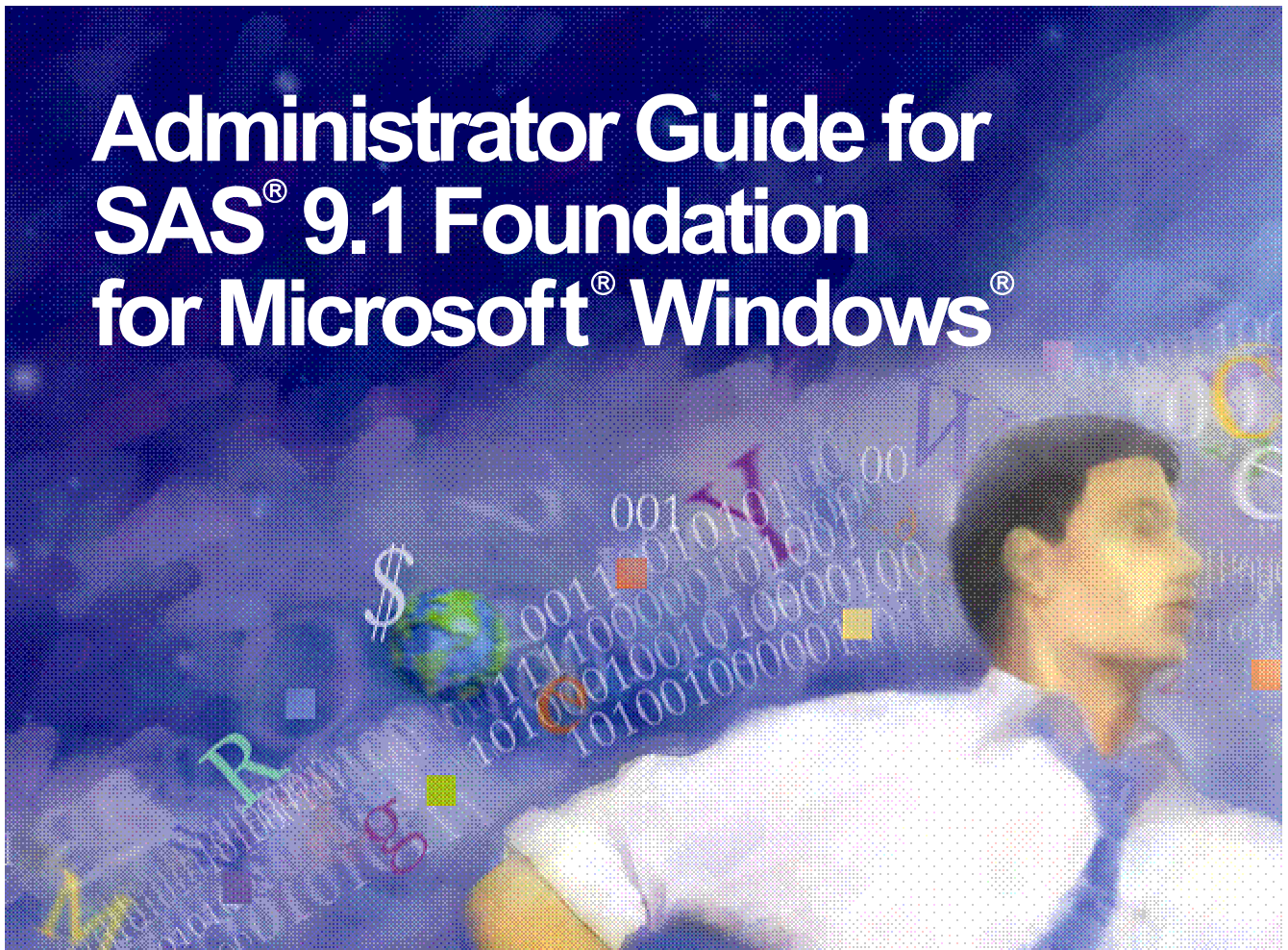




Administrator Guide for SAS[®] 9.1 Foundation for Microsoft[®] Windows[®]



Installation Instructions

- Understanding SAS 9.1 Foundation
- The SAS[®] Administrator Wizard
- Installation and Deployment Instructions
- Software Renewal Instructions

Administrator Guide for SAS[®] 9.1 Foundation for Microsoft[®] Windows[®]

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Using the Administrator Guide

This document provides installation instructions for SAS 9.1 Foundation, which is made up of server-side Base SAS and a variety of server-side SAS products (the exact products vary by customer). Information about the installation of mid-tier and client-side products are available from your SAS Software Navigator.

This guide is divided into two parts with different objectives –

- “Part I: Understanding SAS 9.1 Foundation” explains what administrators need to know about SAS 9.1 Foundation’s components.
- “Part II: Installation and Deployment Instructions” provides step-by-step details about SAS 9.1 Foundation’s wizards and tools.

Your comments about the guide’s structure and contents are welcome.

The server-side configuration instructions contained in this document are for the configuration of a generic SAS server. If you want to configure your server for more specific functions, such as a Metadata Server, Workspace Server, OLAP Server, or Stored Process Server, please refer to the *SAS 9.1 Intelligence Architecture: Planning and Administration Guide* located at <http://support.sas.com/91administration>.

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Part I: Understanding SAS 9.1 Foundation

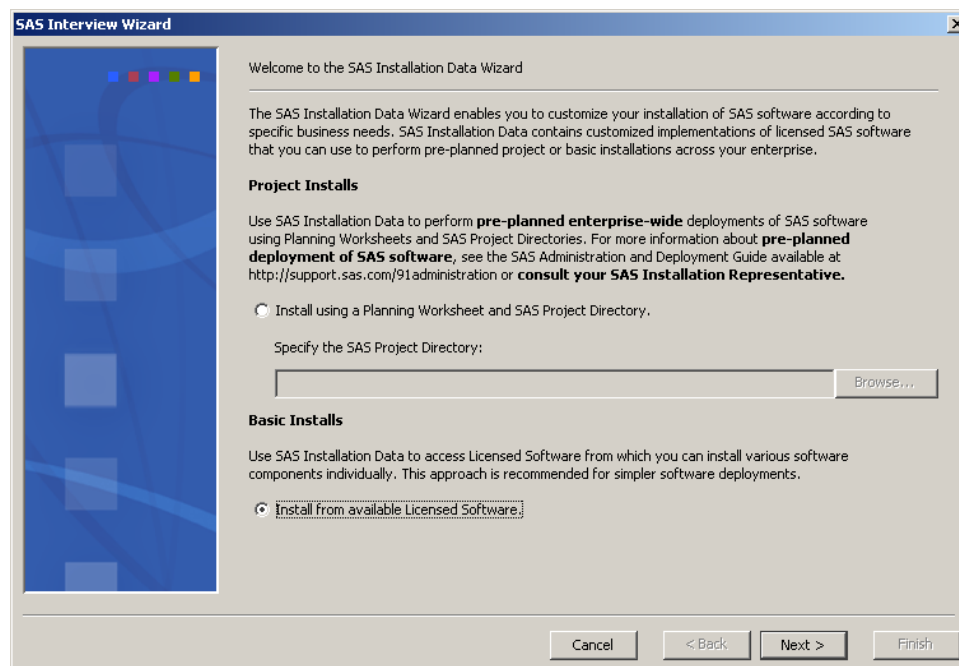
Enterprise-Wide Deployment of Windows SAS

For an administrator in a large enterprise, managing software deployment to hundreds, or even thousands of computers is an increasingly challenging task. End users often have varying needs. While some users may be capable of installing the software interactively, others may not.

As the number of machines increases, so does the desire to keep software installations consistent and manageable. Often, you may not have easy access to end user computers, or it may be too inefficient to install the software independently on each machine. Additionally, these computers may require operating system updates, which in turn may require several reboots before the installation process for SAS software even begins. To avoid interrupting users, you may need to install the software when the user is not using the machine.

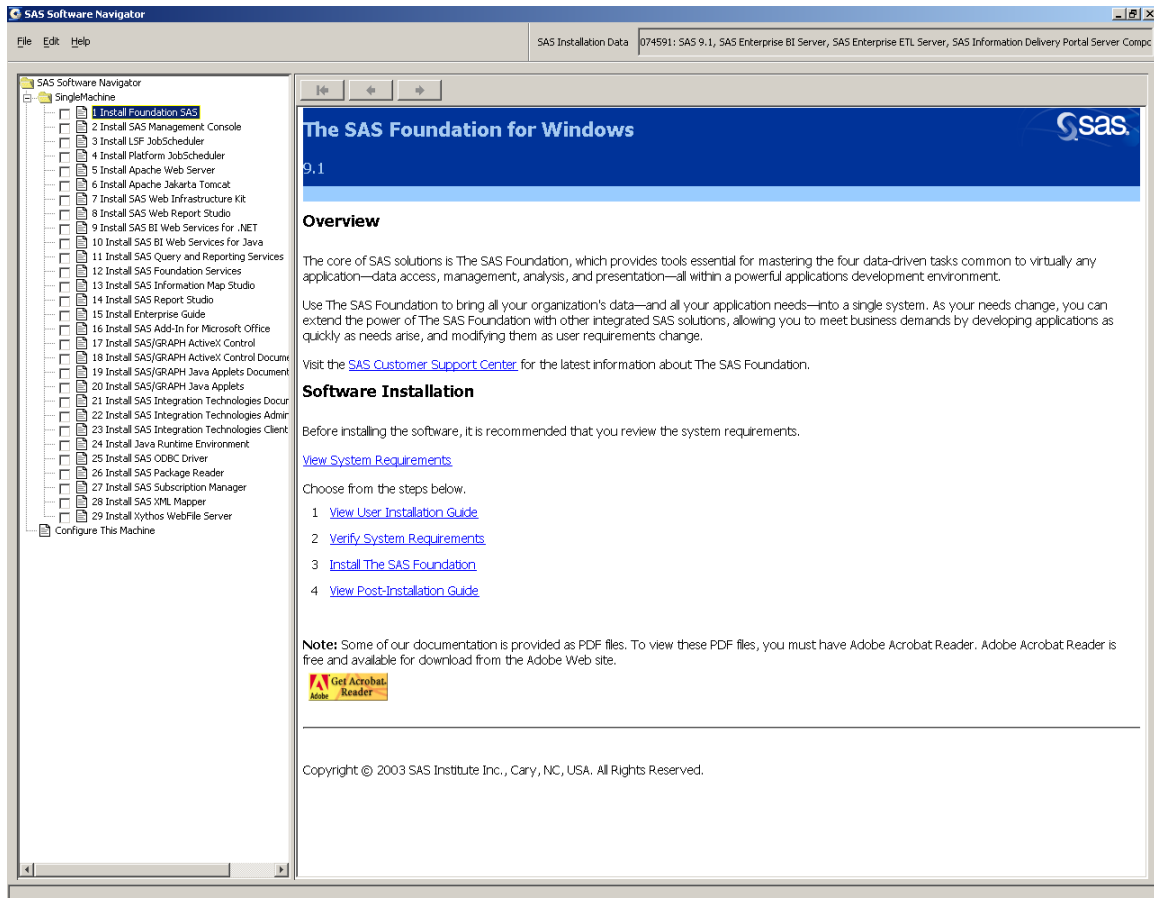
This chapter discusses the use of SAS 9.1 Foundation Windows installation tools to address these problems within your enterprise. The SAS 9.1 Foundation installation toolset includes the SAS Administrator Wizard, the System Requirements Wizard, and SAS Setup. For each tool, we will discuss the interactive use of the tool, and follow with a discussion of how the tool can be used in unattended or Quiet Mode (where applicable).

The SAS Software Navigator



The SAS Software Navigator (SSN) is your portal for the installation of SAS 9.1 Foundation and other SAS software. The SSN serves as a launching pad for interactive use of all of the installation tools mentioned above.

In addition to supporting the installation tools, the SAS Software Navigator provides access to online installation and configuration documentation, and links to both the SAS Customer Support Center and the installation steps for other platforms.



SAS 9.1 Foundation System Requirements

In SAS 9.1 Foundation, the System Requirements are available in both hard copy and online form. The printed version can be found in the Installation Kit, while the printable Adobe PDF version is available from both the SAS Software Navigator and Install Center.

There are six major sections listed in the System Requirements Table of Contents:

- Software Requirements
- Hardware Requirements
- Additional Features
- Space Requirements
- Specific Product Requirements
- Graphics Hardware and Software Compatibility

Accessing the Online Documentation

In SAS 9.1 Foundation, your installation documentation is provided on the Setup Disk in printable Adobe PDF format, and is divided into three documents focused at different audiences.

1. As an administrator, you will be interested in this Administrator Guide, which is accessible from the SAS Software Navigator by selecting the View Administrator Guide option.
2. Your end users who will install SAS interactively will be interested in the User Installation Guide, which is accessible by selecting the View User Installation Guide option. In order to assist these users, you should also familiarize yourself with the information in that document.
3. The Post-Installation Guide is intended for anyone who needs to tune the behavior of specific SAS products or solutions after installation. This document is accessible from the SAS Software Navigator by selecting the View Post-Installation Guide option.

For updates to other printed documentation included in your Installation Kit (as well as other useful installation-related information), you can review the material available at the SAS Install Center:

<http://support.sas.com/documentation/installcenter/>.

Classifying Your End Users

Before deploying SAS software, you should identify the various classes of end users that you will support. End users can be divided into three classes:

1. Client Users

Client users install a minimal set of components on their local PCs, but run the majority of their SAS Software from a network image that you create.

2. Personal Users with Network Access

Personal Users with network access are users who install all SAS software that they will use on their local PCs from a network image that you create.

3. Personal Users without Network Access

Personal Users who do not have access to the network must install all SAS software that they will use on their local PCs using their own set of CDs.

Client User Model

Advantages of this model:

- The amount of disk space required to run SAS is minimized.
- Any configuration changes can be done on the server and inherited by all of the clients. Operations such as updating a SAS Installation Data file (including SETINIT) can be managed more efficiently.

Disadvantages of this model:

- All of the clients are dependent on the server to operate. If this server goes down, none of the clients will be able to run SAS.
- There is a strong network dependency for all of the clients. Performance may be hindered due to the amount of network traffic and any additional load on the SAS Server.

Personal User Model

Advantages of this model:

- Each copy of SAS is unique and has no dependencies. There are no dependencies on the network or on any one server. The server is used only as a location from which to perform an installation.
- In most cases, personal installations yield the best performance, since all of the files are local to the user's system

Disadvantages of this model:

- All SAS System files are present on each computer that has SAS installed. A large amount of disk space is required so that SAS can run independently.
- Updates such as renewed SAS Installation Data (including SETINIT) are not automatically inherited by end users. When updates are performed, the server must be updated and then Setup run again to propagate these changes to all of the individual computers.

CD Distribution

The Advantage of this model is that CDs containing Customer-Specific Data (perhaps downloaded from the Internet) can be provided to users for an installation, regardless of the user's access to a network or server. This gives an Administrator more control over the products available to users.

The disadvantage of this model is that CDs created this way must be passed around to users, or multiple copies must be made for each user to be able to install SAS.

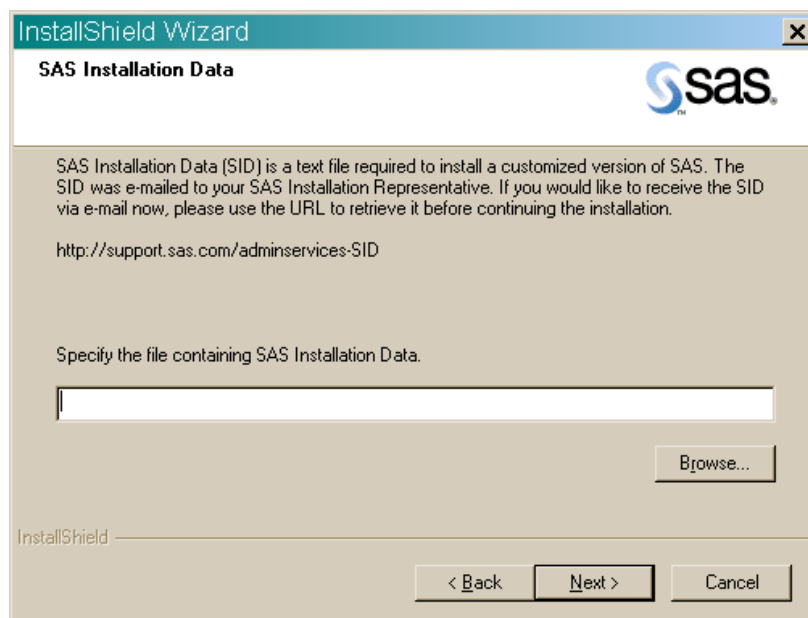
Retrieving and Using SAS Installation Data

The SAS Installation Data file includes your company's SETINIT and installation process customization parameters. The SAS Installation Data file is required to install SAS Software.

You can retrieve your SAS Installation Data from a File (if, for example, you previously saved the SAS Installation Data file that you received via e-mail), or via the Internet (if you install using the **SAS Setup** CD and this option is available in your version of the SAS Administrator Wizard).

At the time of your SAS software order, your designated installation representative receives an e-mail from SAS that includes a text file attachment. This attachment contains your SAS Installation Data file, along with instructions about saving the data to disk.

After the data is saved to disk, both the SAS Software Navigator and the SAS Administrator Wizard can find the SAS Installation Data file.



If you use the SAS Software Navigator to install SAS, the SAS Installation Data window appears right after the Welcome window.

If you use the **SAS Setup** disk to install SAS via the SAS Administrator Wizard, please see page 8 for more information.

The SAS Administrator Wizard

The SAS Administrator Wizard™ is accessible from the SAS Software Navigator and the **SAS Setup** CD by selecting the Create a SAS Image for Deployment option. You can also access this wizard by running

```
<CD Drive>:\SAW\setup.exe
```

With the SAS Administrator Wizard, you can perform the following tasks:

- Retrieve the SAS Installation Data file
(available from the CD or server image; not available from the SSN)

Use your Internet connection to connect to SAS.COM and retrieve your SAS Installation Data. The SAS Installation Data file includes your SETINIT and parameters that customize the installation process to reflect the software you have licensed.

- Support Client SAS Users
(available from the SSN's Basic Install and from the CD)

Create a network image, which will act as a fileserver, from which your end users will run SAS. You can use the SAS Administrator Wizard to customize this image so that end users have access to only the software that you select. You can use this image later to quietly prepare end user PCs to run SAS from this image.

- Support Personal SAS Users
(available from the SSN's Basic Install and from the CD)

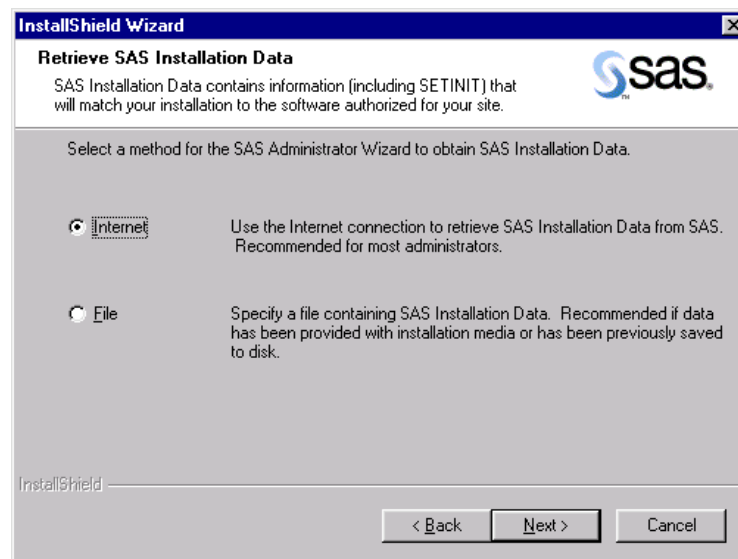
Create a network image, which will act as an installation point, from which your end users will install SAS on their local PCs. You can use the SAS Administrator Wizard to customize this image so that end users will be able to install only the software that you select. You can also use this image later to quietly install SAS locally on end user PCs.

This image will also contain virtual CD images. You can use your favorite CD burning software to burn these CD images. This allows you to create installation CDs for end users who do not have network access.

You will always use the SAS Administrator Wizard interactively to perform one or more of the above tasks. These tasks produce the foundational images used to support deployment of the software in your enterprise, for the three end-user classes described above. The following sections cover use of the wizard to carry out these tasks.

Note: SAS 9.1 Foundation allows you to integrate each installation with a SAS Metadata server so installation and licensing information can be collected. To take advantage of this functionality, you need to configure a SAS Metadata Server first. Please see [Making an Inventory of all SAS Software During an Installation](#) on page 79 for more information.

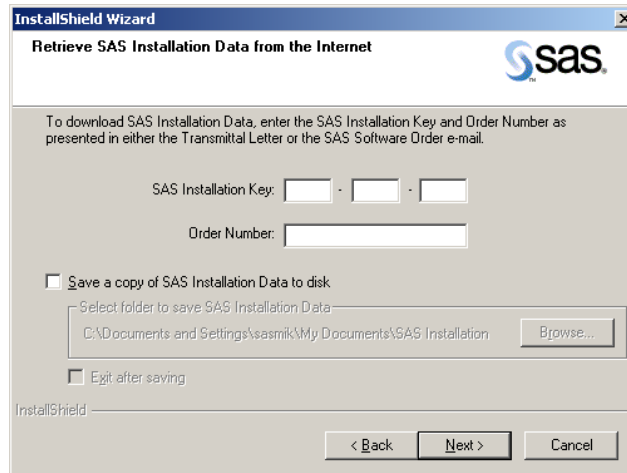
If you run the SAS Administrator Wizard from the **SAS Setup** CD, the installation process will include the Retrieve SAS Installation Data window. This dialog asks you to retrieve your SAS Installation Data file using either the Internet or File methods.



To obtain the most current information, it is generally recommended that you retrieve the SAS Installation Data file using your Internet connection. As an alternative to the Internet option, the File option allows you to retrieve SAS Installation Data from file stored on disk.

Note: The Internet option is not available to SAS Software Navigator users, and may not be available in all versions of the SAS Administrator Wizard. If the option is unavailable, proceed using the File option.

For the purposes of this discussion, we will use the Internet option. If you choose this method, then the SAS Administrator Wizard prompts you for your SAS Installation Key and Order Number. The wizard connects securely to SAS . COM and retrieves the text-only data. This is a direct connection from the wizard to SAS . COM, and does not require a Web browser.



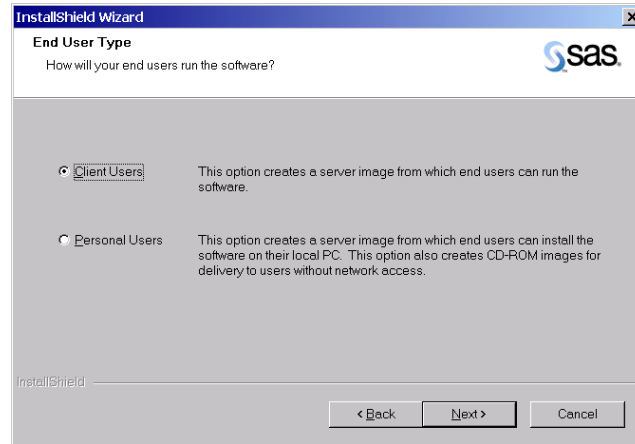
The SAS Installation Key and Order Number are required to connect to SAS .COM. You have the option of selecting the checkbox to save a copy of your SAS Installation Data file to disk. This option is useful if you anticipate using the file option to retrieve the SAS Installation Data file in the future.

As you proceed through the SAS Administrator Wizard, the SAS Installation Data file you have just downloaded will be integrated into the network image that you are creating. This results in end user installations that are customized with the same SAS Installation Data. With the SAS Installation Data file in hand, you can begin to create the appropriate network image(s) to support your end users.

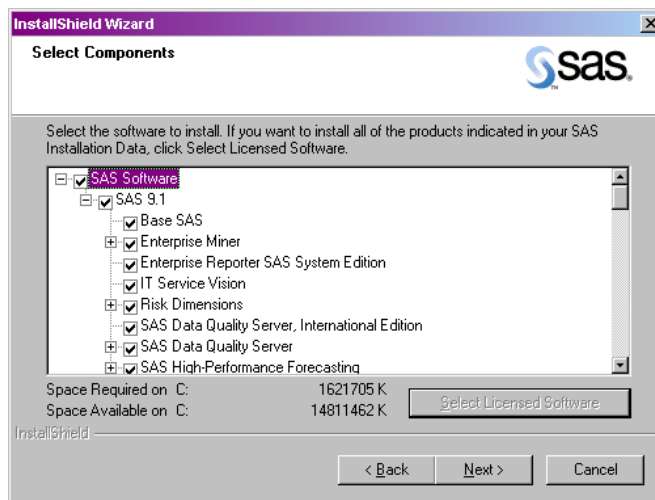
Creating an Image for Client Users

This section assumes that you have retrieved the SAS Installation Data file. The material here describes the creation of a network image to support Client Users.

Client Users are users of SAS Software who will run the majority of SAS from a network image that you create. These users require a minimal installation using SAS Setup, and only a small number of components are copied to their local PCs. (If your end users will install the software to their local PCs, see the section [Creating an Image for Personal Users](#) on page 11). The SAS Administrator Wizard includes a prompt for specifying your End User Type.



You should select Client Users on this dialog, and continue through the dialogs that follow it. One of these will be the Select Components dialog.



From the Select Components dialog, you are able to specify the software that your client users will run from the network image. In this way, you can limit the software that your client users are able to run.

For your convenience, the Select Licensed Software button uses your SAS Installation Data file to determine the software for which you are licensed, and selects only those components.

It is possible to install software for which you are not currently licensed. You may choose to do this if you anticipate licensing additional software in the future. In this way, the software will be installed and ready for the application of a new SAS Installation Data file.

Note: Clients of servers gain access to all of the products present on that server. However, if you add products to an existing Server for Clients,

the clients of that server must re-run the User Setup from the updated server to gain access to the additional software.

To do this, end users run the installation from that server (linked off the SAS Software Navigator), specifying the same paths as the their initial install, usually the default values through the Setup. When the Setup completes, users have access to all of the products on the server.

Once you have selected the desired software, follow the screen dialogs to the end of the SAS Administrator Wizard. The wizard will apply the SETINIT contained in your SAS Installation Data file to prepare the network image for end users who will run SAS Software.

At this point, you have created a network image that is capable of supporting your Client Users with the software mix that you have placed into the image.

From this image, the System Requirements Wizard will be used to prepare your end user machines for SAS Software. SAS Setup will also be used from this image to perform the minimal installation on the client user's PC.

Users who will use this image to install interactively should be instructed to run the AutoPlay from the image you have just created by running:

```
<Source Path>\Setup.exe
```

Where *Source Path* is the destination you provided when you created the image.

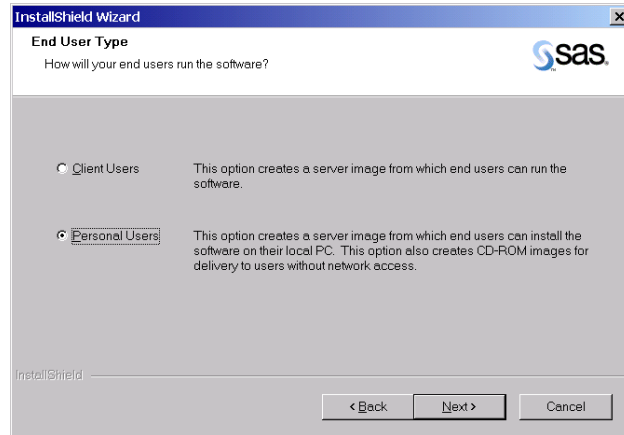
For more information about the process of installing interactively, refer your users to the *View User Installation Guide* option from the SAS Software Navigator.

Creating an Image for Personal Users

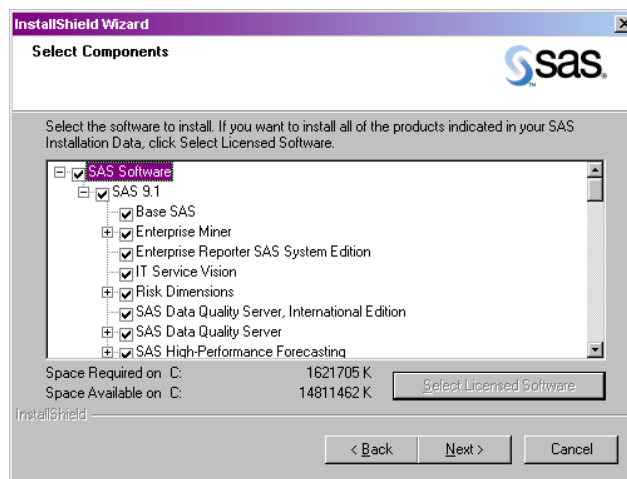
This section assumes that you have already retrieved the SAS Installation Data file. The material here describes the creation of a network image to support Personal Users.

Personal Users are users of SAS Software who will install all components that they will use on their local PCs. (If your end users will run the software from the network, see the earlier section in this document, *Creating an Image for Client Users*, on page 8).

The SAS Administrator Wizard includes a prompt for specifying your End User Type.



In this example, Personal Users is the choice of the two options in the dialog. The Select Components dialog will be one of the windows that follows.



From the Select Components dialog, you are able to specify the software that your Personal Users will be able to install from the network image you are creating. This allows you to limit the software these users can install.

For your convenience, the Select Licensed Software button uses your SAS Installation Data file to determine the software for which you are licensed, and will select only those components.

It is possible to install software for which you are not currently licensed. You may choose to do this if you anticipate licensing additional software in the future.

Once you have selected the desired software, follow the screen dialogs to the end of the SAS Administrator Wizard.

At this point, you have created a network image consisting of components that you have selected for installation on the end users' local PCs. From this image,

the System Requirements Wizard will be used to prepare your end user machines for SAS Software. SAS Setup will then be used from this image to install the software locally on an end user's PC.

Users who will use this image to install interactively should be instructed to run the AutoPlay from the image you have just created by running:

```
<Source Path>\Disk1\Setup.exe
```

In this example, *Source Path* is the destination that you provided when you created the image.

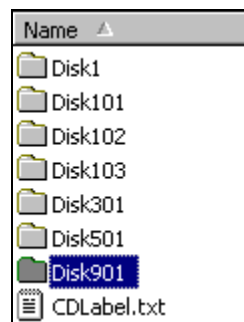
For more information on the process of installing interactively, refer your users to the *View User Installation Guide* option from the SAS Software Navigator.

Creating CDs for Personal Users Without Network Access

For users who are not connected to the network, you may want to create installation CDs. This method allows you to limit the software that the user is able to install. Each CD would include the SAS Installation Data file that you have downloaded from SAS.

The SAS Administrator Wizard automatically creates CD images on the network when the End User Type that you select is Personal User. (See the section, [Creating an Image for Personal Users](#) on page 11 for information about how to create this image on the network.)

From the image you have created for Personal Users, you will find a folder structure as follows:



The Disk* folders contain the contents of each disk that you will need to create using your favorite CD burning software. The contents of each Disk folder should be burned to CD, but not the actual Disk folder itself. Depending upon the software you selected when creating your network image, some of the Disk folders may not be present in your image.

The `CDLabel.txt` file contains descriptions of the CDs represented by each Disk, so you can label them appropriately as you burn them. It is recommended that you print a copy of this file for your reference.

Using Maintenance Mode Features

If your organization already has a Server installation of SAS software in place, Maintenance Mode allows you to update the SAS Installation Data file on the server image. This process is an efficient way to make updated an SAS Installation Data file available to a large number of users. For complete instructions, please see [“Using Maintenance Mode to Update SAS Installation Data on the Server Image”](#) on page 76.

Maintenance Mode can also be the starting point for recording a `quiet.ini` when SAS Setup will be used with Quiet Mode. For more information, please see [“Using Maintenance Mode to Create a Quiet Record File”](#) on page 78.

The System Requirements Wizard

The System Requirements Wizard must be run on every machine prior to the installation of SAS Software. This wizard ensures that a machine meets the minimum system requirements for the software by performing the following tasks:

- Analyzes the PC to determine deficiencies in system software
- Reports on system software deficiencies
- Updates system software to the minimum required level
- Reboots the system between updates as necessary
- Optionally supports Automatic Logon, eliminating the need for users to manually logon between each reboot. Please note that supplying a blank password to logon will disable the Automatic Logon feature. (For more information on Automatic Logon, refer to Microsoft Knowledge Base Articles #Q310584, #Q97597, and #Q234572.)

The System Requirements Wizard may be run in one of two modes:

1. Interactive Mode
Requires a user to be present to respond to prompts.
2. Quiet Mode
Does not require a user to be present at the machine. This mode can be useful when used in a login script, in conjunction with management packages such as Microsoft SMS, Tivoli, or with any other in-house solution used for managing software on your PCs.

The next section covers interactive use of the System Requirements Wizard and will familiarize you with the prompts a user would normally encounter. Following this, the process of automating responses to these prompts is covered. Automation facilitates Quiet Mode operation of the wizard, which is highly recommended for large-scale enterprise deployment.

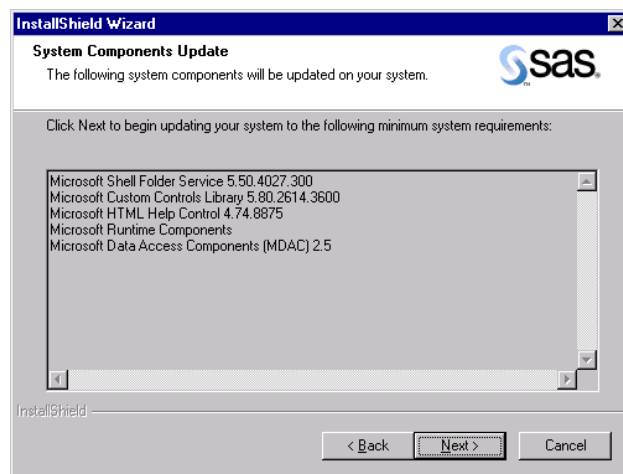
Interactive Use of the System Requirements Wizard

The System Requirements Wizard can be used interactively from the SAS Software Navigator by selecting the Verify System Requirements option. This wizard can also be run by one of the following commands, depending upon the type of end user:

- Client Users: <Source Path>\SRW\SETUP.EXE
- Personal Users: <Source Path>\Disk1\SRW\SETUP.EXE
- CD-ROM Users: <CD Drive>:\SRW\SETUP.EXE from the SAS Setup CD

In these examples, *Source Path* is the network location you specified when using the SAS Administrator Wizard to create the network image.

Once the wizard has examined the system, it will display a list of system components that require updating, if there are any.



If the system meets the minimum system requirements, the wizard will display a message to that effect, and will not perform any updates.

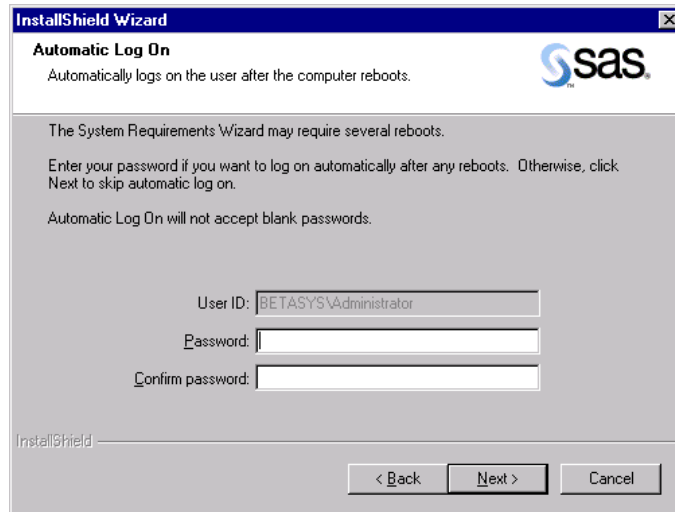
If updates are required, one or more reboots may also be necessary to update components that are in use by the operating system. Unfortunately, rebooting the system is the only reliable way to release these in-use files for updating.

To minimize user interaction during reboots, the System Requirements Wizard supports Auto Logon. Auto Logon temporarily stores a valid User ID

and Password in the Windows Registry during reboots. This User ID and Password combination is used to automatically log on to the system between any required reboots, and is cleared from the registry after each logon. As the wizard requires additional reboots, the combination is used again. After the final reboot, the User ID and Password **are no longer present** in the Windows Registry. (For more information on Auto Logon, refer to Microsoft Knowledge Base Articles #Q310584, #Q97597, and #Q234572.)

In order for Auto Logon to function properly, your PC must not have a hardware password enabled. A hardware password would prevent the reboots that may be necessary for a successful update of your system components.

The System Requirements Wizard will prompt for your Automatic Logon credentials.



If you want to use Automatic Log On, you must specify a password here. If you do not wish to use the Auto Logon feature, you may simply click Next on this dialog, leaving the User ID and Password fields blank. A blank password disables the Auto Logon feature.

The wizard will perform the appropriate system updates, and reboot the machine as necessary. If you did not use the Auto Logon feature, a manual logon will be necessary between reboots.

Once the system meets the minimum system requirements, the wizard will display a Finish dialog.

Quiet Mode and the System Requirements Wizard

For large-scale enterprise deployment, it would be impractical to require an administrator or user at each machine when system components are updated. To meet this need, the System Requirements Wizard supports Quiet Mode.

Quiet Mode 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. To familiarize yourself with the prompts that the wizard would normally present to the user, review the section that starts on page 15, *Interactive Use of the System Requirements Wizard*.

To run the System Requirements Wizard in Quiet Mode, a single command line must be run on the machine where you want the system requirements updated.

The source path of the command to be run will vary, depending upon the type of end user:

- Client Users: <Source Path>\SRW\SETUP.EXE
- Personal Users: <Source Path>\Disk1\SRW\SETUP.EXE

The command line arguments to the wizard are the same, independent of the source path used above. Usage is shown below:

```
Usage:    . . . \SRW\SETUP.EXE -s
          -f2 "<LogFile>" "QuietLog:<LogFile>"
          "LogFile:<Full Path To Detailed LogFile>"
          ["AutoID:MyUserID" "AutoPwd:MyPassword"
          "AutoDomain:MyDomain"]
```

For example:

```
M:\MyNetDrive\SRW\Setup.exe -s
-f2 "C:\Temp\Log.txt" "QuietLog:C:\Temp\Log.txt"
"LogFile:C:\Temp\DetailedLog.txt"
"AutoID:JohnDoe" "AutoPwd:Jane"
"AutoDomain:DoeCompany"
```

Note: While the Auto* arguments are optional, omitting them will result in the wizard not continuing to completion until someone manually logs onto the machine.

The *-f2* and *QuietLog* options are required, and they must be fully qualified paths to the log file that you wish to have created. This log file contains an account of dialog flow response. While it must be created, it can generally be ignored.

By comparison, the *LogFile* option is very important and is used to specify where the detailed log of the quiet installation should be placed.

This command can be used in the login script for your target users, in a Microsoft SMS package, or in any other way that results in it being run on the end user's machine without requiring their presence. For more information, please refer to the chapter “[Installing SAS using Microsoft System Management Server 2.0](#)” on page 53.

For examples of how Quiet Mode might be used from a batch script, see the following files:

- `sas\core\sasinst\examples\goquiet.cmd.txt`
- `sas\core\sasinst\examples\sasquiet.cmd.txt`
- `sas\core\sasinst\examples\srwquiet.cmd.txt`

Note: If you are reviewing these files from a network image, the path will include `Disk1` before `sas\core`. Otherwise, they will be located on the Setup disk.

When the System Requirements Wizard runs, it installs the JRE silently. As part of this process, the System Requirements Wizard sets the location for the shared files, if that has not already been specified for the user. If you want to specify the shared files location, run the JRE installation manually. For more information, refer to [SAS Shared Files](#) on page 42.

SAS Setup

SAS Setup™ performs the actual installation of the software, and must be run on every machine where the SAS Software will run, even if the machine will be running the majority of the software from a network image (as is the case for your client users).

SAS Setup may be run in one of three modes:

1. **Interactive Mode**
Requires that a user be present to respond to prompts.
2. **Record Mode**
Prepares a quiet record file for use with Quiet Mode. This mode is run by the administrator, and interactively records the component selections in the quiet record file. Record Mode defaults all other responses, and allows the administrator to edit these directly in the quiet record file.

3. Quiet Mode

Uses a quiet record file (created in Record Mode) to run SAS Setup in an unattended fashion. Quiet Mode is intended for use in any context that does not require a user to be present at the machine. This can be useful when used in a login script, in conjunction with management packages such as Microsoft SMS (as described on page 53), Tivoli, or with any other in-house solution used for managing software on your PCs.

The next section covers interactive use of SAS Setup, to familiarize you with the prompts a user would normally encounter. The following section discusses automation of the responses to these prompts using Record Mode and Quiet Mode. For large-scale enterprise deployment, Record Mode and Quiet Mode are highly recommended.

Interactive Use of SAS Setup

SAS Setup is accessible for interactive use from the SAS Software Navigator by selecting the Install The SAS Software Foundation option. This wizard can also be run by one of the following commands, depending on the type of end user:

- Client Users: `<Source Path>\SAS\SETUP.EXE`
- Personal Users: `<Source Path>\Disk1\SAS\SETUP.EXE`
- CD-ROM Users: `<CD Drive>:\SAS\SETUP.EXE`

In these examples, *Source Path* is the network location you specified when using the SAS Administrator Wizard to create the network image.

The text below does not cover every dialog a user will encounter, but focuses on some of the more important ones.

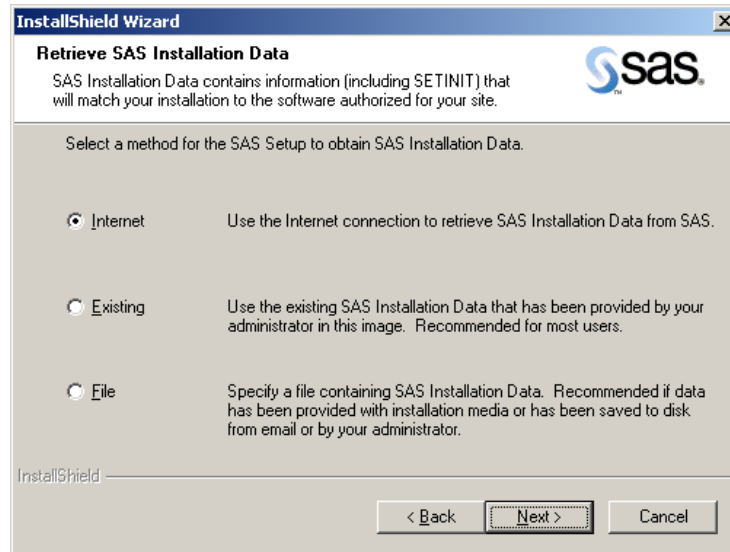
Providing the SAS Installation Data

This section applies only to users installing the software locally (either from a network image you have created or from CD-ROM). Client users will not see the prompts in this section.

The SAS Installation Data file is required for your Personal Users to complete the final installation of SAS software. Personal Users installing interactively depend upon you to provide them with the SAS Installation Data file needed to complete the installation.

When you created the network image using the SAS Administrator Wizard, the SAS Installation Data file you provided (either via the Internet, or via the saved e-mail attachment) was integrated into the installation image. In the case of CD-ROM users, the data was integrated into the CD-ROMs you created. As a result, when your end users run SAS Setup interactively, they

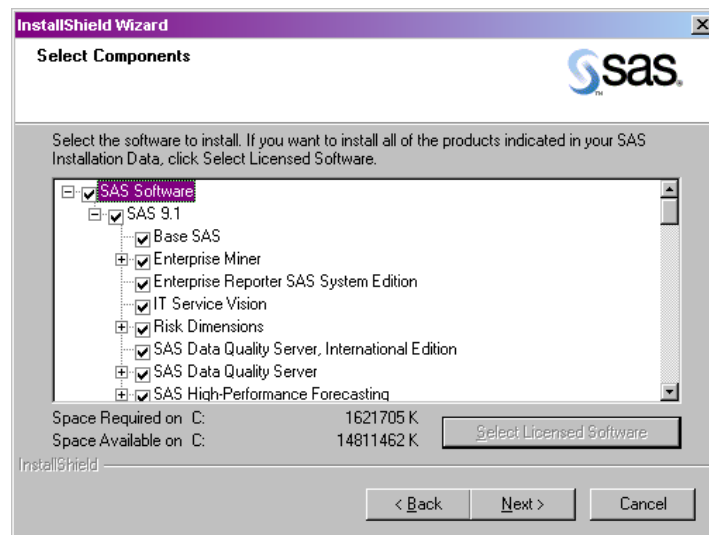
will be prompted with the following options for retrieving the SAS Installation Data file for their installation:



SAS Setup will default to the Existing option, since your end users will most often use the existing SAS Installation Data file that you placed in the network or CD image. The File option is provided in the event that you have saved your SAS Installation Data file to a separate disk location, and would like to instruct your users to access the data from that location.

Selecting the Software to Install

Users will be prompted for the software to install only if they are installing the software locally. In this case, they will have an opportunity to select from the software that you placed in the network image.



From the Select Components dialog, interactive users are able to specify the software that they would like to install to their local machines.

The Select Licensed Software button uses the SAS Installation Data file that you provided to determine which software is licensed, and pre-selects just those components. Any non-licensed components that you placed into the network image when you created it will also be available for installation to the user here.

If your end users are running SAS Setup from an image created for Client Users, they will not be prompted to select software to install, but will have access to the software that you placed in the network image when you created it. Only a minimal set of required components will be installed locally on their machine.

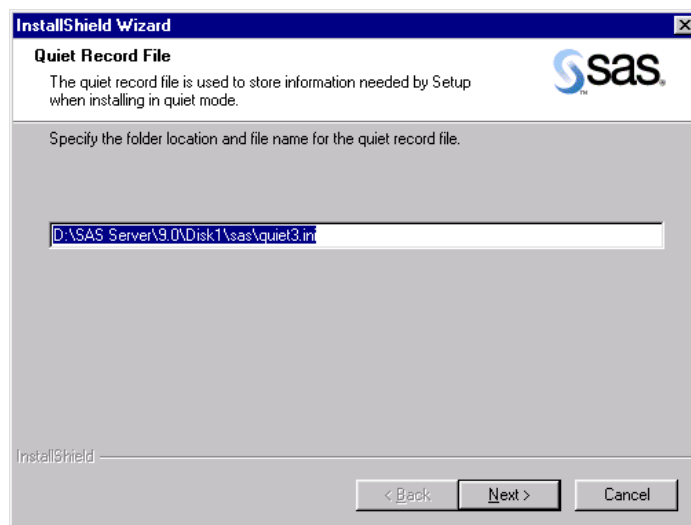
Using Record Mode with SAS Setup

Unlike the System Requirements Wizard, SAS Setup prompts for many user responses during interactive use. When using SAS Setup in Quiet Mode, these responses are too numerous to be specified on a single Quiet Mode command line. Instead, they are specified in a file, which is created using Record Mode.

To launch SAS Setup in Record Mode, issue one of the following commands (without the parenthetical comment), depending upon the type of end user:

- Client Users: `<Source Path>\SAS\SETUP.EXE record`
- Personal Users: `<Source Path>\Disk1\SAS\SETUP.EXE record`

SAS Setup will prompt you for the location where your quiet record file will be placed.

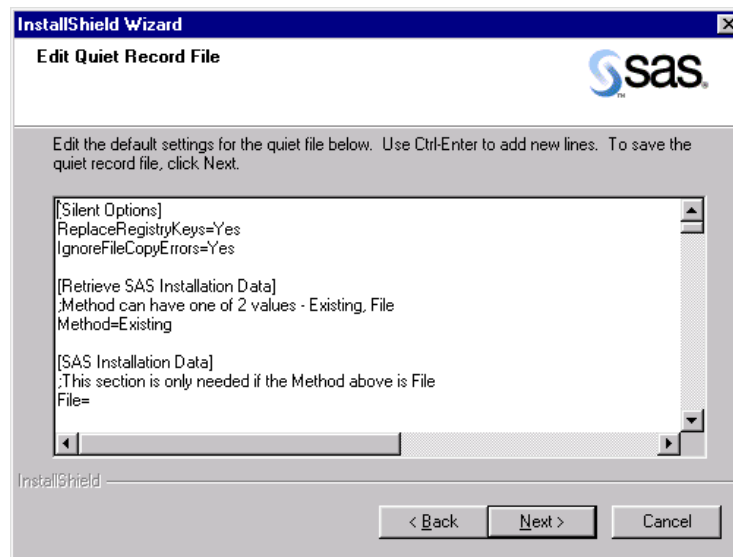


It is recommended that you choose the default, which places the file in the main directory of the network image you will be installing from. Remember this quiet record file location, as it will be needed for running SAS Setup in Quiet Mode.

You will then be prompted to select the software components that you want this quiet record file to select during Quiet Mode. Refer to the earlier section, [Selecting the Software to Install](#) on page 20.

Editing the Quiet Record File in Record Mode

After selecting the software to install, SAS Setup will present you with the Quiet Mode quiet record file it has created for you.



The quiet record file presented here contains the software you have selected, along with the default settings for other values needed for the final installation. It is important that you review this file completely. For example, you may want to change the destination path where the software will be installed.

Do not edit any settings below the warning line. If you want to change the selected components while in Record Mode, click the Back button to return to the *Select Components* dialog and make new selections. Otherwise, you must record a new quiet record file to change these settings. Changes made to this information by any other means could invalidate the quiet record file.

After you finish editing the quiet record file and click Next, Record Mode will finish. (If you prefer, you can complete Record Mode, and edit the file later in your favorite text editor.)

You now have a quiet record file for use with Quiet Mode, which is addressed in the next section.

Using Quiet Mode with SAS Setup

For large-scale enterprise deployment, it would be impractical to require an administrator or user at each machine during installation. To meet this need, SAS Setup supports Quiet Mode.

Quiet Mode works in conjunction with Record Mode (see above) to provide a way to install without requiring the presence of a user. To familiarize yourself with the prompts the wizard would normally present to the user, review the section [Interactive Use of SAS Setup](#) on page 19.

To run SAS Setup in Quiet Mode, a quiet record file must have been created using Record Mode (see above), and a single command line run on each machine on which you will run the SAS software.

The source path of the command to be run will vary, depending upon the type of end user:

- Client Users: <Source Path>\SAS\SETUP.EXE
- Personal Users: <Source Path>\Disk1\SAS\SETUP.EXE

The command-line arguments to SAS Setup are the same, independent of the source path used above. Usage is shown below:

```
Usage: "... \SAS\SETUP.EXE" -s
       quietfile="<full path to quiet file>"
       -f2"<full path to log file>"
```

For example:

```
M:\MyNetDrive\SAS\Setup.exe -s
quietfile="M:\MyNetDrive\SAS\quiet.ini"
-f2"C:\TEMP\QUIET.LOG"
```

Note: The -f2 option specifies where the log file should be created. In this case, the option is required. Use this switch to specify a valid location where you have write permission. Without a valid location and write permission, Setup may terminate with no indication of failure.

This command can be used in the login script for your target users, in a Microsoft SMS package, or in any other method that allows it to be run on the end user's machine without requiring their presence.

For examples of how quiet mode might be used from a batch script, see the following files:

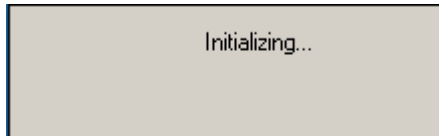
- sas\core\sasinst\examples\goquiet.cmd.txt
- sas\core\sasinst\examples\sasquiet.cmd.txt
- sas\core\sasinst\examples\srwquiet.cmd.txt

Note: If you are reviewing the files listed above from a network image, the path will include `Disk1` before `sas\core`. Otherwise, they will be located on the Setup disk.

Checking Status in Quiet Mode

Just as important as installing quietly is determining the success or failure of the Quiet Mode installation. While Quiet Mode is working, you can open your Windows Task Manager and view the Processes tab. If a Setup is running, you will see `IKernel.exe` and `setup.exe` among the processes.

You can also use the `-silentstatus` option to follow the progress of a Quiet Mode installation. When you run `-silentstatus`, a small gray window appears with a description of each activity as it is performed. If you use the `-silentstatus` option, make sure that the upper right-hand corner of your desktop is visible, since the window will not display over existing content.



Note: The `-silentstatus` option is available for SAS Setup in Quiet Mode, but not the System Requirements Wizard in Quiet Mode.

After Quiet Mode finishes, the System Requirements Wizard and SAS Setup both provide the results of their Quiet Mode execution in two ways:

1. MIF File Provides Quiet Mode status for use with SMS and other management packages. Includes information on the success or failure of the tool being used.
2. Log File Provides a detailed account of the actions that were performed by the tool. This file is designed to assist with troubleshooting a Quiet Mode session.

The MIF File in Quiet Mode

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 SMS, 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 `STATUS.MIF` by default. You may override this name by adding the `-m<FileName>` option to the Quiet Mode command line.

Note: The *FileName* parameter does not include a path or extension.

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.

The Log File in Quiet Mode

The log file provides you with much more detail about the actions that took place during the execution of the tool. This file is helpful when troubleshooting Quiet Mode.

The System Requirements Wizard log file is written to the location specified by the LogFile option given on the Quiet Mode command line.

A sample log file follows:

```
1-8-2002 11:00:01: Operating System: Windows NT
1-8-2002 11:00:01: Windows NT Service Pack: Service Pack 5
1-8-2002 11:00:01:
1-8-2002 11:00:01: Validating Microsoft Shell Folder Service
5.50.4027.300...
1-8-2002 11:00:01: File Comparison of:
D:\WINNT\System32\shfolder.dll
1-8-2002 11:00:01: System Value: 5.0.2314.1000
1-8-2002 11:00:01: Comparison: #LESSTHAN#
1-8-2002 11:00:01: Required Value: 5.50.4027.300
1-8-2002 11:00:01: Comparison FAILED
1-8-2002 11:00:01:
1-8-2002 11:00:01: Validating Microsoft Internet Explorer 5.0...
1-8-2002 11:00:01: Registry Comparison of:
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Internet Explorer\Version
1-8-2002 11:00:01: System Value: 5.00.2314.1003
1-8-2002 11:00:01: Comparison: #LESSTHAN#
1-8-2002 11:00:01: Required Value: 5.00.2314.1003
1-8-2002 11:00:01: Comparison PASSED
1-8-2002 11:00:01:
1-8-2002 11:00:01: Validating Microsoft Custom Controls Library
5.80.2614.3600...
1-8-2002 11:00:01: File Comparison of:
D:\WINNT\System32\comctl32.dll
1-8-2002 11:00:01: System Value: 5.80.2314.1000
1-8-2002 11:00:01: Comparison: #LESSTHAN#
1-8-2002 11:00:01: Required Value: 5.80.2614.3600
1-8-2002 11:00:01: Comparison FAILED
1-8-2002 11:00:02:
1-8-2002 11:00:02: Validating Microsoft HTML Help Control
4.74.8875...
1-8-2002 11:00:02: File Comparison of:
D:\WINNT\System32\hhctrl.ocx
1-8-2002 11:00:02: System Value: 4.73.8412.0
1-8-2002 11:00:02: Comparison: #LESSTHAN#
1-8-2002 11:00:02: Required Value: 4.74.8875.0
1-8-2002 11:00:02: Comparison FAILED
1-8-2002 11:00:02:
1-8-2002 11:00:02: Validating Microsoft Runtime Components...
1-8-2002 11:00:02: File Comparison of:
D:\WINNT\System32\mfc42.dll
1-8-2002 11:00:02: System Value: 4.2.0.6068
1-8-2002 11:00:02: Comparison: #LESSTHAN#
1-8-2002 11:00:02: Required Value: 6.0.8447.0
1-8-2002 11:00:02: Comparison FAILED
1-8-2002 11:00:02:
1-8-2002 11:00:02: Validating Microsoft Runtime Components...
1-8-2002 11:00:02:
1-8-2002 11:00:02: Validating Microsoft Data Access Components
(MDAC) 2.5...
1-8-2002 11:00:02: Registry Comparison of:
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\DataAccess\FullInstallVer
```

```
1-8-2002 11:00:02: System Value:
1-8-2002 11:00:02: Comparison: #LESSTHAN#
1-8-2002 11:00:02: Required Value: 2.50.4403.12
1-8-2002 11:00:02: Comparison FAILED
1-8-2002 11:00:02:
1-8-2002 11:00:02: Validating Microsoft Jet 4.0 Components...
1-8-2002 11:00:02:
1-8-2002 11:00:02: Installing Microsoft Shell Folder Service
5.50.4027.300...
1-8-2002 11:00:02:
1-8-2002 11:00:02: Installing Microsoft Custom Controls Library
5.80.2614.3600...
1-8-2002 11:00:03: This update has required a reboot.
Rebooting...
1-8-2002 11:05:13:
1-8-2002 11:05:13: Installing Microsoft HTML Help Control
4.74.8875...
1-8-2002 11:05:16:
1-8-2002 11:05:16: Installing Microsoft Runtime Components...
1-8-2002 11:05:24: This update has required a reboot.
Rebooting...
1-8-2002 11:09:53:
1-8-2002 11:09:53: Installing Microsoft Data Access Components
(MDAC) 2.5...
1-8-2002 11:10:15: This update has required a reboot.
Rebooting...
```

The SAS Setup log file is created after any SAS installation is performed, and is always named SASSETUP.LOG.

The SAS Setup log file can be found in the destination directory for the SAS software installation, if the installation succeeded. If the installation failed, SASSETUP.LOG will be found under the TEMP directory.

Part II: Installation and Deployment Instructions

Using the SAS 9.1 Foundation Installation Tools

For an administrator, there are many challenges in performing a large enterprise-wide deployment of system updates and SAS software. With SAS 9.1 Foundation Windows installation tools, you can overcome these challenges and meet the needs of end users. These tools include the SAS Administrator Wizard, the System Requirements Wizard, and SAS Setup.

Using the tools, you can perform all these installation roles:

- Download customized the SAS Installation Data file (including your SETINIT) for your organization.
- Deploy operating system updates and SAS software to thousands of machines quietly, using the software management system of your choice (SMS, Tivoli, network login script, etc).
- Support interactive Personal Users who will install a local image of SAS to their PC.
- Support client users who will run a customized subset of SAS software from a network image.
- Provide custom installation CDs to users who do not have network access.

The SAS Software Navigator provides direct access to the interactive functionality available in the installation tools.

The SAS Administrator Wizard allows administrators to download and integrate the SAS Installation Data file, and prepare network images for use by their client and personal SAS users. The wizard can also prepare CD-ROM images for use by users without network access.

The System Requirements Wizard ensures that the minimum system requirements for SAS software are met on a machine that is expected to run the software.

SAS Setup installs the software for both client and personal SAS software users.

Quiet Mode may be used with both the System Requirements Wizard and SAS Setup to install system components and SAS software without requiring a user to be present at the machine.

Using these tools together, you can meet the challenges of SAS deployment within your organization.

Using the SAS Administrator Wizard

The SAS Administrator Wizard is a tool that helps administrators perform the tasks that are required when SAS is deployed throughout an organization.

These tasks include the creation of a Server (for Client Users) and/or a Network Location (for Personal Users and CD distribution). In addition, the SAS Administrator Wizard can be used to download customer-specific data such as SETINIT data from SAS for distribution in an organization.

Starting the SAS Administrator Wizard

There are several ways to start the SAS Administrator Wizard. Here are two of them:

1. From the SAS Software Navigator, choose Create a SAS Image for Deployment.
2. From the SAW directory, run `setup.exe`

SAS Administrator Wizard Windows

This section describes the steps required to deploy a SAS image so end users can install and run SAS. Administrators respond to the dialogs as each window is presented.

Sequence of SAW Windows

Indented dialog titles represent windows that may not be a part of your installation.

Welcome to the SAS Administrator Wizard

Retrieve SAS Installation Data (**SAS Setup** CD users only)

Retrieve SAS Installation Data from the Internet (**SAS Setup** CD users who select “Internet” option only)

SAS Installation Data (SAS Software Navigator users & **SAS Setup CD** users who select “File” option only)

End User Type

Setup Status

Language Selections

Network Location

Select Components

SAS Metadata Server

Start Copying Files

Setup Status

SAS Administrator Wizard Complete

SAS Administrator Wizard Dialogs & Directions

Most of the windows described below offer directions printed here in bold text. These choices represent the quickest method for deployment.

As in the list of dialog titles above, the indented window descriptions below represent windows that may not be a part of your installation.

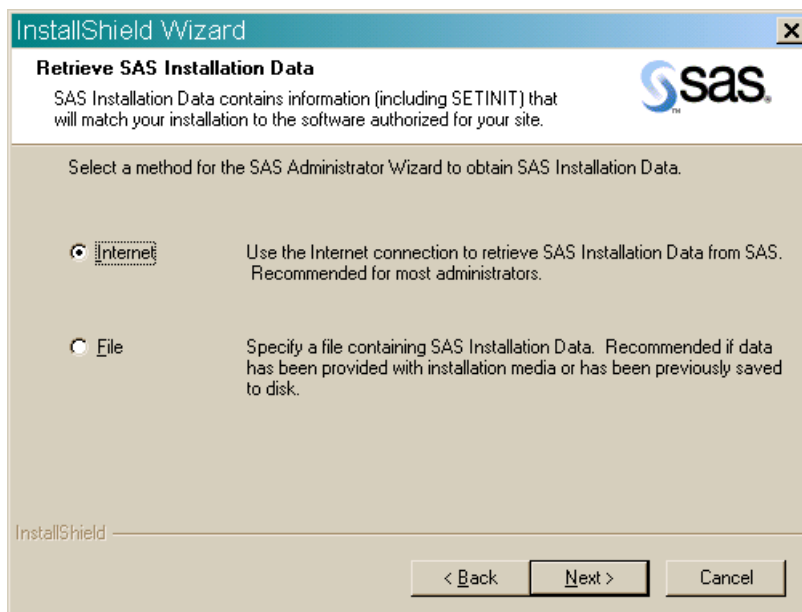


Read *Welcome to the SAS Administrator Wizard*

Click Next.

Or, click Cancel to exit the SAS Administrator Wizard.

Note: The following window is seen by **SAS Setup CD** users only.



Read *Retrieve SAS Installation Data*

Click on one of the two radio buttons to pick the method that the SAS Administrator Wizard will use to obtain the SAS Installation Data file.

- Internet
- File

The SAS Installation Data file contains information (including SETINIT) about the SAS software that has been prepared for your site.

Note that if you select “Internet,” you will need Internet access to complete the process. In addition, the Internet option may not be available in all versions of the SAS Administrator Wizard. If the option is unavailable, proceed using the File option.

Click Next.

Or, click Back to view the *Welcome* window, or click Cancel to exit the SAS Administrator Wizard.

Note: The following window is seen only by **SAS Setup** CD users who select the “Internet” option.

The screenshot shows a window titled "InstallShield Wizard" with a sub-header "Retrieve SAS Installation Data from the Internet" and the SAS logo. The main text reads: "To download SAS Installation Data, enter the SAS Installation Key and Order Number as presented in either the Transmittal Letter or the SAS Software Order e-mail." Below this are input fields for "SAS Installation Key" (three separate boxes) and "Order Number" (one box). There are two checkboxes: "Save a copy of SAS Installation Data to disk" (unchecked) and "Exit after saving" (unchecked). The "Save a copy..." checkbox is followed by a text box containing "C:\Documents and Settings\hashay\My Documents\SAS Installation" and a "Browse..." button. At the bottom are three buttons: "< Back", "Next >", and "Cancel".

Read *Retrieve SAS Installation Data from the Internet*

Enter the SAS Installation Key and the Order number in their respective fields. Your SAS Installation Key and Order Number are both listed in your SAS Order Information Letter in your Installation Kit, and in the SAS Software Order Number e-mail.

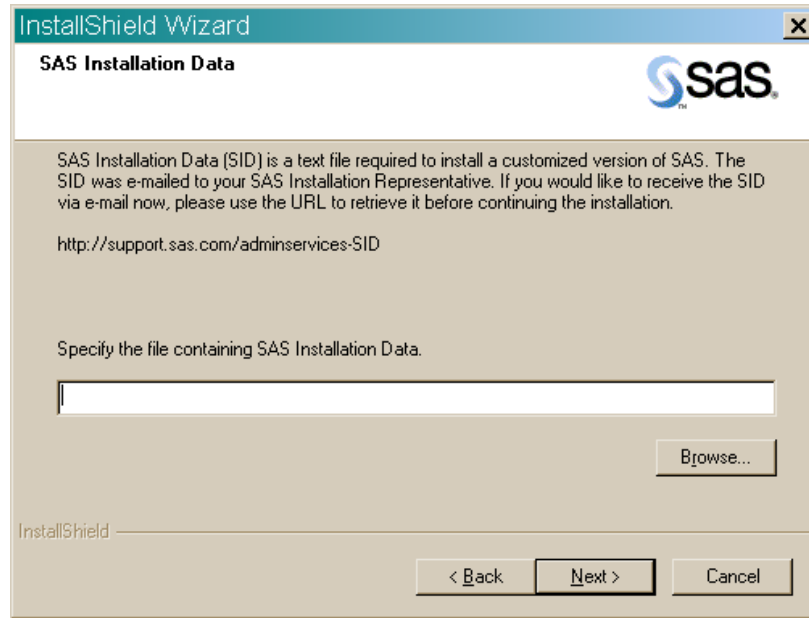
If you want to save a copy of the SAS Installation Data file to disk, check the box to select that operation. You can select the displayed path name or browse for another file location.

If you want to exit after saving, check the box to select that option.

Click Next.

Or, click Back to view the *Retrieve SAS Installation Data* window, or click Cancel to exit the SAS Administrator Wizard.

Note: The following window is seen only by SAS Software Navigator users & **Setup CD** users who select “File” option.



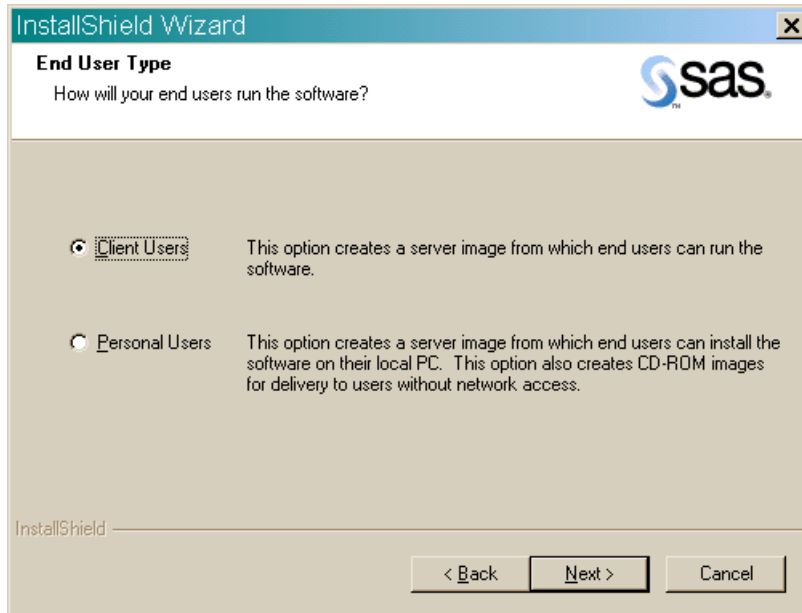
Read *SAS Installation Data*

Fill in the full path and file name for the location of the SAS Installation Data file from the Software Order E-mail.

Or, click Browse to find another file location. This may be necessary if you selected the “Exit after saving” checkbox after downloading your SAS Installation Data file from the Internet.

Click Next.

Or, click Back to view the *Retrieve SAS Installation Data* window, or click Cancel to exit the SAS Administrator Wizard.



Read *End User Type*

Click on one of the two radio buttons to describe the users who will install this SAS software:

- Client Users
- Personal Users

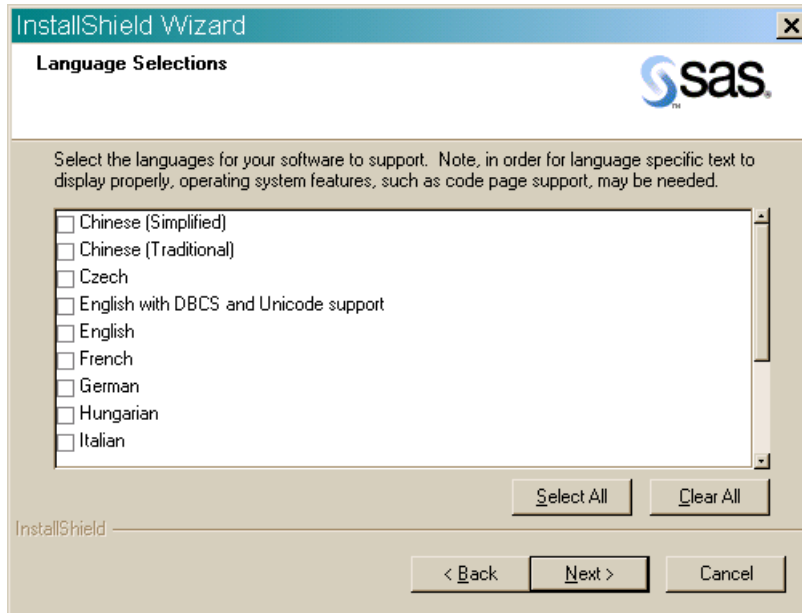
Client Users run their SAS System on a PC that is associated with a SAS Server. Personal Users run their SAS System entirely from software installed on their own PC.

To create a CD-ROM image so users who do not have network access can install SAS software, click the Personal Users radio button.

For more information about Client Users and Personal Users, please see page [28](#).

Click Next.

Or, click Back to view the previous SAS Installation window, or click Cancel to exit the SAS Administrator Wizard.



Read *Language Selections*

Click the checkbox for each language option that will be needed.

Or, click **Select All** to choose all the languages that are available, or select **Clear All** to deselect the chosen listings.

Click **Next**.

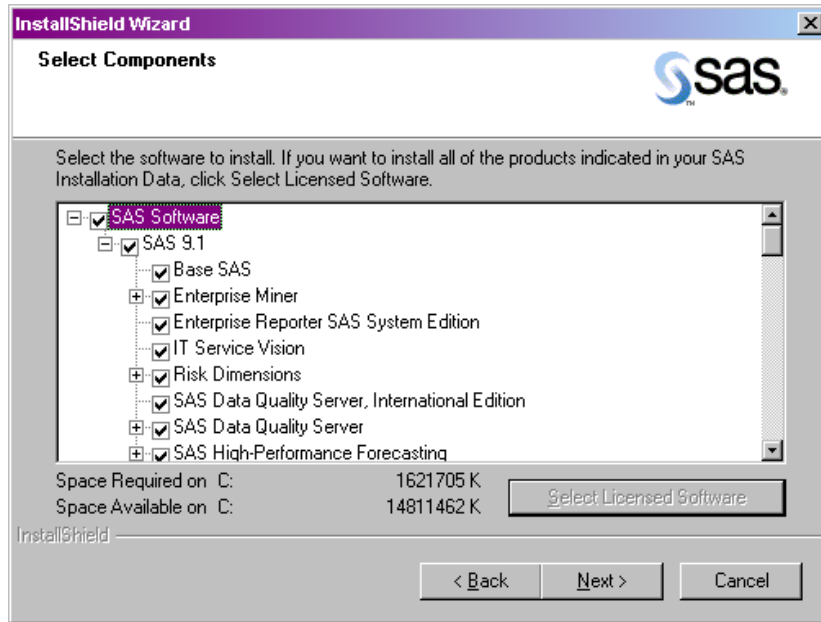
Or, click **Back** to view the *End User Type* window, or click **Cancel** to exit the SAS Administrator Wizard.

Read *Network Location*

You can use the displayed path name for the location where the network image will be placed, or click **Browse** to choose another location.

Click **Next**.

Or, click **Back** to view the *Language Selections* window, or click **Cancel** to exit the SAS Administrator Wizard.



Read *Select Components*

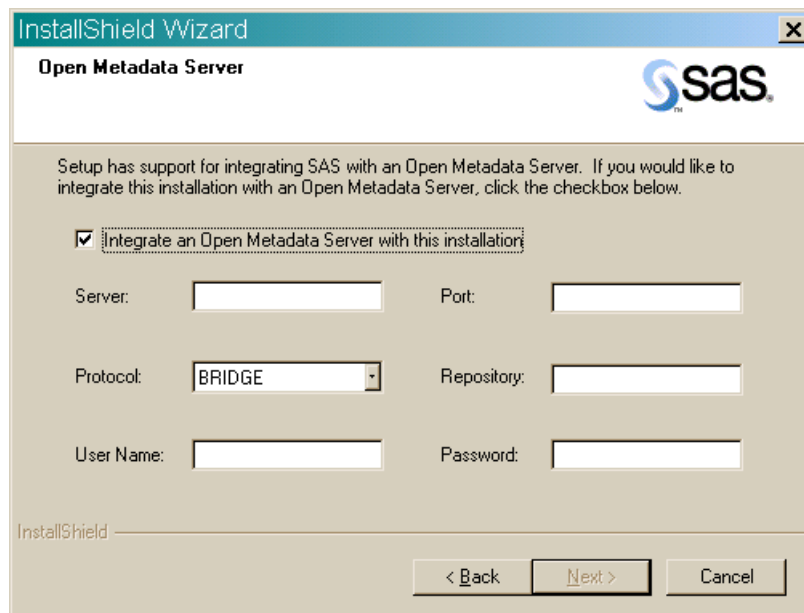
This window displays all the components that can be installed, so you can select the software for this installation.

Click *Select Licensed Software* to install all of the products indicated in your SAS Installation Data file.

To make changes to the list, you can select components that you want to install, and deselect the components that you do not want to install.

Click *Next*.

Or, click *Back* to view the *Network Location* window, or click *Cancel* to exit the SAS Administrator Wizard.



Read SAS Metadata Server

Click the checkbox if you want to integrate the installation with a SAS Metadata server to collect installation and licensing information. To take advantage of this functionality, the site must first configure a SAS Metadata Server. For more information, please refer to [Making an Inventory of all SAS Software During an Installation](#) on page 79.

There are six fields to complete in this window: Server, Port, Protocol (either BRIDGE or COM), Repository, User Name, and Password.

Click Next if you are satisfied with the settings.

Or, click Back to view the *Select Components* window, or click Cancel to exit the SAS Administrator Wizard.

Read Start Copying Files

Click Next if you are satisfied with the settings.

Or, click Back to view the *SAS Metadata Server* window, or click Cancel to exit the SAS Administrator Wizard.



Read SAS Administrator Wizard Complete

This dialog indicates that you have successfully created a network image. A client setup can be performed on each PC that will use this image to install SAS software.

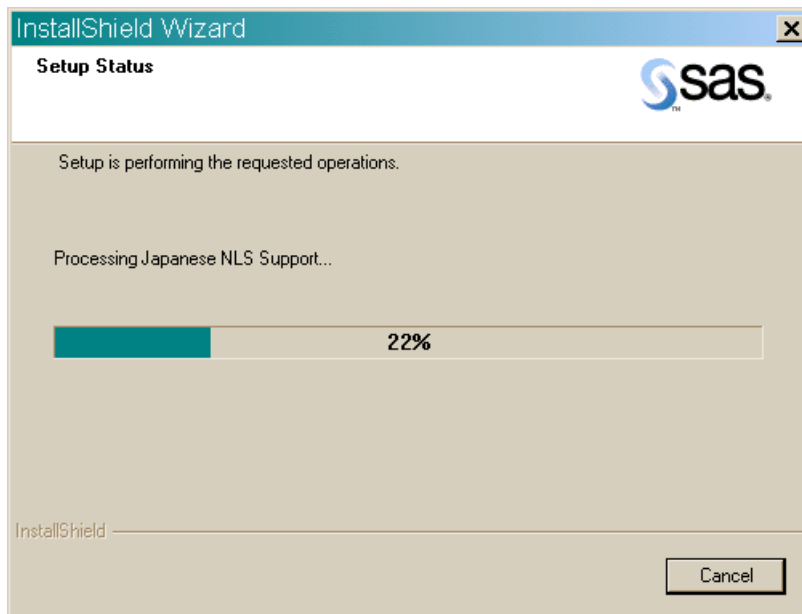
If you would like to view the online Administrator Guide, click the checkbox. If you will deploy the client image to the PCs, your next step is Quiet Mode. For information about Quiet Mode and the [SAS Setup Wizard](#), please see page 43.

Microsoft System Management Server (SMS), Tivoli, and similar products can be used to install clients in Quiet Mode. For information about installing SAS with SMS, please see page 53.

Click Finish.

Dialogs Used More than Once in the SAW

The following two windows appear as needed during SAS Administrator Wizard procedures:



Setup Status

This window is displayed while Setup performs a requested operation. No action is required on your part, but, if necessary, you can click **Cancel** to exit the SAS Administrator Wizard.

Exit Setup

This window is displayed if **Cancel** is pressed from any SAS Administrator Wizard window. Click **Yes** to quit, or **No** to return to the previous window. If you choose to quit, you can run the SAS Administrator Wizard later to complete the operations.

Using the System Requirements Wizard

The System Requirements Wizard makes sure that the minimum system requirements are installed on your computer before the SAS System is installed.

The System Requirements Wizard may update system components that are part of the operating system. Updating these components to appropriate levels is an important part of a successful SAS System installation.

It is possible that some of the system components that need to be updated by the System Requirements Wizard will be in use by the operating system. Unfortunately, this situation will require a reboot of the computer to properly update the system components in use.

Closing down all other running applications, ***including virus-scanning programs***, before starting the System Requirements Wizard can keep the number of required reboots to a minimum. The number of reboots that will be required can vary from computer to computer, since it is determined by the level of the system components installed on the computer when the System Requirements Wizard is run.

Starting the System Requirements Wizard

To start the System Requirements Wizard, complete the following steps:

1. Insert the CD-ROM labeled **Setup Disk** into the source drive. The SAS 9.1 Foundation autoplay should appear if autoplay is enabled on your computer.

If this does not happen, select the Run menu option from the Windows Start menu and type:

```
<source_drive>:\SETUP.EXE
```

where <source_drive> is the drive containing the SAS 9.1 Foundation installation media.

2. Select Verify System Requirements from the list of options.

Updating to Minimum System Requirements

After starting the System Requirements Wizard, follow these steps:

1. Carefully read the Welcome window and then select Next.
2. A complete list of all system components that need to be updated by the System Requirements Wizard will be displayed. Review the list and click Next.

If the computer already satisfies the minimum system requirements, a dialog will appear indicating that no updates are required for this computer.

3. The update process will begin for any system components listed in step 2. Some system components may require a reboot of the computer. Carefully read the instructions on the reboot dialog.
 - If you elect to reboot, the System Requirements Wizard should reboot automatically following the logon process.
 - If you elect not to reboot, the System Requirements Wizard will exit. Run the System Requirements Wizard when you are ready to continue updating the system components.
4. When all system components have been updated, a final dialog will appear stating that the computer has been updated to the minimum system requirements for SAS 9.1 Foundation.

Refer to *User Installation Guide for SAS 9.1 Foundation for Microsoft Windows* to begin either a Client or Personal installation of SAS 9.1 Foundation.

System Requirements Wizard Dialogs

This section describes the steps required to update your system to the minimum system requirements for the software.

Administrators run the System Requirements Wizard and respond to the dialogs as each window is presented. Most of the dialogs described below offer directions printed here in bold text. These represent the quickest method for updating your system. Indented dialog descriptions represent windows that may not be a part of your installation.

Read *Welcome to the System Requirements Wizard*

Click Next.

Or, click Cancel to exit the SAS Requirements Wizard.

Read *Automatic Log On*

The System Requirements Wizard may require several reboots. If you want to log on automatically after any reboots, enter your password in the Password field. This is optional, and you can click Next to skip automatic log on. If you enter a password, you will need to enter it again in the Confirm password field.

Click Next.

Or, click Back to view the *Welcome* window, or click Cancel to exit the System Requirements Wizard.

Read *System Components Update*

This window displays the names of the system components that will be updated on your system.

Click Next.

Or, click Back to view the *Automatic Log On* window, or click Cancel to exit the System Requirements Wizard.

Read *Restarting Windows*

This window displays the names of the system components that have been updated on your system, and indicates that your computer must be rebooted. SAS recommends that you reboot your computer now.

Click on one of the two radio buttons:

- Yes, I want to restart my computer now.
- No, I will restart my computer later.

If you choose to reboot, close all open applications and remove any floppy disks from the disk drives.

Verify that all virus-scanning software has been disabled after the computer restarts.

Setup will resume when the computer restarts. If Setup does not resume after the computer reboots, select Verify System Requirements to restart Setup from the SAS Software Navigator.

Click Finish.

Read *System Update Finished*

This dialog indicates that the System Requirements Wizard has updated your system.

Click Finish.

Using Quiet Mode to Deploy the System Requirements

The System Requirements Wizard has been designed with Quiet Mode support for Administrators who must deploy system updates throughout an organization.

When the System Requirements Wizard runs in Quiet Mode, the system will perform updates, reboot, and automatically log back on until every update has been completed.

Security Note

Using the AutoID, AutoPwd and AutoDomain command line arguments can pose a security risk. The information specified for these arguments is stored briefly in the Windows registry in plaintext. During the short period of time in which the computer is updated by the SRW, it will also have any of the permissions afforded to that account. Anyone who has physical access to the computer can operate the computer with that account. This would allow access to the computer's contents and networks by a person who might not otherwise have that access.

Commands

The following command line arguments are used to launch the System Requirements Wizard in Quiet Mode:

/f2<logfile>

The f2 option specifies where the log file should be created. Use this switch to specify a valid location where you have write permission. Without a valid location and write permission, the System Requirements Wizard may terminate with no indication of failure.

/s

This switch indicates that the Setup should be run silently.

“AutoID:<username>”

AutoID is used to specify the account used to log back on to the system after an automatic reboot has taken place.

“AutoDomain:<domain>”

AutoDomain specifies the domain to which the system should be logged on following a reboot.

“AutoPwd:<password>”

AutoPwd specifies the password for the AutoID specified to allow automatic log on to succeed.

“LaunchApp:<full path to an application>”

LaunchApp allows the user to start another application after the SRW has finished its updates. This is useful for starting the SAS installation after the SRW finishes, or for executing a personal logging tool.

“LogFile:<logfile>”

The Log File contains more detailed information about the operations performed by the System Requirements Wizard in Quiet Mode. This includes a listing of which components required updating and when reboots were necessary.

“QuietLog:<logfile>”

The QuietLog switch is used to specify where the Quiet Setup should log its results. This log file should be used in conjunction with the /f2 switch and reference the same log file.

Examples

<source drive> = \SRW\

```
Setup.exe -s -f2"c:\temp\srw.log" "QuietLog:c:\temp\srw.log"
  "LogFile:<Full Path To Detailed LogFile>" "AutoID:<userid>"
  "AutoPwd:<password>" "AutoDomain:<DOMAIN>"
```

<source drive> = \Disk1\SRW\

```
Setup.exe -s -f2"c:\temp\srw.log" "QuietLog:c:\temp\srw.log"  
"LogFile:<Full Path To Detailed LogFile>" "AutoID:<userid>"  
"AutoPwd:<password>" "AutoDomain:<DOMAIN>"
```

Batch Scripts

For examples of how quiet mode might be used from a batch script, see the following files:

- sas\core\sasinst\examples\goquiet.cmd.txt
- sas\core\sasinst\examples\sasquiet.cmd.txt
- sas\core\sasinst\examples\srwquiet.cmd.txt

SAS Shared Files

Some files that are installed with SAS software are shared between multiple SAS products, so these files are placed in the SAS Shared Files location. In the case of the SAS Private JRE and the SAS JRETools (formally known as the SAS Private JDK), users are informed that they are selecting the location for the SAS Shared Files, and that the location is then stored in the registry.

If the SAS Shared Files location is already set, a user will not have the opportunity to pick the install location during the private JRE installation.

When the System Requirements Wizard runs, it installs the JRE silently. If not already set, it sets the shared files location for the user and installs the JRE there.

If you want to specify the shared files location, run the JRE installation manually from `disk1\srw\bundles\sasjre\jresetup.exe`.

Using the SAS Setup Wizard

SAS Setup is a tool designed for the installation of SAS software on an end user's system.

Setup can be run from a "Client User" image to create SAS clients, or from the CD or "network location" to create a Personal copy of SAS.

Note: Before SAS software is installed, the System Requirements Wizard should be run to ensure that the PC meets the minimum system requirements. Refer to [the System Requirements Wizard](#) chapter on page 38 for more information.

Starting the SAS Setup Wizard

There are two ways to start the SAS Setup Wizard:

1. From the SAS Software Navigator, choose Install The SAS Foundation.
2. From the SAW directory, run `setup.exe`

Three Ways to run SAS Setup

SAS Setup can be run in three ways to deploy SAS:

Interactive

This type of installation allows a user to follow a step-by-step approach with the help of the SAS Setup Wizard. The user reads questions on each Wizard window and the answers dictate how SAS will appear on their system. This type of installation results in a working SAS System on the system where it was run.

Record Mode

This type of Setup is designed for Administrators who want to deploy SAS using Quiet Mode. This Setup type gives an administrator the ability to generate and customize a Quiet Mode INI file that Setup can use to install SAS in an unattended fashion. No SAS files are copied during this type of installation. Only a single text file (Quiet Mode INI file) is generated.

Quiet Mode

This Setup type is driven by a Quiet Mode INI file, which contains information on how SAS should be installed on a system. An administrator can use Quiet Mode as a deployment tool to install SAS on any number of machines in an organization simultaneously without having to visit each one. The result of running SAS Setup in Quiet Mode is a fully functional SAS System.

More information is available in the chapters [Using SAS Setup in Quiet Mode](#) on page 49 and [Using Quiet Mode to Deploy the System Requirements](#) on page 40.

SAS Setup Wizard Dialogs

This section describes the steps required to install and run SAS. Administrators respond to the dialogs as each window is presented.

Most of the dialogs described below offer directions printed here in bold text. These represent the quickest method for deployment. Indented dialog descriptions represent windows that may not be a part of your installation.

All Setup windows are listed below according to the order in which SAS Setup presents them, with the exception of the dialogs that can appear more than once. These are grouped on page 48.

Read *Welcome to the SAS Setup Wizard*

Click Next.

Or, click Cancel to exit the SAS Setup Wizard.

Read *System Requirements Check*, if Setup displays this window.

Click the checkbox next to Run System Requirements Wizard.

Click Finish to run the System Requirements Wizard.

For information on [the System Requirements Wizard](#) please see page 38.

After the System Requirements Wizard updates your system, you can restart the SAS installation.

Or, click Back to view the *Welcome to the SAS Setup Wizard* window again, or click Cancel to exit Setup

Read *Retrieve SAS Installation Data*, if Setup displays this window.

Click on one of the radio buttons to pick the method that the SAS Setup Wizard will use to obtain the SAS Installation Data file. There will be up to three radio buttons available:

- Internet
- Existing
- File

The SAS Installation Data file contains information (including SETINIT) about the SAS software that has been prepared for your site.

Select “Existing,” unless you plan to specify a different file, or expect to provide the SAS Installation Data later.

Most users can use the network location provided by an administrator.

However, if your SAS Installation Data has been placed in a different location, select “File” to enter that location on the *SAS Installation Data File* dialog. More information on that window can be found below.

Click Next.

Or, click Back to view the previous window, or click Cancel to exit Setup.

Read the security warning, if Setup displays this window.

Click yes.

Or, click Back to view the *Retrieve SAS Installation Data* window, or click Cancel to exit Setup.

Read *Retrieve SAS Installation Data from the Internet*, if Setup displays this window.

Enter the SAS Installation Key and the Order number in their respective fields. Your SAS Installation Key and Order Number are both listed in your SAS Order Information Letter in the Installation Kit, and in the SAS Software Order Number e-mail.

If you want to save a copy of the SAS Installation Data file to disk, check the box to select that operation. You can select the displayed path name or browse for another file location.

If you want to exit after saving, check the box to select that option.

Click Next.

Or, click Back to view the *Retrieve SAS Installation Data* window, or click Cancel to exit Setup.

Read *SAS Installation Data*, if Setup displays this window.

Type the full path for your SAS Installation Data file, or click Browse to locate the directory.

If the SAS Installation Data file cannot be found, you will receive an error message.

Click Next

Or, click Back to view the previous window, or click Cancel to exit Setup.

Read *SAS Installation Data Retrieved*, if Setup displays this window.

Make sure that the licensed software listed in the window matches the licensed software listed on your Transmittal Letter.

Click Next

Or, click Back to view the previous window, or click Cancel to exit Setup.

Read *SAS Installation Data Not Found*, if Setup displays this window.

Click Okay

Read *Language Selections*, if Setup displays this window.

Click Select All to choose all the languages that are available to you, or select Clear All to deselect the chosen listings.

Click Next.

Or, click Back to view the previous window, or click Cancel to exit Setup.

Read *Default Language*, if Setup displays this window.

This window displays all the languages chosen on the *Language Selections* window.

Click the box next to the language that you want to select for your default language.

Click Next.

Or, click Back to view the *Language Selections* window, or click Cancel to exit Setup.

Read *SAS Shared Files*, if Setup displays this window.

Some files that are installed by Setup are shared between multiple SAS products. Most users can use the location listed in the dialog. If your shared files are located in another folder, click Browse to specify the location of the shared files.

Click Next.

Or, click Back to view the previous window, or click Cancel to exit Setup.

Read *Choose Destination Location*

Click Next to install SAS in the destination folder listed on the screen.

Or, click Browse to choose a different folder. Click Back to view the previous window, or click Cancel to exit Setup.

Read *Specify Data Files Folder*

By default, the Windows user profile directory is created in the location shown in this dialog. If you select this default choice for the Windows directory, multiple users can use SAS on the same computer.

Personal data folders are created automatically.

Click Next to accept the default directory, or click Browse to specify a different directory. Click Back to view the *Choose Destination Location* window, or click Cancel to exit Setup.

Read *Specify Temporary Files Folder*

As SAS processes your data, temporary files are created.

Click Next to select the folder listed in the dialog as the location for these temporary files.

Or, click Browse to specify a different folder. Click Back to view the *Specify Data Files Folder* window, or click Cancel to exit Setup.

Read *Select Components*

This window displays the components that have been selected for your installation. To make changes to this list, select the components that you want to install, and deselect the components that you do not want to install.

Click Select Licensed Software as a quick way to select only the components that are listed in your software license.

Click Next.

Or, click Back to view the *Specify Temporary Files Folder* window, or click Cancel to exit Setup.

Read *Start Copying Files*

At this point in the installation, Setup has enough information to start copying the program files.

Click Next if you are satisfied with the settings.

Or, if you want to review or change any settings, click **Back** to return to the *Select Components* window.

Click **Cancel** to exit Setup.

Read *Confirm Update* if Setup displays this window.

This window appears when Setup finds a file extension, such as `.LOG`, that is already used by another application. Setup can associate files that use this extension for use by SAS, but this change could affect other applications. You can change your current preference so these files will be associated with SAS, or you can leave the previous choice in place.

Here are the choices you can make from this window:

- If you would like Setup to change the file extension association and enable SAS functionality, click **Yes** to make SAS 9.1 the default application for files using this extension.
- Click **No** to leave the previous association for the file extension in place.

In addition, you can check the box at the bottom of the window before you click **Yes** or **No**, if you would like all other file extensions already in use to be handled in the same manner.

Click **Cancel** to exit Setup without completing the procedure.

There are two alternatives for the final dialog in the sequence:

Read *SAS Setup Complete* if Setup displays this window.

At this point, Setup has installed the SAS software. If you want to launch SAS 9.1 now, click that checkbox. If you want to view the Post-Installation Guide now, click that checkbox.

Click **Finish**.

Read *SAS Setup Complete* if Setup displays this window.

At this point, Setup has copied all the required files to your computer. However, some files could not be updated because they are in use. These will be updated automatically when you reboot your computer.

Click on one of the two radio buttons:

- **Yes, I want to restart my computer now.**
- **No, I will restart my computer later.**

If you choose to reboot, close all open applications and remove any floppy disks from the disk drives.

Verify that all virus-scanning software has been disabled after the computer restarts.

Click **Finish**.

Dialogs Used More than Once in Setup

The following three dialogs appear as needed during SAS Setup Wizard procedures:

Read *Setup Status*

This dialog is displayed while Setup performs the requested operations. No action is required.

If you click Cancel, you will exit Setup, and the program will not be installed.

Read *Exit Setup*

Setup can be completed later, but if you quit Setup now, the program will not be installed.

Click No to resume Setup, or click Yes to quit.

Read *Choose Folder*

This window is used to browse for an available folder. Navigate through the nested folders until you find the correct one for your installation.

Click OK to select the folder.

Or, click Cancel to return to the previous window.

Using SAS Setup in Quiet Mode

Quiet Setup allows the selections for an installation to be made ahead of time and then used later when SAS 9.1 Foundation is installed on other machines. Using Quiet Setup can save system administrators a lot of time when they are installing software on multiple machines. Please follow the steps below and read the help dialogs before attempting to record an installation.

Considerations

The **most common problem** encountered during Quiet Setup is an out-of-space situation. Before beginning the setup, make sure there is enough free disk space on the machine where SAS 9.1 Foundation is being installed.

Due to the nature of Quiet Setup, mistakes cannot be rectified immediately. Correcting errors involves updating the quiet data file and re-installing, which can be time-consuming.

Quiet Setup cannot recover from a reboot, so make sure each machine meets the minimum system requirements before attempting to run a Quiet Setup. It is a good practice to always run the System Requirements Wizard before running a Quiet Setup.

A Quiet record file can be generated by running SAS 9.1 Foundation setup in Quiet Record mode. This will create a data file that can be used for any setup running in quiet mode.

For examples of how quiet mode might be used from a batch script, see the following files:

- sas\core\sasinst\examples\goquiet.cmd.txt
- sas\core\sasinst\examples\sasquiet.cmd.txt
- sas\core\sasinst\examples\srwquiet.cmd.txt

Recording a Quiet Record File

Quiet Record mode creates a data file in a directory you specify that contains responses to any dialogs that may be presented during an interactive setup.

Submit the following command to begin recording a quiet record file:

```
<drive letter and full path to SAS setup.exe file>setup.exe record
```

For example: o:\SAS Server\9.1\sas\setup.exe record

Editing the Quiet Record File

This section explains each of the editable values in the quiet record file. Many of the values have standard defaults if they are left blank and each default is described below.

Do not edit any settings below the warning line. If you want to change the selected components while in Record Mode, click the Back button to return to the *Select Components* dialog and make new selections. Otherwise, you must record a new quiet record file to change these settings. Changes made to this information by any other means **could invalidate the quiet record file**.

Quiet Options

ReplaceRegistryKeys=Yes/No

This value is used to indicate if file extensions should be registered for the current release of SAS that is being installed. This would only apply if an earlier version of SAS was installed on the computer.

IgnoreFileCopyErrors=Yes/No

This value is used to indicate that errors made while files are copied should be treated as warnings instead of fatal errors. Ignoring file copy errors will allow the setup to continue in the event of a file copy error, but the resulting image will not be complete. This option is recommended only if the file copy error would be expected on a computer with an unusual configuration. For more information about copyfile errors, refer to Usage Note 3998.

Retrieve SAS Installation Data

Method=Existing/File

This value indicates where the setup should retrieve the SAS Installation Data file. The more common setting is Existing, since this data is retrieved when the SAS Server image is created.

SAS Installation Data

File=

This value refers to the location where the SAS Installation Data file was saved. It should be set only if the Retrieve SAS Installation Data Method was set to "File."

Language Values

The following language codes are used to select which languages to install and to indicate the default language:

- 1d=English with DBCS support
- cs=Czech
- de=German
- en=English
- es=Spanish (Castilian)
- fr=French
- hu=Hungarian
- it=Italian
- ja=Japanese
- ko=Korean
- pl=Polish
- ru=Russian
- sv=Swedish
- zh=Chinese (Simplified)

Language Selections

Language1=??

Language2=??

...

Each selected language must be listed on a separate line using the format: *LanguageX=??*. *X* is a sequential number starting at 1, and *??* is the two-character language code for the selected language.

Default Language

Default=??

The two-character language code is used to specify a single default language.

Add SAS Software

Method=Add/New

This value specifies what should be done if SAS 9.1 Foundation is already on the system. Add is used to add components to the existing installation, and New is used to create a new installation of SAS on that system. The most common setting is Add, since only one installation of SAS 9.1 Foundation can be active at a time.

Destination Location

Location=

This is the location where SAS will be installed. If this value is left blank, Setup will use the default location under Program Files. If this value is set to a drive letter that does not exist on the target computer, Setup will abort.

Data Files Folder

Folder=

This is the location where personal user data files will be stored. If this value is left blank, Setup will use a default location in the user's Local Settings area.

Temporary Files Folder

Folder=

This is the location where temporary files will be stored. If this value is left blank, Setup will use a default location in the user's temporary location.

Using a Quiet Record File

To use a previously generated quiet record file to run a Quiet Setup, run the following command from the SAS directory:

```
<drive letter and full path to SAS setup.exe  
file>setup.exe -s  
quietfile=<drive letter and full path to the quiet file>  
-f2<drive letter and full path to the log file>
```

Example for Client Users:

```
o:\SAS Server\9.1\sas\setup.exe -s quietfile=  
o:\SAS Server\9.1\sas\quiet.ini -f2c:\temp\quiet.log
```

Example for Personal Users:

```
o:\SAS Server\9.1\Disk1\sas\setup.exe -s quietfile=  
o:\SAS Server\9.1\Disk1\sas\quiet.ini  
-f2c:\temp\quiet.log
```

When using a quiet record file, it is important to force the creation of a log file. Without a log file, the quiet installation may fail. Create the log file by using the -f2 option as follows:

```
setup -s -f2<path and filename of the log file>
```

The f2 option specifies where the log file should be created. Use this switch to specify a valid location where you have write permission. Without a valid location and write permission, the Quiet Record process may terminate with no indication of failure.

Troubleshooting

Check to make sure that there is no space between -f2 and the next argument.

The log will help in the troubleshooting of failed installations as it will display a ResponseResult code. Common ResponseResult codes are as follows:

0	Success
-1	General error
-2	Invalid mode
-4	Not enough memory available
-5	File does not exist
-7	Unable to write to the log file
-51	Cannot create the specified folder
-52	Cannot access the specified file or folder

For information about [the System Requirements Wizard](#) please see page [38](#).

Installing SAS using Microsoft System Management Server 2.0

SAS 9.1 provides the means for unattended installations through the use of the Quiet Mode feature. Microsoft's System Management Server 2.0 extends this capability by providing a quick and easy way to deploy SAS to the enterprise desktop. Administrators can use these tools together to build a SAS 9.1 package and deliver it to their users.

This chapter explains the steps necessary for deploying SAS 9.1 on SMS 2.0. These instructions are based on the following three assumptions:

1. The person performing SAS 9.1 deployment on SMS 2.0 is an SMS administrator or is familiar with SMS 2.0. If not, please refer to SMS 2.0 administration documentation.
2. The person performing SAS 9.1 implementation on SMS 2.0 has administrative rights on the Local Area Network (i.e., can create accounts, administer systems on the network, change passwords, etc.).
3. There is an SMS environment already configured and working properly.

In general, the SMS administrator distributes SAS to clients just as any other software package is distributed: The administrator sets up a site hierarchy, establishes a collection of clients as targets to load the software, and creates a program package to push to these clients.

Beyond these basics, there are a few special instances that can affect the SAS distribution and they are noted here.

These are the five steps involved in SAS package deployment:

1. Creation of SAS quiet record file
2. Software distribution setup in SMS
3. System Requirements Wizard Installation package creation in SMS
4. SAS Installation package creation in SMS
5. Deployment of packages with SMS

Step 1: Creation of SAS Quiet Record File

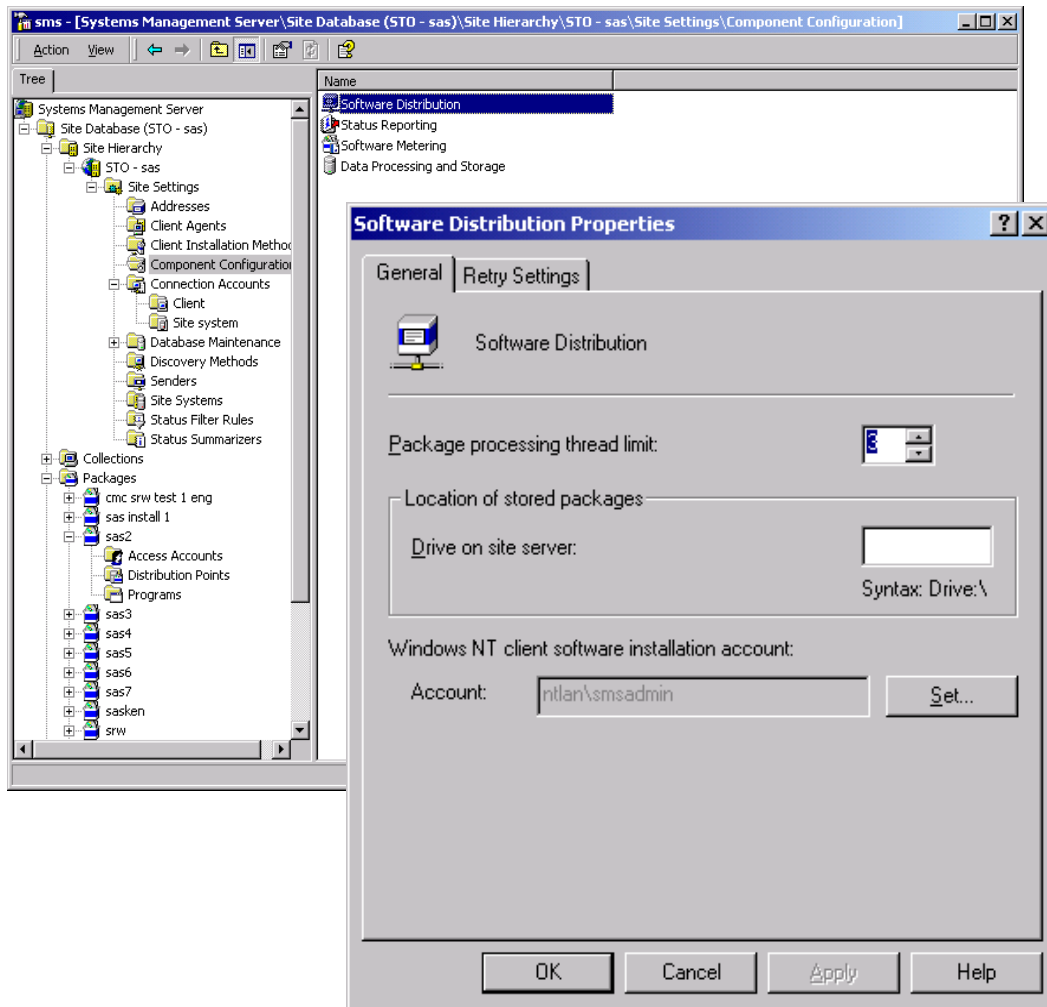
Please refer to [Using SAS Setup in Quiet Mode](#) on page 49 of the SAS Administrator Guide for information on how to create a SAS quiet record file. After the quiet record file has been created, you can proceed with the creation of SAS 9.1 packages for deployment on SMS.

Step 2: Software Distribution Setup

In order to build a SAS 9.1 SMS package, you need to configure the Software Distribution Property. This configuration can be done with the SMS Administrator's Console.

If you plan to distribute jobs to your clients when no user is logged on, you must set the Windows NT client software installation account. In the SMS Administrator's Console, this setting is found under Component Configuration --> Site Settings.

Open the Software Distribution object and specify the domain and login for the account that will auto-login to the client computer. This account should match the one set under the Program properties of the software package.



Note: This account will also be used in the creation of System Requirements Wizard and SAS packages. Be aware that the password for this account will be displayed in the command line, and is therefore a security risk. It is highly recommended that you change your password after the packages have been deployed. Another alternative is to create a temporary administrator account that will be disabled after program deployment.

When the Software Distribution property is configured, the System Requirements Wizard and SAS packages can be created.

Step 3: SAS and System Requirements Wizard Installation Package Creation

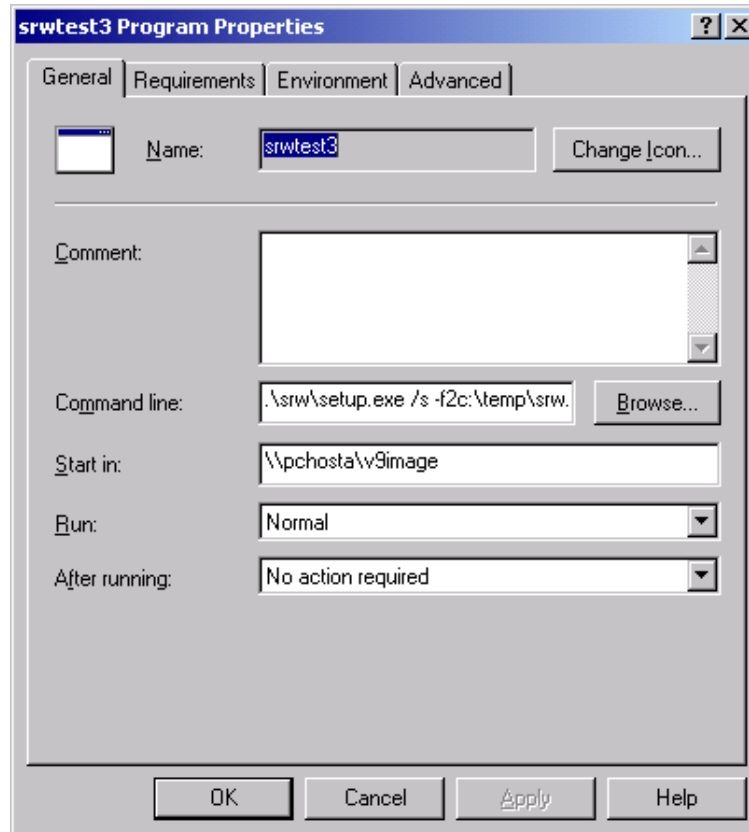
The System Requirements Wizard (SRW) is unique because it must be able to reboot your system and log back in with a setup ID to install products. For this reason, you pass a login ID, domain and password along to the setup program when you run the SRW setup.

This is more complicated with SMS because SMS also provides a separate login ID when no one is logged into the computer. This means that there are two logins used if a system has to be restarted. The AutoID value given in the Command Line **must** be the same as the NT client software installation account. If these values differ, you will put the system in a perpetual loop, with each login voiding the other and rebooting the system to try to gain control. This can be fixed only with a registry edit.

With the Software Distribution Property configured in Step 1, you can create an SMS package for the SRW. Open the SMS Administrator's Console. Under the "Packages" section of the SMS "Site Hierarchy," create an SRW Installation package with the following configuration under General tab:

Field	Setting	Comments
Name:	<package name>	Name the package
Comment:		Optional
Command Line:	<i>.\srw\setup.exe /s - f2c:\temp\srw.txt "QuietLog:c:\temp\srw.txt" "AutoID:adminacct" "AutoPwd:adminpass" "AutoDomain:domainname"</i>	<ol style="list-style-type: none"> 1) "." denotes current path. This is used to keep the overall command line under 126 characters (see note below). 2) "\srw\setup.exe" specify path to SRW setup.exe. Substitute this with the path to your SRW setup.exe. 3) "/s" option sets the install in silent mode. 4) "-f2" option specifies the path to SRW log file. Replace "c:\temp\srw.txt" with path to temp location for log file (must have write permission to this location or job will fail). 5) "QuietLog:" option specifies path to SRW log file. Same as item #4. 6) "AutoID:" option specifies auto-login account. This should be the same account specified in the Software Distribution Property. The value shown is for example only. 7) "AutoPwd:" option specifies the auto-login account password. The value shown is for example only. 8) "AutoDomain:" option specifies the auto-login account domain. The value shown is for example only.
Start in:	<PATH>	Specify UNC path to the SAS image (root level). User-specific.
Run:	<Run Mode>	Specify run mode. User specific. Default is "Normal"
After running:	<Action>	Specify required action after package delivery. User-specific. Default is "No Action Required"

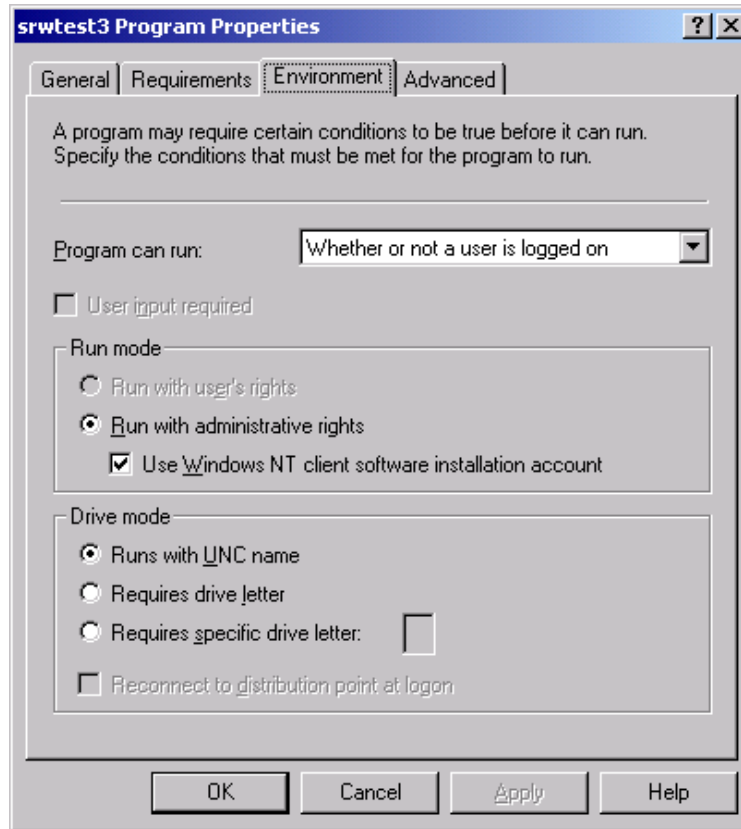
Note: There is a 126-character limit on the command line, so it is important to minimize the depth of your UNC path. Or, you can insert long command line syntax into a batch script and execute that batch script from this command line.



When everything in the General tab has been configured, click on the Environment tab. The Requirements and Advanced tab values of the Program package properties screens can be left as defaults.

Field	Setting	Comments
Program can run:	<Program Run Setting>	Specify how program package can run. User - specific. Default is "Whether or not a user is logged on"
Run mode:	"Run with administrative rights" and "Use Windows NT client software installation account"	Specify program run account permission. The two settings on the left should be selected.
Drive mode:	"Runs with UNC name"	Specify package to run using UNC path.

Using these settings, the SMS job can run whether a user is logged on or not. Run Mode has been set to run in Administrator rights. Windows NT client software installation account is selected because software will be obtained from a network location.



Note: The AutoID value given in the Command Line *must* be the same as the NT client software installation account. If these values differ, you will put the system in a perpetual loop, with each login voiding the other and rebooting the system to try to gain control. This can be fixed only with a registry edit.

When the General and Environment tabs are configured, the SRW Installation package is created. The next step is to create a SAS Installation package.

Step 4: SAS Installation Package Creation

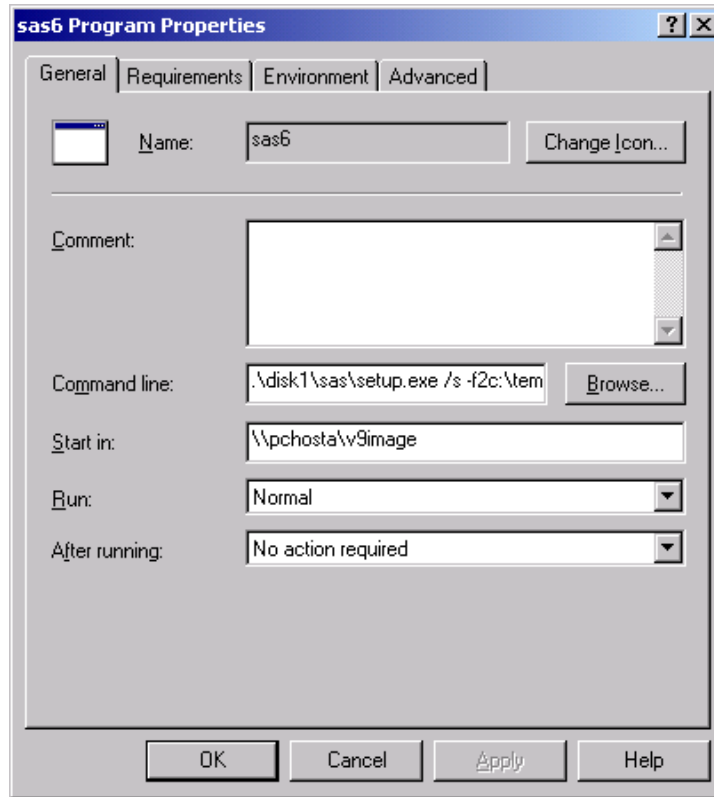
The process of creating a SAS Installation package is similar to that of creating the SRW Installation package. The difference is in the command-line settings.

As in the creation of the SRW Installation package, begin with the SMS Administrator's Console. Under the "Packages" section of the SMS Site Hierarchy, create a SAS Installation package with the following configuration under the General tab:

Field	Setting	Comments
Name:	<package name>	Name the package
Comment:		Optional
Command line:	.\disk1\sas\setup.exe /s -f2c:\temp\sas.txt quietfile=\\srv1\v9image\disk1\sas\quiet1.ini	<ol style="list-style-type: none"> 1) “.” denotes current path. This is used to keep the overall command line under 126 characters (see note below). 2) “\disk1\sas\setup.exe” specifies path to SAS setup.exe. Substitute this with the path to your SAS setup.exe. 3) “/s” option sets the install in silent mode. 4) “-f2” option specifies path to SAS log file. 5) “c:\temp\sas.txt” specifies path to SAS log file. Replace with path to temp location for log file (must have write permission to this location or job will fail). 6) “quietfile=” specifies the path of the SAS quiet record file previously created in Step 1. 7) “\\srv1\v9image\disk1\sas\quiet1.ini” specifies path of the quiet record file. Substitute this with the path to your path to quiet record file. Must use explicit path.
Start in:	<PATH>	Specify UNC path to the SAS image (root level). User-specific.
Run:	<Run Mode>	Specify run mode. User-specific. Default is “Normal.”
After running:	<Action>	Specify required action after package delivery. User-specific. Default is “No Action Required.”

Note: There is a 126-character limit on the command line, so it is important to minimize the depth of your UNC path. Also note that the quietfile cannot use the ‘.’ prefix to the path and must use the explicit path value. The quietfile variable is independent of the current path value.

When everything in the General tab has been configured, click on the Environment tab. This window is configured just like the Environment tab fields on page 56. As with the earlier settings, the Requirements and Advanced tab values of the Program package properties screens can be left as defaults. The Environment tab is configured the same way as in Step 3 above.



Using these settings, the SMS job can run whether a user is logged on or not. Run Mode has been set to run in Administrator rights. Windows NT client software installation account is selected because software will be obtained from a network location.

Note: The AutoID value given in the Command Line *must* be the same as the NT client software installation account. If these values differ, you will put the system in a perpetual loop, with each login voiding the other and rebooting the system to try to gain control. This can be fixed only with a registry edit.

When the General and Environment tabs are configured, the SAS Installation package is created. The next step is to deploy the SRW and SAS program installation packages.

Step 5: Deployment

The SAS installation job under SMS is more straightforward than the SRW job because reboots are not required. In the typical SAS installation scenario, there will be either a Personal or Client installation of SAS on a network location, and you want your clients to run setup from this location. The only access requirement for this type of job to run successfully is that the installation ID used by SMS must have read access to the network location.

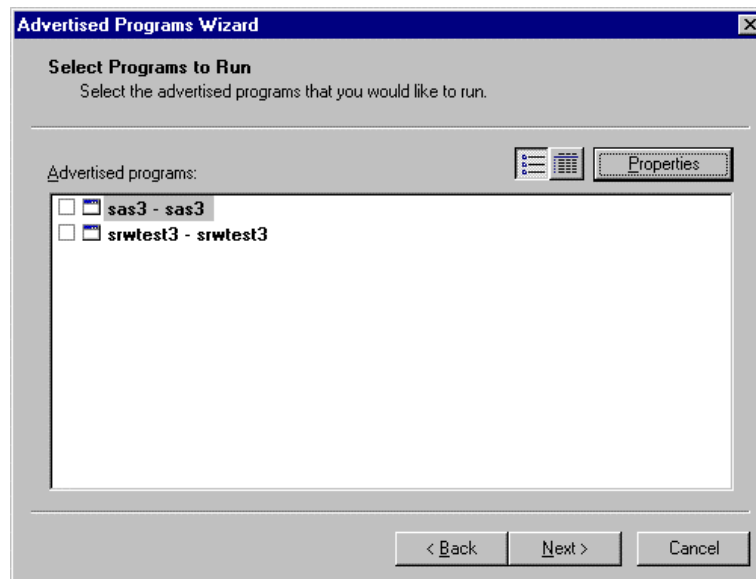
On the client loaded with the SMS agent, the Control Panel shows the two Advertised Program icons plus the icon for System Management. The first Advertised Programs icon is actually the Advertised Program Wizard, which is started automatically when a job is received by the client. The second Advertised Program icon is for the Advertised Program Manager, a program that gives you a history of jobs delivered to the client. The Advertised Program Manager is described in more detail below.

When a job is sent to the client and that client is logged onto the network, a special icon appears in the icon tray and the following message dialog appears on the screen:

A new advertised Program is available. Do you want to open the Advertised Program Wizard now?

If you right-click on the Advertised Programs icon in the tray, you will see choices for running Advertised Programs or opening the Advertised Program Monitor. If you click “No” on the new program advertisement, you can go to the icon in the tray later, to run the package.

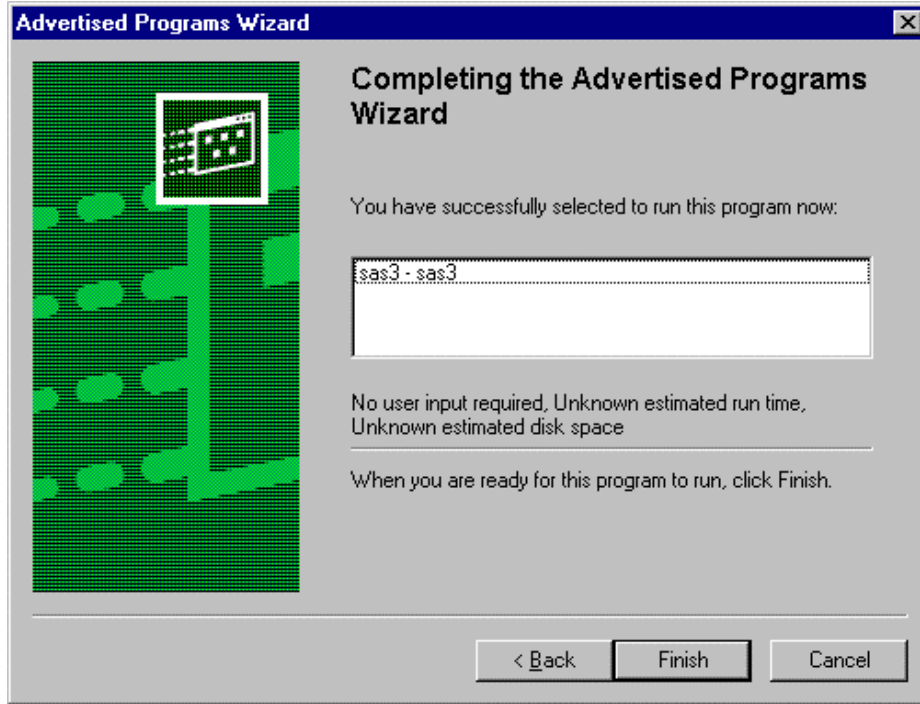
Click on the “Yes” button to start the Advertised Programs Wizard. The first window of the Wizard shows all the packages that are queued on the client. This list includes the new jobs plus any old jobs that were not flagged to expire.



You can click on any combination of old or new packages to run, and then click Next to continue.

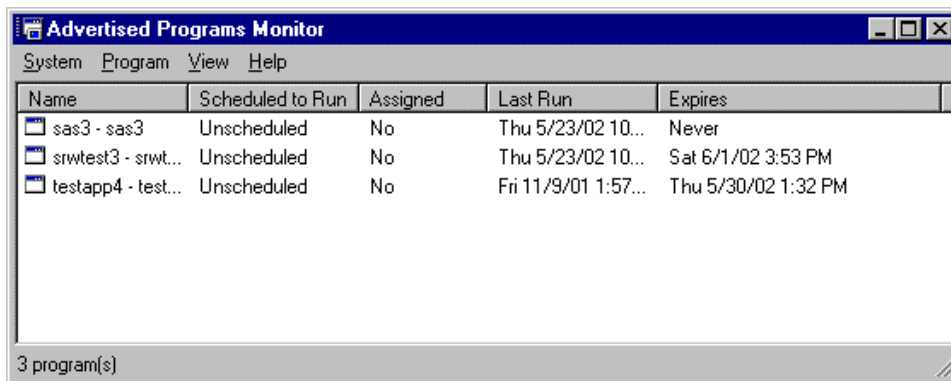
The last window of the Wizard prompts you to enter a time when the job(s) will be run. You can choose to run jobs immediately or to run them at a later date/time. After you make your selection, click on Next to continue.

The final window shows the completion status of your jobs.



Note that the window does not actually give you feedback information from the package application execution; it indicates only that the SMS job was opened and executed. The window also gives you information about the program properties, such as whether user input is required, the estimated run time, etc. Click Finish to close the wizard.

After a package runs, you can select the Control Panel and open the Advertised Programs Monitor program.



This window lists a summary of packages delivered to the client and includes information showing the Last Run date/time and the package expiration date/time.

Even though you can select this SAS package to install without a computer logged on, the setup will not start until the system is manually logged on. Once you are logged in, open the Control Panel/Advertised Program Manager and select the job to run. From that point on, the setup will be silent. The only indication that setup is running is CPU and drive activity, and an hourglass icon on the SMS job visible in the Advertised Program Manager. (You may have to refresh the screen once inside the Advertised Program Manager, as the refresh cycle could be set to an extended period.)

Note: The example used here follows a model in which the installation runs from a UNC path. You could also do the installations by mapping the same network drive on all the clients and using a drive path instead. However, this method is usually too much work. The UNC path is easier to use and more flexible.

An alternate way to specify a long command line is to put the command syntax into a batch script and call that file from this command line.

Renewing Your SAS Software

SAS software is licensed on a calendar basis. In order to run each software product, you must supply the SAS Installation Data file, which includes information about the software in your license (SETINIT) and other installation process customization parameters. Your SAS Installation Data file must be updated when the license period has expired, and/or there has been a change in the SAS software product bundle covered by the license.

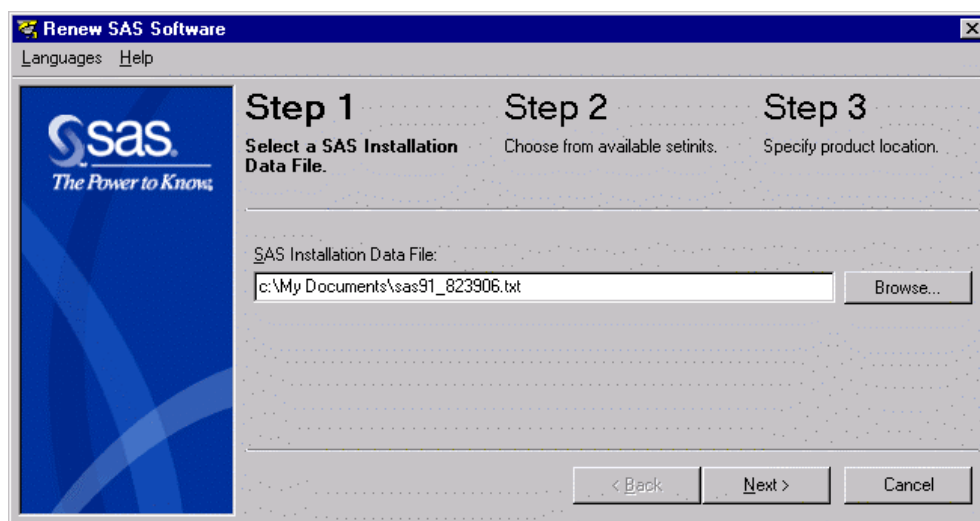
SAS Installation Data

When your organization orders SAS software or renews the SAS software license, your designated installation representative receives an e-mail from SAS that includes a single text file attachment. This attachment contains your SAS Installation Data file, along with instructions about saving the data to disk. It is recommended that you save this e-mail and attachment on your hard drive, or to another location that is backed up regularly.

Some organizations use the Internet to retrieve the SAS Installation Data file. In either case, you will not be able to perform a SAS 9.1 installation without this data. For more information, please see the section [“Using the SAS Administrator Wizard to Retrieve SAS Installation Data”](#) on page 71.

The SAS Installation Data file is commonly saved as `sas91_XXXXXX.txt` in `My Documents`. After you save the data to disk, the File option can be used during installation to provide the location of your SID. Alternatively, the Renew SAS Software tool can be used if your organization already has SAS software installed.

The Renew SAS Software Tool



Note: The Renew SAS Software tool can be used to update Personal images only. For Client images, the Administrator renews SAS software by

running the update from Maintenance Mode. For more information, please see “[Using Maintenance Mode to Update SAS Installation Data on the Server Image](#)” on page 76.

Running the Tool

The Renew SAS Software tool validates the SAS Installation Data file to ensure that it contains valid information about the software in your license (SETINIT) and other installation process customization parameters. To begin, click `Start > Programs (or All Programs on WinXP) > SAS > SAS 9.1 Utilities > Renew SAS Software`.

If the Renew SAS Software tool cannot be reached from the Start menu, there are two other ways to reach it:

1. Open Windows Explorer (Click on the Start button, select run from the menu and type Explorer). Go to the following directory:
`!sasroot\core\sasinst\sasrenew`. Double-click on `sasrenew.exe` to start the Renew SAS Software tool.
2. Insert the **Software Disk 1** CD and go to the following directory:
`<CD Drive>:\sas\core\sasinst\sasrenew`. Double-click on `sasrenew.exe` to start the Renew SAS Software tool.

In either case, the default location for the `!sasroot` directory is
`C:\Program Files\SAS\SAS 9.1`.

Renew SAS Software Windows

Type the pathname in the SAS Installation Data File field.

Or, click Browse to select the file and then click OK.

Click Next to move to the next window.

Or, click Cancel to exit Renew SAS Software.

If the SID file that you selected contains the proper information, the next window that appears will be Verify SAS Installation Data.

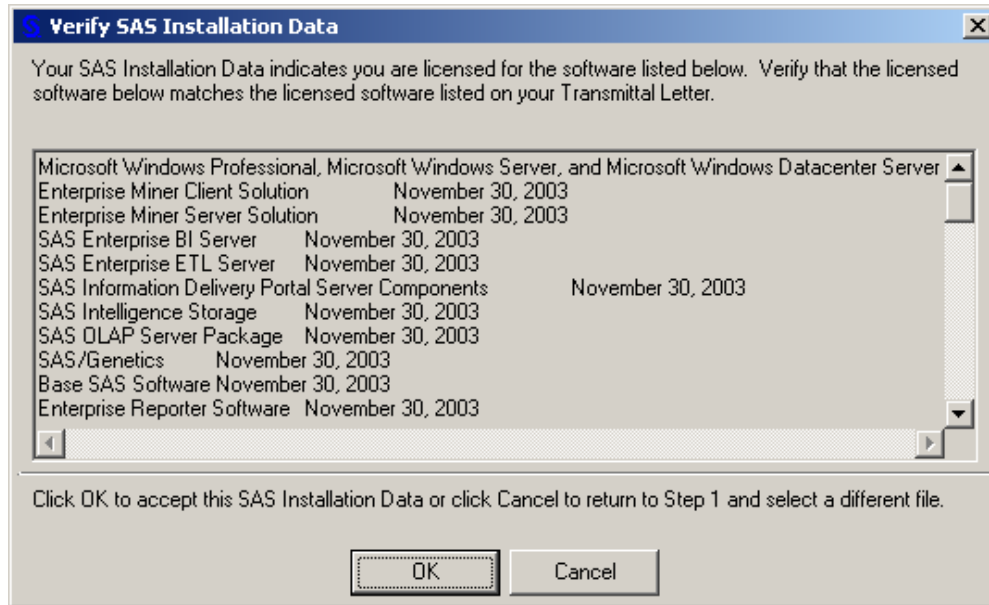
Note: If the list box in this window is blank, there is a problem with your SID file. A new one must be obtained. If you are installing from a **SAS Setup** CD, please see the information about retrieving SAS Installation Data from the Internet using the SAS Administrator Wizard on page 29. Or, you can request a resend of the SID via e-mail from the following location:

<http://support.sas.com/documentation/installcenter/>

Check the SAS Installation Data field listings that are associated with the SID you selected.

Click OK to accept this SAS Installation Data and move to Step 2.

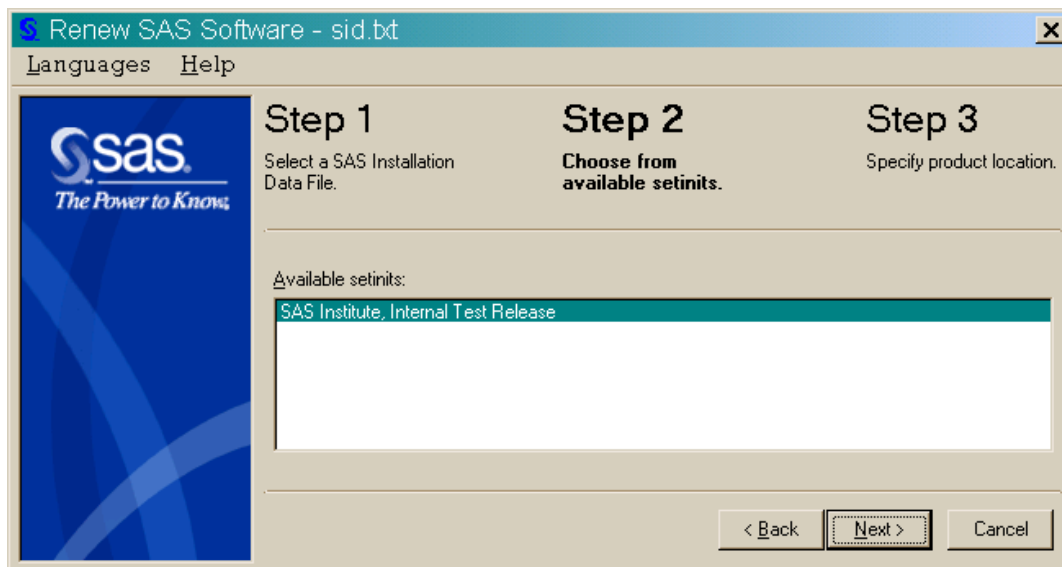
Or, click Cancel to return to Step 1 where a different file can be chosen.



The Verify SAS Installation Data window appears the first time that you click Next in Step 1 and anytime you change the location of the SID file. The top line in the list box shows the platforms where this SAS Installation Data file can be installed. Expiration dates can be checked in this window as well.

Note: If a Windows 64-bit platform is included on the top line of the list box, the SID must be installed on a 64-bit platform only.

The Step 2 window displays all the available SETINITs in the SAS Installation Data file. In most cases, there will only be one listed.

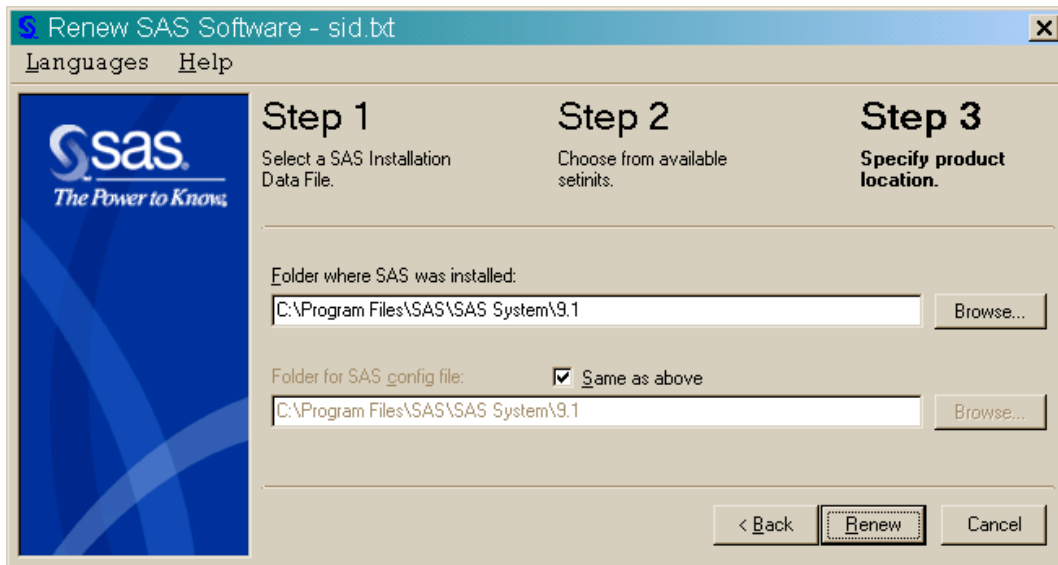


Confirm that the SETINIT is correct for the system you are updating. If multiple SETINITs are listed, select the correct SETINIT for the system you are updating.

Click Next to move to Step 3.

Or, click Back to view Step 1, or click Cancel to exit the Renew SAS Software tool.

The two fields in Step 3 are filled in automatically. The first field shows where SAS 9.1 Foundation was installed, and the second field shows the location of the SAS config (configuration) file. The default location for SAS 9.1 Foundation is C:\Program Files\SAS\SAS 9.1.



The default location for the SAS config file is the same as your SAS installation folder, so the second field in this window is grayed out.

If your SAS installation and your SAS config file are stored in separate locations, uncheck the “Same as above” checkbox and click Browse to find the proper folder. Click OK to continue.

Or, click Cancel to stop browsing and return to the Step 3 window.

Note: If the fields in Step 3 are blank, click Browse to locate the proper folder. Click OK to continue or Cancel to return to the Step 3 window. Blank fields can indicate a problem with the installation. If the Renew SAS Software tool is unable to finish, please check your `sassetup.log` file located in your `!sasroot` directory for errors that may have occurred during your SAS installation. The default directory for `!sasroot` is `c:\Program Files\SAS\SAS 9.1\`.

Click Renew when you are satisfied with the locations listed in the two fields. Or, click Browse to select other locations, or click Back to view Step 2, or click Cancel to exit Renew SAS Software.

In the next window, the Renew SAS Software tool displays either “The SETINIT was successfully applied” or an error message to help you diagnose the problem.

Renew SAS Software in Quiet Mode

You can also renew your SAS software with the Renew SAS Software Tool without ever seeing a dialog. To renew your SAS software in quiet mode, locate the tool on your hard drive in the directory
`!sasroot\core\sasinst\sasrenew.`

Run the following command from a command prompt:

```
"!sasroot\core\sasinst\sasrenew\sasrenew.exe" /s  
"datafile:<full path to your SAS Installation Data file>"
```

For example:

```
"C:\Program Files\SAS\SAS  
9.1\core\sasinst\sasrenew\sasrenew.exe" /s  
"datafile:c:\Program Files\SAS\SAS  
9.1\core\sasinst\sasinst\sasrenew\sasrenew.exe"
```

To check if the SID was applied successfully, look in your `setinit.log` file. The default directory for the `setinit.log` file is
`c:\Program Files\SAS\SAS 9.1\.`

Troubleshooting

Review the following usage notes for errors that you might encounter when using the Renew SAS Software tool.

Error: The SAS config folder is not valid.

When you run Step 3 of the Renew SAS Software tool (Specify product location), the following error message might appear:

```
Renew SAS Software - sas91_XXXXXX.txt  
The SAS config folder is not valid. Please verify the  
folder.
```

To work around this issue, perform the following five steps to point to the correct configuration folder:

1. Click OK.
2. Uncheck the “Same as above” box.

3. Click Browse on the Folder for SAS config file and point to the correct folder.
4. Click Renew.
5. If the “Same as above” box was not checked initially, try checking it to use the default location.

For more information, see the following Usage Note:

<http://support.sas.com/techsup/unotes/SN/010/010659.html>

An error occurred applying the setinit file

The SAS Renew Software tool does not verify the operating system name before attempting to apply the SETINIT, causing the following error message to appear:

```
Renew SAS Software - SAS91_XXXXXX.txt
An error occurred applying the setinit file. Please
refer to the log file for additional information
C:\Program Files\SAS\SAS 9.1\setinit.log.
```

```
Click OK. Your SAS Software has not been renewed yet.
You may renew at a later time.
```

```
Are you sure you want to exit? Yes or No. If you
select No, change the folder location, then click
Renew to complete or Cancel to exit.
```

Open the setinit.log to see why this is happening. If the problem is due to the wrong operating system, the setinit.log will look like this:

```
NOTE: The OSNAME= option specifies 'WIN      ' but the
current operating system name is 'NET_SRV'.
ERROR: This non-match is not allowed and the setinit
stream will not be applied.
ERROR: Cannot change the site validation data.
NOTE: The SAS System stopped processing this step
because of errors.
```

If this problem is due to an incorrect release of SAS, the setinit.log will look like this:

```
Error: Will not attempt to apply setinit because the
current release of 9.1 and the release= option value
of 9.0 do not match.
```

To correct this file, obtain a new SAS Installation Data file with the correct operating system or release of SAS. Note that the system names might vary depending on the operating systems involved.

The `setinit.log` file is located in the `!sasroot` directory. The default directory for `!sasroot` is `C:\Program Files\SAS\SAS 9.1`.

For more information, refer to the following usage notes:

<http://support.sas.com/techsup/unotes/SN/010/010790.html>

<http://support.sas.com/techsup/unotes/SN/010/010814.html>

The current date of xxxxx is past the final expiration date for your SAS System, which is xxxxx.

After the Renew SAS Software tool finishes and you receive the message “The `setinit` was successfully applied,” you may receive the following error message when you try to start a SAS 9.1 session:

```
ERROR: The current date of xxxxx is past the
final expiration date for your SAS system, which is
xxxxx. Please contact your SAS Software
Representative to obtain your updated SETINIT
information.
ERROR: Initialization of SETINIT information from
SASHELP failed.
FATAL: Unable to initialize the options subsystem.
ERROR: (SASXKINI): PHASE 3 KERNEL INITIALIZATION
FAILED. UNABLE TO INITIALIZE THE SAS KERNEL
```

To work around this issue, perform the following steps:

1. Obtain a current SAS Installation Data file (SID), from your SAS Installation Representative
2. Rerun the Renew SAS Software tool and point to the correct SID file.

If you have a personal installation, you need to obtain your SAS Installation Data file and run the Renew SAS Software Tool. There are two ways to do this:

1. Click `Start > Programs (or All Programs on WinXP) > SAS > SAS 9.1 Utilities > Renew SAS Software`.
2. Click `Start > Run`, and follow these steps:
 - A. Type `Explorer` and click `OK`.
 - B. Go to the `!sasroot` directory (default location `C:\Program Files\SAS\SAS 9.1\`).
 - C. Go to the `core\sasinst\` directory and run `sasrenew.exe`.

If you have a Client installation, your administrator will have to update the SAS Installation Data on the server using the SAS Administrator Wizard. Please refer to the section [Using Maintenance Mode to Update SAS Installation Data on the Server Image](#) on page 76.

For more information, refer to the following usage note:

<http://support.sas.com/techsup/unotes/SN/010/010792.html>

The SAS folder is not valid

When you run Step 3 (Specify product location) of the Renew SAS Software tool using SAS 9.1, the following error message might appear:

```
Renew SAS Software - sas91_XXXXXX.txt  
Error: The SAS folder is invalid. Please verify the folder.
```

To work around this issue, perform the following steps to point to the correct folder where SAS was installed:

1. Click OK.
2. Click **Browse** on the Folder where SAS 9.1 was installed and point to the correct folder.
3. Click **Renew**.

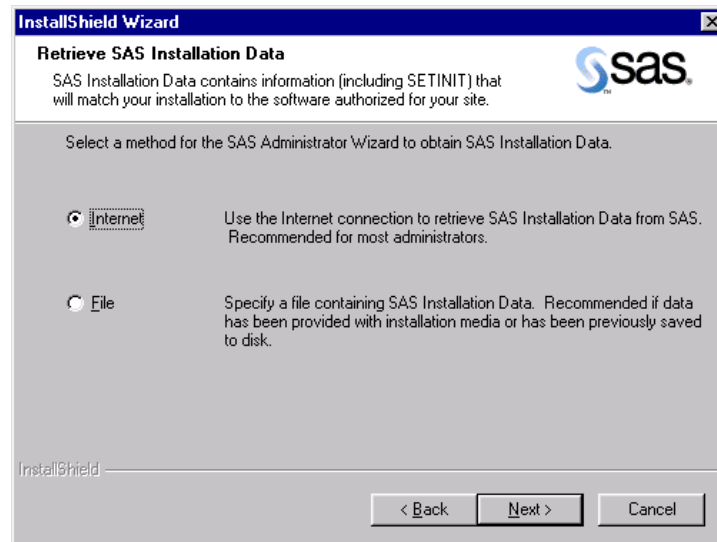
Important: When you install SAS 9.1, make sure that you are logged in as the Administrator. Make sure there are no applications running in the background, especially anti-virus programs.

For more information, refer to the following usage note:

<http://support.sas.com/techsup/unotes/SN/010/010791.html>

Using the SAS Administrator Wizard to Retrieve SAS Installation Data

If your organization has not had a SAS software license before, or if you are about to install a new piece of SAS software, your SAS Installation Data file will be applied when you run the SAS Administrator Wizard.



The SAS Administrator Wizard is a tool that helps administrators perform the tasks that are required when SAS is deployed throughout an organization. In many versions of the SAS Administrator Wizard, the SAS Installation Data file can be obtained via the Internet. If both methods are available in your release, the SAS Administrator Wizard asks you to choose how your SAS Installation Data file will be retrieved:

- The Internet method, described below in [“The SAS Administrator Wizard and the Internet Option.”](#) If possible, it is generally recommended that you retrieve the SAS Installation Data file using your Internet connection.
- The File method, described on page [73](#). You can retrieve your SAS Installation Data from a file if you previously saved the data (received via e-mail) to disk, or it was provided with your installation media.

Starting the SAS Administrator Wizard

There are several ways to start the SAS Administrator Wizard. Here are two of them:

1. From the SAS Software Navigator, choose Create a SAS Image for Deployment.
2. From the SAW directory, run `setup.exe`

SAW Dialogs & Directions

Most of the windows described below offer directions printed here in bold text. These represent the quickest method for deployment.

Read *Welcome to the SAS Administrator Wizard*

Click Next.

Or, click Cancel to exit the SAS Administrator Wizard.

Read *Retrieve SAS Installation Data*

Click on one of the two radio buttons to pick the method that the SAS Administrator Wizard will use to obtain the SAS Installation Data file.

- Internet
- File

The SAS Installation Data file contains information (including SETINIT) about the SAS software that has been prepared for your site.

Note that if you select “Internet,” you will need Internet access to complete the process. In addition, the Internet option may not be available in all versions of the SAS Administrator Wizard. If the option is unavailable, proceed using the File option.

Click Next.

Or, click Back to view the *Welcome* window, or click Cancel to exit the SAS Administrator Wizard.

Instructions for using the File method continue under [“The SAS Administrator Wizard and the File Option.”](#)

The SAS Administrator Wizard and the Internet Option

Note: The Internet option may not be available in all versions of the SAS Administrator Wizard.

If you choose the Internet method, the SAS Administrator Wizard uses Secure Sockets Layer (SSL) to securely connect to SAS . COM and retrieve the text-only data. This is a direct connection from the wizard to SAS . COM, and does not require a browser. The SAS Installation Key and Order Number are required to connect to SAS . COM.

Read *Retrieve SAS Installation Data from the Internet*

Enter the SAS Installation Key and the Order number in their respective fields. Your SAS Installation Key and Order Number are both listed in your SAS Order Information Letter in your Installation Kit, and in the SAS Software Order Number e-mail.

If you want to save a copy of the SAS Installation Data file to disk, check the box to select that operation. You can select the displayed path name or browse for another file location. It is a good idea to save a copy of the SAS Installation Data file to disk if there is a possibility that you will not be able to connect to the Internet to retrieve the SAS Installation Data file in the future.

If you want to exit after saving, check the box to select that option.

Click Next.

Or, click Back to view the *Retrieve SAS Installation Data* window, or click Cancel to exit the SAS Administrator Wizard.

As you proceed through the SAS Administrator Wizard, the wizard integrates the SAS Installation Data file you have just downloaded into the network images you create. Here is a list of the remaining window dialogs in the SAS Administrator Wizard:

[End User Type](#)

[Setup Status](#)

[Language Selections](#)

[Network Location](#)

[Select Components](#)

[SAS Metadata Server](#)

[Start Copying Files](#)

[Setup Status](#)

[SAS Administrator Wizard Complete](#)

For step-by-step instructions, please refer to the section “[SAS Administrator Wizard Windows](#)” on page 29.

The SAS Administrator Wizard and the File Option

The File option allows you to retrieve the SAS Installation Data file from a disk location. There are three scenarios that can lead you to choose the File option:

- The Internet option is not available in your version of the SAS Administrator Wizard.
- The Internet option is available, and the “Save a Copy of the SAS Installation Data to disk” box was checked during a previous installation.
- The SAS Installation Data from your Software Order E-mail’s text file attachment was saved to disk. The designated installation representative receives this e-mail, along with instructions for saving the data.

After you select the File method from the *Retrieve SAS Installation Data* window, this dialog appears:

Read SAS Installation Data

Fill in the full path and file name for the location of the SAS Installation Data file from the Software Order E-mail.

Or, click Browse to find another file location. This may be necessary if you selected the “Exit after saving” checkbox after downloading your SAS Installation Data file from the Internet.

Click Next.

Or, click Back to view the *Retrieve SAS Installation Data* window, or click Cancel to exit the SAS Administrator Wizard.

As you proceed through the SAS Administrator Wizard, the wizard integrates the previously saved SAS Installation Data file that you have just provided into the network images you create. Here is a list of the remaining window dialogs in the SAS Administrator Wizard:

End User Type
Setup Status
Language Selections
Network Location
Select Components
SAS Metadata Server
Start Copying Files
Setup Status
SAS Administrator Wizard Complete

For step-by-step instructions, please refer to the section “[SAS Administrator Wizard Windows](#)” on page 29.

The SAS Administrator Wizard's Maintenance Mode

Maintenance Mode, available through the SAS Administrator Wizard, provides a straightforward method for handling these two Administrator responsibilities:

- Updating Installation Data on the Server Image

If your organization already has a Server installation of SAS software in place, Maintenance Mode allows you to update the SAS Installation Data file on the server image. This process is an efficient way to make an updated SAS Installation Data file available to a large number of users.

- Creating a Quiet Record File

If SAS Setup will be used with Quiet Mode, Maintenance Mode provides a method for recording a quiet.ini.

To use either of these features in Maintenance Mode, follow these steps:

1. Start at the SAS server location and find the SAW directory.
2. Double-click on `setup.exe`. The window “Choose Setup Language” appears.
3. Make your Setup Language selection. The SAS Server Maintenance welcome window appears.



Using Maintenance Mode to Update SAS Installation Data on the Server Image

With a Server installation of SAS software established, you can update the SAS Installation Data file on the server image.

Update SAS Installation Data on the Server: Dialogs & Directions

Most of the windows described below offer directions printed here in bold text. These represent the quickest method for updating your SAS Installation Data file on the server. Indented dialog descriptions represent windows that may not be a part of your installation.

Read *SAS Server Maintenance*

Click Next.

Or, click Cancel to exit Maintenance Mode.

Read *SAS Server Maintenance Tasks*

Select the first option, either “Update SAS Install Data on the Server” or “Apply SAS Install Data.” The text will be based on whether the image is for a client or a personal installation.

Click Next.

Or, click Back to view the *SAS Server Maintenance* window, or Cancel to exit Maintenance Mode.

Read *Retrieve SAS Installation Data*

Click on one of the two radio buttons to pick the method that the SAS Administrator Wizard will use to obtain the SAS Installation Data file.

- Internet
- File

Note that if you select “Internet,” you will need Internet access to complete the process.

Click Next.

Or, click Back to view the *SAS Server Maintenance Tasks* window, or click Cancel to exit Maintenance Mode.

Read *Retrieve SAS Installation Data from the Internet* if Maintenance Mode displays this window.

Enter the SAS Installation Key and the Order number in their respective fields. Your SAS Installation Key and Order Number are both listed in your SAS Order Information Letter in your Installation Kit, and in the SAS Software Order Number e-mail.

If you want to save a copy of the SAS Installation Data file to disk, check the box to select that operation. You can select the displayed path name or browse for another folder location.

If you want to exit after saving, check the box to select that option.

Click Next.

Or, click Back to view the *Retrieve SAS Installation Data* window, or click Cancel to exit Maintenance Mode.

Read *SAS Installation Data* if Maintenance Mode displays this window. **Fill in** the full path and file name for the location of the SAS Installation Data file from the Software Order E-mail.

Or, click Browse to find another file location. This may be necessary if you selected the “Exit after saving” checkbox after downloading your SAS Installation Data file from the Internet.

Click Next.

Or, click Back to view the *Retrieve SAS Installation Data* window, or click Cancel to exit Maintenance Mode.

Read *Maintenance Complete*

Click Finish to exit Maintenance Mode.

Troubleshooting

If you receive the error message

The information entered is not valid. Please re-enter your SAS Installation Key and order number exactly as they appear on your CD label.

Click OK, and then refer to the SAS Installation Key and order number listed on your SAS Order Information Letter in your Installation Kit, or your Software Order e-mail. Re-enter your information if necessary and click Next again.

If you receive an error message that begins

The SAS Administrator Wizard was unable to download SAS Installation Data via the Internet.

Click OK, and bring up your Internet connection to verify that it is working.

If you receive an error message that lists the path name, and indicates that the file cannot be open, and includes the text

SAS option '-PATH' not set.

Check configuration file, SAS environment options or command line options.

```
SAS option -'RESOURCELOC' not set.  
FATAL ERROR:WRCODE
```

Click OK. To renew your SAS Installation Data file on a server for clients, your connection to the server must be the same as it was during the initial installation. SAS puts specific path information in the configuration file during installation. Error messages will be generated if the path information does not match during renewal.

Using Maintenance Mode to Create a Quiet Record File

A quiet.ini can be recorded if SAS Setup will be used with Quiet Mode. For more information about quiet installation, refer to [Using SAS Setup in Quiet Mode](#) on page 49.

Create a Quiet Record File: Dialogs & Directions

Most of the windows described below offer directions printed here in bold text. These represent the quickest method for creating a quiet.ini.

Read *SAS Server Maintenance*

Click Next.

Or, click Cancel to exit Maintenance Mode.

Read *SAS Server Maintenance Tasks*

Select the second option, “Record a Quiet File for Deployment”

Click Next.

Or, click Back to view the *SAS Server Maintenance* window, or Cancel to exit Maintenance Mode.

Read *Quiet Record File*

Fill in the full path and file name for the quiet record file.

Click Next.

Or, click Cancel to exit Maintenance Mode.

Read *Edit Quiet Record File*

Edit the settings of the quiet record file as necessary. For information about updating the text in this window, refer to [Editing the Quiet Record File](#) on page 50.

Click Next to save the quiet record file.

Or, click Cancel to exit Maintenance Mode.

Read *SAS Quiet Record Complete*

Click Finish to exit the wizard.

Read *Maintenance Complete*

Click Finish to exit Maintenance Mode.

Making an Inventory of all SAS Software During an Installation

The SAS 9.1 Foundation installation process provides a way to inventory all the products that have been licensed and installed for every Windows installation at a site.

To take advantage of this functionality, a site must first configure a SAS Metadata Server to receive installation information. Please refer to the *SAS® 9.1 Metadata Server Setup Guide* for instructions about configuring a server and registering a repository.

Create Deployed Image After Configuring Metadata Server

After you have configured a SAS Metadata Server, follow the Windows installation process to create a Deployed Image. In the SAS Administrator Wizard, use the SAS Metadata Server window (described on page 36) to specify the configured Metadata Server.

All subsequent installations from the Deployed Image will publish an inventory of what has been installed and licensed to your SAS Metadata Server.

Viewing the Inventory

To view the registered installations, use the SAS Management Console's License Manager node. For details, start the SAS Management Console, click on the License Manager, and then select Help.

Alternatively, you can use `PROC METALICENSE` to distill the installation information into a SAS dataset, which you can then query via `PROC SQL`. Refer to the *SAS 9.1 Language Reference* for more details.

Installing SAS 9.1 on a Windows Terminal Server or Citrix MetaFrame System

Introduction

Since the introduction of Terminal Services in Windows NT Server 4.0 Terminal Server Edition, it has become more important for a single enterprise server to have the ability to support separate instances of an application by multiple remote users. When a user is running an application in a Terminal Server Client session, the application executes on the server running Terminal Services. Terminal Services allow connections via a thin client to a server desktop. The user interface, such as keyboard input and the application window, is managed on the client and communicated to the Terminal Server.

SAS 9.1 supports Terminal Services for Microsoft Windows NT Server 4.0 Terminal Server Edition, Windows 2000 Server Family and Citrix® MetaFrame™. SAS 9.1 has passed the Microsoft Windows NT Server 4.0, Terminal Server Edition compatibility tests.

SAS System Licensing for Terminal Services

You must have either a WIN NTE or WIN NTSV authorization code to install SAS 9.1 on a server with Terminal Services. This is required because all processing of SAS and all data access originates on the server.

SAS System Support for Terminal Services

SAS 9.1 provides support for Terminal Services by using a unique data files folder and temporary files folder for each SAS user. SAS 9.1 references these locations in the configuration file, `sasv9.cfg`, with the identifiers `SASUSER` and `WORK` respectively. The identifiers contain a variable path for the `SASUSER` and `WORK` file locations. During the invocation of SAS 9.1, these variables are determined by the operating system and will be unique for each SAS user. In previous releases of the SAS System, the `SASUSER` location has been set to a variable path like the example below:

```
/* Setup the default SAS System user profile folder          */
-SASUSER "!USERPROFILE\Personal\My SAS Files\V9"
```

`!USERPROFILE` points to the environment variable `USERPROFILE`. You can view the value of `USERPROFILE` by typing `set USERPROFILE` at a Windows NT command shell (`cmd.exe`).

In order to adequately support new versions of Windows Terminal Server such as Windows 2000, `?CSIDL_PERSONAL` has replaced `!USERPROFILE`. Although `!USERPROFILE` is still recognized by SAS, it is not recommended

for Windows 2000 Server Family Terminal Services. The variable path `?CSILD_PERSONAL` points to the value stored in the following registry key:

```
HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion
\Explorer\Shell Folders\Personal
```

In this release, SASUSER will be configured similar to the example below:

```
/* Setup the default SAS System user profile folder          */
-SASUSER "?CSIDL_PERSONAL\Personal\My SAS Files\V9"
```

The SAS user's work location, WORK, is defined in the configuration file by using the variable path `!TEMP`. This variable points to the environment variable path `TEMP` determined by the Terminal Server operating system and will be unique for each concurrent Terminal Server session.

SAS Setup will make the necessary changes to `sasv9.cfg` to support Terminal Services based on the detection of Terminal Services and the user's selections for unique data files and temporary files folders.

SAS System Requirements for the Terminal Server Environment

Be sure to follow the hardware and software requirements for each Terminal Services platform before installing SAS 9.1. Here are the minimum requirements for SAS 9.1 on the following Terminal Server environments:

Microsoft Windows Terminal Services

Microsoft Windows NT Server 4.0 Terminal Server edition with Service Pack 4

Microsoft Windows 2000

Microsoft Windows 2000 Server Family

Citrix MetaFrame

Microsoft Windows NT Server 4.0 Terminal Server edition with Service Pack 4
Citrix MetaFrame 1.00 (Build 581) or greater

Preparing for SAS System Setup in a Terminal Server Environment

To properly install SAS 9.1 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 9.1 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:

- The first method is to 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.
 - The second method is to type `change user /install` at a Windows NT command prompt (`cmd.exe`). A message will inform you if the install mode is set correctly.
3. Installation of SAS 9.1 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.

SAS Technical Support strongly recommends that you shut down all programs, including virus-scanning programs, before proceeding with this installation. Keeping a virus-scanning program running increases the possibility that one or more reinstallations of SAS software will be necessary.

If a reboot is required, you will have to reestablish the connection to the Terminal Server after the reboot is complete. After logging on to the Terminal Server session, SAS Setup should restart and continue the installation. If the setup does not restart, start SAS Setup and it will resume where it left off before the reboot.

Installing SAS 9.1

Installing SAS 9.1 on a server with Terminal Services is very similar to installing SAS on any server. The key differences are managed by the install, including configuring SAS 9.1 for a Terminal Services environment. There are several important steps to follow during the install:

1. When the Setup prompts for the Data Files Folder, be sure to accept the default value provided by Setup. By accepting the default value for this dialog, Setup will be instructed to use a variable path for the SASUSER location in the configuration file, ensuring a separate SASUSER folder for each user of SAS.
2. When the Setup prompts for the Temporary Files Folder, be sure to accept the default value provided by Setup. By accepting the default value for this dialog, Setup will be instructed to use a variable path for the WORK location in the configuration file, ensuring a separate WORK folder for each user of SAS.

Note if SAS 9.1 will be installed on a server that has had SAS 9.1 installed before, the SASUSER and WORK locations will default to the previously

selected values stored in the registry. These may not be the correct locations to ensure a separate SASUSER and WORK folder. The sasv9.cfg file can be modified after the install to correct for this. Refer to the section [SAS System Support for Terminal Services](#) on page 80 to correct sasv9.cfg.

Configuration and Performance Considerations

The following are additional steps to perform after installing SAS 9.1 on a server with Terminal Services.

1. For optimal SAS 9.1 performance, it is recommended that the server have at least 32Mb of memory available per concurrent user.
2. You can increase this amount based on the number of Terminal Server Client sessions running SAS 9.1 and the amount of available memory on the server with Terminal Services.

The WORK Directory

The WORK directory can be set to a common location because a work subdirectory is created for each SAS session that is a unique name. The work directory can also have the specifications ?CSIDL_PERSONAL or !USERPROFILE. This is an option if you wish to keep track of which work directories belong to specific users.

This configuration is also useful if your users are spread across multiple drives and you have a significant amount of hard drive space on each drive. The amount of drive spin is reduced, which is a key factor in performance. If drive space is at a premium or if you have very fast hard drives, then a common work directory may be to your advantage.

Your choice of strategy will depend on your computer hardware and your RAID settings. For example, a RAID 0 drive is much faster than a comparable RAID 5 drive, but may not be as fast as spreading the work directories across multiple drives. You should not place any permanent data sets on a Raid 0 drive because these drives have no redundancy.

Memory

Since memory is important in performance, the system should have as much as possible. Memory is much faster than your hard drive in manipulating temporary files and other system operations. When computer memory is exhausted, the operating system is forced to use a swap file on your hard drive to store information read into memory. Therefore, increasing memory can increase performance a great deal.

As your user community increases on the server, more memory will be consumed. Prepare for this by making sure the machine has plenty of upgrade capability.

Batch Performance and Running SAS in the Background

Under a Windows Terminal Server or Citrix Metaframe, SAS stops processing when the focus is changed to another application. It will continue processing once the focus is returned to the SAS session. This same problem can occur when running SAS as a background or batch program.

For example, if you switched to Notepad while the SAS session is running, the SAS session will go into a delay state as long as the Notepad window is in front or active. When you make the SAS window active again, SAS will resume running. To circumvent this problem, follow the text shown in the example below.

Note: The registry keys have to be typed in, including the actual key itself. Microsoft KB article Q186628 describes the relevant registry entries.

The following registry modification will boost SAS performance significantly. The values could be modified for each individual case.

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows
NT\CurrentVersion
\Terminal Server\Compatibility\Applications\SAS]
"Flags"=dword:00000008
"NthCountMsgQPeeksSleepBadApp" =dword:0000FFFF
"FirstCountMsgQPeeksSleepBadApp"=dword:0000FFFF
"MsgQBadAppSleepTimeInMillisec" =dword:00000000
```

How to Remove or Uninstall SAS Software

There are two ways to uninstall SAS 9.1 Foundation. Using one of these methods instead of manually deleting SAS files ensures that the Windows registry will be properly updated.

Remove SAS Interactively via the Control Panel

For an end user, the process of removing or uninstalling SAS software works just as it does for any other Windows software. The user clicks on My Computer, then Control Panel, and then Add/Remove Programs. Select “SAS 9.1 Foundation” from the list, and then “OK” to remove SAS from your computer.

Use Silent Uninstall at the Command Line

An administrator can choose to remove SAS software via the silent uninstall program by submitting the following command:

```
\\quazar\m901_win\instant\sas\disk1\sas\setup.exe uninstall -s -  
f1\\quazar\m901_win\instant\sas\disk1\sas\uninst.iss -f2c:\unset.log
```

If You Uninstall SAS from a Side-by-Side Configuration

If you have two versions of SAS installed on one PC (a side-by-side configuration) and you uninstall one of them, you will need to run `setup -register` against the server/media of the remaining SAS version. The `setup -register` command fixes an issue that may be present in your file associations after SAS software is uninstalled.

Submit the following command:

```
<drive letter and full path to SAS setup.exe file>setup.exe -register
```

Here is an example of how the command might be used if SAS 9.1 remains after a different version of SAS is removed from the PC:

```
o:\SAS Server\9.1\sas\setup.exe -register
```



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