SAS configuration or with the assistance of a SAS consultant or Technical Support.

Record Mode

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

Running the SAS Deployment Manager in record mode will cause it to create a response file that contains values for each of the prompts the user sees when running the SAS Deployment Manager. The SAS Deployment Manager must run to completion when creating the response file in this mode.

Usage

`-record`

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

The response file location can be specified 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 pre-existing file will be overwritten by the SAS Deployment Manager.

Example

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

By default, no deployment occurs when running in a 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

Users 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 dialog for which there is not a valid response in the response file, a message will be recorded in the log file and the SAS Deployment Manager will return 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 if any errors occurred.

Note: This command line option cannot be used for the quiet installation of hot fixes. If you are interested in quietly installing hot fixes, refer to "Chapter 4 – Finding and Applying Hot Fixes" on page 29.

Usage

```
-quiet
```

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

The response file can be specified by adding an additional command line argument:

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

Note: Because the response file created automatically 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 has been created using the `-responsefile` command line option described above.

Example

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

Note on Windows Usage

Windows users also have the `-wait` option available for their use. 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 running the SAS Deployment Manager in partial prompt mode, the user only sees dialogs that do not have a valid response in the response file. This mode is used when the SAS Deployment Manager resumes after being interrupted by a reboot and values originally supplied are no longer valid. This can occur when mapped drives are lost after rebooting on Windows. This mode may also be used by administrators to supply some of the deployment information for their users.

Usage

```
sasdm.exe -partialprompt
```

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

The response file can be specified by adding an additional command line argument:

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

Example

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

Monitoring 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. To address this concern, you can use the Task Manager on Windows and periodically issue the `ps` command on UNIX to track whether the SAS Deployment Manager is running.

On Windows, specify the `-wait` option when invoking 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: Use of network management software (such as SCCM or Tivoli) might require you to use the `-wait` option when running the SAS Deployment Manager in quiet mode in order for such software to 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 running in quiet mode. Remember that output from a `ps` command can be misleading because the process name returned is not always named `sasdm.sh`, since 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

The response file can also be used to default all the prompts in the SAS Deployment Manager. In this mode, all the dialogs 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 with the `-quiet` command line. Used together, these command lines allow 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

Configuring a Host Name

Note: This SAS Deployment Manager option is new with SAS 9.4 (TS1M6), Rev. 940_20w26.

If you are performing an update or upgrade, the SAS Deployment Manager 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 allows you 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
```

Using a Text-Based Interface (UNIX only)

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

If you do not wish to rely on an X11 server for UNIX, you can use the SAS Deployment Manager in console mode, allowing you to use a headless system to configure your server. If you use console mode, each dialog 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 can be used with other options at the same time, such as 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` will not work with any other command line option.

Usage

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

Example

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

Specifying a Graphic Interface (z/OS only)

By default, the SAS Deployment Manager uses console mode when 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 submitting jobs (z/OS only)

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

Usage

```
-jobsubmit
```

Example

```
sasdm.rexx -jobsubmit
```


Chapter 8 — SAS Deployment Agent

Overview

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

The SAS Deployment Agent is a new tool in SAS 9.4 used to support configuration operations associated with multi-machine mid-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 the agent is not used, you will be required to manually perform complex and time-consuming configuration steps for multi-machine mid-tier topologies and middle-tier clustering. In addition, you will not be able to use the SAS Deployment Backup and Recovery tool for your deployment. Instead, you will need to 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. (You could still use the metadata server backup facility to back up the metadata server, since that facility does not depend on the SAS Deployment Agent. For more information, see “Best Practices for Backing Up and Restoring Your SAS Content” in the *SAS Intelligence Platform: System Administration Guide*.)

Using the SAS Deployment Agent is not required. If you review the security considerations below and decide that you do not want to use the SAS Deployment Agent, there are a number of deployment and configuration tasks that will have to be performed manually:

- configuring SAS Web Infrastructure Platform
- configuring a SAS Web Application Server cluster
- starting SAS Web Application Server and SAS Web Application Server clusters
- changing 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), enabling secure Internet communications. JSSE provides a framework and an implementation for a Java version of the Transport Layer Security (TLS) protocol and 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 you wish to secure your communication:

- **Do not secure the connection** should be used if you feel that 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 described below.

- **Generate the credentials to secure the connection** gives SAS permission to manage your credentials by creating a keystore and truststore for you. The generated credentials will be self-signed certificates and will use the name and site number from your SAS installation data file (SID file) used to license your software. The generated certificates are valid for 100 years. New credentials can also be regenerated using the SAS Deployment Agent configuration tasks described in the “Manage SAS Deployment Agent Service” section of “Chapter 6 - SAS Deployment Manager Tasks”.
- **Specify existing credentials to secure the connection** allows you to use a keystore and truststore that you have created using other Java tools. Note that SAS supports only the JKS format for the keystore and truststore.

Adding 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.

1. These steps should only be performed by a user ID with root level permissions. Ensure that your user ID has those permissions.
2. Go to the `SASHome/SASDeploymentAgent/9.4` directory.
3. Open the `sas.deployd` script and follow the operating system-specific instructions within the comments at the beginning of the script.
4. When those instructions have been completed, use the following command to start the service:

```
service sas.deployd start
```

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

Checking the Status of the SAS Deployment Agent (UNIX only)

Another method for determining the status of the agent on UNIX machines is to issue the following command on the machine where the agent is running:

```
agentadmin.sh stat up
```

Chapter 9 — Additional Tools

SAS Software Depot Check Utility

Prior to SAS 9.4, the SAS Software Depot Check Utility did not run on z/OS machines. However, beginning with SAS 9.4 (TS1M2), Rev. 940_14w41, the utility will work on all supported operating systems for SAS 9.4. If you are using a deployment from before SAS 9.4 (TS1M2), Rev. 940_14w41, you will still have the previous version of the utility. For information about its operation, refer to Appendix D.

Note: In order to determine the revision of your software, refer to SAS note 50493, located at <http://support.sas.com/kb/50/493.html>

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

- total number of files found in a depot
- list of files found and their directory path(s)
- list and total of the files missing from the depot and the paths where the missing files should be found
- list and total of the orders found
- list and total 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 where checksums are incorrect and their correct and incorrect checksums

Follow these steps in order 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:

SAS Depot Check Utility executable

Your SAS Software Depot contains an executable that will start 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.

Command line option

Issue the SAS Deployment Wizard setup executable command with the `-depotchecker` command line option. For example, on UNIX, the command would be

```
setup.sh -depotchecker
```

On z/OS, the command would be

```
setup.rexx -depotchecker
```

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

If you use the command line option, remember that the same restrictions described earlier in this document still apply. Also remember that the other SAS Deployment Wizard command

- line options may also be used, 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 opens. Enter the location of your SAS Software Depot in the text box or use the **Browse** button to search for it. When the correct location is in the text box, click **Next**.
 3. The **Final Review** page opens. Verify the location for the SAS Software Depot is correct, and then click **Start**.
 4. The **SAS Depot Check Utility** page opens. As the utility runs, its results are displayed in the pane on the page. You can temporarily halt the report at any time by clicking **Stop**. If you halt the utility, it can only be restarted 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** dialog 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 you are running the utility on.
 - Click **Print Report** to open a **Print** dialog.

When you have completed the tasks you wish to perform with the utility report, click **Finish** to close the utility.

View Registry

For SAS 9.4, the installation of hot fixes is logged in the SAS Deployment Registry. A reporting utility named View Registry (`sas.tools.viewregistry.jar`) processes the deployment registry and generates a report named `DeploymentRegistry.html`. The deployment registry report identifies all SAS 9.4 software that is installed in the current SASHOME location, including hot fixes. The following is a sample of the output:

```
-----  
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  
-----
```

A text file version of the report, `DeploymentRegistry.txt` is also created. Both the HTML and .txt files are created in the `<SASHOME>/deploymntreg` directory. The utility is installed by default with SAS 9.4 in `<SASHOME>/deploymntreg`.

Use the following steps to generate a deployment registry report using this utility. Note that `sas.tools.viewregistry.jar` must be executed from the `<SASHOME>/deploymntreg` directory.

Windows:

Launch `sas.tools.viewregistry.jar` (the default location is `C:\Program Files\SASHome\deploymntreg`).

UNIX:

Execute the JAR file. For example:

```
java -jar sas.tools.viewregistry.jar
```

Note: *In order to run the reporting utility, Windows users must have Write permissions for the `deploymntreg` directory (the default location is `C:\Program Files\SASHome\deploymntreg`) because the resulting reports are written to this location. UNIX users must have Write permission to the `SASHOME` location.*

Command line options:

`-hotfix`

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

Example:

```
java -jar sas.tools.viewregistry.jar -hotfix
```

`-out <parameter>`

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

Example:

```
java -jar sas.tools.viewregistry.jar -out /u/myuserid/output
```

`-all`

(valid beginning with SAS 9.4 M3) reports all product components that have been installed, which may include multiple releases of a product component that has been upgraded. No parameter is accepted.

Example:

```
java -jar sas.tools.viewregistry.jar -all
```

SAS Update File Cleanup Utility (Windows and UNIX only)

As the SAS Deployment Wizard performs updates to an existing deployment, it creates backup files to be used should you need to roll back the updates. However, once you are confident that the updates will not need removal, SAS has provided a tool to remove the backup files and free up space. The following instructions describe how to invoke and use the SAS Update File Cleanup Utility. The SAS Update File Cleanup Utility is only available for Windows and UNIX users.

1. In the course of installing updates, the SAS Update File Cleanup Utility is placed in your SASHOME, at <SASHOME>\InstallMisc\9.4. Windows users should double-click `cleanup.exe` at that location, and UNIX users should start `cleanup.sh`.
2. The SAS Update File Cleanup Utility opens, listing the SASHOME that will be cleaned up. The utility can only be used in the SASHOME where it is located, so if you want to clean up SASHOME on different machines, you must use the SAS Update File Cleanup Utility placed on each machine 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 will show 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.

Appendix A — Independent Installation of SAS Products

Overview

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

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

WARNING for SAS 9.4 users:

*If you are working from a software order that is older than SAS 9.4 (TS1M1), Rev. 940_13w51, the independent installation format is intended for a user to easily distribute **ONLY** SAS Enterprise Guide and/or SAS Add-in for Microsoft Office to client machines. If you intend to install other SAS 9.4 software or already have other SAS 9.4 software installed on the machine, then you **MUST** use the SAS Deployment Wizard to install these products. Installing the independent installation formats on machines with software older than SAS 9.4 is permitted.*

Beginning with the SAS 9.4 (TS1M2), Rev. 940_14w41 version of the software, the independent versions of the software can be included in any SAS 9.4 SASHOME.

To determine the revision of your software, refer to SAS note 50493, located at <http://support.sas.com/kb/50/493.html>

Installation

For SAS 9.4 customers, the smaller versions of these products are only available with enterprise server environment orders that already included SAS Enterprise Guide, SAS Add-in for Microsoft Office, or SAS Visual Analytics Add-In for Office. If you have any of these products in your order, 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 will not be 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 will not contain the `standalone_installs` directory.*

For SAS Viya customers, the `standalone_installs` directory is available after you perform the steps described in your Software Order Email (SOE).

These are the file names for the independent installers:

- `SASAddInForMicrosoftOffice<version number>_x86_x64.exe` – SAS Add-in for Microsoft Office for the version number used in the file name, (such as “71” for version 7.1)

- VisualAnalyticsAddInForOffice<version number>_x86_x64.exe – SAS Add-in for Microsoft Office for Visual Analytics for the version number used in the file name

Note: Beginning with SAS 9.4 (TS1M6), Rev. 940_19w25, the independent install for Visual Analytics Add-in for Office is included with SAS Add-in for Microsoft Office. To install Visual Analytics Add-in for Office, you should follow the instructions to deploy SAS Add-in for Microsoft Office.

- SASEnterpriseGuide<version number>_x86_x64.exe – SAS Enterprise Guide for the version number used in the file name

Note for SAS 9.4 users:

If you expect to find the executable for an independent version of SAS Add-in for Microsoft Office and 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 install available for the Microsoft Excel-only version of the add-in. 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 will need to contact their SAS Sales Representative or the SAS Contracts department.

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

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

Version of independent installer	Required version of Microsoft .NET
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	4.8 or later version in the .NET 4.x family

Use 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 in the same machine.

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

Note: If you wish 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 from the list, and then click **OK** to continue.
4. The **Specify SAS Home** page opens. Enter the location where you want to install the software in the text box or use **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** to continue.

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 select a destination location in C:\Program Files\, the application will be 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 and you do not have Microsoft Office installed on the machine, the **Select SAS Add-in for Microsoft Office Mode** page opens. Use this page to specify whether you wish 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** to continue.
6. The **Select Language Support** page opens. Specify the languages 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. When you have made your choices, click **Next** to continue.
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 that will activate the SAS Add-in for Microsoft Office. When your selection is complete, click **Next** to continue.
8. The **Checking System** page opens as the installer ensures that the machine has the resources necessary for the package you are working with. After it has finished its check, either click **Next** to continue, or **Back** to make changes in your selections.

Note that the independent installer includes all the third-party software you need from Microsoft to install and run your software, **except** Microsoft .NET Framework. During the system check, if the installer determines that you either do not have Microsoft .NET Framework or have an insufficient version of it, a warning message will open. If you get this 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. Note that there are more products than just SAS Enterprise Guide or SAS Add-in for Microsoft Office because the installation also includes other SAS software required for the successful installation and use of your package. Click **Start** to continue.
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** to continue.

11. The **Additional Resources** page opens, listing documentation and web sites 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 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

```
X.exe -- -record -responsefile "<full path to the response file>"
```

X represents the appropriate independent installer executable file for your package. **IMPORTANT: The command line includes two dashes followed by -record with a space between them.**

Independent Record Example

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

Quiet Independent Install Usage

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

X represents the appropriate independent installer executable file for your package. **IMPORTANT: The command line includes two dashes followed by -responsefile with a space between them.**

Quiet Independent Install Example

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

Uninstallation

Beginning with SAS 9.4 (TS1M6), Rev. 940_19w25, the independent products include a version of the SAS Deployment Manager, thereby changing how the software should be uninstalled. This uninstallation topic describes the method to remove the independent products for releases before SAS 9.4 (TS1M6), Rev. 940_19w25 and for SAS 9.4 (TS1M6), Rev. 940_19w25 and after.

Note: To determine the revision of your software, refer to SAS note 50493, located at <http://support.sas.com/kb/50/493.html>

Before SAS 9.4 (TS1M6), Rev. 940_19w25

Normal Mode

To remove the independent products from a machine, use **Uninstall a program** in the Windows Control Panel. When the list of software to uninstall is created, there will be an entry for each independent product for every language that you originally installed in. For example, if you install SAS Enterprise Guide in English and French, you will have to uninstall both the English and French versions with the Control Panel.

After the Control Panel has completed its task, artifacts from the installation will remain in the installation directory. These are no longer needed and can be safely removed manually. In addition, software (such as SAS Integration Technologies Client and SAS Providers for OLE DB) that is required for the product you've uninstalled will remain in your SAS Home. Before manually removing these shared components, ensure that all other SAS software is uninstalled since these components may be required for software that remains on the machine.

Quiet Mode

The products described in this section can also be uninstalled in quiet mode by invoking the Microsoft installation wrapper with command line options.

Usage

```
msiexec.exe /qn /x {<product GUID>}
```

Note that there is a specific product GUID to be used for every combination of product and language. Use of the wrong product code will result in the failure of the uninstallation. The command must be used for each product and language combination that you want to remove.

Note also that the curly brackets should be included in the command around the product GUID. In order to find the appropriate product GUID, you should look in the registry under the following product registry keys.

- SAS Enterprise Guide:
HKEY_LOCAL_MACHINE\SOFTWARE\SAS Institute Inc.\Enterprise Guide\6.1
- SAS Add-In for Microsoft Office (64-bit software on a 64-bit machine) :
HKEY_LOCAL_MACHINE\SOFTWARE\SAS Institute Inc.\AddIn for Microsoft Office\6.1
- SAS Add-In for Microsoft Office (32-bit software on a 64-bit machine):
HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\SAS Institute Inc.\AddIn for Microsoft Office\6.1
- SAS Add-In for Microsoft Office (32-bit software on a 32-bit machine):
HKEY_LOCAL_MACHINE\SOFTWARE\SAS Institute Inc.\AddIn for Microsoft Office\6.1

The languages are installed under the products registry key in a LanguageResources folder which contains an entry for each language code. So for example, if SAS Enterprise Guide is installed with Italian and Russian resources, the following keys will exist:

- HKEY_LOCAL_MACHINE\SOFTWARE\SAS Institute Inc.\Enterprise Guide\6.1\LanguageResources\IT
- HKEY_LOCAL_MACHINE\SOFTWARE\SAS Institute Inc.\Enterprise Guide\6.1\LanguageResources\RU

All of the above registry keys will have a ProductId value inside them which contains the product GUID. The following table lists the language codes and their identifiers.

Code	Language Resource
AR	Arabic resources
DA	Danish resources
DE	German resources

ES	Spanish resources
FR	French resources
HE	Hebrew resources
HU	Hungarian resources
IT	Italian resources
JA	Japanese resources
KO	Korean resources
NL	Dutch resources
PL	Polish resources
RU	Russian resources
SV	Swedish resources
TR	Turkish resources
zh-CN	Chinese (simplified) Resources
zh-HK	Chinese (traditional, Hong Kong) resources
zh-TW	Chinese (traditional, Taiwan) resources

Example

```
msiexec.exe /qn /x {604F30E1-35F2-4E34-AA21-3E83CDE863E1}
```

This command will uninstall SAS Enterprise Guide 6.1 in English.

After the uninstall is completed, artifacts from the installation will remain in the installation directory. These are no longer needed and can be safely removed manually. In addition, software (such as SAS Integration Technologies Client and SAS Providers for OLE DB) that is required for the product you've uninstalled will remain in your SAS Home. Before manually removing these shared components, ensure that all other SAS software is uninstalled since these components may be required for software that remains on the machine.

SAS 9.4 (TS1M6), Rev. 940_19w25 and After (Including SAS Viya)

Because the independent products include the SAS Deployment Manager, you should follow the instructions at "Uninstall SAS Software (Graphical User Interface Uninstall Tool)" on page 48 to remove them from your deployment.

Applying Hot Fixes

Beginning with SAS 9.4 (TS1M6), Rev. 940_19w25, the independent products include a version of the SAS Deployment Manager, thereby changing how hot fixes should be installed. This hot fix topic describes the method to apply hot fixes for releases before SAS 9.4 (TS1M6), Rev. 940_19w25 and for SAS 9.4 (TS1M6), Rev. 940_19w25 and after.

Note: To determine the revision of your software, refer to SAS note 50493, located at <http://support.sas.com/kb/50/493.html>

Before SAS 9.4 (TS1M6), Rev. 940_19w25

The description of this process assumes that you have already downloaded the hot fix zip files for your product from <http://ftp.sas.com/techsup/download/hotfix/hotfix.html>. If you do not have the necessary zip files, go to that link and follow the instructions there to find and download the appropriate files.

The hot fix zip file is named using the following pattern:

```
<hot fix ID number><operating system>.zip
```

where `ID number` is a unique identifier using a letter and five digits, and `operating system` is a two-byte code for the Windows operating system (`wn` for 32-bit Windows and `x6` for 64-bit Windows). For example, `S22001x6.zip` is the zip file containing S22001 for 64-bit Windows.

1. Create a directory on your machine that is named using the full identifier. So, `S22001x6.zip`, you would create a directory named `S22001x6`. You should create a directory for each hot fix zip file you have downloaded.
2. Unzip the contents of the zip file into the directory you just created. If you have more than one zip file, ensure that the contents of each zip file are extracted into the appropriate directory.
3. Go to the `\products` subdirectory of the new directory. Notice that there are a number of directories, named something like this:

```
msofficeint__S22001__wx6__en__sp0__1
```

The name uses the following pattern:

```
<product identifier>__<hot fix ID number>__<operating system>__<language code>__sp0__1
```

The `product identifier` is a code to identify the product that is affected by the hot fix, usually `msofficeint` for SAS Add-in for Microsoft Office or `eguide` for SAS Enterprise Guide. Some hot fixes are for both products and will only have one of the two product codes. The `hot fix ID number` is the same that was used on the zip file.

The `operating system` is a three-byte code with `win` representing 32-bit Windows and `wx6` representing 64-bit Windows.

Finally, the `language code` corresponds to the language the hot fix is for, according to the following list:

Code	Language
de	German
en	English
es	Spanish
fr	French
it	Italian
ja	Japanese
ko	Korean
pl	Polish

ru	Russian
zh	Chinese (simplified)
zX	Chinese (traditional, Hong Kong)
zt	Chinese (traditional, Taiwan)

Make note of the name of the directories for the languages for which you want to apply the hot fix.

4. If you want to perform a **standard installation** (rather than a quiet installation), go to the directory which is named after the right appropriate combination of product, operating system, and language. In that directory, double-click on the .msp file to perform the installation. The following is an example path to the .msp file.

```
C:\S22001x6\products\msofficeint__S22001__wx6__en__sp0__1\
msofficeint_patch.msp
```

If you want to perform a **quiet installation**, open a command prompt and issue the following command in this format:

```
msiexec.exe /update "<path to executable file>\<product
identifier>.msp" /qn /norestart
```

The path to executable file is the full path to the language-specific directory you found in step 3. The product identifier is the same that is described in step 3. The following is an example of such a command, assuming that we created the S22001x6 directory on the C: drive and we want to install the English hot fix:

```
msiexec.exe /update "C:\S22001x6\products\
msofficeint__S22001__wx6__en__sp0__1\msofficeint_patch.msp" /qn
/norestart
```

5. Repeat step 4 for each language that you have used to install the original product.

SAS 9.4 (TS1M6), Rev. 940_19w25 and After (Including SAS Viya)

Because the independent products include the SAS Deployment Manager, you should follow the instructions at "Applying Hot Fixes after the Installation" on page 30 to apply hot fixes to them and their associated products.

Appendix B — Windows Administration

Preparing for a SAS Installation in a Terminal Server Environment or Citrix

To properly install SAS 9.4 on a server with Terminal Services, the following steps must be performed:

1. Log on as an administrator to the Terminal Server to which SAS 9.4 will be installed.
2. Install mode is required for installing applications on Windows Terminal Servers. There are two ways to place the system in install mode:
 - Use the Add/Remove Programs Control Panel icon and select **Install**. You will be asked to change the user option. Be sure to select the option that allows all users to begin with common application settings.
 - Type `change user /install` at a command prompt (`cmd.exe`). A message will inform you if the install mode is set correctly.
3. Installation of SAS 9.4 on Terminal Servers may require system reboots. In order to minimize user interruption, *have all users log off of the terminal server before installation*. 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.

Before you proceed with this installation, SAS recommends that you close your anti-virus and firewall software. If you keep those types of software running, you increase the possibility that one or more reinstallations of SAS software will be necessary, since certain anti-virus and/or firewall configurations can prevent an application from installing successfully. If you are unable to close the anti-virus or firewall software, make sure that the configuration allows you to install software and to update the registry. If your SAS installation fails and you have mandatory anti-virus or firewall software running, please check with your system administrator.

If a reboot is required, you will have to reestablish the connection to the Terminal Server after the reboot is complete and you may need to put the server back in install mode. After logging on to the Terminal Server session, the set-up should restart and continue the installation. If the set-up does not restart, start the set-up and it will resume where it left off before the reboot.

Installing SAS 9.4 in a Terminal Server Environment or Citrix

Installing SAS 9.4 on a server with Terminal Services is the same as installing SAS 9.4 on any server.

Appendix C — UNIX Administration

The following are sample mount commands for each supported UNIX system. The device names listed below are used only for example; substitute your actual device names accordingly. These instructions assume your mount point is `/mnt/dvdrom`; however, you may choose another location.

Note: *Because of the number of variances based on the deployment of your hardware, these commands are necessarily generic. For the exact mount command you should use, contact your system administrator.*

AIX

```
# mount -r -v cdrfs /dev/cd0 /mnt/dvdrom
```

HP-UX for the Itanium Processor Family

```
# mount -F cdrfs -o rr,ro /dev/dsk/c0t0d0 /mnt/dvdrom
```

Linux for x64

```
# mount -r /dev/dvd /mnt/dvdrom
```

Solaris and Solaris for x64

```
# mount -r -F hsfs /dev/dvd /mnt/dvdrom
```

Remote Mounting

If your DVD drive resides on another host, and is properly exported, mount the DVD using NFS by issuing a command similar to the following:

```
# mount -o ro <remotehost>:/<dvd-rom-dir> /mnt/dvdrom
```

In this example, `<remotehost>` refers to the machine that owns the DVD drive and `<dvd-rom-dir>` is the actual mount point for the DVD drive on the server.

Once the DVD is mounted, launch the executable with the following command:

```
$ /mnt/dvdrom/<executable>
```

Note: *When using a system with an automounter, it is common for a File Manager window to display when the media is inserted in the DVD drive. Do not invoke the executable via the File Manager since this will create a “Device busy” condition, preventing disk swapping later in the install process.*

Appendix D — SAS Depot Checker (Old Style)

Prior to SAS 9.4, the SAS Software Depot Check Utility did not run on z/OS machines. However, beginning with SAS 9.4 (TS1M2), Rev. 940_14w41, the utility will work on all supported operating systems for SAS 9.4. If you are using a deployment from before SAS 9.4 (TS1M2), Rev. 940_14w41, you will still have the previous version of the utility, described in this appendix. For information about the new version of the utility, refer to the “SAS Software Depot Check Utility” section of Chapter 9.

Overview

The SAS Software Depot Check Utility verifies the existence of expected files in SAS 9.4 software depots. The SAS Software Depot Check Utility performs the following tasks in order to provide you with information about the files in your depot:

- totals the files found in a depot
- lists files found and their directory path(s)
- lists and totals the files missing from the depot and shows the paths where the missing files should be found
- lists and totals the orders found
- lists and totals the SAS installation data files found
- lists the files that are the wrong size and specifies their incorrect and correct sizes
- lists the files where checksums are incorrect and specifies their correct and incorrect checksums

The SAS Software Depot Check Utility can be used to validate SAS 9.4 depots, including depots that contain subsetting orders that have been created during initial download with the SAS Download Manager, and depots that contain subsetting orders that have been created using the SAS Deployment Wizard.

The following is an example of the output of the SAS Software Depot Check Utility:

```
SAS Software Depot Check Utility version X.X
Thu 12/15/11 8:37:24 AM
USERNAME=someuser

FOUND: C:\SAS Software Depot\sid_files
FOUND: C:\SAS Software Depot\cd.id
FOUND: C:\SAS Software Depot\sassd.txt
FOUND: C:\SAS Software Depot\setup.dat
FOUND: C:\SAS Software Depot\depotsummary.html
FOUND: C:\SAS Software Depot\order_data
FOUND: C:\SAS Software Depot\cd.id
FOUND: C:\SAS Software
Depot\products\acceldb2fmt__93130__dba__en__sp0__1\deployment.xml
FOUND: C:\SAS Software
Depot\products\acceldb2fmt__93130__dba__en__sp0__1\en_bin.xml
FOUND: C:\SAS Software
Depot\products\acceldb2fmt__93130__dba__en__sp0__1\en_bin.zip
FOUND: C:\SAS Software
Depot\products\acceldb2fmt__93130__dba__en__sp0__1\en_lib.xml
```

```
FOUND: C:\SAS Software
Depot\products\acceldb2fmt__93130__dba__en__sp0__1\en_lib.zip
FOUND: C:\SAS Software
Depot\products\acceldb2fmt__93130__dba__en__sp0__1\en_misc.xml
FOUND: C:\SAS Software
Depot\products\acceldb2fmt__93130__dba__en__sp0__1\en_misc.zip
FOUND: C:\SAS Software
Depot\products\acceldb2fmt__93130__dba__en__sp0__1\install.xml
...
*** 13408 Files were checked in C:\SAS Software Depot

*** 2 Orders were found in this depot:
099GN1
09B4RX

*** 2 SID files were found in C:\SAS Software Depot\sider_files:
SAS93_099GN1_70068130_Win_X64_Wrkstn_Srv.txt
SAS93_09B4RX_70068128_Win_X64_Wrkstn.txt

*** No files with wrong size were found in this depot.

*** No files with wrong checksums were found in this depot.
```

Running the SAS Software Depot Check Utility with a User Interface on Windows

Perform the following steps to run the SAS Software Depot Check Utility with a user interface on a Windows machine. SAS strongly recommends that the user ID that was used to download the SAS Software Depot also be used to execute the SAS Software Depot Check Utility.

1. Open the `utilities` directory in your SAS Software Depot.
Note: If you are working from a depot that was created by subsetting another depot, the `utilities` directory will not exist.
2. Double-click the `SASDepotCheck.exe` (depending on your settings, you may have to right-click the `SASDepotCheck.exe` and select **Run as administrator**).
3. The **Browse for Folder** dialog opens, asking you to specify the location of your SAS Software Depot. You can browse to the location or enter the location directly in the **Folder** text box. When you have specified the location, click **OK**.
4. The **Select path and file name for results** dialog opens, asking you to specify the name of the results file and where you want to create it. Browse to a location in the directory pane, then either enter a file name in the **File name** text box or use the default. Click **Save** to continue.
5. The **Verbose?** dialog opens, asking you if you want the results file to list all of the files found in the depot. Select **Yes** or **No**, and the SAS Software Depot Check Utility begins.
6. A progress window opens. The window lists the file as they are being checked and also shows a progress bar.
7. When the SAS Software Depot Check Utility has completed its run, the results file opens.

Running the SAS Software Depot Check Utility Manually for Windows and UNIX

Note: Like the rest of this appendix, the information in this section only applies to the SAS Software Depot Check Utility released prior to SAS 9.4 (TS1M2), Rev. 940_14w41. For information about the new version of the utility, refer to the "SAS Software Depot Check Utility" section of Chapter 9.

Windows

To launch the SAS Software Depot Check Utility manually on a Windows machine, run the `SASDepotCheck.exe` via a DOS command-line prompt using the following syntax. SAS strongly recommends that the user ID that was used to download the SAS Software Depot also be used to execute the SAS Software Depot Check Utility.

```
SASDepotCheck.exe -i <SAS Software Depot directory> -o <output file path
and name> -v
```

The `-v` command line is optional and should be used to see the full list of all files found in the depot. If you do not include the `-i` and `-o` command line options, you will be queried interactively by dialog box per the steps in the "Running the SAS Software Depot Check Utility with a User Interface" section above.

UNIX

To launch the SAS Software Depot Check Utility manually on a UNIX machine, execute `sas_depot_check.sh` using the following syntax. SAS strongly recommends that the user ID that was used to download the SAS Software Depot also be used to execute the SAS Software Depot Check Utility.

```
sas_depot_check.sh -i <SAS Software Depot directory> -o <output file
path and name> -v
```

The `-v` command line is optional and should be used to see the full list of all files found in the depot. If you do not include the `-i` and `-o` command line options, you will be given help information describing them, with the expectation that you will execute the script again with the correct command line information.



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