



# **SAS<sup>®</sup> 9.1.3 Intelligence Platform**

Installation Guide

Fifth Edition

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**SAS® 9.1.3 Intelligence Platform: Installation Guide, Fifth Edition**

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# What's New

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## Overview

The *SAS Intelligence Platform: Installation Guide* explains how to install and configure the SAS Intelligence Platform. This information covers the following software packages:

- SAS Data Integration Server
- SAS Enterprise Data Integration Server
- SAS BI Server
- SAS Enterprise BI Server
- SAS Intelligence Storage
- various SAS solutions

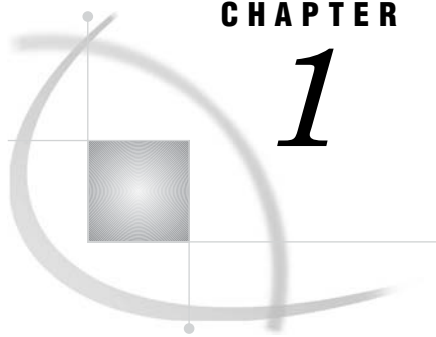
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## Documentation Enhancements

This document has the following enhancements:

- These chapters have been reordered to reflect the order in which the tasks are actually performed at most sites:
  - “Setting Up Required Users and Groups and Designating Ports”
  - “Locating Your Software Order E-mail, SID Files, and Deployment Plan”
  - “Building a SAS Software Depot”
- The chapter “Building a SAS Software Depot” contains more detailed information about how to build a depot on a UNIX system.
- The chapter “Installing Third-Party Products” and the chapter “Installing and Configuring Your SAS Software” include updated information about installing Xythos WebFile Server for use as a WebDAV server.
- New configuration instructions in the chapter “Installing and Configuring Your SAS Software” explain how to handle a situation where different SAS servers use different authentication providers.
- The appendix “Uninstalling the SAS Intelligence Platform” explains how to remove the platform from the machines in your system.





## CHAPTER

## 1

# Introduction to Installing the SAS Intelligence Platform

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## What Is Covered in This Document?

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### Overview of the Document's Scope

This document takes you through the entire process for installing the SAS Intelligence Platform. Installing the software will be easier, however, if you have read the *SAS Intelligence Platform: Overview* and understand the architecture of the system. In addition, after installing your software, you will need to perform a few of the tasks discussed in the *SAS Intelligence Platform: Data Administration Guide* and the *SAS Intelligence Platform: Security Administration Guide* to complete some configuration tasks that are necessary at most sites, but are not handled by the SAS Configuration Wizard. For instance, the data administration guide explains how to give your users access to your data sources so that they can begin creating data integration jobs and reports.

*Note:* If you are installing the SAS Intelligence Platform *and* one or more SAS solutions, you might need additional, or different, installation instructions. Consult with your SAS representative for further information.  $\Delta$

This document picks up at the point where you and your SAS representative have decided what software you need and what machines you will install the software on. At this point, you can begin performing some pre-installation tasks, such as creating

operating system user accounts and designating the ports that you will use during installation. This document covers all of the pre-installation, installation, and configuration tasks that you must perform to deploy the SAS Intelligence Platform on either a single machine or in a distributed heterogeneous environment. By the time you reach the end of this guide, all of your SAS servers, middle-tier servers, and clients will be functional.

*Note:* This document focuses on installing the platform on Windows and UNIX hosts. However, it is also possible to run the SAS servers on a z/OS system. For information about installing software in that environment, see Appendix 2, “Installing and Configuring the SAS Servers on z/OS,” on page 87. (For information about configuring an OS scheduler on an OpenVMS Alpha system, see <http://support.sas.com/techsup/technote/ts744.html>.) △

This document also explains how to add one or more new products to an existing system. For information on this subject, see Appendix 1, “Software Index Installations,” on page 81.

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## Before Installing Your SAS Software

Before you begin the installation of your SAS software (which is covered in Chapter 6), you must have completed a set of pre-installation tasks (these are covered in Chapters 2 through 5) and filled out a set of pre-installation checklists (Chapters 3 and 5). Some of pre-installation tasks require that you have received certain materials from SAS. These materials include the following:

- a deployment plan file or the name of a sample (or standard) deployment plan
- one or more SAS Installation Data (SID) files
- one or more SAS Installation Kits, which contain the media

A deployment plan file, named **plan.xml**, contains information about what software should be installed and configured on each machine in your environment. This plan serves as input to the SAS installation and configuration tools. Such deployment plans come in two types: custom and standard. A custom plan is a deployment plan that a SAS representative creates specifically for your site, and a standard plan is a predefined deployment plan that describes a common configuration.

- If a SAS representative created a custom plan for you, an XML file (or a ZIP file containing an XML file) will have been e-mailed to you.
- If your SAS representative recommended that you use a standard plan, you just need the *name* of the plan that you will use; the actual planning file will be shipped to you on your media in an installation kit. During the installation, the standard plan will be available from a drop-down list in the SAS installation program. This list is populated based on the SID file that you point to at the beginning of your installation.

A SID file contains information about the software that you have licensed. After you place an order, SAS sends you one or more Software Order E-mails, each of which contains a SID file as a text attachment. You must have this SID file (or files) before you install your software. The SID file is sent to you right before your SAS Installation Kit(s) is shipped, so when you receive it, you will know that your order is on its way.

Finally, you must have received your SAS Installation Kit(s), which contains the CDs that you will use during the installation.

As you receive these materials from SAS, you can complete the set of pre-installation tasks that are introduced in “Overview of Deploying the SAS Intelligence Platform” on page 3.



*Note:* As a general rule, we recommend that you install any third-party products required by the SAS Intelligence Platform before you install your SAS software. See Chapter 5, “Installing Third-Party Products,” on page 33 for more information.  $\Delta$

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## After Installing Your Software

When you have finished performing the tasks covered in this guide, all of the servers in your system will be running, and you will be able to start all of the clients that you have installed. However, there will be some site-specific configuration that you need to perform. For example, you will need to perform these tasks:

- define additional users and groups in your metadata repository
- establish connectivity to your data sources
- control access to your metadata and your data

The final chapter in this guide, Chapter 7, “What’s Next?,” on page 77, points you to the sections in the *SAS Intelligence Platform: Data Administration Guide* and *SAS Intelligence Platform: Security Administration Guide* that will enable you to perform these tasks.

After you perform the site-specific configuration mentioned previously, you should return to the Road Map Kit to perform any other installation and configuration-related tasks.

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# Overview of Deploying the SAS Intelligence Platform

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## A High-Level View of the Steps Involved

Here are the main steps involved in deploying the SAS Intelligence Platform—whether you are deploying the platform on a single machine or in a distributed heterogeneous environment. The first four items are pre-installation tasks. The first three steps can be performed in any order. Step 4 should be performed after steps 1 to 3 are completed.

- 1 Create a set of operating system users and groups that will be required during the installation and configuration of your system, and designate a set of ports to use.
- 2 Locate your SID and deployment plan files, and place them in a central location. Your SID file(s) will have been sent to your SAS representative before you receive your Installation Kit(s). (If you will be using a standard plan, you do not need a deployment plan file; you just need the name of a deployment plan.)
- 3 Create one or more SAS Software Depots, which will enable you to install the software that you received from SAS over the network, rather than from CDs.
- 4 Install any third-party products, such as a Java Development Kit and a J2EE application server, that are necessary for your installation. These products are identified in your plan file.
- 5 Install and configure your SAS software using the SAS Software Navigator (an installation tool) and the SAS Configuration Wizard.

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

---

## Creating Users and Groups and Designating Ports

Before you can install and configure your software, you must create a small set of users and groups at the operating system level. For the most part, this work is necessary so that the system can authenticate a special set of users. For example, you will be asked to create an account for a SAS Administrator. This user has unrestricted access to the metadata repository; therefore, it is essential that the metadata server host be able to authenticate this user. For information about what user accounts and groups you need to create, see Chapter 2, “Setting Up Required Users and Groups and Designating Ports,” on page 9.

It is also necessary to designate a set of TCP/IP ports for use by the SAS servers and a number of third-party products. The default ports for these servers are documented in “Designating Ports” on page 20.

You can perform these particular pre-installation tasks as soon as you and your SAS representative have decided what software you will be ordering and on what machines you will be installing the software. This guide contains all of the information that you need to perform these tasks.

---

## Making Your SID and Deployment Plan Files Available

One or more SID files and, most likely, a deployment plan file will be e-mailed to you by SAS. Once you have received these files, you need to copy them to a location on your network that is accessible from all of the machines on which you will be installing software. The tools that you use to install and configure your software read the SID and deployment plan files in order to determine the following for each machine:

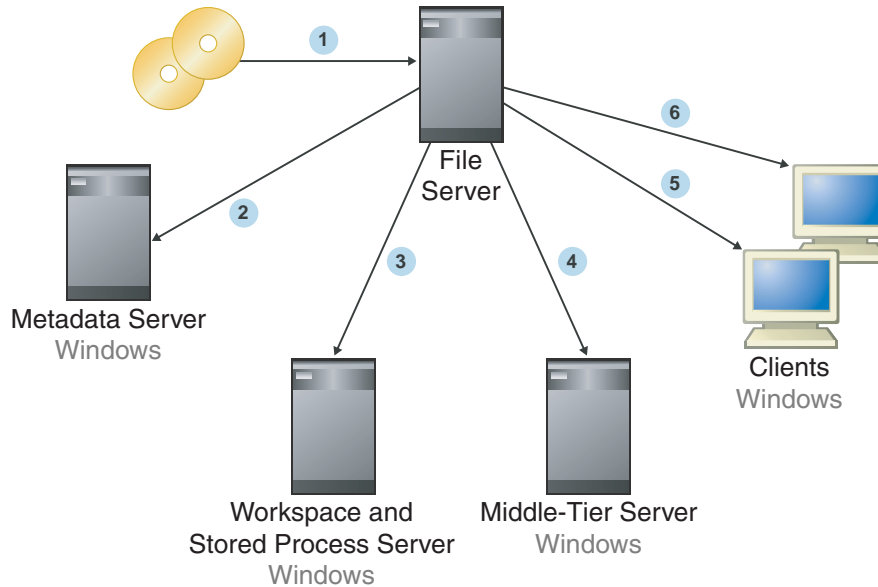
- what software has been licensed and should be installed
- what components (for example, SAS servers) should be configured

For more information about your SID and deployment plan files, see Chapter 3, “Locating Your Software Order E-mail, SID Files, and Deployment Plan,” on page 23.

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## Creating a SAS Software Depot

A SAS Software Depot is a directory on the network from which you can install software on a set of machines running the same operating system. You use a tool called the SAS Software Navigator to build a SAS Software Depot from the CDs in a SAS Installation Kit. The SAS Software Depot must be built in a directory that is accessible to the set of machines on which you are installing the software. See the following figure.

**Figure 1.1** Installing Software from a Software Depot

Step 1 represents the installer creating the depot. Steps 2 through 6 represent software being installed on all of the hosts in the system. Note the order in which the software is installed. As we explain later, you must install your software in this order.

If the machines that will participate in your system are running more than one operating system, you must create one SAS Software Depot for each operating system. For example, it is often necessary to create two depots: one for Windows machines and one for machines running some variant of UNIX.

*Note:* If you are installing a *planned* installation of SAS on a system with a Windows 64-bit operating system, you must install from a SAS Software Depot. Otherwise, the installation will fail when run from the physical media.

On machines that run operating systems other than Windows 64-bit (or for Windows 64-bit Foundation installs), creating a depot is not a requirement. You can install software on each machine from CDs; however, creating a depot, or depots, is *highly recommended* because it simplifies the installation and saves you time.  $\Delta$

For instructions on how to create your software depot(s), see Chapter 4, “Building a SAS Software Depot,” on page 27.

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## Installing Third-Party Products

Third-party products play an important role in the SAS Intelligence Platform. For example, an application such as SAS Web Report Studio is a Java 2 Enterprise Edition (J2EE) Web application. This application must execute in a servlet container or a J2EE application server. SAS supports several industry-leading third-party products to fill this role, including BEA WebLogic Server, IBM WebSphere Application Server, and Apache Tomcat.

In general, the third-party products fall into the following categories:

- Java Runtime Environment (JRE).
- servlet container or J2EE application server, both of which depend on a Java Development Kit (JDK).
- WebDAV server, which might depend on a database server. (This might be an existing database server.)

- scheduling server.

Your SAS representative can provide a list of the specific third-party products that you must install, and these products will be listed in your plan file as well.

Note that this guide does not explain how to install these third-party products. Rather, it explains the following:

- how to obtain the product, if you don't already have it
- how to find installation instructions for the product
- how to start the product's installation program

This guide also explains what information you should record about the installation of each product so that you can successfully configure the product as part of your system later.

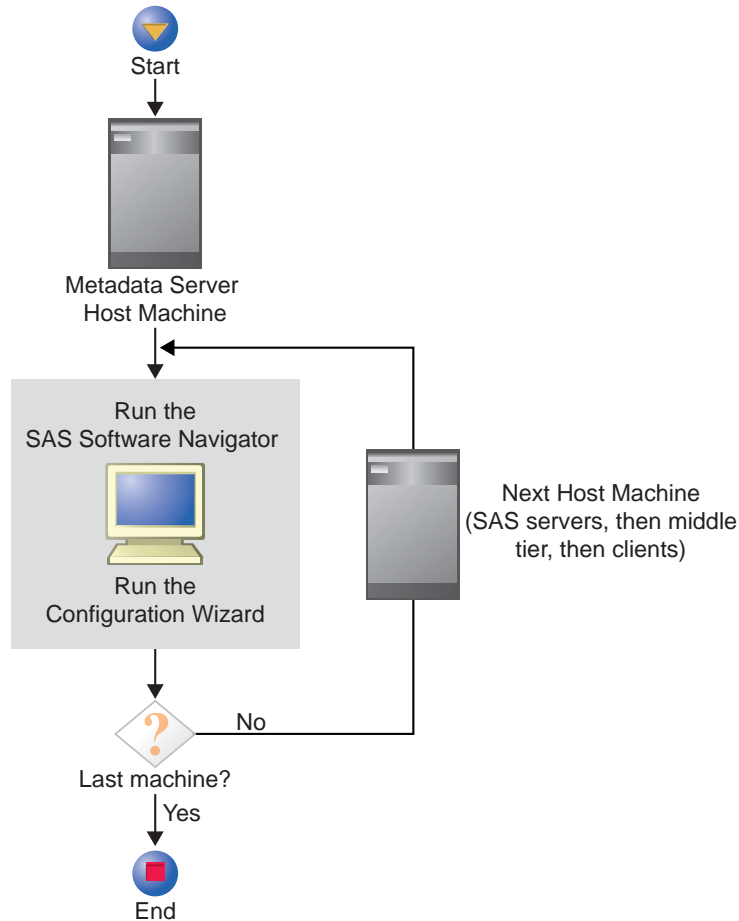
For information about installing third-party products, see Chapter 5, "Installing Third-Party Products," on page 33.

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## **Installing and Configuring Your SAS Software**

### **Overview of Installing and Configuring Your SAS Software**

Finally, you install and configure your SAS software on one machine at a time, beginning with your metadata server machine. As shown in the following figure, you use tools called the SAS Software Navigator and the SAS Configuration Wizard to install and configure the software on each machine in your system.

**Figure 1.2** Installing and Configuring Your SAS Software

## Order of Installations

In a distributed environment, you must install software in a particular order on the computers that make up the system. For instance, you *always* install software on the metadata server machine first. This starting place is necessary because the configuration of a machine often involves creating new metadata objects, and if the metadata server is not available, this configuration cannot take place. The general rules to follow with regard to order are fairly simple:

- First install and configure the software on the metadata server machine.
- If other machines will host server-tier components (such as a workspace server or a stored process server), install and configure software on those systems next.
- If your system contains a middle-tier and you have not installed all of your middle-tier components, install those next.

Several of these components should have been installed during pre-installation. These include the JDK, the J2EE application server, and the WebDAV server (if you are using the Apache HTTP Server for that purpose).

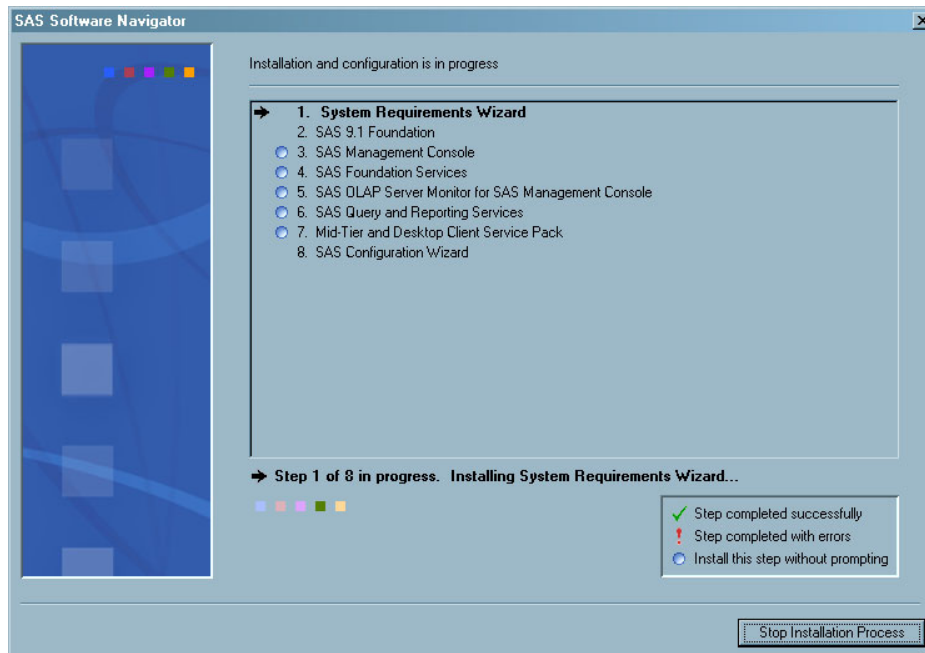
The products that you install using the SAS Software Navigator include the following:

- SAS Foundation Services
- Xythos WebFile Server
- the SAS Web applications, including SAS Web Report Studio, SAS Information Delivery Portal, and SAS Web OLAP Viewer for Java

- Finally, install software on the machines that will host only clients, such as SAS Data Integration Studio or SAS Information Map Studio.

## SAS Software Navigator

You install the software on each host computer in your system by using an installation tool called the SAS Software Navigator. This tool reads your deployment plan file and enables you to install, on any particular machine, only the components that the plan calls for. It also reads your SID file(s) to determine what software you have licensed.



## SAS Configuration Wizard

After the SAS Software Navigator has installed software on a machine, it typically starts the SAS Configuration Wizard, which configures the software that you just installed. This configuration involves many activities, such as creating a metadata repository; creating metadata objects for users, groups, and servers; building and deploying Web applications; and many other tasks.

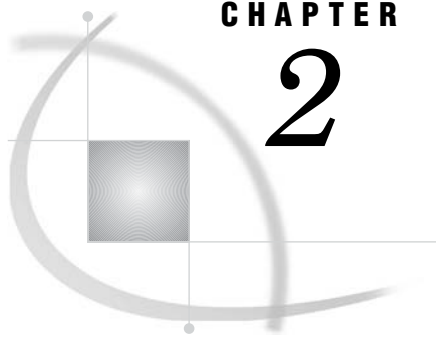
## For Further Information

For further information, see Chapter 6, “Installing and Configuring Your SAS Software,” on page 51.

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## Accessibility Features in the SAS Intelligence Platform Products

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



## CHAPTER

## 2

## Setting Up Required Users and Groups and Designating Ports

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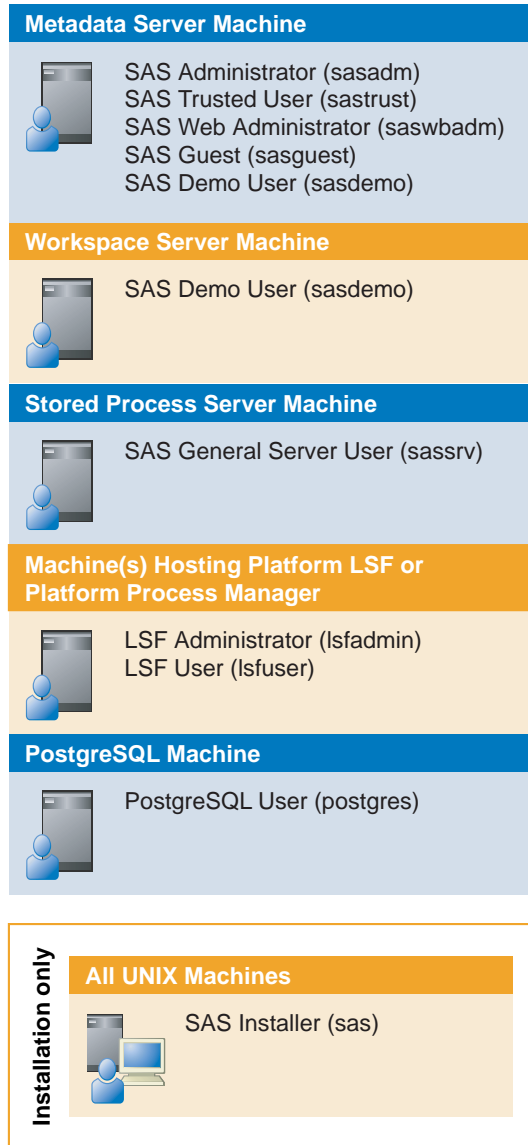
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## Overview of Setting Up Required Users and Groups and Designating Ports

Before you begin installing and configuring your software, you must create a set of required users and groups at the operating system level, and you must designate a set of TCP/IP ports for the servers to use.

The user accounts are used to provide *host authentication* for special SAS system users on particular machines. (You will also need to create one or two groups.) The users and the servers on which they are authenticated are shown in the following figure.

Figure 2.1 SAS System Accounts



*Note:* The names outside of parentheses are descriptive names. The names that we recommend you use for the accounts are shown in parentheses.  $\Delta$

This setup is usually straightforward. For instance, if all of the servers shown in the figure will run on the same Windows machine, all of the accounts that you need to create can be local accounts on that machine. Alternatively, they can be domain accounts (except for the PostgreSQL User account, which must be local). If the servers will run on different computers, but in a homogeneous environment—all Windows systems or all UNIX systems—you can create network accounts and still not have to think about where each server is running (with the exception noted previously). Only if you are building a distributed system do you need to consider all of the details in the diagram. (And even this case is not difficult if you follow the directions later in this chapter.)

Each of the users shown in the figure plays a particular role in the configuration. For example, the SAS Administrator is an *unrestricted user*, who is authorized to read or write any metadata except passwords, regardless of any access controls that are specified in the metadata. An *unrestricted user* can also perform administrative tasks



such as starting, stopping, and pausing the metadata server. The other users play other roles. Because you do not need to fully understand the role of each user to install the software, a complete discussion of these roles is deferred to the *SAS Intelligence Platform: System Administration Guide*. This chapter simply explains what accounts you need to set up and how to set them up.

In addition to creating these user accounts, you also need to designate a set of TCP/IP ports for use by the SAS servers and spawners and by third-party products.

The remainder of this chapter is divided into four parts:

- “Defining Users” on page 11 explains which user accounts you need to create. Some accounts are always required, and others are necessary only if your system contains a particular component, such as a Web application or a third-party scheduler. This section also explains whether these accounts should be local or network accounts and what password policies you should use.
- “Defining Groups” on page 17 explains what groups you need to create and which users you must assign to each group.
- “Pre-installation Checklists for Users and Groups” on page 18 provides a place for you to document user IDs and passwords. The checklists ensure that you have defined all of the necessary users and groups.
- “Designating Ports” on page 20 explains what servers and spawners you must designate ports for and provides a place for you to record non-default port numbers. This section also indicates what ports you might need to designate for third-party products.

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## Defining Users

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### Overview of Defining Users

The following sections explain how to create the user accounts that you will need during installation. The first two sections answer these questions:

- Should I create local or network accounts?
- What password policies should I enforce?

The remaining sections explain exactly what accounts you need to create for your system and how to determine whether some users need more than one account because they will need to be authenticated by servers in different *authentication domains*.

---

### Local or Network Accounts?

You can create either local or network accounts for users. (In Windows, network accounts are referred to as *domain accounts*.) The only requirement is that each user shown in Figure 2.1 can be *host authenticated* on the machine(s) specified there. For instance, when the SAS Administrator tries to connect to the metadata server, the operating system on the metadata server machine must be able to authenticate the account.

The main advantage of local accounts is that if account information were to get into the wrong hands, the credentials could be used only to log on to the machine or machines that can authenticate the credentials. A secondary benefit is that the host could continue to authenticate users even if the network authentication service were unavailable.

The advantage of network accounts is that you do not have to create the same accounts on multiple machines or keep the account information synchronized across machines.

---

## Password Policies

*Note:* In this section, we are talking only about the passwords for a few special SAS system accounts, not the passwords for regular users of the system.  $\triangle$

When you set up passwords for your SAS system users, we *highly recommend* that these passwords do not have to be reset on first logon. If, for some reason, it is required that you create passwords that have to be reset, you will have to log on using each account and change the password before you install and configure your software. And, of course, you will need to know the changed password for each account.

We also *highly recommend* that the passwords for these accounts do not expire. When the passwords for these system accounts change, you must update a set of configuration files and some metadata objects. SAS provides instructions for updating these files and metadata objects. However, you can save yourself some time if the passwords do not expire.

Finally, a password cannot contain more than one dollar sign (\$).

---

## Creating the User Accounts

### Overview of Creating the User Accounts

The following subsections describe the conditions under which you need to create each account. In addition, for each account, you will be given a description of the user, a recommended user ID, and information about where the user will be authenticated.

*Note:* If you create an account on an AIX system, make sure that the “User can LOGIN?” setting is set to “true” for the user. Otherwise, the user will not be able to connect to the servers in the system.  $\triangle$

### Accounts That Are Required in All Installations

You must define the following accounts in *all* installations.

**Table 2.1** Required User Accounts

Description	Recommended User ID	Where This User Is Authenticated
SAS Administrator	sasadm	Metadata server machine
SAS Trusted User	sastrust	Metadata server machine
SAS Demo User	sasdemo	Metadata server machine and workspace server machine
SAS General Server User *	sassrv	Stored process server machine

\* On Windows NT and Windows 2000 systems, the SAS General Server User needs the user right **Act as part of the operating system**. This right is not needed on Windows 2003 systems.

As you create these accounts (and those discussed below), record information about them in “Pre-installation Checklists for Users and Groups” on page 18. You will need this information when you run the SAS Configuration Wizard (in Chapter 6).

## Accounts That Are Required If You Are Running Web Applications

If you plan to run any Web applications, such as SAS Web Report Studio or the SAS Information Delivery Portal, you must create these accounts:

**Table 2.2** User Accounts for Web Applications

Description	Recommended User ID	Where This User Is Authenticated
SAS Web Administrator	saswbadm	Metadata server machine
SAS Guest User	sasguest	Metadata server machine

*Note:* Configuration of the SAS Web applications requires the accounts listed in the previous table to authenticate on the metadata server machine. However, these accounts might also need to authenticate on the workspace server and stored process server machines if you plan to use these accounts for creating content in the SAS Information Delivery Portal.  $\Delta$

## Account That Is Required If You Are Using Platform Suite for SAS

If you will be installing software from the Platform Suite for SAS—in support of either scheduling or grid computing—you must create an account for an LSF Administrator. The LSF services run as this user. In addition, this user is the owner of the LSF configuration and log files and has permission to perform cluster-wide operations, edit configuration files, and reconfigure a cluster.

**Table 2.3** User Account for Platform Suite for SAS

Description	Recommended User ID	Where This User Is Authenticated
LSF Administrator *	lsfadmin	Each machine where Platform Process Manager or Platform LSF is installed

\* On Windows systems, the LSF Administrator must be a member of the Administrators group and must have the user right **Act as part of the operating system**.

You will need to supply this user's ID and password when you install Platform Process Manager, Platform LSF, or Platform Grid Management Service.

## Account That Is Required If You Will Use Platform Process Manager to Schedule Reports

If you will be using Platform Process Manager to schedule reports, you must also create an LSF User account:

**Table 2.4** User Account for Scheduling Reports

<b>Description</b>	<b>Recommended User ID</b>	<b>Where This User Is Authenticated</b>
LSF User	lsfuser	Machine where Platform Process Manager is installed

## Account That Is Required If You Are Using PostgreSQL

If you will be using a PostgreSQL database with Xythos WebFile Server, you must also create a PostgreSQL User account:

**Table 2.5** User Account for PostgreSQL

<b>Description</b>	<b>Recommended User ID</b>	<b>Where This User Is Authenticated</b>
PostgreSQL User	postgres	Machine where PostgreSQL is installed

On UNIX systems, the PostgreSQL user cannot be root.

On Windows systems, the user account must meet these criteria:

- The account should be a local account, for security purposes.
- The postgres user must not be a member of the Administrators group.
- The postgres user must have the user right **Log on as a service**.

## Account That Is Required for Installing Software

You should create an account with which to install SAS software:

**Table 2.6** Account for Installing SAS Software

<b>Description</b>	<b>Recommended User ID</b>	<b>Where This User Is Authenticated</b>
SAS Installer	sas	Each host in the system

On UNIX systems, log on as the SAS Installer to install SAS software. Do not log on as root for this purpose. (On the other hand, some third-party products, such as those from Platform Computing, might require that you be logged in as root when you install them.)

On Windows systems, no special account is required to install SAS software. The installer account just needs to be a member of the Administrators group. However, it is a best practice to use an installer account, since the user who installs the software also needs to perform maintenance. If a regular user were to install the software and then leave the company, there might be a problem. In any case, be sure to make a note of which user installs the platform so that you will have that information when you need to perform maintenance. (On UNIX systems, the SAS Installer (sas) user performs maintenance.)

## Determining Whether You Will Need Multiple Authentication Domains During Installation

### Overview of Authentication Domains

To handle the case in which you need to use more than one authentication provider in your configuration, the SAS Intelligence Platform uses the concept of *authentication domains*. An authentication domain corresponds to an authentication provider such as the following:

- the authentication service used by a Windows machine to authenticate local users
- the authentication service used to authenticate users within a Windows domain
- the authentication service used to authenticate UNIX users on the same local network

In an environment that uses more than one authentication provider, you will need required accounts for one domain or the other, or both authentication domains. In the metadata, each server is assigned to an authentication domain, and each user's credentials are associated with an authentication domain. If a user needs to be authenticated by servers in different authentication domains, that user can have multiple sets of credentials, each associated with a different authentication domain. When a server needs to authenticate a user, the metadata server looks in the user's metadata definition for a set of credentials whose authentication domain matches that of the server that needs the credentials. The server then uses those credentials to attempt to authenticate the user.

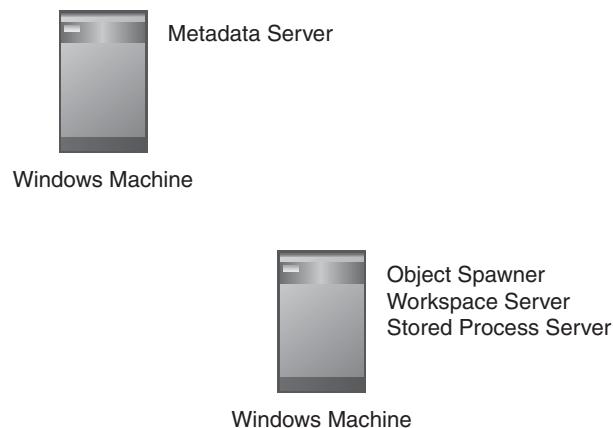
Why is this information important to you as the installer? As we explain in “What to Do If You Need Multiple Authentication Domains” on page 17, if your environment has more than one authentication domain, in addition to running the SAS Configuration Wizard, you must perform a small amount of manual configuration.

The following sections show typical architectures and indicate whether those architectures require one or more authentication domains.

### Scenarios in Which Only a Single Authentication Domain Is Needed

In the scenario shown in the following figure, the SAS servers are distributed across two Windows machines, and the users of the servers have Windows domain accounts.

**Figure 2.2** Windows Environment - Domain Accounts

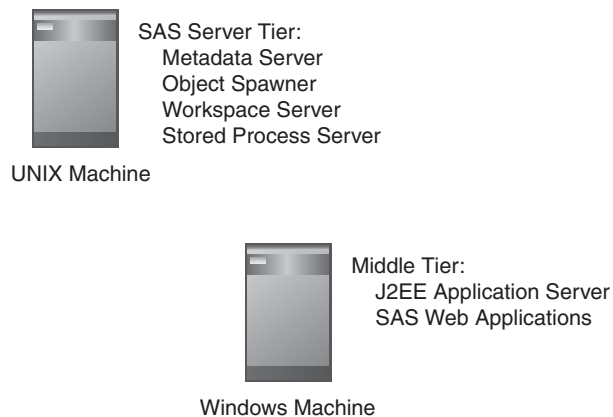


All users have domain accounts.

In this case, only one authentication domain is needed. (The SAS Configuration Wizard names this domain DefaultAuth.) Although a user such as `sasdemo` might need to be authenticated by servers running on different computers, the same credentials can be used by the different servers. For example, if `sasdemo` logs into SAS Data Integration Studio, the metadata server host will authenticate the user. If `sasdemo` then submits a SAS Data Integration Studio job for execution, the user will need to be authenticated on the workspace server host. Because a domain controller is performing the authentication (and the metadata server and workspace server hosts are in the same domain), both servers can authenticate the user successfully.

In the scenario shown in the following figure, the SAS servers are running on a UNIX machine, and the middle tier is running on a Windows machine.

**Figure 2.3** Heterogeneous Environment - SAS Servers on One Host

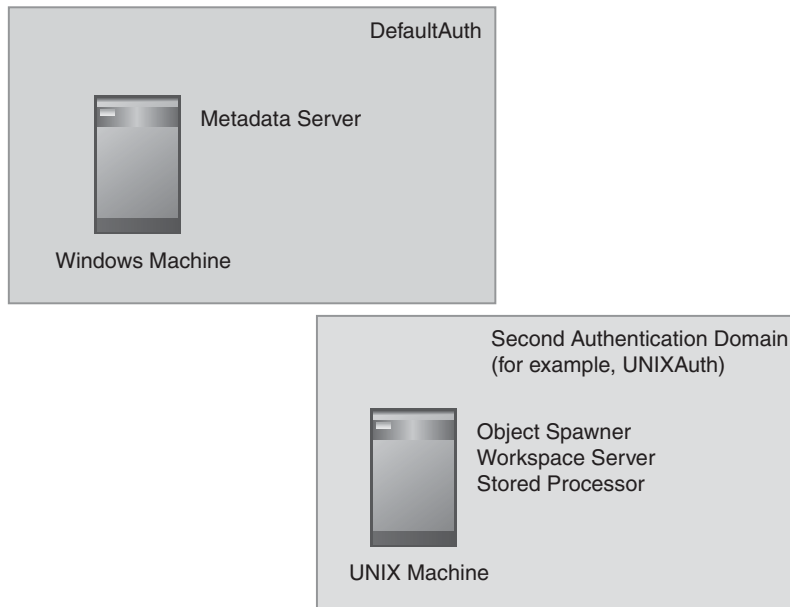


This scenario might appear to require multiple authentication domains because the environment includes both UNIX and Windows machines. However, because all of the SAS servers are running on the UNIX machine, each user needs only UNIX credentials.

### Scenario in Which More Than One Authentication Domain Is Needed

The following figure shows a case in which two authentication domains are required.

**Figure 2.4** Heterogeneous Environment - SAS Servers Running on Different Operating Systems



Think again about the example of sasdemo logging into SAS Data Integration Studio and running a job from that application. When a user logs into the application, he has to connect to the metadata server and is authenticated by the metadata server host's authentication provider. The user will need a local Windows account or a domain account for this authentication to succeed. Until you have changed the metadata definition for this user to include credentials for a second authentication domain, the credentials used at login will be submitted to the workspace server host when the user attempts to run a job, and the authentication will fail.

For information about how to avoid this situation, see the next section.

## What to Do If You Need Multiple Authentication Domains

After you install your SAS software, you run the SAS Configuration Wizard to configure it. This wizard assumes that all of your SAS servers are in the same authentication domain. If this is not the case, you must change the metadata definitions that the wizard creates for some users and groups and some spawners and servers. For specific instructions, see "Supplemental Instructions for instructions.html" on page 73. The changes are simple, but it is important that you make them.

---

# Defining Groups

---

## Overview of Defining Groups

Two operating system groups are frequently needed.

- If you have SAS servers or a Platform Computing server that will run on a Windows system, it is recommended that you create a Windows group to hold a subset of the IDs of the users that you created in the previous sections. This way, you can assign the privileges required to run servers to the group, instead of to

each member of the group. We recommend the name SAS Server Users for this group.

- If you will be installing any SAS software on a UNIX system, you need to create a UNIX group to hold the IDs of the installer and the SAS General Server User. We recommend that you name this group sas.

---

## The SAS Server Users Group (Windows)

Before a user can start a SAS server process, he must have certain local user rights on the machine hosting the server. The recommended way to give a user these rights is to create a group, add users to the group, and then assign the rights to the group.

To set this up, complete these steps:

- 1 Create a SAS Server Users group. This can be a local group or a group with domain scope.
- 2 Add the following users to the group: sasadm, sastrust, sasguest, sasdemo, sassrv, saswbadm, and lsfadmin.

*Note:* Not all of these accounts will exist in every installation. You add only those that you have created. In addition, if you are working in a multi-machine environment and are using local groups, not all of the users that you have created need to be included in every local group. Only the users who will be authenticated by a SAS server on a given machine need to be included. That is, there is no need to add sasadm to the group for a machine hosting only workspace and stored process servers; this user only needs to be in the group on the metadata server host. On some machines—for example, a machine hosting middle-tier components—there might be no need for the group at all. △

- 3 Finally, grant the user right **Log on as a batch job** to the group. For information on setting local user rights, see your operating system's online help. If the users in the group need that right on more than one Windows machine, the right needs to be assigned specifically on each machine.

---

## The sas Group (UNIX)

If you have defined a UNIX user named sas, you should also create a group named sas and make this the primary group for the users sas and sassrv. (Members of this group will be given access to certain directories and files created by the SAS Configuration Wizard.)

---

## Pre-installation Checklists for Users and Groups

Please record information about the user accounts and groups you have created in the following tables. You will be prompted for much of this information when you install and configure your software, so you will not be able to complete the installation without it.



**Table 2.7** Pre-installation Checklist for User Accounts

<b>User Description (Recommended User ID)</b>	<b>Domain or Host Name*</b>	<b>User ID</b>	<b>Password</b>
SAS Administrator (sasadm)			
SAS Trusted User (sastrust)			
SAS Demo User (sasdmo)			
SAS General Server User (sassrv)			
SAS Web Administrator (saswbadm)			
SAS Guest User (sasguest)			
LSF Administrator (lsfadmin)			
LSF User (lsfuser)			
PostgreSQL User (postgres)			
SAS Installer (sas)			

\* For Windows accounts, enter a domain name or host name in this column. When you enter Windows user IDs in the SAS Configuration Wizard, they must be qualified with a domain or host name (for example, D1234\sasadm).

**Table 2.8** Pre-installation Checklist for Groups

Group	Done?
SAS Server Users (Windows)	
sas (UNIX)	

---

## Designating Ports

---

### Designating Ports for SAS Servers and Spawners

While you are creating operating system user accounts and groups, you may also want to look over the set of ports that the SAS servers and spawners in your system will use by default. If any of these ports is unavailable, you should select an alternate port. The following checklist indicates what ports are used by default and gives you a place to enter the port numbers that you will actually use.

**Table 2.9** Pre-installation Checklist for Port Numbers Required by SAS Products

Server or Spawner	Default Port	Actual Port
SAS Metadata Server	8561	
SAS Object Spawner: operator port	8581	
SAS Object Spawner: load balancing port	8571	
SAS Workspace Server	8591	
SAS Stored Process Server: connection	8601	
SAS Stored Process Server: load balancing connection 1	8611	
SAS Stored Process Server: load balancing connection 2	8621	
SAS Stored Process Server: load balancing connection 3	8631	

Server or Spawner	Default Port	Actual Port
SAS OLAP Server	5451	
SAS/CONNECT Server	7551	
SAS/SHARE Server	8551	
SAS Remote Services Application	5099	
Operating System Services scheduler	8451	

---

## Designating Ports for Third-Party Software

You may also need to designate ports for some third-party products. These ports are shown in the following checklist.

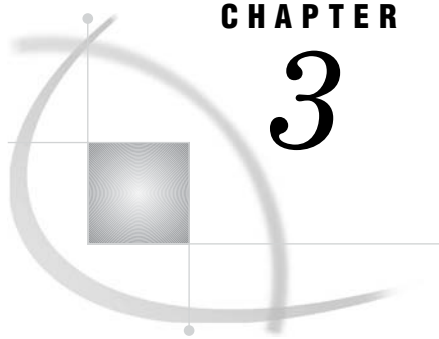
**Table 2.10** Pre-installation Checklist for Port Numbers Required by Third-Party Products

Product and Use	Default Port(s)	Actual Port (s)
Apache Tomcat: listen port	8080	
BEA WebLogic Server: listen port for administration server	7501	
BEA WebLogic Server: listen port for managed server	7001	
IBM WebSphere Application Server: listen port	9080	
Apache HTTP Server: DAV port	80	
Xyθος WebFile Server: DAV port	8300	
PostgreSQL	5432	
Platform Process Manager	1966	

Product and Use	Default Port(s)	Actual Port (s)
Platform LSF	6878 6879 6881 6882	
Platform Grid Management Service	1976	

**CAUTION:**

Make sure that the port numbers that you designate now match the port numbers that you use when you install and configure the third-party products.  $\Delta$



## CHAPTER

## 3

## Locating Your Software Order E-mail, SID Files, and Deployment Plan

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### Overview of Locating Your Software Order E-mail, SID Files, and Deployment Plan

We recommend that you put your SAS Installation Data (SID) file(s) and your deployment plan file (**plan.xml**) in a directory that is accessible from all of the machines on which you will be installing software. The directory in which you store these files is called your *project directory*. The SAS tools that you use to install and configure your software will read the SID file(s) and plan file to determine what software to install and configure on each machine in your environment.

*Note:* If you will be using a standard (or sample) plan, you will not have a **plan.xml** file to put in this directory.  $\Delta$

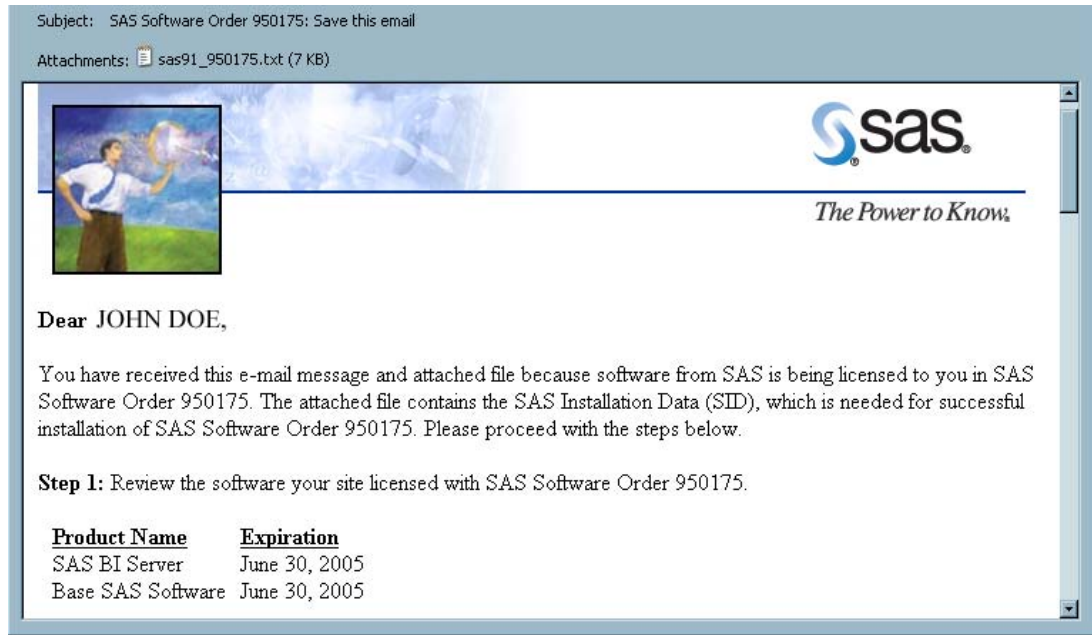
The following sections explain how to locate your SID and deployment plan files so that you can copy them to this project directory.

### Locate Your SID Files

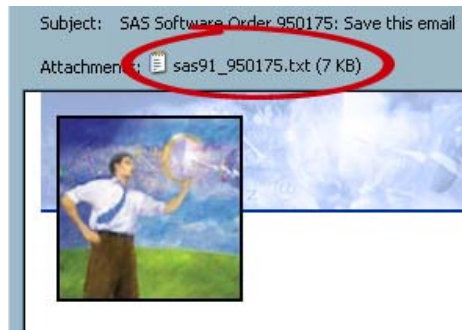
For each software order that you placed with SAS, you will have one SID file. This means that if you are building a system on a single machine, you might have only one SID file. If you are building a distributed system that includes different platforms, you will have at least one SID file per platform, and you may have more than one SID file per platform. The person who purchased your software or your SAS sales representative can tell you how many software orders were placed.

The instructions below explain how to locate your SID files and copy them to your project directory. For each SID file, perform the following steps:

- 1 Search for an e-mail message whose subject line contains the string “SAS Software Order.” You will find a message that looks similar to this.



2 Save the attached file to your project directory.



3 (Optional) If you have several SID files, you might want to rename the SID file so that it is clear which machine(s) the SID file is for. You should be able to determine which machine(s) the SID applies to from the list of products covered by the SID.



Dear JOHN DOE,

You have received this e-mail message and Software Order 950175. The attached file installation of SAS Software Order 95017

**Step 1:** Review the software your site lice:

<u>Product Name</u>	<u>Expiration</u>
SAS BI Server	June 30, 2005
Base SAS Software	June 30, 2005

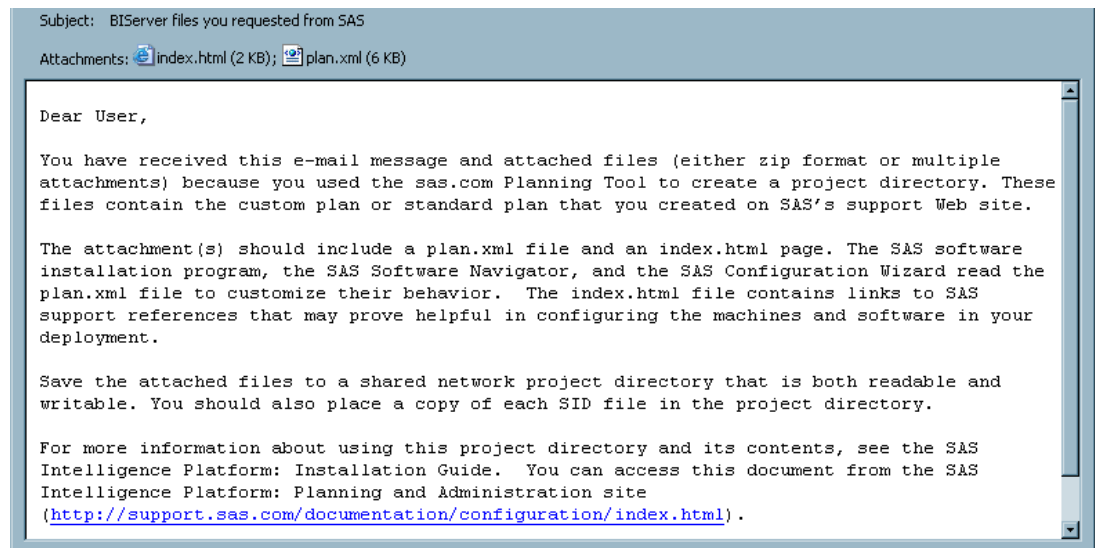
By default, a SID file name contains your order number—for example, **sas91\_123456.txt**. You might want to change this name to *tier-name.txt* or *host-name.txt*.

## Locate Your Deployment Plan File

*Note:* If you will be using a standard deployment plan file, you can skip these steps. △

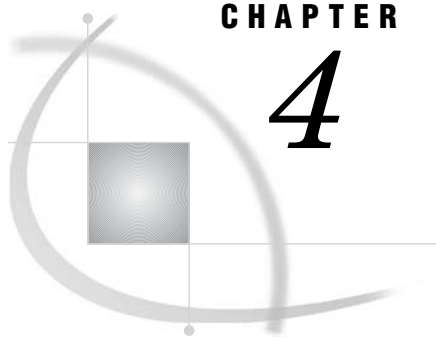
After you have moved your SID files to your project directory, you should move your custom deployment plan file (**plan.xml**) and any files that you received with this plan to the same directory. To move these files, complete these steps:

- 1 Search for an e-mail message with a subject line that contains the string “files you requested from SAS.”



- 2 Save the attachments to your project directory. (If the files arrived in a ZIP file, extract the files into the project directory.)





## CHAPTER

## 4

## Building a SAS Software Depot

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---

### Overview of Building a SAS Software Depot

You will greatly simplify the process of installing the SAS Intelligence Platform if you create one or more SAS Software Depots that contain the software shipped on the CDs in your SAS Installation Kits. You should create one depot for each operating system that will be involved in the installation. Create each depot in a central location from which you can install software on all of the computers running the same operating system.

If you receive multiple SAS Installation Kits representing different orders that are for the same operating system, add *all* the CDs in the kit(s) to a single depot. If you leave out any CDs from a kit, the installation process might stall because a CD is missing from the depot. It is difficult to anticipate which CDs will contain the material required for a particular machine. For example, the server machine will need material from some of the CDs that contain client material.

To create a depot, make sure that you meet the prerequisites listed in “Prerequisites for Building a SAS Software Depot.” Then follow the steps in “Build a SAS Software Depot” on page 28.

**CAUTION:**

**If you have an existing SAS Software Depot, and you receive a SAS Installation Kit for a more recent version of the software, you need to create a separate depot for the new installation kit.** For more information, see <http://support.sas.com/techsup/SN/015/015027.html>.  $\Delta$

*Note:* If you are installing a *planned* installation of SAS on a system with a Windows 64-bit operating system, you must install from a SAS Software Depot. Otherwise, the installation will fail when run from the physical media.  $\Delta$

### Prerequisites for Building a SAS Software Depot

Before you start creating a depot, make sure that you have met the following prerequisites:

- Most important, determine where on the network you will create the depot. This must be a location that is accessible to all of the machines on which you will be installing software from the depot, and there must be a certain amount of disk

space available at this location. To determine this amount, count the number of CDs that you intend to add to the SAS Software Depot and multiply the number of CDs by 600 MB. The resulting product is the approximate space required. For example, if you intend to add 12 CDs to your SAS Software Depot, multiply 12 by 600 MB to get 7200 MB or 7.2 GB. Also, make sure that you have write access to the depot directory.

*Note:* SAS recommends that you not copy a depot from one location to another. So try to choose a permanent location before you create the depot.  $\triangle$

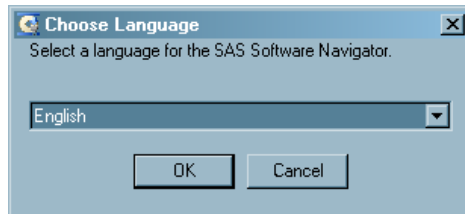
- Make sure that the machine from which you will create the depot has enough space available in `/tmp` or `temp`. The amount of space you need is documented in “Creating a SAS Software Depot” in the *User’s Guide for SAS Software Navigator*, which is available in these two locations:
  - on the Install Center:  
<http://support.sas.com/documentation/installcenter/>  
(Search for “User’s Guide for SAS Software Navigator”.)
  - on your Documentation for Installing and Configuring SAS CD inside the lid of your installation kit. (To begin, insert the CD into your CD-ROM drive and open `\documentation\eng\index.html`.)
- If you will be creating the depot on a UNIX system, make sure that a windowing environment—such as the Common Desktop Environment—is installed. The program that you use to create the depot has a graphical user interface.

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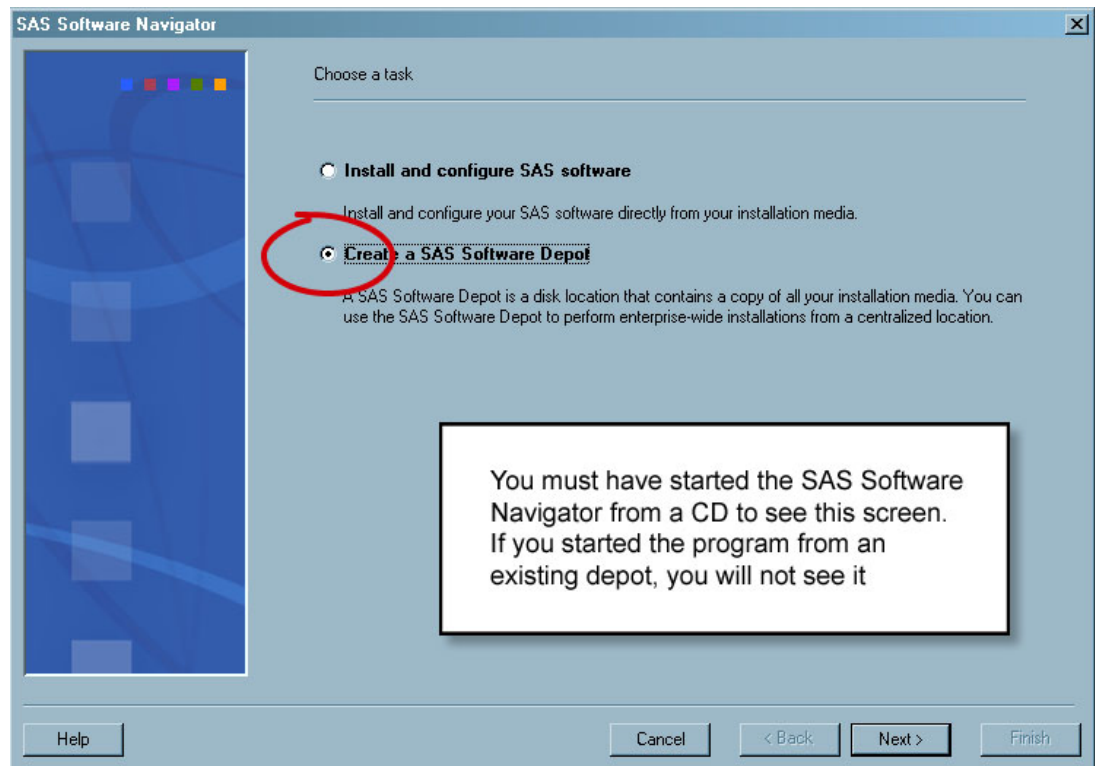
## Build a SAS Software Depot

To build a SAS Software Depot, complete these steps:

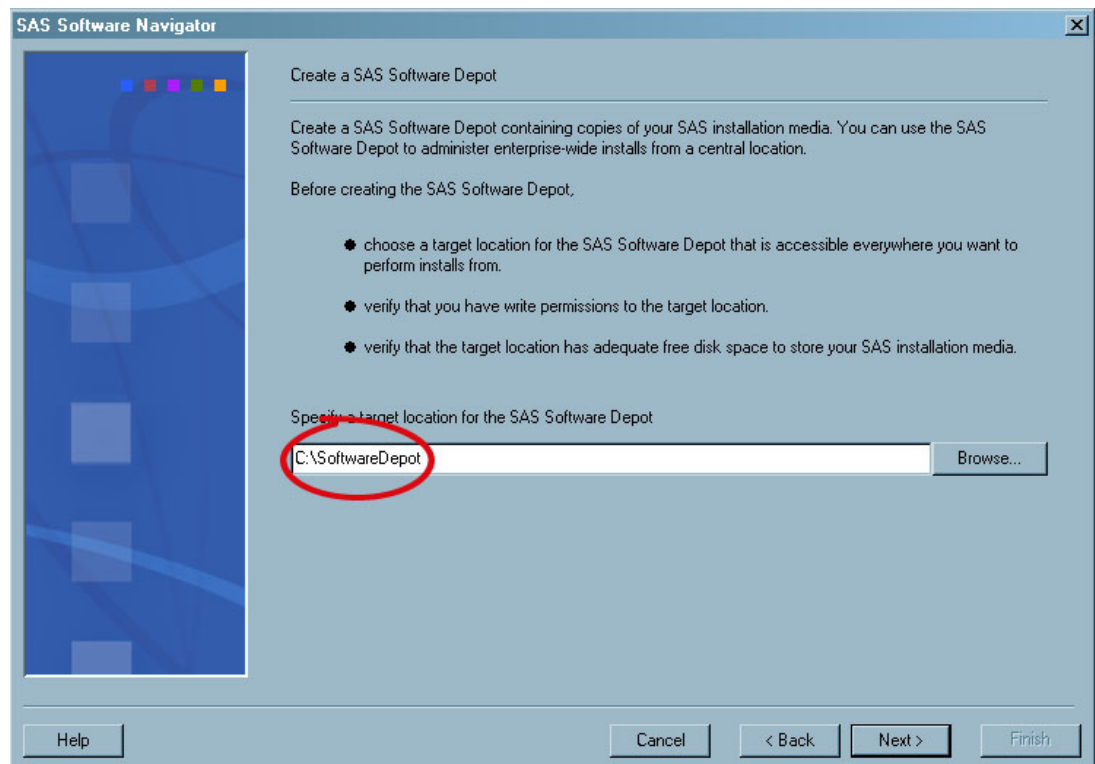
- 1 Start the SAS Software Navigator from the CD labeled “SAS Software Navigator” in your SAS Installation Kit. (Be sure to get the CD from the installation kit for the operating system or the computer on which you are working.) Insert the CD into a CD or DVD drive. On Windows, the `setup.exe` program starts automatically. On UNIX systems, you start the program by typing `setup.sh` at a command prompt.
- 2 Choose the language in which the SAS Software Navigator will display messages and prompts.



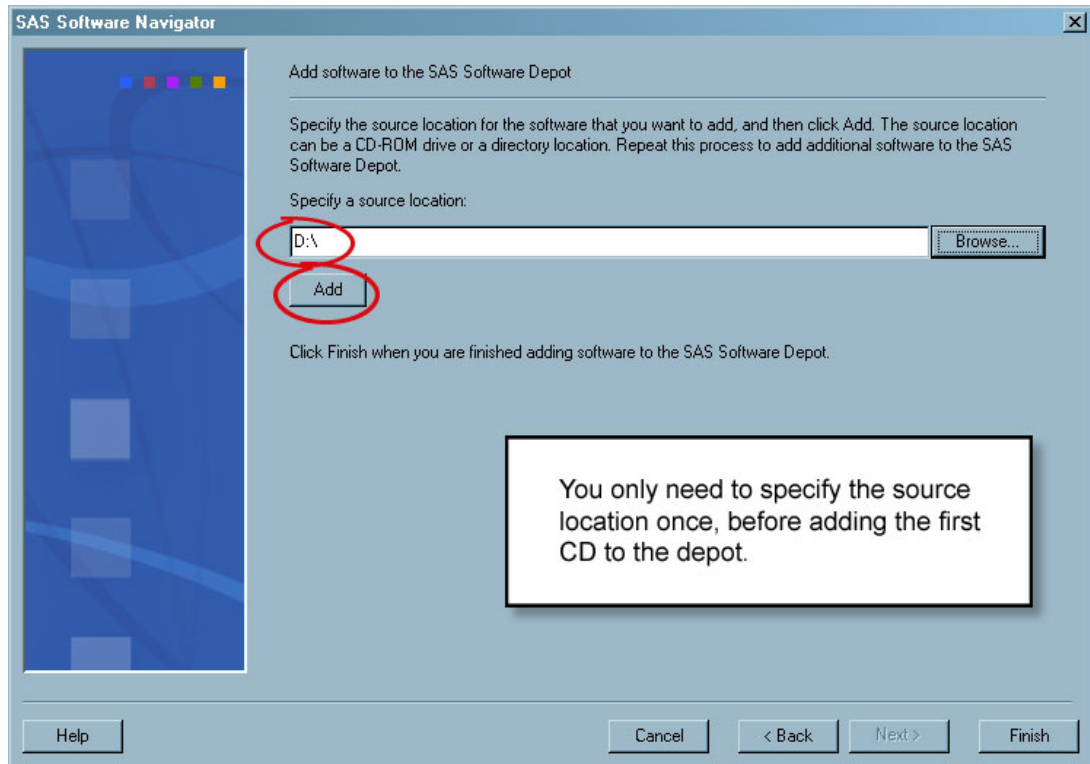
- 3 Indicate that you want to create a SAS Software Depot. Do not select **Install and configure SAS Software**.



4 Supply the location of the directory that will hold the depot.



5 At this point, you will see the “Add software to the SAS Software Depot” page in the navigator.



For each CD that you want to add to the depot, perform the following steps.

**CAUTION:**

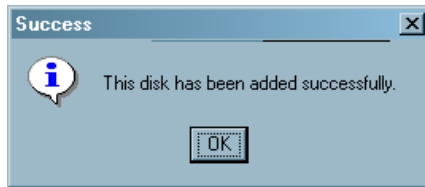
**Do not click the Add button with the SAS Software Navigator CD in the drive.** When you reach the preceding screen, the contents of this CD have already been written to the software depot. △

- a Insert the CD in a CD or DVD drive.
- b Some third-party media require you to enter a name for the folder or directory that will contain the third party material. Enter the folder or directory name in the dialog box provided, and click **OK**.
- c If you are working on a UNIX system without an automounter, mount the CD or DVD drive.

For information about the privileges required to mount a device and the syntax of the **mount** command for your system, see the *User's Guide for SAS Software Navigator*, which is available in these two locations:

- on the Install Center:  
<http://support.sas.com/documentation/installcenter/>  
(Search for “User’s Guide for SAS Software Navigator”.)
- on your Documentation for Installing and Configuring SAS CD inside the lid of your installation kit. (To begin, insert the CD into your CD-ROM drive and open `\documentation\eng\index.html`.)

- d Add the contents of the CD to the depot by entering a source location and clicking the **Add** button. On a UNIX system, the source location is a device name, such as `/dev/cd0`.
- e Acknowledge that the add operation is complete.

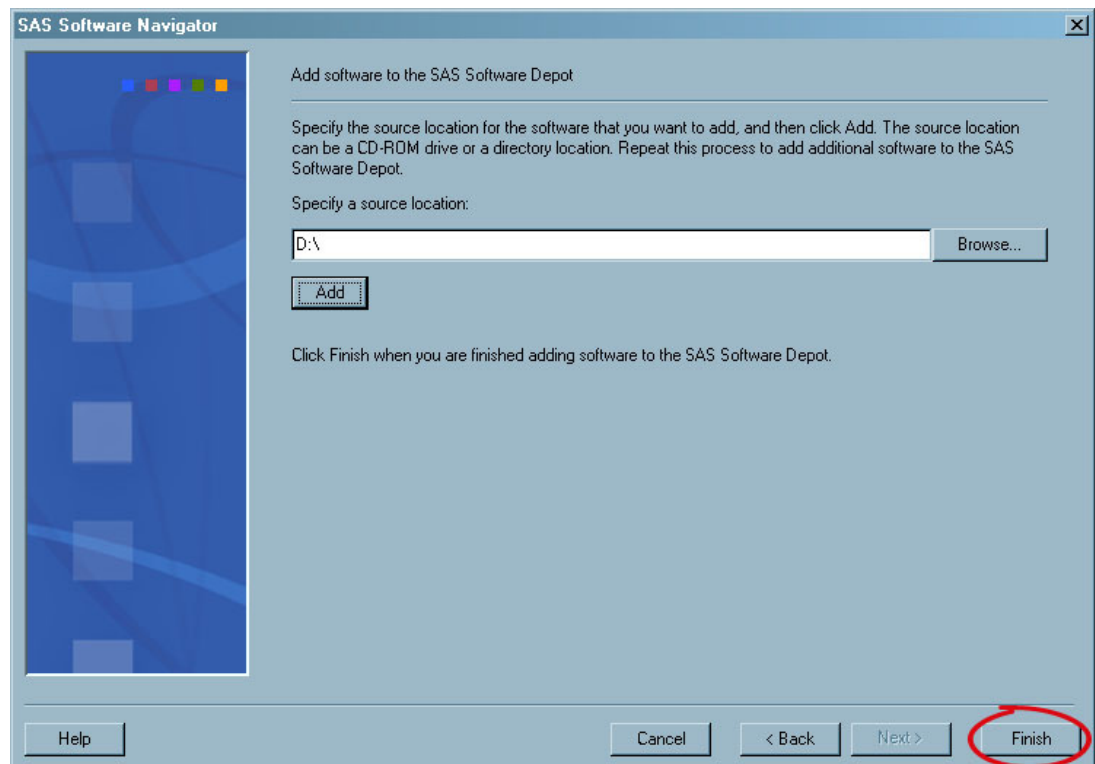


f Remove the CD from the drive. On a UNIX system where an automounter is being used, use the **eject** command to remove the CD. On a UNIX system without an automounter, you must unmount the drive by using the **umount** command and then manually opening the drive. For information about the **umount** command that is needed to unmount a device on your system, see the *User's Guide for SAS Software Navigator*, which is available in these two locations:

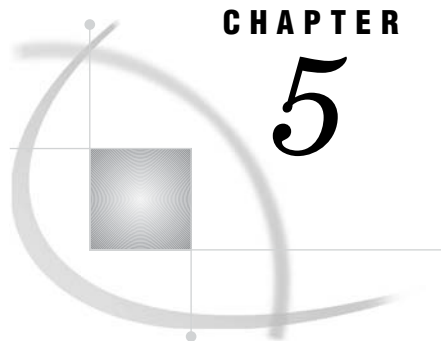
- on the Install Center:  
**<http://support.sas.com/documentation/installcenter/>**  
(Search for "User's Guide for SAS Software Navigator".)
- on your Documentation for Installing and Configuring SAS CD inside the lid of your installation kit. (To begin, insert the CD into your CD-ROM drive and open `\documentation\eng\index.html`.)

*Note:* Two or more installation kits might contain the same CD. However, you do not have to keep track of which CDs you have added; the SAS Software Navigator does not allow you to copy a CD to the depot more than once. △

6 After you have copied the last CD to the depot, exit the SAS Software Navigator.







## CHAPTER

## 5

## Installing Third-Party Products

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### Overview of Installing Third-Party Products

Third-party products play an important role in the SAS Intelligence Platform. For example, if your system includes Web applications such as SAS Web Report Studio or the SAS Information Delivery Portal, you will need to install third-party products such as a Java Development Kit (JDK) and a servlet container or J2EE application server in order to compile and execute these applications. Other third-party products may be involved as well, including a WebDAV server or scheduling software.

As a general rule, we *highly recommend* that you install your third-party software *before* you install your SAS software. This approach will make the installation of your SAS software as straightforward as possible. *However, there is one exception to this rule. If you are using Xythos WebFile Server as your WebDAV server, you should install that product at the same time that you install your SAS software.* (You might have to install the database software that Xythos WebFile Server uses before you install your SAS software. This depends on which database you use.)

The order in which you install the third-party products is generally not important. The principal exception to this rule is that *if your system requires a servlet container or a J2EE application server, you must install the JDK before you install the container or server.*

Most of the remainder of this chapter explains how to approach the installation of the different third-party products. The chapter does not provide detailed installation instructions for each product. Instead, it tells you how to do the following tasks:

- determine what version of the product to install
- obtain the product, if you don't already have it

- find installation instructions
- start each product's installation program

You approach the installation of different third-party products in different ways:

- If you are installing a JDK, Apache Tomcat, BEA WebLogic Server, IBM WebSphere Application Server, or Apache HTTP Server, you should begin by visiting the Third-Party Software Downloads page at SAS, which is located at **<http://support.sas.com/thirdpartysupport>**. For more information about installing these products, see “Install Products Using the Third-Party Software Downloads Site” on page 34.
- If you plan to install Xythos WebFile Server, you follow a unique procedure. You install the server itself later, when you are installing your SAS software. However, you might need to install a supporting database server ahead of time. You might also need to create databases or schemas in advance. For more information on this subject, see “Prepare for the Later Installation of Xythos WebFile Server” on page 38.
- If you are installing any products from the Platform Suite for SAS—Platform Process Manager, Platform LSF, or Platform Grid Management Service—you must use the installation instructions and installation programs provided by Platform Computing. For more information on this subject, see “Install Products from the Platform Suite for SAS” on page 40.

*Note:* When referring to installation instructions provided by Platform Computing, be sure that these instructions pertain to the Platform Suite for SAS.  $\Delta$

- If you are installing other third-party products, such as products from DataFlux or ArcGIS, you install the products by using the SAS Software Navigator in its Software Index mode. For more information on this topic, see “Install Third-Party Software Using the Software Index Option” on page 41.

The last section in this chapter, “Pre-installation Checklists for Third-Party Products” on page 45, contains a set of pre-installation checklists that you should fill out as you install your third-party products. You will need the information that you record in these checklists when you run the SAS Configuration Wizard.

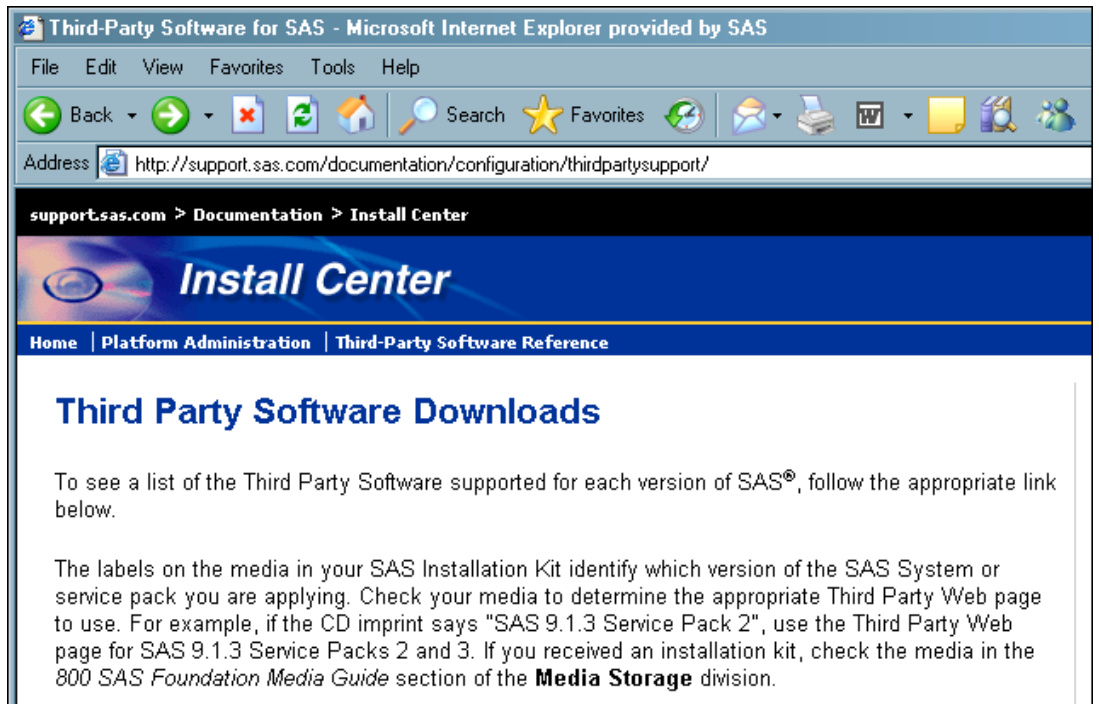
---

## Install Products Using the Third-Party Software Downloads Site

To install the Java Development Kit, a J2EE application server, or the Apache HTTP Server, complete these steps:

- 1 Go to the Third-Party Software Downloads site at **[support.sas.com](http://support.sas.com)** (**<http://support.sas.com/thirdpartysupport>**).





- 2 On this page, locate the link for the release of SAS software that you have and the associated SAS Service Pack. (You can determine which service pack you have by looking in Section 800 in your installation kit. The label on the Service Pack Installer CD indicates which service pack you have.) Then, from the list of items below that link, select the link for the product (or type of product) that you are installing.

### Currently Supported Versions of SAS®

- [SAS 9.1.3 Service Pack 4](#)
  - [Java Runtime Environments \(JRE\) for SAS Client Applications](#)
  - [Java Runtime Environments \(JRE\) for SAS 9.1.3 Foundation with Service Pack 4](#)
  - [Java Development Kits \(JDK\)](#)
  - [Web Application Servers](#)
  - [Web Browsers](#)
  - [Web \(HTTP\) Servers](#)
  - [WebDAV Servers](#)
- [SAS 9.1.3 Service Packs 2 and 3](#)
  - [Java Runtime Environments \(JRE\)](#)
  - [Java Development Kits \(JDK\)](#)
  - [Web Application Servers](#)
  - [Web Browsers](#)
  - [Web \(HTTP\) Servers](#)
  - [WebDAV Servers](#)
- [SAS 9.1.3 \(Original Release and Service Pack 1\)](#)
  - [Java Runtime Environments \(JRE\)](#)
  - [Java Development Kits \(JDK\)](#)
  - [Web Application Servers](#)
  - [Web Browsers](#)
  - [Web \(HTTP\) Servers](#)
  - [WebDAV Servers](#)

For example, the preceding display shows the installer selecting the link for the Java Development Kit for the most recent version of the platform.

- 3 On the target page, scroll down until you see a table row for the platform on which you want to install the product.

<b>Java Software Development Kits</b>			
<p>The following table identifies Java Software Development Kit (JDK) requirements for supported application servers and z/OS. Application servers and servlet engines require the use of a full JDK. It is not necessary to download a JDK for the Websphere Application Server. The Websphere Application Server comes embedded with a specific version of the IBM JDK which is automatically installed and used by Websphere. For z/OS, there is no separate Java Runtime Environment, and therefore a JDK must be used with SAS® 9.1.3 Foundation. For SAS® Java clients and other platforms supported by SAS® 9.1.3 Foundation, use the JRE recommendations listed above.</p>			
Platform	Version	Link	Notes
AIX	1.4.2.0 32-bit (a.k.a. 1.4.2 GA)	<a href="#">Download</a>	Registration is required.  Install Java Version 1.4.2.0 32-bit with version code ca1420-20040626. Please carefully review the <a href="#">FAQ</a> provided by IBM for complete details regarding the installation of the base JDK and all required PTFs.
HP-UX Itanium	1.4.2.03	<a href="#">Download</a>	Registration is required
Solaris on SPARC	1.4.2_05	<a href="#">Download</a>	To download the J2SE JDK, click on the download link in the JDK column.  The application servers supported by SAS® require the <b>32-bit JDK</b> .  After reviewing the license agreement, select one of the <b>32-bit JDK</b> installers under the "Solaris SPARC Platform" heading.

The preceding displays show the installer preparing to install the JDK on Solaris. The Solaris row contains several pieces of important information:

- The Version column indicates what version of the product is supported for the SAS Intelligence Platform.
  - The Link column contains either a Download link or the message “Contact *vendor-name*.” If there is a Download link, you can click the link to be taken to a vendor Web page from which you can download the product. (See step 4.) If you see the message “Contact *vendor-name*,” you must purchase the product from the specified vendor.
  - The Notes column contains important information that you should read before you install the product. For example, this column might provide a link to installation instructions or tell you about patches that must be applied.
- 4 Obtain the product from the vendor.

If you clicked a Download link in step 3, you should have been taken to a vendor Web site from which you can download the software. For example, the

following display shows the Sun Microsystems Web page that you would see if you clicked the Download link shown in step 3.

The screenshot shows a Microsoft Internet Explorer browser window displaying the Sun Microsystems Download Center. The address bar shows the URL: <https://sdlc6e.sun.com/ECom/EComActionServlet;jsessionid=FD00890FB49A79A0DC1C8E64DAD273EC>. The page header includes the Sun Microsystems logo and a search bar. The main content area is titled "Download" and features the following text:

**Java(TM) 2 SDK, Standard Edition 1.4.2\_05**  
 For easier, more reliable downloads, try Sun Download Manager.

- Solaris 64-bit requires users to first install 32-bit.
- Information on [install formats](#)

NOTE: The list offers files for different platforms - please be sure to select the proper file(s) for your platform. Carefully review the files listed below to select the ones you want, then click the link(s) to download. If you don't complete your download, you may return to the Download Center anytime, sign in, then click the "Download/Order History" link on the left to continue.  
 For any download problems or questions, please see the [Download Center FAQ](#).  
 How long will the download take?

**Required:** You must accept the license agreement to download the product.

**Accept** License Agreement | [Review License Agreement](#)

**Decline** License Agreement

Windows Platform - Java(TM) 2 SDK, Standard Edition 1.4.2_05		
	<a href="#">Windows Offline Installation, Multi-language</a>	j2sdk-1_4_2_05-windows-i586-p.exe 51.09 MB
	<a href="#">Windows Installation, Multi-language</a>	j2sdk-1_4_2_05-windows-i586-p-iflw.exe 356.00 KB

If you were told to contact the vendor in step 3, you must purchase the product from the vendor. Most likely, the product will be shipped to you on a CD, or you will be told to download the product from a Web page.

##### 5 Install the product.

For most installations, you can use the instructions provided by the vendor. For products that are more complex to install—such as the J2EE application servers—the Third-Party Software Downloads page contains links to brief installations instructions. These instructions are not meant to replace the vendor documentation; however, they will enable you to create a simple configuration that will work well with your SAS software.

BEA WebLogic Server	Windows, IBM AIX, Solaris on SPARC, HP-UX Itanium	8.1 (SP3)	Contact BEA	<p>BEA patches address WebLogic bugs or security advisories. Bug fix patches are required to run SAS applications properly.</p> <ul style="list-style-type: none"> <li>• <b>CR208931</b></li> </ul> <p><a href="#">Security Patches</a> address security vulnerabilities in your WebLogic installation.</p> <p>Contact BEA Support with the CR number(s) to obtain listed patches and installation instructions.</p> <p>For a guideline on using WebLogic with SAS 9.1.3 SP2, SP3 and SP4, see <a href="#">Installing the BEA WebLogic Server and Deploying Web Applications</a>.</p>
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**CAUTION:**

If you need to install Apache Tomcat on a Windows system, be sure that the path to the installation directory does not contain spaces. The default path to the installation directory might contain the directory **Program Files**. If it does, change the installation directory to something like **C:\Tomcat4.1**.  $\Delta$

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

---

## Prepare for the Later Installation of Xythos WebFile Server

Unlike most third-party products, Xythos WebFile Server should *not* be installed before you install your SAS software; you should install it at the same time that you install the SAS software. However, you might need to install a database server in advance, and you might need to create databases or schemas as well.

To prepare for the later installation of Xythos WebFile Server, complete these steps:

- 1 Print the document *Xythos WFS OEM WebDAV 2.x Installation Instructions* from the CD for this product in your installation kit. You will need this document later.
- 2 Xythos WebFile Server requires a database server. Choose which database product you will use and install it if necessary.

Four database products are supported: Oracle Database, DB2, Microsoft SQL Server, and PostgreSQL. To determine which versions of these database products are supported, see the Third-Party Software Downloads page at <http://support.sas.com/thirdpartysupport>. Click the WebDAV Servers link for your version of the SAS Intelligence Platform to go to the correct page.

What you do next depends on which database product you choose:

- If you plan to use Oracle or DB2, install the software (unless you already have a supported version of the product installed). Then, create the required

databases/schemas. You can find instructions for creating the necessary database objects in *Xythos WFS OEM WebDAV 2.x Installation Instructions*.

- If you plan to use Microsoft SQL Server, install the software using the installation notes in *Xythos WFS OEM WebDAV 2.x Installation Instructions* (unless you already have a supported version of the product installed). You do not need to create the databases discussed in that document ahead of time. The SAS Configuration Wizard can create them for you.
- If you plan to use PostgreSQL, do not do anything now. There is a copy of PostgreSQL in your SAS Software Depot, and you should install the product from that location at the same time that you install your SAS software. The SAS Configuration Wizard will create the necessary databases.

*Note:* This scenario currently requires that a SAS representative create a custom plan for you. △

- 3 Collect the information shown in the following table, and record it in the checklist in the section “Xythos WebFile Server” on page 48. You will need this information when you run the SAS Configuration Wizard.

**Table 5.1** Information about Xythos WebFile Server and Its Database

Information Needed	Explanation
Database product and version	Xythos WebFile Server supports four database products. Choose a version of one of these products that is supported for the SAS Intelligence Platform. You can find out which versions are supported by visiting the Third-Party Software Downloads page at SAS.
Is the database software already installed?	If the software is already installed, you will need to get the answers to several of the upcoming questions from your DBA.
User ID and password for the account under which the database server is running	If you are using Oracle, DB2, or SQL Server as your DBMS, get this information from your database administrator, if necessary. If you are using PostgreSQL, you will need the password for the postgres account created in Chapter 2.
Location of the JDBC JAR file	<p>Locate the JDBC driver for your DBMS. The directory that contains this file is usually located in the installation directory for your DBMS. For PostgreSQL, the JDBC driver is in the PostgreSQL install directory, in the <b>JDBC</b> directory.</p> <p>If your DBMS is on a different machine than the one on which Xythos WFS is installed, copy the driver to the Xythos WFS host and record that location.</p> <p>There are restrictions on the version of this driver. For information about supported JDBC drivers, see the WebDAV Server page at the Third-Party Software Downloads site.</p>
Host name and port number for the DBMS	Get the fully qualified name of the host on which your DBMS is running and the number of the port on which it is listening from your database administrator—unless you are using PostgreSQL. In the latter case, use localhost:5432.

Information Needed	Explanation
Names of the Global Schema and Document Store	<p>These are the terms used to describe two databases/schemas in your DBMS that are required by Xythos WFS:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> If you are using Oracle or DB2, obtain the names of these objects from your database administrator.</li> <li><input type="checkbox"/> If you are using SQL Server or PostgreSQL, the SAS Configuration Wizard can create these objects for you. By default, their names are <code>xythos42</code> and <code>files42</code>, respectively.</li> </ul>
User ID and password of a user who can access the Global Schema and the Document Store	If you are using Oracle or DB2 as your DBMS, get these credentials from your database administrator. If you are using SQL Server or PostgreSQL, the SAS Configuration Wizard can create the account for you. The default user ID is <code>xythos</code> .
Location of the program that will create the required databases for SQL Server and PostgreSQL	If you are using one of these DBMSs, it is convenient to let the SAS Configuration Wizard create the Global Schema and Document Store databases for you. To do so, you must provide the path to an executable, such as <b>C:\Program Files\PostgreSQL\8.0\bin\psql.exe</b> . For SQL Server, the executable is named <b>osql.exe</b> .
Location of the JDK	If you are installing a J2EE application server and Xythos WFS on the same host, record the location of the JDK that you installed in support of the application server. In any case, point to a version in the 1.4 family.
User ID and password for the Xythos WFS administrator	You will need this user ID and password to log on to the Xythos WFS administration console. The default ID is <code>admin</code> . Choose a password; you cannot leave the <b>Password</b> field blank when you configure Xythos WFS.
Password for Oracle System database account.	Oracle requires that the Xythos WFS configuration program be able to connect to the database with a privileged account.

Record the information that you have collected in the checklist in the section “Xythos WebFile Server” on page 48.

---

## Install Products from the Platform Suite for SAS

---

### The Products and Where They Are Installed

If you will use products from Platform Computing either for scheduling or for grid computing, you must install one or more of the products from the Platform Suite for SAS. You install these products directly from the Platform Computing CDs, using the installation instructions and installation programs that are supplied by Platform Computing for SAS. You can install these products directly from the Platform Computing CDs or put them in the SAS Software Depot using the SAS Software Navigator. If you put them in the SAS Software Depot, you will be asked to enter a name for the folder or directory that will hold the content. You will install the Platform

products using the installation instructions and installation programs that are supplied by Platform Computing for SAS.

*Note:* When referring to installation instructions provided by Platform Computing, be sure that these instructions pertain to the Platform Suite for SAS. △

The Platform Suite for SAS includes three products:

- Platform Process Manager
- Platform LSF (Load Sharing Facility)
- Platform Grid Management Service

Platform Process Manager provides scheduling capabilities. This product submits jobs to Platform LSF and manages dependencies between jobs. Platform LSF manages resource requirements and provides for load balancing. The Platform Grid Management Service includes a monitoring daemon that enables administrators to monitor the load on machines running Platform LSF.

If you are interested in using the Platform Suite for SAS for scheduling SAS Data Integration Studio jobs or SAS Web Report Studio reports, you must install Platform Process Manager on the machine that you want to use as your scheduling server. When you install Platform Process Manager, Platform LSF will be installed as well.

If you will be using the Platform Suite for SAS for grid computing, you must install Platform LSF and the Platform Grid Management Service. If you want to schedule jobs to run on the grid, you must install Platform Process Manager as well. For information about where to install each of these products, see “Architecture of a Grid System” in the chapter “Supporting Grid Computing” in the *SAS Intelligence Platform: Application Server Administration Guide*.

---

## Installing the Products

The Platform Suite for SAS is distributed on seven CDs, labeled Platform Suite for SAS - Volume 1 to Volume 7. To install a product in the suite, you use an installation program supplied by Platform Computing. For installation instructions, see the *Installation Guide: Platform Suite for SAS* which is available in these two locations:

- on the Install Center:  
<http://support.sas.com/documentation/installcenter/>  
(Search for “Installation Guide–Platform Suite for SAS”.)
- on your Documentation for Installing and Configuring SAS CD inside the lid of your installation kit. (To begin, insert the CD into your CD-ROM drive and open `\documentation\eng\index.html`.)

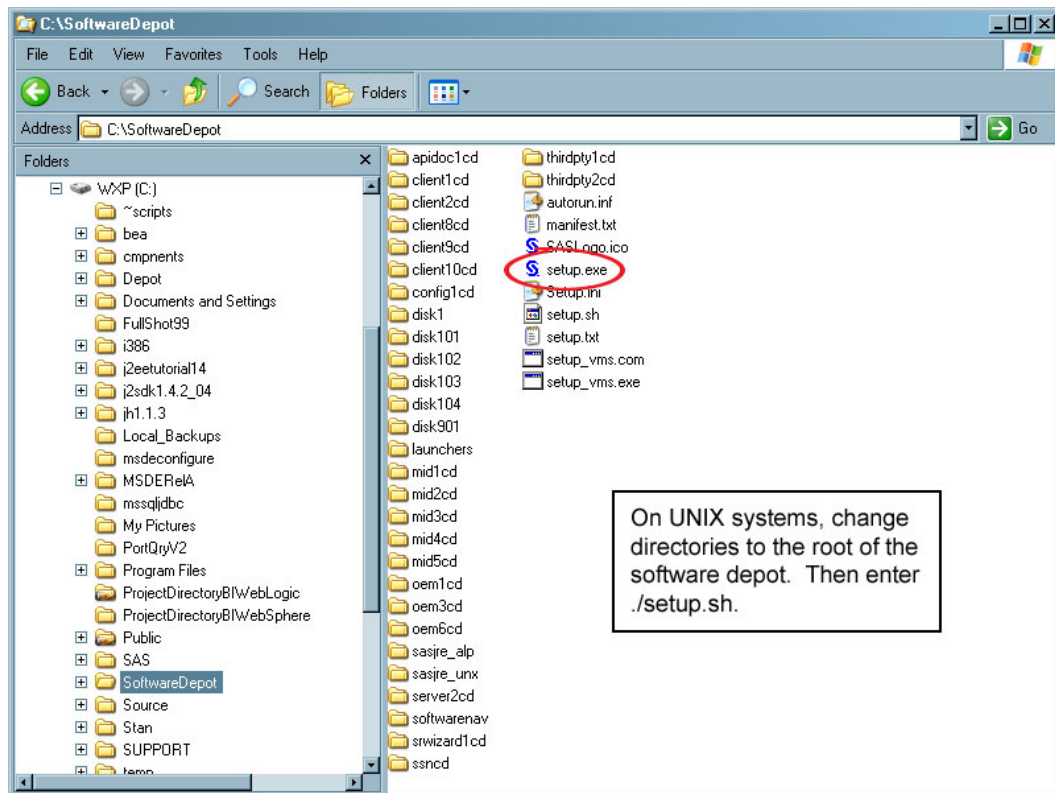
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## Install Third-Party Software Using the Software Index Option

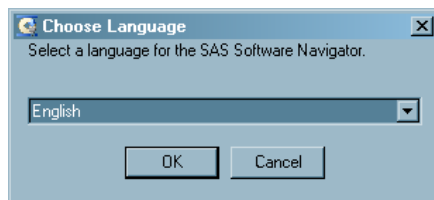
If you need to install additional third-party products—such as products from DataFlux or ArcGIS—you should install those products using the SAS Software Navigator in its Software Index mode.

Complete these steps:

- 1 Start the SAS Software Navigator from the highest-level directory in your software depot.

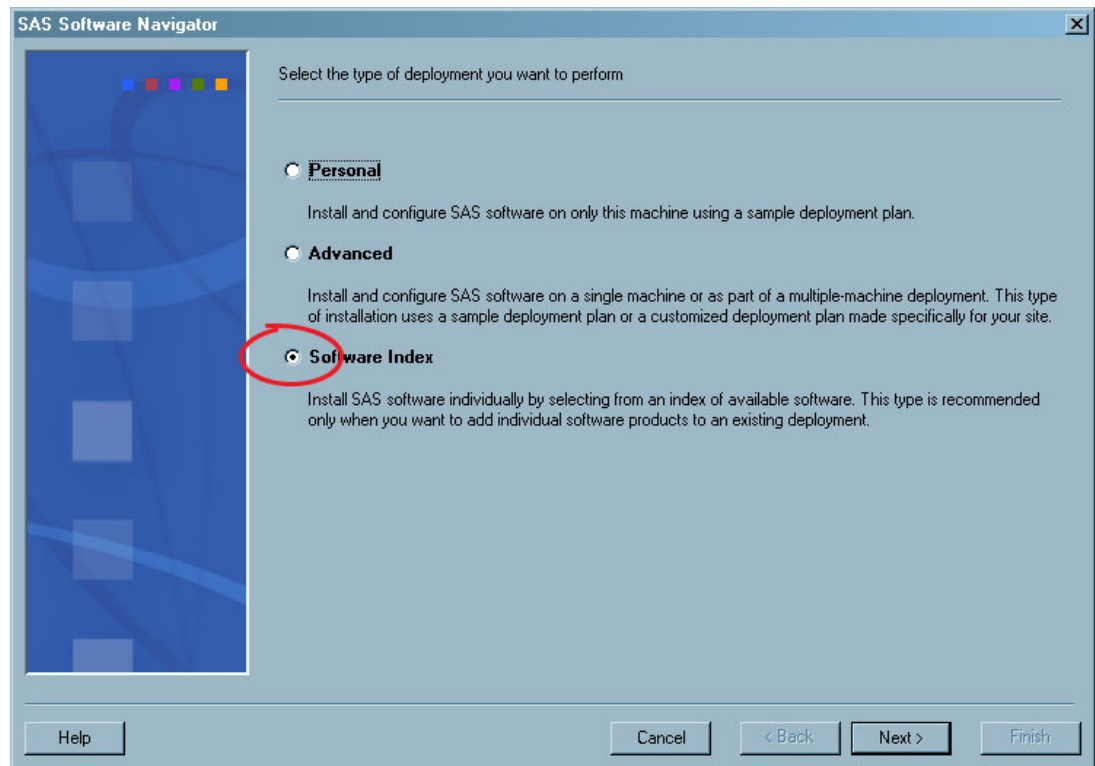


- 2 Select the language that you want the SAS Software Navigator to use when it displays text.

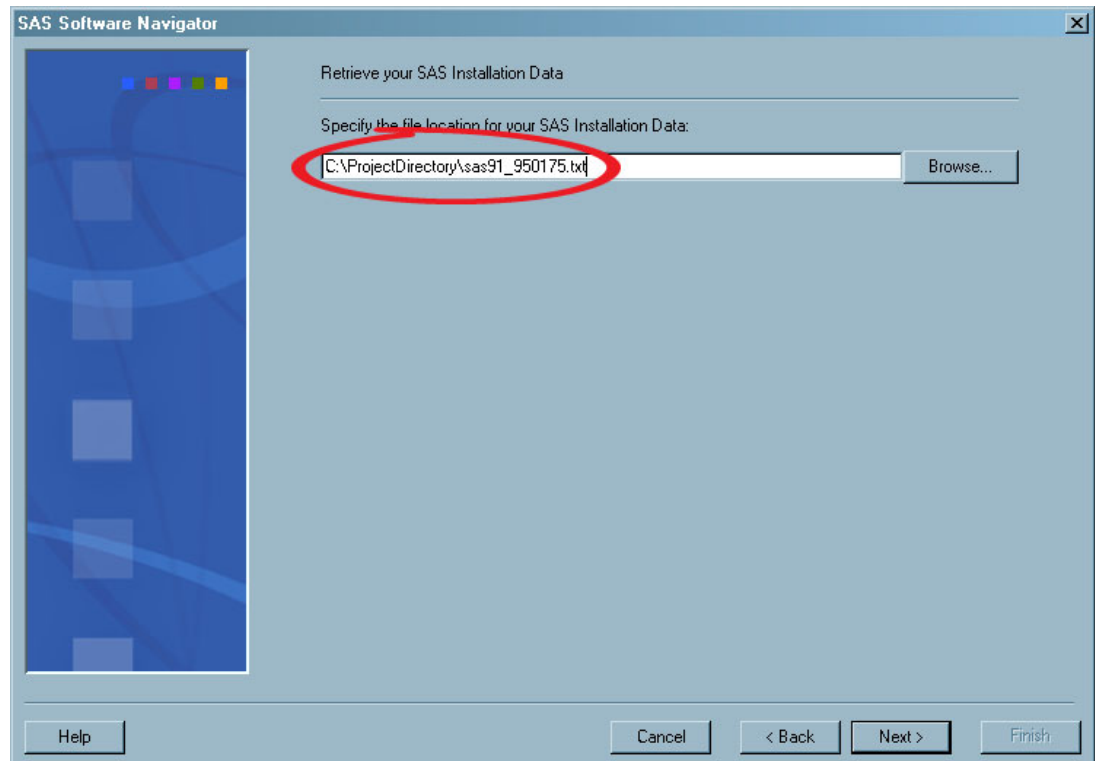


- 3 Indicate that you will be performing a Software Index installation.

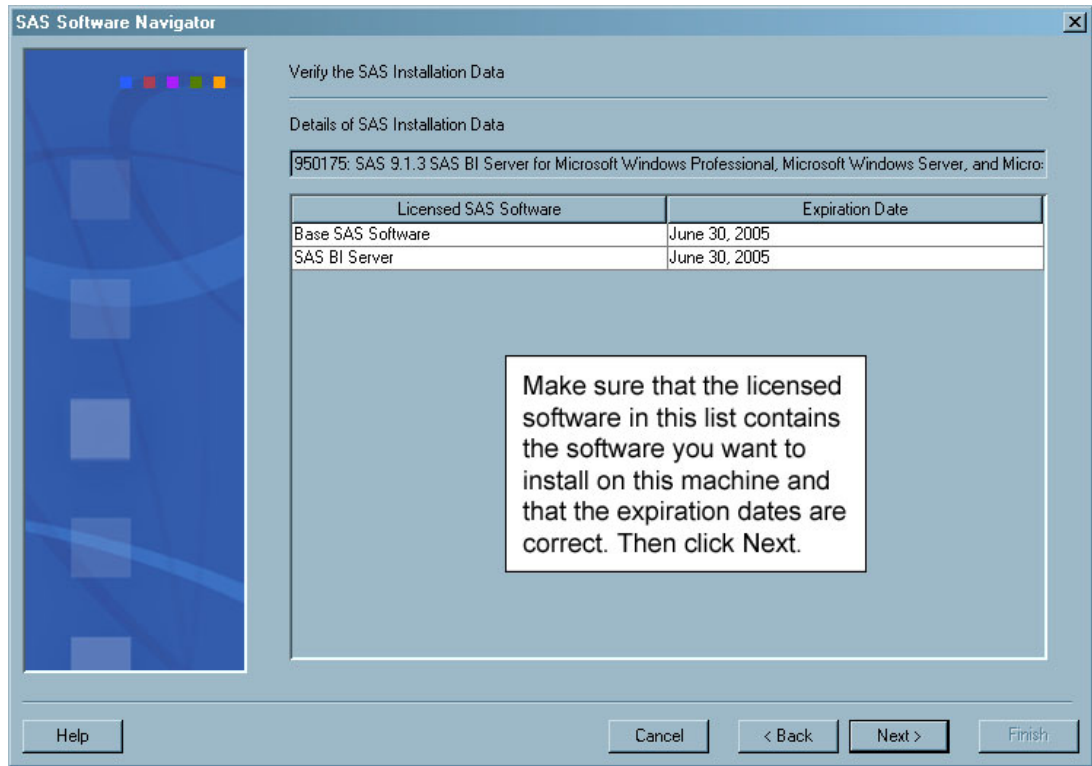




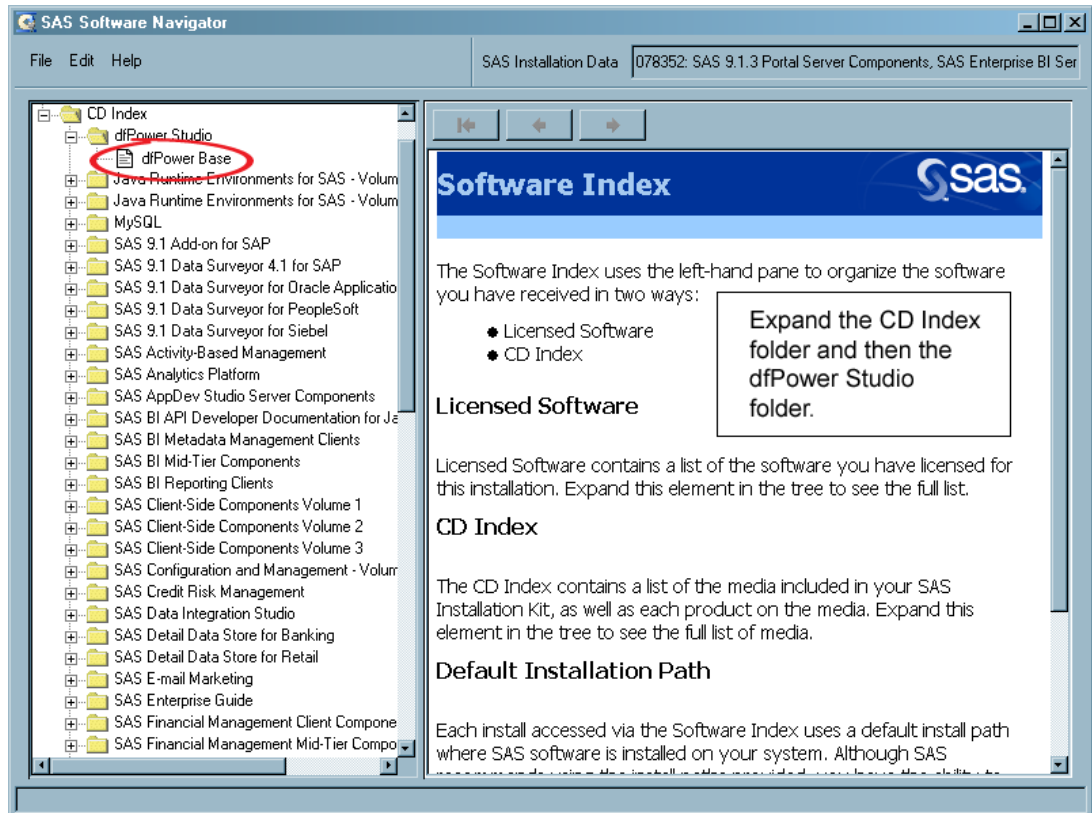
- 4 Indicate the location of the SAS Installation Data (SID) file that contains information about the software that you have licensed for the current machine.



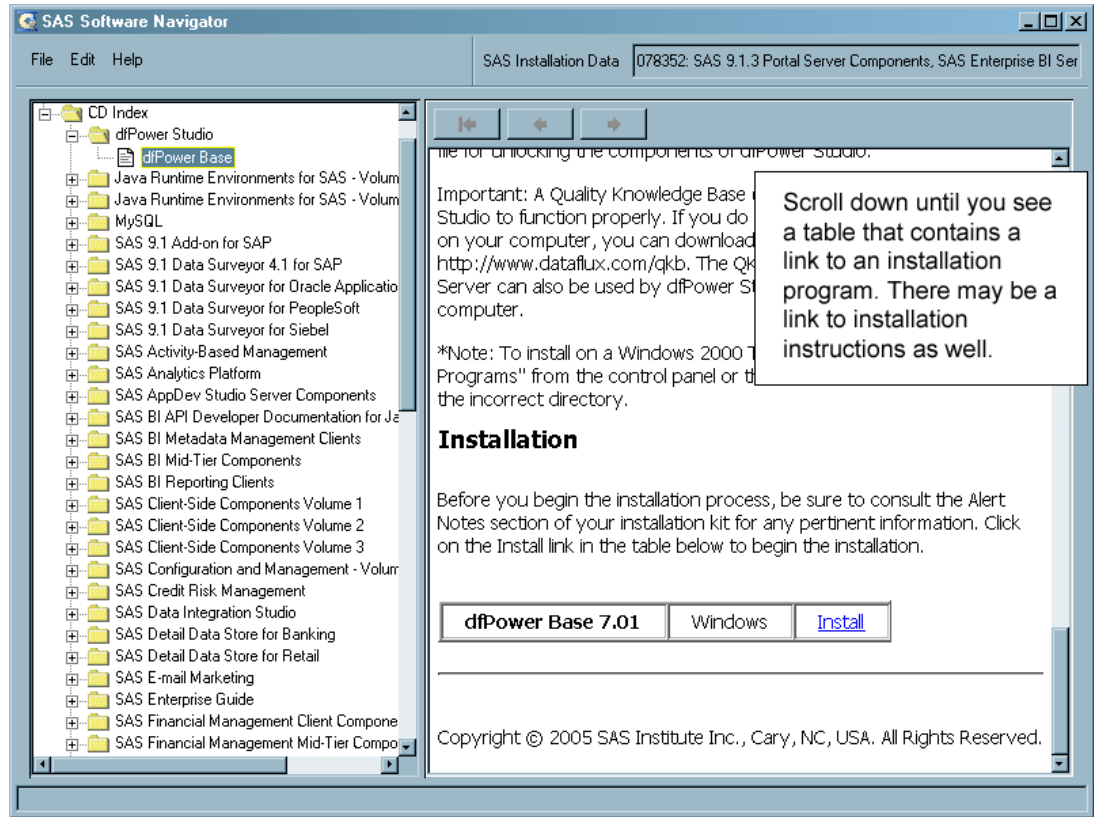
- 5 Verify that you selected the correct SID file for this machine.



6 Select the product that you want to install from the CD Index.



- 7 Use the links in the HTML page on the right to view the installation instructions for the product and to start the installation program.



## Pre-installation Checklists for Third-Party Products

As you install third-party products, fill out the tables below. You will need this information when you run the SAS Configuration Wizard.

---

## Java Development Kit

**Table 5.2** Java Development Kit

Description	Default Value	Actual Value
Installation directory	N/A	
Product version	N/A	

---

## Apache Tomcat

**Table 5.3** Apache Tomcat

Description	Default Value	Actual Value
Installation directory	N/A	
Listen port	8080	
Product version	N/A	

---

## BEA WebLogic Server

**Table 5.4** BEA WebLogic Server

Description	Default Value	Actual Value
Installation directory	N/A	
Name of domain	mydomain	
Name of managed server	myserver	
Listen port for administration server	7501	
Listen port for managed server	7001	
Web application directory	webapps	
Directory in which SAS Information Delivery Portal will be deployed	Portal	
Product version	N/A	

---

## IBM WebSphere Application Server

Table 5.5 IBM WebSphere Application Server

Description	Default Value	Actual Value
Listen port	9080	
Product version	N/A	

---

## Apache HTTP Server

Table 5.6 Apache HTTP Server

Description	Default Value	Actual Value
DAV port	80	
Product version	N/A	

---

## Xythos WebFile Server

Table 5.7 Xythos WebFile Server

Description	Default Value	Actual Value
DBMS and version	N/A	
Database installed?	N/A	
Account under which DBMS will run	postgres (for PostgreSQL)	
Location of JDBC driver	N/A	
Host name and port for DBMS	<i>server-name:5432</i> localhost:5432 (for PostgreSQL on same machine as DBMS)	

Description	Default Value	Actual Value
Name of Global Schema and Document Store	xythos42 and files42 (for SQL Server and PostgreSQL)	
Credentials for user who can access the Global Schema and Document Store	User ID: xythos (for PostgreSQL)	
Program that will create tables (SQL Server and PostgreSQL only)	Full path to <b>psql.exe</b> (PostgreSQL) or <b>osql.exe</b> (SQL Server)	
Location of JDK	N/A	
Credentials for Xythos administrator	User ID: admin	
Password for Oracle System database account	N/A	
Product version	N/A	

---

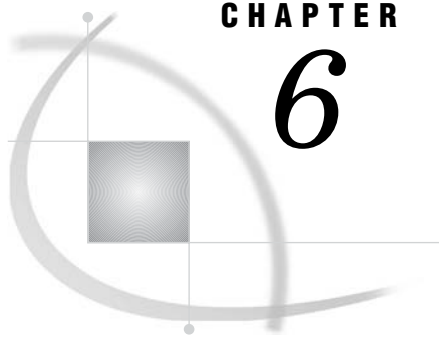
## Platform Suite for SAS

**Table 5.8** Platform Suite for SAS

Description	Default Value	Actual Value
Platform Process Manager port	1966	
Product version	N/A	







## CHAPTER

## 6

# Installing and Configuring Your SAS Software

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## Overview of Installing and Configuring Your SAS Software

You must perform all of the tasks described in earlier chapters to ensure that installing and configuring your SAS software will be a straightforward process. Once that work is done, you perform the following steps on each host in your system:

- Install all of the SAS software components called for in your deployment plan, using the SAS Software Navigator.
- Configure that software by running the SAS Configuration Wizard.

This chapter explains in detail how to run these tools.

Be aware that if you are building a distributed system, you must install software on your computers in a particular order:

- *Always* install SAS software on the metadata server machine first.

- If you will be running SAS servers (such as workspace or stored process servers) on machines other than the metadata server machine, install software on those machines next.
- If you are building your middle tier on a different machine (or machines), install software on that machine next.
- Install software on machines that will host only clients.
- Finally, return to the Road Map Kit for any additional installation and configuration-related tasks.

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## Installing Software Using the SAS Software Navigator

---

### Overview of Installing Software Using the SAS Software Navigator

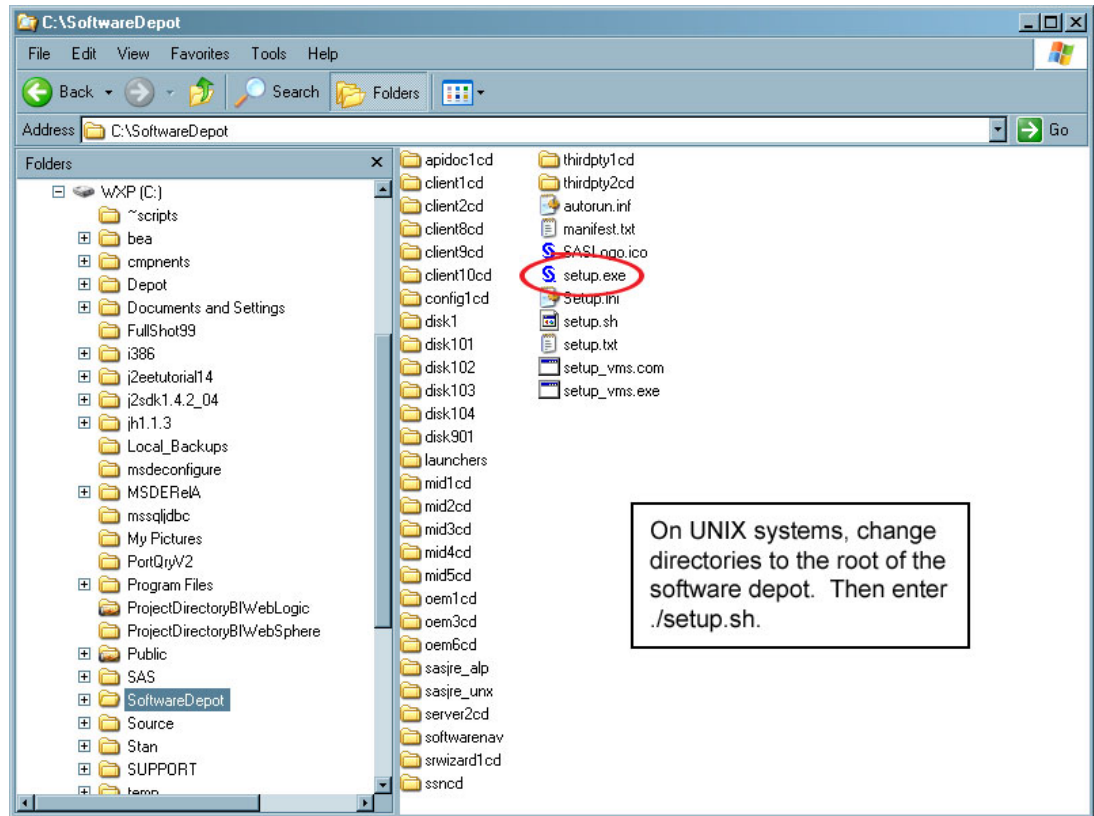
You can think of your work with the SAS Software Navigator as falling into two phases. First, you use the tool to indicate which software components you want to install on a machine. Second, the tool installs—or enables you to install—each software component. After installing the last product, the navigator generally starts the SAS Configuration Wizard, which configures all of the software installed on a machine.

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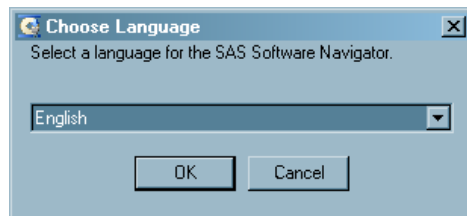
### Specify Which Components to Install

Before the SAS Software Navigator begins installing software, you must indicate which components it should install on the current machine. To do this, complete these steps:

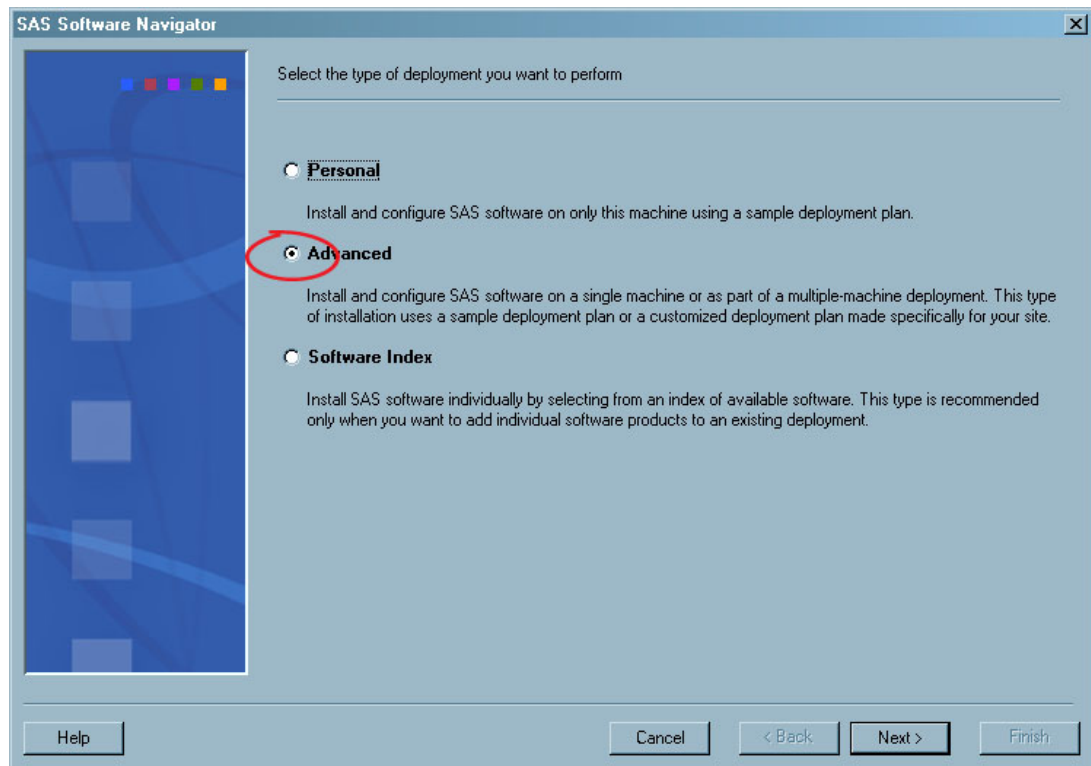
- 1 Log on to the machine as a member of the Administrators group if you are working on a Windows machine and as the SAS Installer (sas) if you are working on a UNIX machine. (We strongly recommend that you do not log in as root in order to install SAS components on a UNIX system.)
- 2 Start the SAS Software Navigator from the highest-level directory in your software depot.



- 3 Select the language that you want the SAS Software Navigator to use when it displays text.

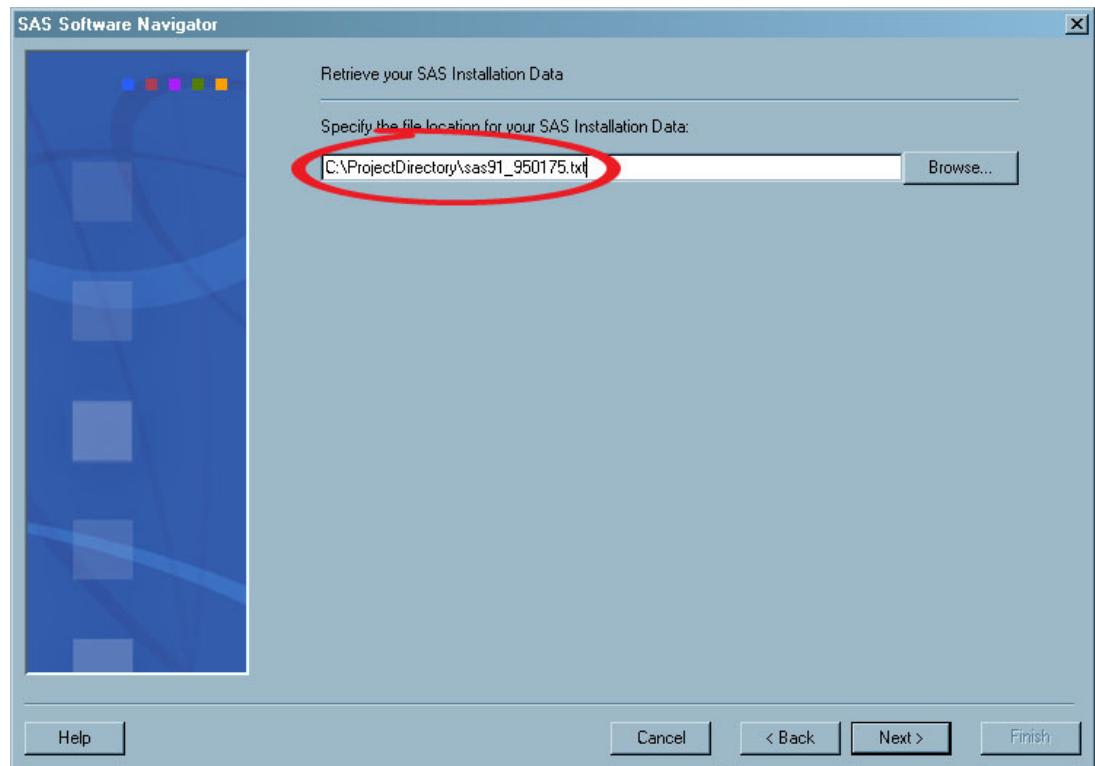


- 4 Select an Advanced installation.



*Note:* If you will be building a single-machine system and are using a standard plan, you can use the Personal installation option instead. If you choose this option, the SAS Software Navigator will present a simplified page when it is time for you to specify the name of your deployment plan. A Software Index installation enables you to add a single product to an existing system. For more information about Software Index installations, see Appendix 1, “Software Index Installations,” on page 81.  $\triangle$

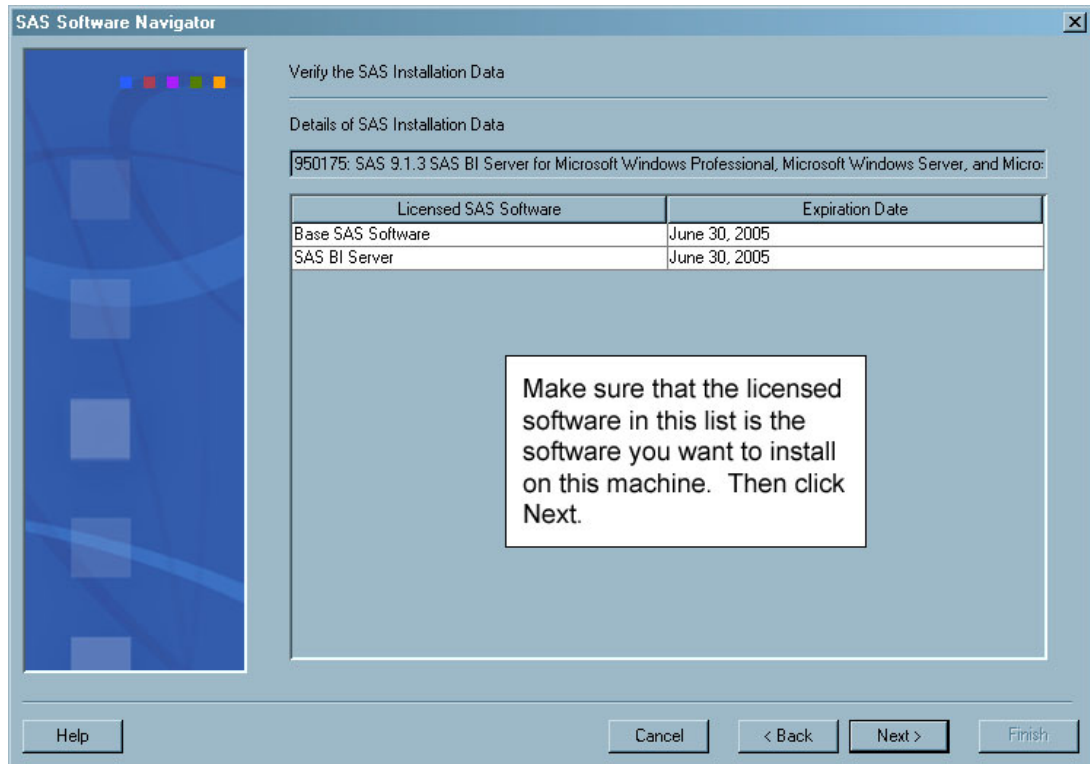
- 5 Specify the location of the SID file that contains information about the software that you have licensed for the current machine.



- 6 Verify that you selected the correct SID file for this machine.

**CAUTION:**

If you do not use the SID file that supports the products you are planning to install and configure on this machine, you might experience errors later when you are trying to use the products. △



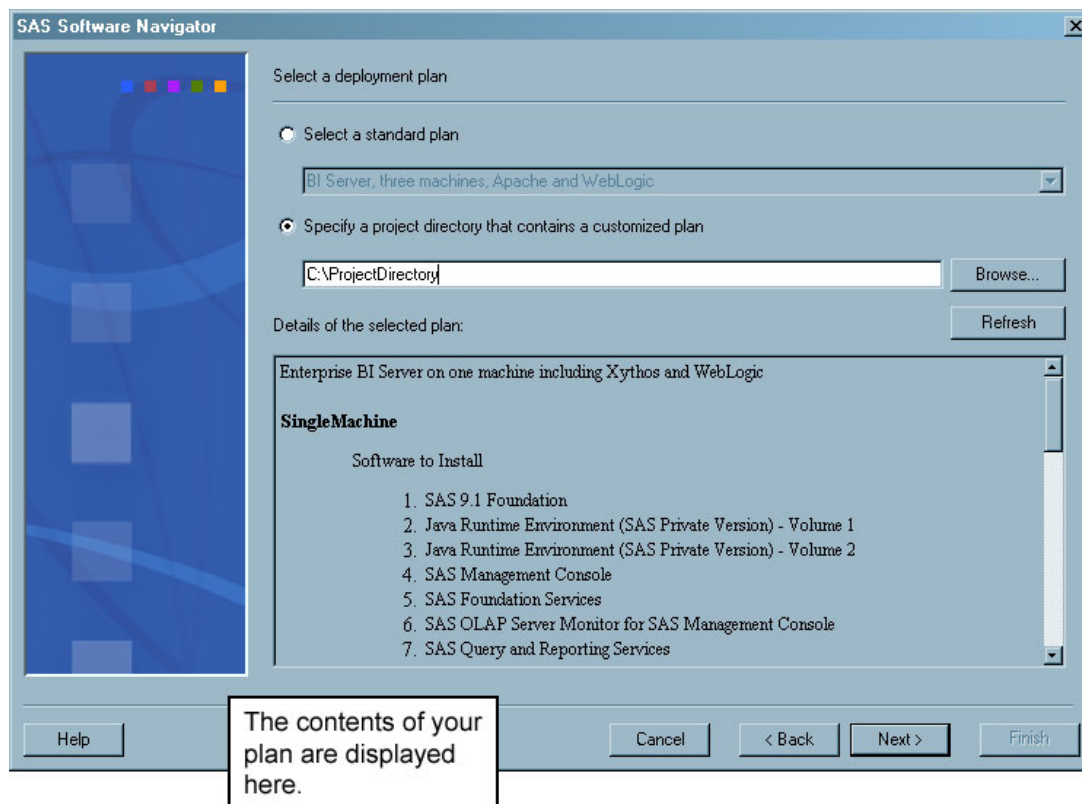
7 Point the SAS Software Navigator to the deployment plan file for the system that you are building.

If you are using a standard plan, complete these steps:

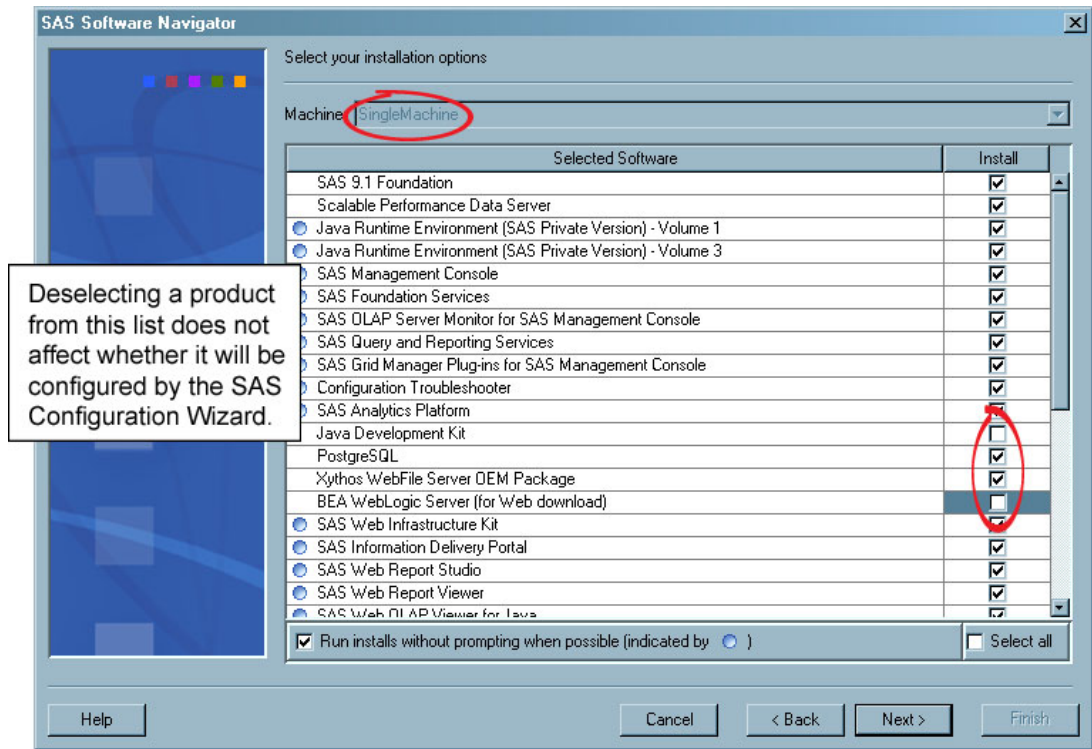
- a Choose the **Select a standard plan** radio button.
- b Select the name of your plan from the drop-down list below the radio button.
- c Click **Next**.

If you are using a custom plan, complete these steps:

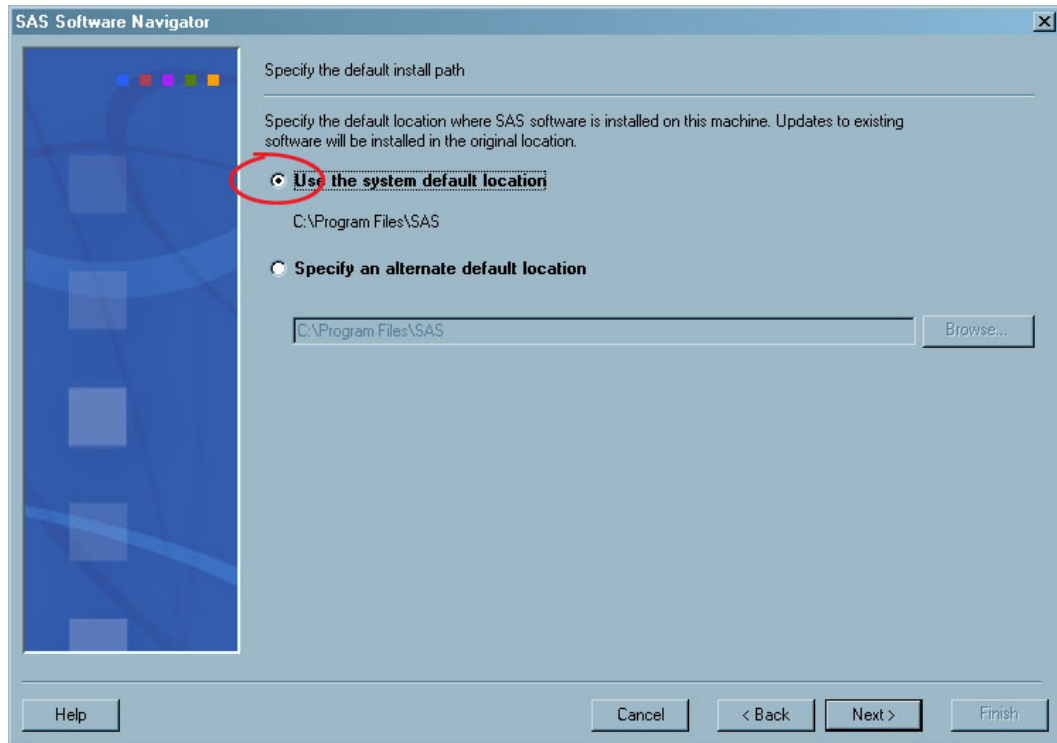
- a Select the **Specify the project directory that contains a customized plan** radio button.
- b In the box below the radio button, enter the path to the directory that contains your **plan.xml** file. (This is the project directory that you created earlier to hold your custom deployment plan.)
- c If you do not see the contents of your plan in the lower part of the window, click **Refresh**.
- d Click **Next**.



- 8 Select the machine on which you are installing software and the products that you want to install. To do this, complete the following steps:
- a Select the machine on which you are installing software from the **Machine** drop-down list. (In the following example, this option is dimmed because the plan is for a single-machine installation.) Typically, an entry in the list describes a tier in your system's architecture, such as Server Tier.
  - b Deselect any products that you do not want to install. *Be sure to deselect the boxes next to third-party products that you have already installed.* The only third-party products that you should leave selected are PostgreSQL, Xythos WebFile Server, and the Java Runtime Environment (SAS Private Version).
  - c Click **Next**.

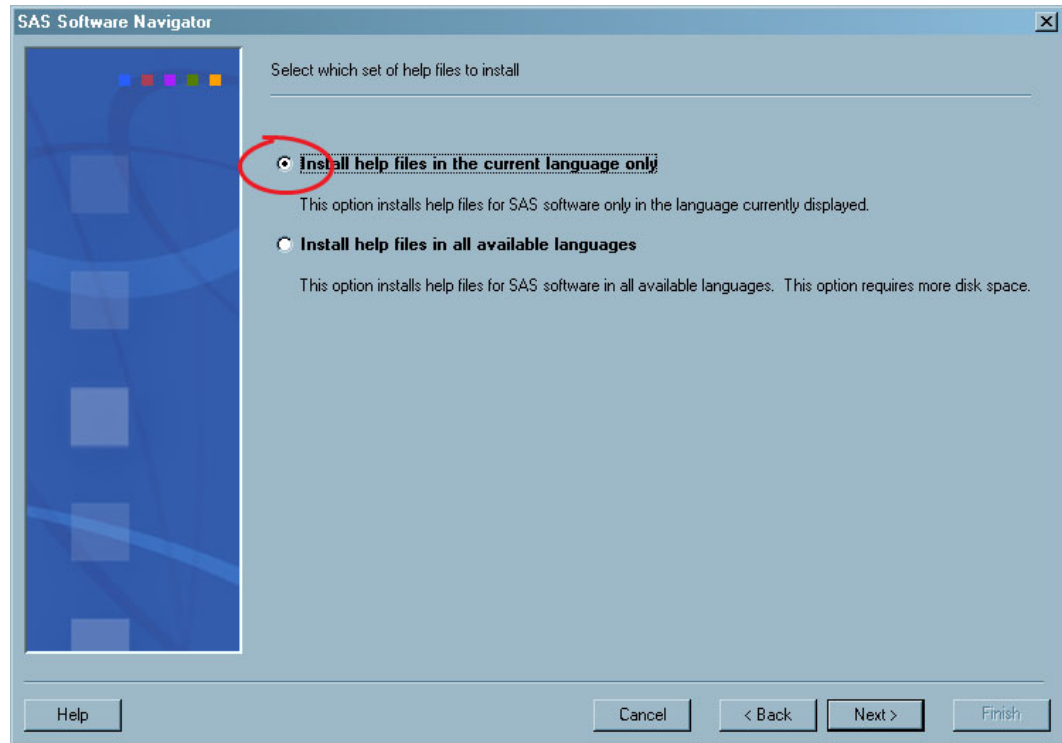


9 Specify the location at which you want to install your SAS software.

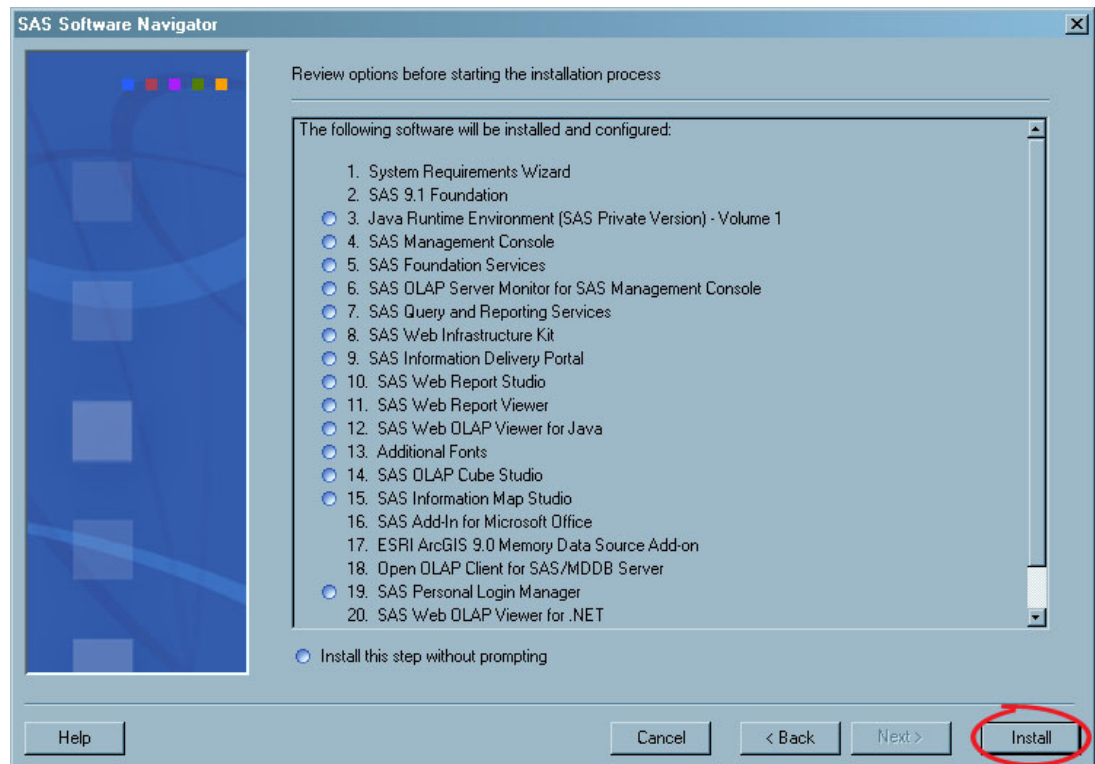


10 Indicate whether you want to install help files in the currently selected language only or in all available languages.





11 Review the list of products that you have chosen to install, and start the installation.

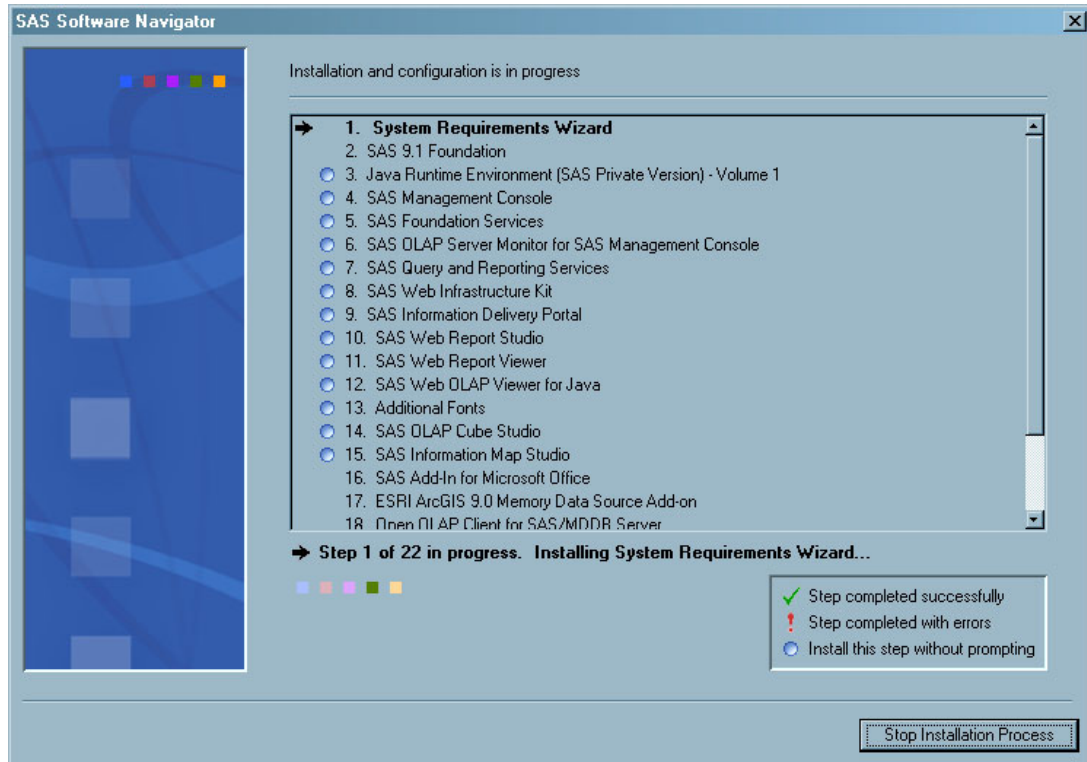


At this point, the SAS Software Navigator begins installing your SAS software.

## Install the Software

### Overview of Installing the Software

After you have told the SAS Software Navigator to start installing software, it presents you with a window in which you can track the progress of the installation, and it begins installing the products in the list.



It installs these products in the order shown in the list.

You will encounter two types of installations:

- silent installations
- interactive installations

### Silent Installations

The products with a blue sphere to the left of them are installed silently. No user interaction is required for these installations.

### Interactive Installations

For products that do not have a blue sphere to the left of them, user interaction is required. For instance, when the navigator begins the installation of the SAS Foundation on a Windows metadata server machine, it starts the following installation program.



You use this installation program and the corresponding documentation to install the product.

**CAUTION:**

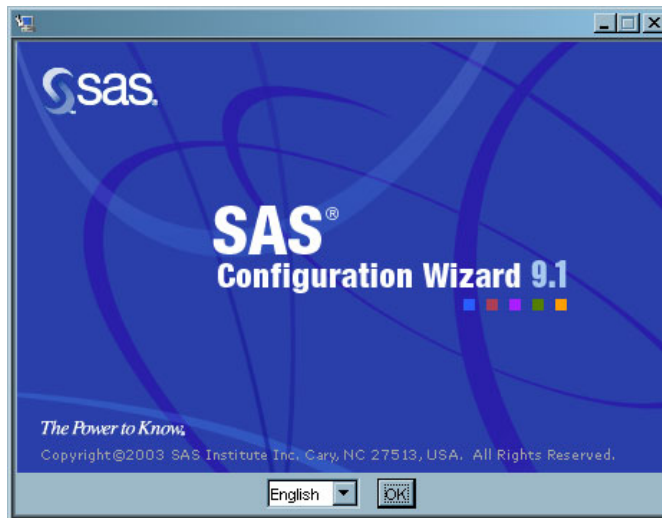
When you are installing the SAS Foundation on a UNIX system and see the message “Prompt for root password later during this run?” answer Y. As the message in the installation program explains, “Certain SAS products and features employ functionality that requires SAS to check user ID authentication and file access authorizations. This in turn necessitates that certain files within your SAS installation have setuid permissions and be owned by root.” Of course, you will have to enter the root password later in the installation. △

Install any other products that cannot be installed silently in a similar manner.

---

## Start of the Configuration Wizard

If there are configurable components in the list of products to be installed, the last item in the navigator’s list will be the SAS Configuration Wizard. When the navigator reaches this item, it will start the wizard, which you use to configure the software that you just installed.



For information about how to run the SAS Configuration Wizard, see the following section.

---

## Configuring Software Using the SAS Configuration Wizard

---

### Overview of Configuring Software Using the SAS Configuration Wizard

Your interaction with the SAS Configuration Wizard can be broken down into a number of phases:

- First, you specify some preliminary information, such as the language in which the wizard should display its messages and prompts.
- The wizard then prompts you for information that it knows it will need when it configures the current machine. For example, the wizard might prompt you for information about the user accounts that you created in Chapter 2.
- The wizard continues to obtain input from you by enabling you to edit a set of advanced properties in a text file. After you have edited these properties—or if you indicate that you do not need to edit them—the wizard performs as much automated configuration of the machine as possible.
- If you are configuring Xythos WebFile Server on the current machine, the SAS Configuration Wizard starts a program—SASWFS—that you use to configure this product.
- Finally, the wizard produces an HTML document entitled “My Configuration Steps,” which is stored in the file `instructions.html`. This document provides you with instructions for performing any additional required configuration. You can perform almost all of the tasks in these instructions by running a set of scripts.

The subsections below explain in detail how to run the SAS Configuration Wizard.

---

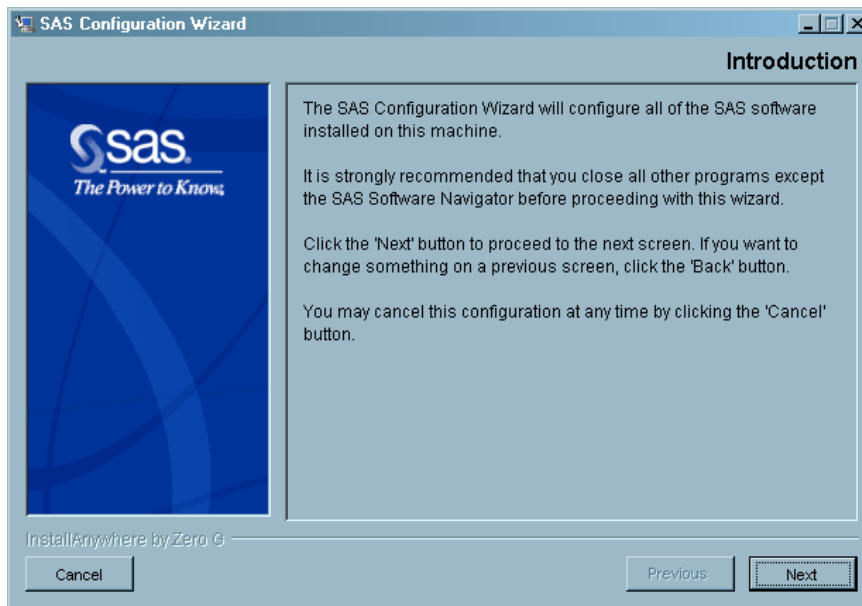
### Specify Preliminary Information

When the SAS Configuration Wizard starts, it asks you to specify the language in which it should display its prompts and messages, and then it displays an introductory page. To begin using the wizard, complete these steps:

- 1 Specify the language that you want the program to use.



- 2 Read the SAS Configuration Wizard's Introduction page, and click **Next**.



At this point, the SAS Configuration Wizard will begin prompting you for information, as explained in the next section.

---

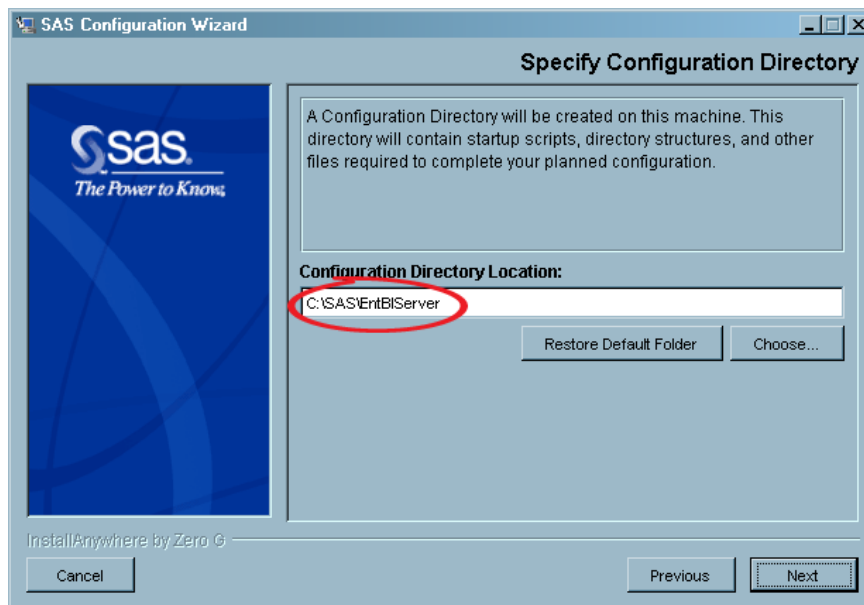
## Respond to the Wizard's Prompts

After you select a language and click **Next** in the Introduction page, the wizard prompts you for some information that it *knows* it will need in order to configure your system. (There might be other information that you will need to supply by setting properties in a properties file, as discussed in “Set Advanced Properties” on page 67.) This is the point at which you might need to enter information about such things as the users that you created in Chapter 2 and the third-party products that you installed in Chapter 5.

The exact questions that you will be asked depend on what software you are configuring. So the following displays are just examples of the pages you might see. They show some of the pages you would see if you were installing the Enterprise BI Server package on a single Windows machine. Given these examples, you should easily be able to supply the responses that the configuration wizard needs.

- 1 The SAS Configuration Wizard first prompts you for the location of a configuration directory. As the wizard explains, in the location that you specify, the wizard will create a set of directories and files that you will use in the management of the SAS system.

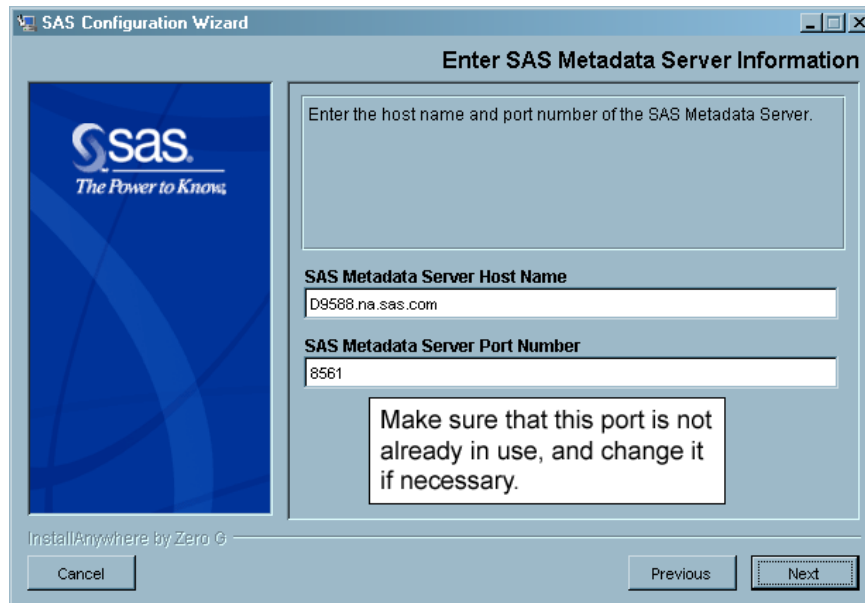
*Note:* Throughout the remainder of this document, and in other documents in the SAS Intelligence Platform series, this directory is referred to using the variable *SAS-config-dir*.  $\triangle$



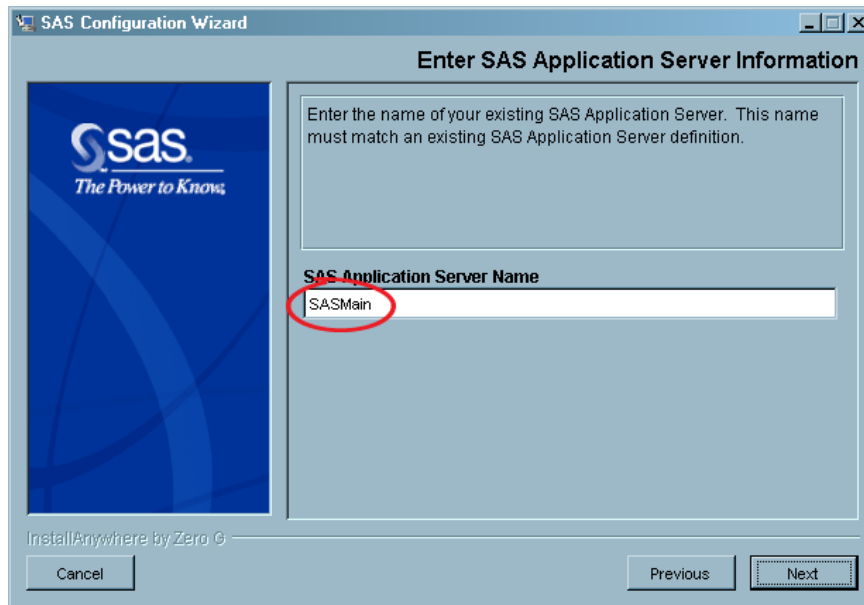
- 2 On Windows systems, you must specify whether you want to run servers such as the metadata server and object spawner as Windows services.



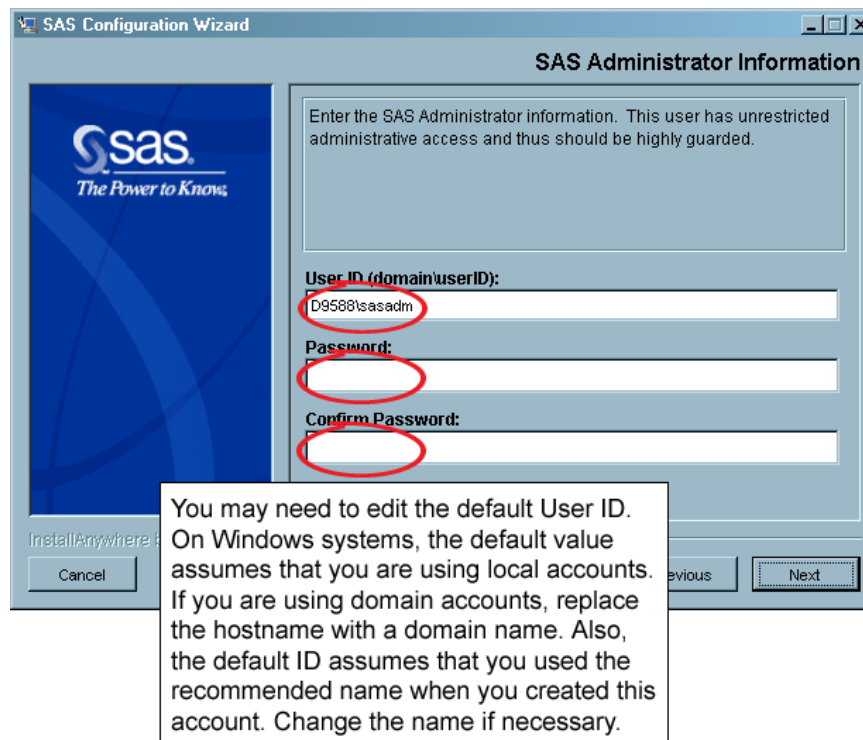
- 3 Enter the *full* name of the machine that is hosting the metadata server and the port on which the server will listen for requests.



- 4 Specify a name for your SAS Application Server. In general, it is best to use the default name. (For an introduction to SAS Application Servers, see the *SAS Intelligence Platform: Application Server Administration Guide*.)



- 5 This next page prompts you for the credentials for the SAS Administrator account that you created in Chapter 2. See the section “Pre-installation Checklists for Users and Groups” on page 18 to find the user ID and password for this user.



In the scenario mentioned earlier in this section—you are installing the Enterprise BI Server package on a single Windows machine—you see several other pages like this one: pages for the SAS General Server User, the SAS Guest User, the SAS Trusted User, the SAS Web Administrator, and the SAS Demo User.



At this point, you reach the Advanced Properties Editor page, which is discussed in the next section.

---

## Set Advanced Properties

In addition to prompting you for information, the SAS Configuration Wizard allows you to edit an advanced properties file that contains values that the wizard will use when it configures your system. Most of the values in the file will be correct. However, you should check the values listed in the following table.

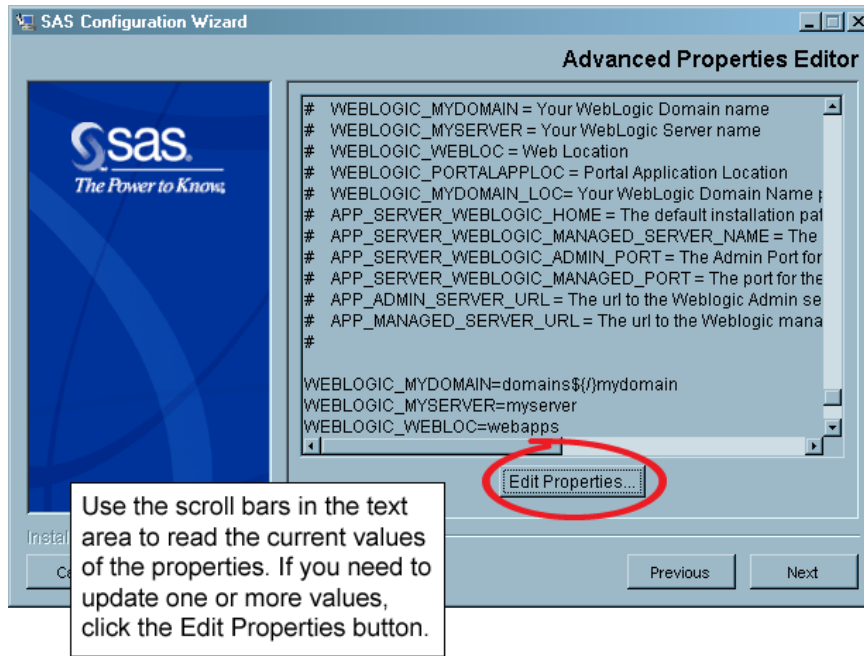
**Table 6.1**

Type of Properties	What to Do
Port numbers	If you plan to use any non-default ports, be sure to change the appropriate port numbers in this file. Refer to the checklists in Chapters 2 and 5 as you edit this information.
BEA WebLogic Server	Make sure that the file contains the correct values for the following items: <ul style="list-style-type: none"> <li><input type="checkbox"/> the name of your domain</li> <li><input type="checkbox"/> the name of your managed server</li> <li><input type="checkbox"/> the listen port for your administration server</li> <li><input type="checkbox"/> the listen port for your managed server</li> </ul>
PostgreSQL	Make sure that the properties <b>postgres.user</b> and <b>postgres.pwd</b> contain the user ID and password of the PostgreSQL User.

*Note:* If you change a port number that ends in “1,” you should use a replacement value that ends in “1.” The “1” has a special meaning in the SAS Intelligence Platform: it indicates that the server using that port is part of a production system (as opposed to a test or a development system). △

To read the current property values and to edit those values if necessary, complete these steps:

- 1 Browse the current property values, and if you need to change a value, open the properties editor (a text editor).



- 2 Imagine that you named your WebLogic managed server “SASManagedServer.” The default name is “myserver,” so you will need to edit this value and then save your changes.

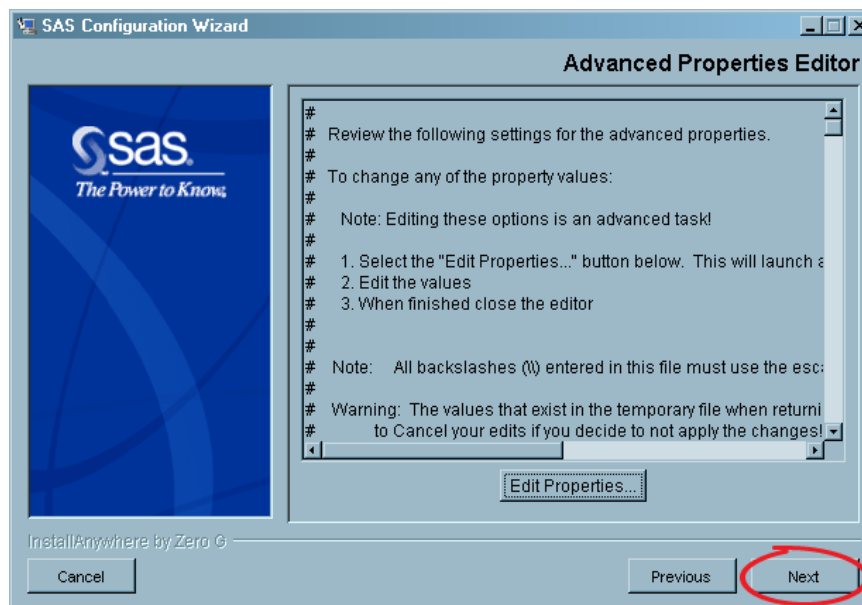
```

editConfiguration.properties - Notepad
File Edit Format View Help
#
CLIENT_DIR=C:\\SAS\\EntBIServer\\Lev1\\clients
CLIENT_DEPLOYMENT_DIR=C:\\SAS\\EntBIServer\\Lev1\\clients\\Deployments
CLIENT_CONFIG_DIR=C:\\SAS\\EntBIServer\\Lev1\\clients\\Config
#
# Location to Microsoft office Integration configuration file
#
COMMON_SAS_METADATA_APPDATA=C:\\Documents and Settings\\stredf\\..\\All Users\\Ap
#
# weblogic Information
#
# WEBLOGIC_MYDOMAIN = Your webLogic Domain name
# WEBLOGIC_MYSERVER = Your webLogic Server name
# WEBLOGIC_WEBLOC = web Location
# WEBLOGIC_PORTALAPPLOC = Portal Application Location
# WEBLOGIC_MYDOMAIN_LOC= Your webLogic Domain Name path
# APP_SERVER_WEBLOGIC_HOME = The default installation path of BEA
# APP_SERVER_WEBLOGIC_MANAGED_SERVER_NAME = The name of the weblogic Managed s
# APP_SERVER_WEBLOGIC_ADMIN_PORT = The Admin Port for the weblogic Admin Serve
# APP_SERVER_WEBLOGIC_MANAGED_PORT = The port for the weblogic Managed Server
# APP_ADMIN_SERVER_URL = The url to the weblogic Admin server
# APP_MANAGED_SERVER_URL = The url to the weblogic managed server
#
WEBLOGIC_MYDOMAIN=domains\mydomain
WEBLOGIC_MYSERVER=SASManagedServer
WEBLOGIC_WEBLOC=webapps
WEBLOGIC_PORTALAPPLOC=Portal
WEBLOGIC_MYDOMAIN_LOC=domains\mydomain
APP_SERVER_WEBLOGIC_HOME=C:\\bea
APP_SERVER_WEBLOGIC_MANAGED_SERVER_NAME=myserver
APP_SERVER_WEBLOGIC_ADMIN_PORT=7501
APP_SERVER_WEBLOGIC_MANAGED_PORT=7001

APP_ADMIN_SERVER_URL=http://D9588.na.sas.com:7501
APP_MANAGED_SERVER_URL=http://D9588.na.sas.com:7001

```

3 Click **Next** to indicate that you have finished editing the advanced properties.



At this point, the SAS Configuration Wizard will perform the automated configuration of the current machine.

---

## Configure Xythos WebFile Server

If you installed Xythos WebFile Server on the current machine, the configuration wizard will start the configuration program for this product. This configuration program, called SASWFS, presents a series of dialog boxes. To use this wizard, refer to the values that you recorded when you installed Xythos WebFile Server (see “Xythos WebFile Server” on page 48), and read the instructions in *Xythos WFS OEM WebDAV 2.1 Installation Instructions*.

---

## Follow the Directions in the instructions.html File

### Overview of Using the instructions.html File

The configuration wizard’s last action is to produce an HTML document called **instructions.html**. You follow the directions in this document—either manually or by running a set of scripts—to complete the configuration of the machine. In addition, the wizard attempts to start the following programs:

- a Web browser in which to display the HTML instructions
- SAS Management Console

You will need SAS Management Console to perform many of the steps in the instructions if you decide to perform those steps manually. You can also perform almost all of the steps by running a series of scripts. The next two sections explain how to perform steps manually and by running scripts.

After you have finished performing the tasks presented in these instructions, the initial configuration of your system is complete. You will also have verified that all of your servers and Web applications (if you have installed a Web tier) are working.

#### **CAUTION:**

**If your environment requires multiple authentication domains for the SAS servers, you must supplement the instructions in the instructions.html file with some instructions in this document.** “Determining Whether You Will Need Multiple Authentication Domains During Installation” on page 15 explains how to determine whether you need more than one domain.

If you do need an additional authentication domain, there are two points at which you must perform supplemental tasks:

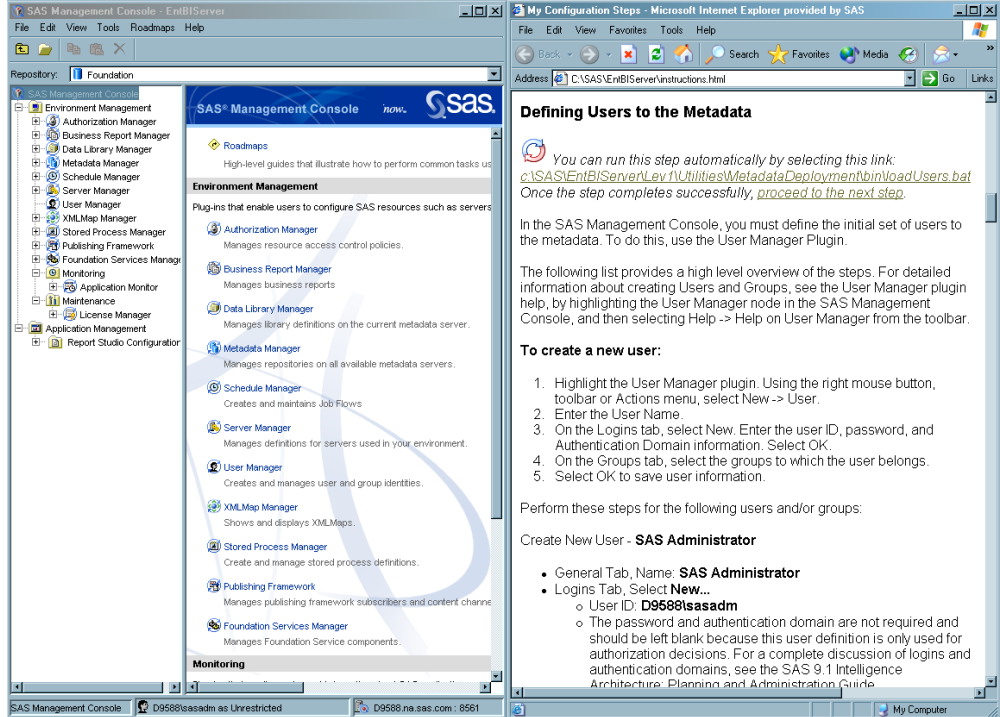
- Immediately after you create metadata definitions for the SAS Demo User (sasdemo) and the SAS General Server group. You create these definitions while configuring the software on the metadata server host.
- Immediately before you start your object spawner. You start the object spawner while you are configuring the workspace and stored process server host.

You will find the instructions that you should follow at these points in “Supplemental Instructions for instructions.html” on page 73.  $\Delta$

### Perform the Steps Manually

Many of the tasks included in **instructions.html** involve creating metadata objects. If you are installing the SAS Intelligence Platform for the first time and want to see what objects are created during this final phase of the configuration, you can perform the tasks manually. (Note, however, that this is a somewhat error-prone approach because you will have to type or paste text into a large number of text fields.) To do this, complete these steps:

- 1 Position the Web browser window displaying **instructions.html** and the SAS Management Console side by side.



This arrangement of windows enables you to read the instructions and work in SAS Management Console at the same time. The arrangement also makes it easier to cut text from the instructions and paste it into SAS Management Console as necessary.

*Note:* You might find a horizontal placement of these two windows more suitable, especially when copying and pasting long lines of text. △

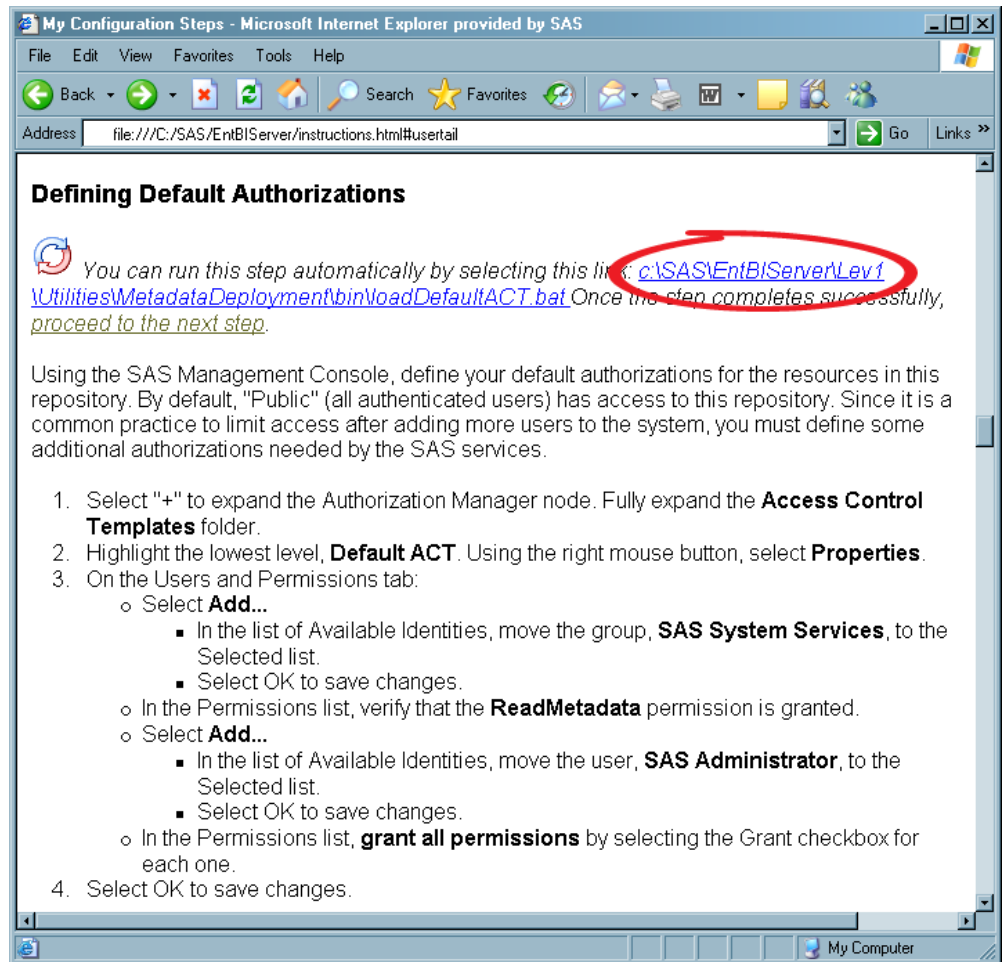
*Note:* If the configuration wizard did not start a Web browser that displays this page, start a Web browser and open the file **SAS-config-dir\instructions.html**. △

- 2 Follow the instructions exactly. Wherever possible, avoid typing values into SAS Management Console in order to eliminate typographical errors. Most values can be cut from the instructions and pasted into SAS Management Console.

## Use the Scripts for Configuration

The fastest and safest way to finish your configuration of the system is to run the scripts referred to in the **instructions.html** file. To run the scripts, complete these steps:

- 1 Follow any instructions that precede the first reference to a script. For example, on your metadata server machine, you will need to define your metadata repository manually before running the first script.
- 2 Perform the following steps until you reach the end of the file.
  - a Execute the script referred to in the instructions.




On Windows systems, you can execute each script by clicking on a link. On UNIX systems, you must run each script from a terminal window.

*Note:* On Windows, you can tell that you have run a particular script by the color of the link. Links that you have already clicked are gray. This makes it easy for you to resume where you left off if you are interrupted while you are configuring the software. △

- b Immediately following the reference to the script is a link that says “proceed to the next step,” as shown in the following display:

### Defining Default Authorizations

 You can run this step automatically by selecting this link: <c:\SAS\EntBIServer\Level1\Utilities\MetadataDeployment\bin\loadDefaultACT.bat>. Once the step completes successfully, proceed to the next step.

Click this link. You will be taken to the step that follows the last step performed by the script.

- c If the next item in the instructions is a script, return to step a. Otherwise, manually perform any instructions that precede the next script; then return to step a.

## Need Help?

As you perform the tasks in the `instructions.html` file, you test the connections to your SAS servers and deploy and start your Web applications (if you have installed a Web tier). If you run into problems at any point, see *SAS Intelligence Platform: Troubleshooting Your Initial Installation* for help.

---

## Supplemental Instructions for instructions.html

### Overview of Supplemental Instructions for instructions.html

The figure in “Scenario in Which More Than One Authentication Domain Is Needed” on page 16 shows a scenario in which two authentication domains are required for SAS servers. The instructions in this section explain how to deal with that situation.

Note that in the figure, the metadata server is in one authentication domain, and the object spawner, workspace server, and stored process server are in another. The SAS Configuration Wizard assumes that all of these servers—and any other SAS servers, such as an OLAP server, a SAS/CONNECT server, or a SAS/SHARE server—will all be in the same authentication domain. If this is not the case, the recommended procedure is to leave your metadata server in the authentication domain `DefaultAuth` and to associate the object spawner, workspace server, and stored process server with a new authentication domain. You will also need to update login information stored for the users and groups who will be using workspace and stored process servers.

The next two sections present the instructions that you must follow to create a new authentication domain, to give the SAS Demo User and the SAS General Servers group a login for the new domain, and to associate the object spawner, workspace server, and stored process server with the correct authentication domain.

- Follow the directions in “Add a Login to a User or Group Definition” on page 73 immediately after you define the metadata for the SAS Demo User and the SAS General Servers group.
- Follow the directions in “Change a Server or Spawner’s Authentication Domain” on page 74 immediately before you start the object spawner on the machine that hosts the workspace and stored process servers.

### Add a Login to a User or Group Definition

The following instructions explain how to modify the logins for the SAS Demo User and the SAS General Servers group when your workspace server and stored process server are in an authentication domain other than `DefaultAuth`:

- 1 In SAS Management Console, select **User Manager**. You will see a list of users and groups in the right pane.
- 2 Double-click the list entry for the SAS Demo User or the SAS General Server group to open a user or group properties dialog box.
- 3 In the properties dialog box, select the **Logins** tab.
- 4 Change the logins as appropriate. The SAS Demo User needs to be authenticated both by the metadata server host and the workspace server host; therefore, you must add a new login for this user. The SAS General Server group needs to be

authenticated only on the stored process server host, so you can just modify the existing login for this user.

To add a new login for the SAS Demo User, perform these tasks:

- a In the lower left corner of the **Logins** tab, click **New**. The New Login Properties dialog box appears.
- b In the New Login Properties dialog box, enter a user ID in the **User ID** text box. This should be the user ID that the SAS Demo User will need to be authenticated in the new authentication domain. For example, if you are working in the scenario shown in “Scenario in Which More Than One Authentication Domain Is Needed” on page 16, you will need to enter a UNIX user ID here.
- c Enter the corresponding password in the **Password** and **Confirm Password** text boxes.
- d To create a new authentication domain, click the **New** button next to the **Authentication Domain** drop-down list. A New Authentication Domain dialog box appears.
- e In the New Authentication Domain dialog box, enter in the **Name** text box a name that will distinguish the new authentication domain from the DefaultAuth authentication domain. For example, if you are working in the scenario shown in “Scenario in Which More Than One Authentication Domain Is Needed” on page 16, you might name the new authentication domain UNIXAuth. (Entering a description in the **Description** text box is optional.)
- f Click **OK** in the New Authentication Domain dialog box.
- g In the New Login Properties dialog box, you should see the new authentication domain selected in the **Authentication Domain** drop-down list. (If it is not selected, select it now.)
- h Click **OK** in the New Login Properties dialog box. A new login appears in the SAS Demo User Properties dialog box.

To modify the existing login for the SAS General Servers group, perform these tasks:

- a Select the existing login—the one containing the authentication domain DefaultAuth.
  - b In the lower left corner of the **Logins** tab, click **Modify**. The Edit Login Properties dialog box appears.
  - c Select your new authentication domain from the **Authentication Domain** drop-down list and confirm that the user ID and password are correct.
  - d Click **OK** in the Edit Login Properties dialog box.
- 5 Click **OK** in the user or group properties dialog box.

## Change a Server or Spawner’s Authentication Domain

To change the authentication domain for the object spawner, workspace server, and stored process server, perform the following tasks for each spawner or server.

*Note:* If you have other servers in the second authentication domain (such as an OLAP server, a SAS/CONNECT server, or a SAS/SHARE server—you should perform these tasks for those servers as well. △

- 1 Locate the spawner or server icon in SAS Management Console. All three icons are located under **Server Manager**. The spawner is at the highest level in the hierarchy and is named SASApp - Spawner by default. The server icons are two levels lower. To find the icon for the workspace server, open your application server (SASApp) and the logical workspace server node (SASApp - Logical Workspace Server). The stored process server icon is in an analogous location.

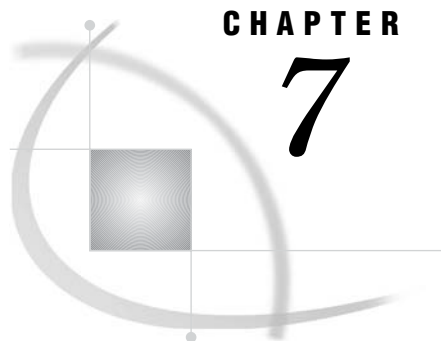


- 2 Select the spawner or server icon. A list of one or more connections appears in the right pane.
- 3 For each connection in the list, perform the following steps:
  - a Right-click the connection, and select **Properties** from the pop-up menu. A server or spawner properties dialog box appears.
  - b In the dialog box, select the **Options** tab.
  - c On the **Options** tab, change the value of the **Authentication Domain** field. DefaultAuth should be displayed by default. Change the value to the appropriate authentication domain.
  - d Click **OK**.

*For a stored process server, you must also change the user ID that will be used to start stored process server processes. To change that ID, follow these steps:*

- 1 Right-click the stored process server icon, and select **Properties** from the pop-up menu. A Stored Process Server Properties dialog box appears.
- 2 Select the **Options** tab.
- 3 Click the **Advanced Options** button to bring up the Advanced Options dialog box.
- 4 In the Advanced Options dialog box, select the **Credentials** tab.
- 5 On the **Credentials** tab, choose **More logins** from the **Login** drop-down list. The Select Login dialog box appears.
- 6 In the Select Login dialog box, search for logins belonging to the new authentication domain (for example, UNIXAuth), select the entry for sassrv in the **Login Results** list, and click **OK**.
- 7 Click **OK** in the Advanced Options dialog box.
- 8 Click **OK** in the Stored Process Server Properties dialog box.





## CHAPTER

## 7

## What's Next?

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<i>Adding Users to the System</i>	78
<i>Setting Basic Protections</i>	79
<i>Creating New Authentication Domains</i>	79

---

### Overview of What's Next

When you have finished running the SAS Configuration Wizard and performed the tasks described in `instructions.html` and in this document on all the host machines that make up your configuration, your system will be functional. Your SAS and middle-tier servers will be running, and you will be able to start all of the clients. However, there is still some configuration that you need to perform before your users can begin building data warehouses, creating reports, and so on. For example, you will almost certainly need to perform the following tasks:

- Establish connectivity to your data sources.
- Add users to the system.
- Put in place some basic security.

You may also need to define authentication domains other than DefaultAuth.

These topics are covered in the *SAS Intelligence Platform: Data Administration Guide* and the *SAS Intelligence Platform: Security Administration Guide*. The following sections discuss these tasks briefly and provide cross-references to further information.

After you perform this configuration, you should return to the Road Map Kit to perform any other installation and configuration-related tasks.

---

### Establishing Connectivity to Your Data Sources

Before your users can read data from, or write data to, data repositories such as SAS data sets, third-party relational database systems, or third-party Enterprise Resource Planning systems, you must define a required set of metadata objects. For example, let's take the simplest case and assume that your users want to access data in a library of SAS data sets. Before these users will be able to access this data, you must define metadata objects representing the following:

- a SAS library
- the data sets (tables) in the library

Other scenarios require the definition of other objects. For a complete discussion of this subject, see “Connecting to Common Data Sources” in the *SAS Intelligence Platform: Data Administration Guide*.

---

## Adding Users to the System

When you install and configure the SAS Intelligence Platform, you add a set of special SAS users to the system. For example, you have already added a SAS Demo User, whose recommended user name is `sasdemo`. You can use this account to test the different SAS clients in your system.

To add this user to the system, here is what you had to do:

- 1 You created an operating-system account for this user so that the metadata server host could authenticate him. This account enables the SAS Demo User to connect to the metadata server.
- 2 You put the operating system account into the operating system group called "SAS Server Users" so that it picks up the "Log on as a Batch Job" local security policy that has been granted to that group.
- 3 You registered the user in the metadata repository, either by executing a script or using SAS Management Console. Registering the user involved entering a name for the metadata object that represents this user (SAS Demo User) and entering the user's credentials (user ID and password) for the default authentication domain.

By creating a new user (in the metadata) and specifying a user ID (`sasdemo`) for this user, you ensured that this user has a *metadata identity*. The metadata server uses this metadata identity to control the SAS Demo User's access to objects in the metadata repository. The metadata server might also use this identity to respond to requests from other servers for this user's credentials. For more information about metadata identities and logins, see “Authentication Terminology” in the chapter “Authentication Overview” in the *SAS Intelligence Platform: Security Administration Guide*.

You need to perform similar steps for the users at your site who will be using SAS clients to do their work:

- 1 If the user does not already have an operating-system account that will enable the metadata server host to authenticate him, you must create this account (or an account in a back-end database being used for host authentication). This account will enable the user to connect to the metadata server.
- 2 Either grant the users you add the "Log on as a Batch Job" local security policy individually or by adding them to the "SAS Server Users" group or another operating system group that has this policy.
- 3 If the user needs a metadata identity so that the security system can grant or deny the user access to metadata objects, you must create a metadata object that represents this user. One piece of information that you store for this user must be the user ID that he uses to connect to the metadata server.
- 4 If the user will need to access servers other than the metadata server, you might need to add a password to the user's existing login. More likely, you might need to add a login for an authorization domain other than the default.

For detailed instructions on how to add a user to the system, see “How to Add a User” in the chapter “User and Group Management” in the *SAS Intelligence Platform: Security Administration Guide*.

If you have a large number of users to define in the metadata repository, you can use a bulk-load process that SAS has designed for this purpose. For further information on this subject, see “Bulk-Load Processes for Identity Management” in the *SAS Intelligence Platform: Security Administration Guide*.

---

## Setting Basic Protections

Immediately after installing your software, you should increase the level of security in your deployment by performing tasks such as these:

- On Windows systems, set operating system permissions to protect the configuration directories.
- Enable encryption beyond the default protection for transmitting user credentials over the network.
- Set metadata permissions to protect the foundation metadata repository.

For information on performing these tasks and similar ones, see “Securing a Deployment” in the *SAS Intelligence Platform: Security Administration Guide*.

---

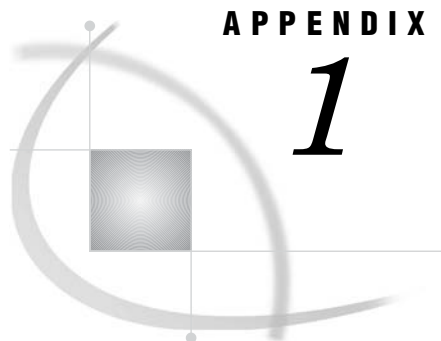
## Creating New Authentication Domains

When you run the SAS Configuration Wizard and follow the directions in the file **instructions.html**, one authentication domain is created: DefaultAuth. This setup works fine as long as each user can use the same set of credentials to connect to these resources:

- the metadata server
- other SAS servers
- database servers (if any)

If a user needs different credentials to access different resources, you will need to create additional authentication domains, assign resources to those domains, and create additional logins for your users. For information about creating authentication domains and assigning resources to those domains, see “Customizing the Authentication Configuration” in the *SAS Intelligence Platform: Security Administration Guide*.





## APPENDIX

# 1

## Software Index Installations

---

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*Perform a Software Index Installation* 81

*Configure a Newly Added Product* 82

---

### Overview of Software Index Installations

We have already looked at Software Index installations briefly in Chapter 5, where we discussed using this type of installation to install third-party products such as those from DataFlux and ArcGIS. However, the primary purpose of the Software Index installation is to enable you to add a product to an existing instance of the SAS Intelligence Platform *after* you have done an Advanced (or Personal) installation. This is the perspective from which we will look at this type of installation in this chapter. We will also consider how to configure a product that you add to your system.

- For information on performing a Software Index installation, see “Perform a Software Index Installation” below.
  - For information on using the SAS Configuration Wizard to configure a single product, see “Configure a Newly Added Product” on page 82.
- 

### Perform a Software Index Installation

You perform a Software Index installation using the SAS Software Navigator. However, before you start the installation, you must check to see whether the product that you plan to install was part of a software order placed after the original order(s) for the SAS Intelligence Platform. If it was, you must add the newly received software to your software depot and copy your new SID file to your project directory. For information on how to perform these tasks, see Chapter 3, “Locating Your Software Order E-mail, SID Files, and Deployment Plan,” on page 23 and Chapter 4, “Building a SAS Software Depot,” on page 27.

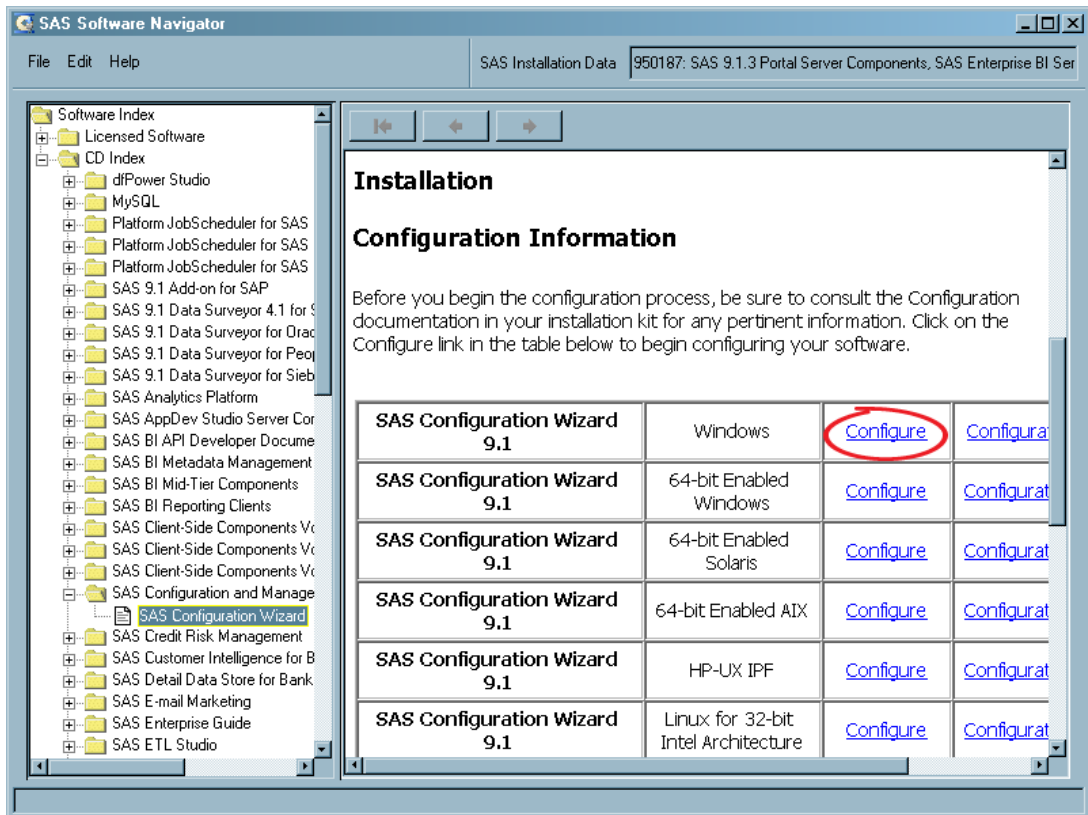
After you have met these prerequisites, you can install the product using the same technique that you use to install your third-party products from DataFlux and ArcGIS (if any). See “Install Third-Party Software Using the Software Index Option” on page 41 for details.

*Note:* If you need to configure the software that you just installed, leave the SAS Software Navigator running. You can start the SAS Configuration Wizard from the navigator’s CD Index. △

## Configure a Newly Added Product

To use the SAS Configuration Wizard to configure a new product (or to configure a new component from existing software), complete these steps:

- 1 To start the SAS Configuration Wizard, look in the CD Index for the CD titled **SAS Configuration and Management**, open the folder for that CD, select **SAS Configuration Wizard**, and then click the **Configure** link in the right pane of the navigator.

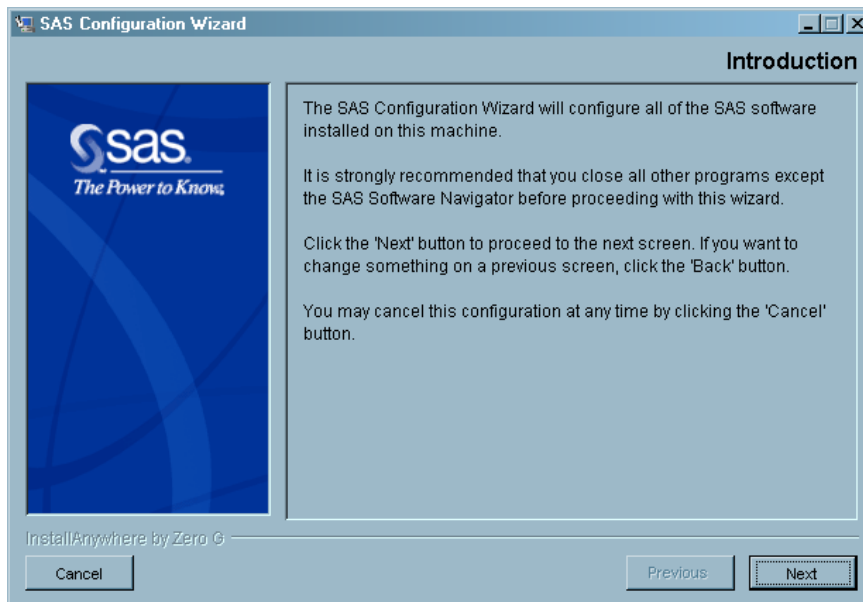


- 2 Select a language on the program's first page, and click **OK**.

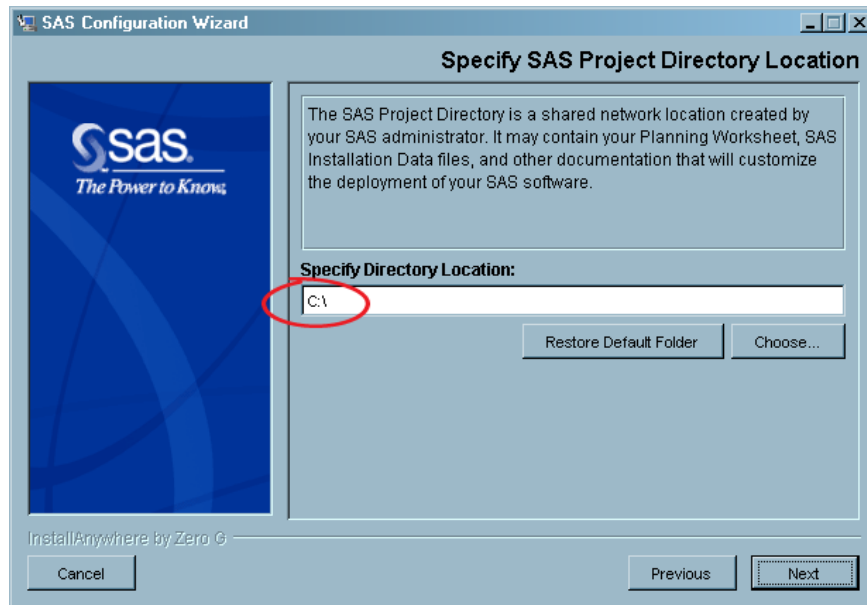




3 Click **Next** in the Introduction page.

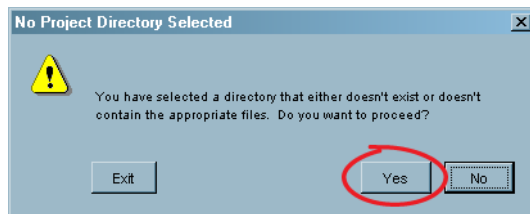


4 When you are prompted for the location of a project directory, specify a directory that does *not* contain a planning file (**plan.xml**).

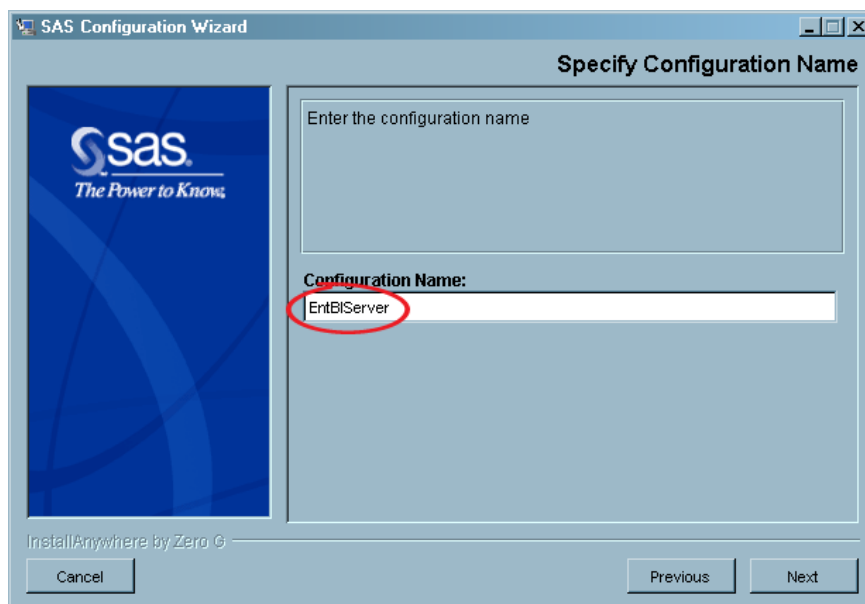


You do this to indicate that you will not be using a planning file in order to tell the configuration wizard what software to configure.

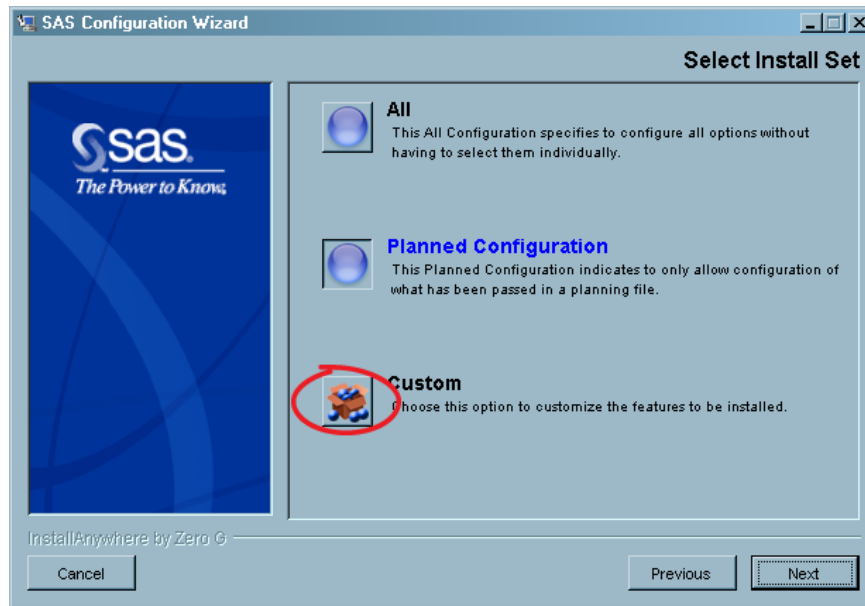
- 5 Indicate that you want to continue.



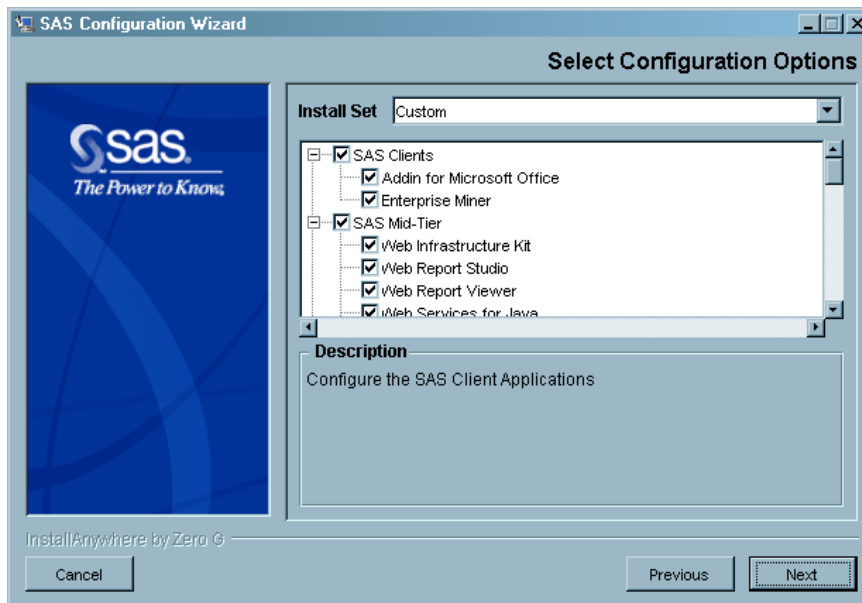
- 6 Specify the name of the configuration directory on the current machine.



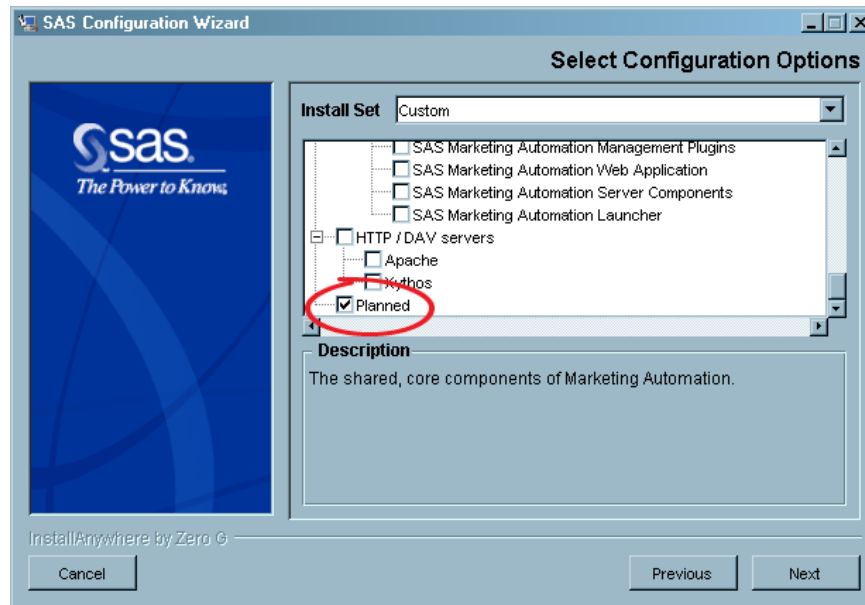
7 Specify that you want to perform a Custom configuration.



8 In the Select Configuration Options page, specify what product or server(s) you want to configure.

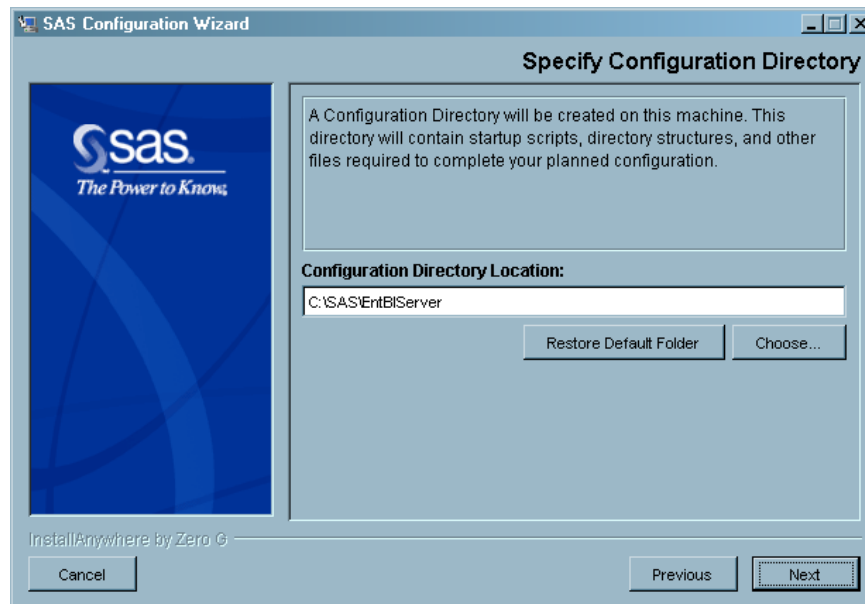


Do this by deselecting the check boxes for all products and servers that you do not plan to configure. *Always* leave the **Planned** check box selected.

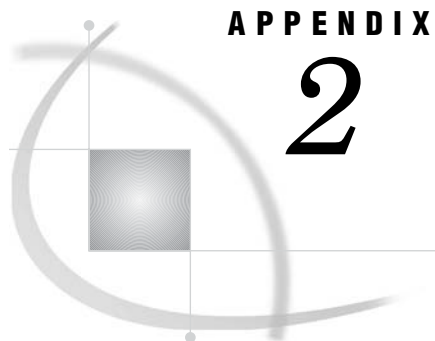


After you have set the check boxes correctly, click **Next**.

- 9 A Specify Configuration Directory page appears.



From this point on, your interaction with the SAS Configuration Wizard is the same as it is during the initial deployment of your environment. Go to step 1 in “Respond to the Wizard’s Prompts” on page 63 for further step-by-step instructions.



## APPENDIX

## 2

## Installing and Configuring the SAS Servers on z/OS

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### Overview of Installing and Configuring the SAS Servers on z/OS

You can host the SAS server tier of the SAS Intelligence Platform not only on Windows and UNIX machines, but on z/OS systems as well. However, you do not use a SAS Software Depot, the SAS Software Navigator, or the SAS Configuration Wizard when working in this environment. Instead, you use the tools and procedures described in this chapter.

The rest of this chapter is divided into three parts:

- The section “Pre-installation Tasks” on page 87 describes a set of tasks that you should perform before you install the SAS Foundation, including creating a set of z/OS users and defining a set of started tasks.
- The section “Installing the SAS Foundation on z/OS” on page 94 directs you to instructions for installing the SAS Foundation on z/OS.
- The section “Configuring the SAS Servers on z/OS” on page 95 explains how to configure the SAS servers in the z/OS environment. As you will see, you perform this task by running a script that does pretty much what the SAS Configuration Wizard does on Windows and UNIX systems.

### Pre-installation Tasks

Before you begin installing your software, you must create certain user accounts, a security group, and a USS directory. (The USS requirement is not restricted to the user IDs that are required by SAS. Either a default OpenEdition security segment or individual OpenEdition segments are required for all SAS users.) You must also reserve several port numbers required by the script that configures your servers. *Print this section* and keep track of your progress (both *installers* and *systems programmers*) by

filling in the blanks and adding check marks in the Done columns. You will need to enter the exact values you write down on this checklist into the SAS configuration script and SAS Management Console. *Failure to accurately complete each step will prevent you from successfully configuring your SAS software.*

*Note:* We strongly recommend that you create new user IDs for the users listed in this section. Although new user IDs are not mandatory, using existing user IDs will not work if the user IDs do not match one for one with the recommended configuration. Do not collapse roles. Also, adhere to all group membership requirements.

The new user IDs can conform to your site standards, so the names do not have to match these documented user IDs. If you choose to vary from the documented user IDs, please ensure that there is a new corresponding user ID for each user ID documented in the checklist. △

- 1 Create a RACF group named SASGRP. This group is used to control access to directories and files in the configuration directory created in the HFS file system. This group must be defined with an OMVS segment and must be set as the default group for the SAS and SAS General Server user IDs.

**Table A2.1** RACF Group

Task	Group Name	Installer Done	Systems Programmer Done
Create a RACF group	_____ e.g., SASGRP	[ ]	[ ]

- 2 Create a SAS user account. Make the SASGRP group this user's default group. We recommend that you install and configure all SAS software under this user ID. By default, this user will also be the started task owner for the servers (OLAP server, metadata server, object spawner, SAS/CONNECT spawner, SAS/SHARE server) and the owner of the configuration directory structure. The configuration directory structure is protected such that only this ID has access to most of the directory hierarchy in the structure. For that reason, installing your SAS software under one user ID and running the servers under a different user ID will prevent successful operation of the servers. This account should be protected to prevent unauthorized access to the configuration directory structure.

*Note:* The installer chooses the descriptive name; the systems programmer defines the user ID. △

**Table A2.2** SAS User Information

SAS User Information		Installer Done	Systems Programmer Done
User ID:	_____ e.g., sas	[ ]	[ ]
Full Name:	_____ e.g., SAS	[ ]	[ ]

SAS User Information		Installer Done	Systems Programmer Done
Password:	_____	[ ]	[ ]
Task:	Assign the SASGRP group as the default group for this user.	[ ]	[ ]

- 3 Create a SAS Administrator on your metadata server machine. This user has privileges to manage user accounts in metadata and administer the metadata server. The SAS Administrator has unrestricted access to the metadata, and this user ID should be protected accordingly. This ID should never be used for applications other than SAS Management Console.

*Note:* The installer chooses the descriptive name; the systems programmer defines the user ID. △

**Table A2.3** SAS Administrator Information

SAS Administrator Information		Installer Done	Systems Programmer Done
User ID:	_____ e.g., sasadm	[ ]	[ ]
Full Name:	_____ e.g., SAS Administrator	[ ]	[ ]
Password:	_____	[ ]	[ ]

- 4 Create a SAS General Server user account on your server machine and make the SAS group its default group. This account is used by the object spawner to launch stored process servers. This account will need access to any OS resources required by running stored processes. The initial installation sets up this single account for using load-balanced stored process servers. Additional server accounts can be created to give different levels of access as required.

*Note:* The installer chooses the descriptive name; the systems programmer defines the user ID. △

**Table A2.4** SAS General Server User Information

SAS General Server User Information		Installer Done	Systems Programmer Done
User ID:	_____ e.g., sassrv	[ ]	[ ]
Full Name:	_____ e.g., SAS General Server	[ ]	[ ]

SAS General Server User Information		Installer Done	Systems Programmer Done
Password:	_____	[ ]	[ ]
Task:	Assign the SAS group as the default group for this user.	[ ]	[ ]

- 5 Create a SAS Guest on your metadata server machine. This user is a generic user account and has the lowest level of security privileges (for example, this account is used by the SAS Information Delivery Portal to log users into the public kiosk area).

*Note:* The installer chooses the descriptive name; the systems programmer defines the user ID. △

**Table A2.5** SAS Guest Information

SAS Guest Information		Installer Done	Systems Programmer Done
User ID:	_____ e.g., sasguest	[ ]	[ ]
Full Name:	_____ e.g., SAS Guest User	[ ]	[ ]
Password:	_____	[ ]	[ ]

- 6 Create a SAS Trusted User on your metadata server machine. Because the user ID is a trusted ID, SAS servers such as the OLAP server, object spawner, and middle-tier applications can authenticate to the metadata server using this ID to impersonate authenticated clients on the metadata server; that is, the servers can communicate with the metadata server on behalf of the clients. This is a highly privileged account and should be protected accordingly.

*Note:* The installer chooses the descriptive name; the systems programmer defines the user ID. △



**Table A2.6** SAS Trusted User Information

SAS Trusted User Information		Installer Done	Systems Programmer Done
User ID:	_____ e.g., sastrust	[ ]	[ ]
Full Name:	_____ e.g., SAS Trusted User	[ ]	[ ]
Password:	_____	[ ]	[ ]

- 7 Create a SAS Demo User on your metadata server machine. This user has permission to demonstrate the SAS software you have installed, verify the configuration, and perform other similar tasks.

*Note:* The installer chooses the descriptive name; the systems programmer defines the user ID. △

**Table A2.7** SAS Demo User Information

SAS Demo User Information		Installer Done	Systems Programmer Done
User ID:	_____ e.g., sasdmo	[ ]	[ ]
Full Name:	_____ e.g., SAS Demo User	[ ]	[ ]
Password:	_____	[ ]	[ ]

- 8 Create a SAS Web Administrator on your metadata server machine. You must create an account for a Web administrator if you will be installing any Web applications, such as SAS Web Report Studio or SAS Information Delivery Portal. This user has permission to administer the SAS Web infrastructure.

*Note:* This user is required only if you will be using any of the SAS Web applications (such as SAS Web Report Studio or SAS Information Delivery Portal) in your deployment. △

*Note:* The installer chooses the descriptive name; the systems programmer defines the user ID. △

**Table A2.8** SAS Web Administrator Information

SAS Web Administrator Information		Installer Done	Systems Programmer Done
User ID:	_____ e.g., saswbadm	[ ]	[ ]
Full Name:	_____ e.g., SAS Web Administrator	[ ]	[ ]
Password:	_____	[ ]	[ ]

- 9 Select the names and port numbers of the started tasks for each server. Define those started tasks on the system. We recommend that all ports reserved for these servers be registered in your TCP/IP PROFILE data set so that no other processes will attempt to use them.

*Note:* The installer chooses the names; the systems programmer reserves ports and defines started tasks.  $\Delta$

**Table A2.9** Names and Port Numbers for Started Tasks

Server Name	Started Task Name	Number of Ports Required	Service Name (Optional, for /etc/services)	Reserved Port Number	Installer Done	Systems Programmer Done
Metadata Server	_____	1	_____	_____ e.g. 8561	[ ]	[ ]
Object Spawner	_____	2	_____ _____	_____ e.g. 8571 _____ e.g. 8581	[ ]	[ ]
OLAP Server	_____	1	_____	_____ e.g. 5451	[ ]	[ ]
SAS/CONNECT Spawner	_____	1	_____	_____ e.g. 7551	[ ]	[ ]
SAS/SHARE Server	_____	1	_____	_____ e.g. 8551	[ ]	[ ]

- 10 Reserve the port number for the workspace server. We recommend that the port reserved for this server be registered in your TCP/IP PROFILE data set so that no other processes will attempt to use it.

*Note:* The installer and systems programmer work together to select the port number. The systems programmer reserves it in **/etc/services**.  $\Delta$

**Table A2.10** Port Numbers for the Workspace Server

Spawned Server Name	Number of Ports Required	Service Name (Optional: for /etc/services)	Reserved Port Number	Installer Done	Systems Prog. Done
Workspace Server	1	_____	_____ e.g. 8591	[ ]	[ ]

**11** Reserve the port numbers for the stored process server. We recommend that all ports reserved for this server be registered in your TCP/IP PROFILE data set so that no other processes will attempt to use them.

*Note:* The installer and systems programmer work together to select port numbers. The systems programmer reserves them in **/etc/services**. △

**Table A2.11** Port Numbers for the Stored Process Server

Spawned Server Name	Number of Ports Required	Service Name (Optional: for /etc/services)	Reserved Port Number	Installer Done	Systems Prog. Done
Stored Process Server	4	_____	_____ e.g. 8601	[ ]	[ ]
		_____	_____ e.g. 8611		
		_____	_____ e.g. 8621		
		_____	_____ e.g. 8631		

**12** Reserve the port number for the Operating System Services scheduler. We recommend that the port reserved for this server be registered in your TCP/IP PROFILE data set so that no other processes will attempt to use it.

*Note:* The installer and systems programmer work together to select port numbers. The systems programmer reserves them in **/etc/services**. △

**Table A2.12** Port Numbers for the Operating System Services Scheduler

Spawned Server Name	Number of Ports Required	Service Name (Optional: for /etc/services)	Reserved Port Number	Installer Done	Systems Prog. Done
Operating System Services scheduler	1	_____	_____ e.g. 8451	[ ]	[ ]

**13** Define the name of the configuration directory where scripts and configuration files related to these servers can be stored, and record the path to this directory in the following table. A typical path is **/usr/lpp/SAS/SAS\_9.1/config-directory**.

*Note:* The installer selects the directory name; the systems programmer sets it up. Note that the COPYIA job will attempt to create the directory if it does not exist. Therefore, you must ensure that the user ID under which you are running the COPYIA job is the SAS user ID (sas) that you created during pre-installation and that this user can create and/or write to the **CONFIG\_DIR** directory. If you are planning to use the default **CONFIG\_DIR=path**, you must run the HFSCREAT and HFSMOUNT jobs (which were created in the &prefix.CNTL data set during your SAS installation) before you run COPYIA.  $\Delta$

**Table A2.13** Configuration Directory for Servers

Configuration Directory		Installer Done	Systems Programmer Done
Configuration directory name:	_____	[ ]	[ ]

**14** Define the SAS and SAS/C executable libraries to be program controlled. Note that the z/OS system considers the object spawner to be a daemon process. Therefore, if the BPX.DAEMON profile of the RACF Facility class is active and RACF program control is enabled, then the SAS and SAS/C load libraries specified in the STC procedure must be program controlled. However, the user ID under which the object spawner runs does not require RACF Read access to the BPX.DAEMON profile. You may or may not be able to add these data sets to the program control list prior to data set creation.

*Note:* The installer passes names of libraries to the system programmer; the systems programmer adds the names to the security profile.  $\Delta$

**Table A2.14** Executable Libraries to Be Program Controlled

Task	Library Name	Installer Done	Systems Programmer Done
Define SAS executable library to be program controlled	_____	[ ]	[ ]
Define SAS/C executable library to be program controlled	_____	[ ]	[ ]

**15** After completing this checklist, give it to your systems programmer. These tasks must be completed prior to configuring the SAS 9.1.3 Intelligence Platform.

---

## Installing the SAS Foundation on z/OS

The procedure for installing the SAS Foundation on the z/OS platform is documented in a separate document. See the *Installation Instructions for SAS 9.1.3 Foundation for z/OS*. You can find this document in your installation kit or online at <http://support.sas.com/documentation/installcenter/os390/>.

After you have installed and configured the SAS Foundation, see the following section for information on configuring your SAS servers.

*Note:* The SAS Intelligence Platform requires that SAS SVC be installed and configured. For more information, see the SAS Foundation configuration information available in your installation kit or online at:

<http://support.sas.com/documentation/installcenter/os390/>  
(Search for “Configuration Guide–SAS 9.1.3 Foundation for z/OS”.) △

---

## Configuring the SAS Servers on z/OS

---

### Overview of Configuring the SAS Servers on z/OS

Before you configure the SAS software on a z/OS system, you must complete these steps:

- 1 Fill out the pre-installation checklists shown in “Pre-installation Tasks” on page 87.
- 2 Submit the pre-installation checklists to the data center staff so that they can perform the tasks that are described in the checklist.
- 3 Install the SAS Foundation for z/OS by following the instructions in the *Installation Instructions for SAS 9.1.3 Foundation for z/OS*.

You can then configure the software on the system by completing the following steps:

- 1 Edit and submit the &prefix.WO.SRVCNTL (COPYIA) job.
- 2 Log on to the USS shell.
- 3 Edit the **configuration.properties** file.
- 4 Run the **deploy\_IA.sh** script.
- 5 Verify the results of running the script.
- 6 Follow the instructions in the customized **instructions.html**.

For details on how to perform each task, see the following sections.

---

### Edit and Submit the &prefix.WO.SRVCNTL (COPYIA) Job

The COPYIA job copies a server configuration PAX file to the UNIX System Services (USS) /**tmp** directory and extracts the contents of this file into a configuration directory that you specify. This extraction process creates the directory structure and some of the files that are needed for the SAS Intelligence Platform server deployment.

The user ID under which you are running the COPYIA job is the SAS user ID (sas) that you created during pre-installation.

To edit and submit this job, complete these steps:

- 1 Starting around line 30, provide values for the following environment variables:
  - a Set **CONFIG\_DIR** to the configuration directory recorded on your pre-installation checklist.
  - b Set **LEVEL** to an application server level, such as **Lev1**.
  - c Set **APPNAME** to the name of your SAS application server, such as **SASMain**.
- 2 Submit COPYIA.
- 3 To verify that the job ran successfully, complete these steps:
  - a Verify that the COPYIA job’s return code was 0.
  - b View the output from the COPYIA1, UNTAR, and SHELLOUT steps for possible problems.

---

## Log On to the USS Shell

Invoke the USS shell (or **rlogin** to your z/OS host).

*Note:* You must be logged on as the SAS user (sas), which you specified on your pre-installation checklist.  $\Delta$

---

## Edit the configuration.properties File

Edit the file **configuration.properties** to add the values that are required by the **deploy\_IA.sh** script:

- 1 Change directories (using the **cd** command) to the directory **CONFIG\_DIR/Utilities/zOS\_config**. (**CONFIG\_DIR** is the environment variable that you set in step 1 in “Edit and Submit &prefix.W0.SRVCTL (COPYIA) Job.”)
- 2 Edit the **configuration.properties** file by entering the appropriate values from your pre-installation checklists.

---

## Run the deploy\_IA.sh Script

Run the script **deploy\_IA.sh** to configure your SAS servers and spawners:

- 1 Change directories (using the **cd** command) to the directory **CONFIG\_DIR/Utilities/zOS\_config**. (**CONFIG\_DIR** is the environment variable that you set in step 1 in “Edit and Submit &prefix.W0.SRVCTL (COPYIA) Job.”)
- 2 Run the script using the following command:

```
./deploy_IA.sh -properties configuration.properties
```

*Note:* The **deploy\_IA.sh** script outputs to stdout. If you prefer to capture its output in a file, use the following command:

```
./deploy_IA.sh -properties configuration.properties >file 2>&1
```

where *file* is the pathname of the output file.  $\Delta$

- 3 Review the output for potential errors.

---

## Verify the Results of Running the Script

Check the &prefix.W0.SRV\* data sets for the following customized server files (&prefix is the high-level qualifier to which SAS was installed):

- &prefix.W0.SRVCFG: SAS configuration files
- &prefix.W0.SRVCLIST: SAS CLISTs
- &prefix.W0.SRVENV: SAS TKMVSENV files
- &prefix.W0.SRVPARM: SAS object spawner parameter files
- &prefix.W0.SRVPROC: SAS started procedure JCL
- &prefix.W0.SRVREXX: SAS REXX execs

---

## Follow the Instructions in instructions.html

The **deploy\_IA.sh** script produces an **instructions.html** file just like the one that the SAS Configuration Wizard produces on Windows and UNIX systems. This HTML file explains the manual configuration steps that you must still perform.

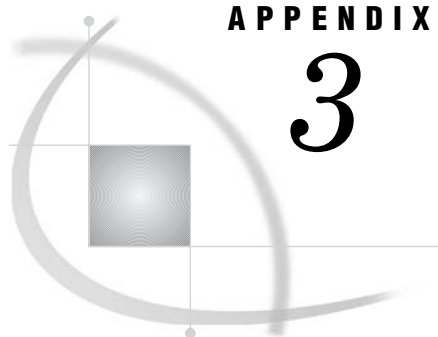
Because you must use SAS Management Console to perform many of the instructions, and SAS Management Console does not run on z/OS, you must move your **instructions.html** file to a Windows or UNIX system from which you can communicate with your z/OS system. On that system, perform these steps:

- Install SAS Management Console. (For information about installing a product without using a planning file, see Appendix 1, “Software Index Installations,” on page 81.)
- Start SAS Management Console.
- Connect to the metadata server by creating a metadata profile and opening it.
- Use a Web browser to display **instructions.html**.

From this point on—for all platforms—follow the directions in **instructions.html** as discussed in “Follow the Directions in the instructions.html File” on page 70.







## APPENDIX

## 3

## Uninstalling the SAS Intelligence Platform

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---

## Overview of Uninstalling the SAS Intelligence Platform

To uninstall the SAS Intelligence Platform, you need to perform the following steps—where applicable—on each machine in your deployment:

- 1 Identify the software that you need to uninstall.
- 2 Stop SAS servers that are running.

- 3 Uninstall your SAS software.
- 4 Uninstall third-party software.
- 5 Uninstall the SAS Private JRE and the JDK.
- 6 Clean up any files that may have been left behind.

The following sections in this appendix explain in detail how to perform each task. It is best to remove software from machines in the following order:

- 1 client-tier machines
- 2 middle-tier machines
- 3 server-tier machines

Remove software from the metadata server host last.

---

## Creating a List of Software to Uninstall

Open your deployment plan (**plan.xml**), which is located in your project directory. In that file, locate the section of XML that describes the machine from which you want to remove software. To create a list of products to remove, record the value of the **ProductName** attribute of each top-level **<DeployedComponent>** element.

The relevant section of your **plan.xml** file will look something like this:

```
<Machine Id="$SERVERTIER" Name="ServerTier">
  <DeployedComponents>
    <DeployedComponent Id="$_SASINSTALL" Name="SAS 9.1 Foundation"
      ProductName="SAS 9.1 Foundation" ProductIdentifier="SASINSTALL"
      Platform="WIN">
      <DeployedComponents>
        <DeployedComponent Id="._BASE" Name="Base SAS"
          ProductName="Base SAS"
          ProductIdentifier="BASE" Platform="WIN">
        </DeployedComponent>
        <DeployedComponent Id="._INTTECH"
          Name="SAS Integration Technologies"
          ProductName="SAS Integration Technologies"
          ProductIdentifier="INTTECH" Platform="WIN">
        </DeployedComponent>
      </DeployedComponents>
    </DeployedComponent>
    <DeployedComponent Id="$_JRE" Name="Java Runtime Environment (SAS
      Private Version) - Volume 1"
      ProductName="Java Runtime Environment (SAS Private Version) - Volume 1"
      ProductIdentifier="JRE" Platform="WIN">
    </DeployedComponent>
    <DeployedComponent Id="$_MGMTCONSOLE" Name="SAS Management Console"
      ProductName="SAS Management Console"
      ProductIdentifier="MGMTCONSOLE" Platform="WIN">
    </DeployedComponent>
    <DeployedComponent Id="$_JPS" Name="SAS Foundation Services"
      ProductName="SAS Foundation Services" ProductIdentifier="JPS"
      Platform="WIN">
    </DeployedComponent>
    <DeployedComponent Id="$_QRSERVICES" Name="SAS Query and Reporting
      Services" ProductName="SAS Query and Reporting Services">
```

```

    ProductIdentifier"QRSERVICES" Platform="WIN">
  </DeployedComponent>
  <ConfiguredComponent Id="$_METADATASRV" Name="SAS Metadata Server"
    ProductName="SAS Metadata Server" ProductIdentifier"METADATASRV"
    Platform="WIN">
  </ConfiguredComponent>
  <ConfiguredComponent Id="$_WORKSPACESRV" Name="SAS Workspace Server"
    ProductName="SAS Workspace Server" ProductIdentifier"WORKSPACESRV"
    Platform="WIN">
  </ConfiguredComponent>
  <ConfiguredComponent Id="$_STORPROCSRV" Name="SAS Stored Process
    Server" ProductName="SAS Stored Process Server"
    ProductIdentifier"STORPROCSRV" Platform="WIN">
  </ConfiguredComponent>
  <ConfiguredComponent Id="$_OBJECTSPAWR" Name="SAS Object Spawner"
    ProductName="SAS Object Spawner" ProductIdentifier"OBJECTSPAWR"
    Platform="WIN">
  </ConfiguredComponent>
  <ConfiguredComponent Id="$_QRSERVER" Name="SAS Reporting Services"
    ProductName="SAS Reporting Services" ProductIdentifier"QRSERVER"
    Platform="WIN">
  </ConfiguredComponent>
</DeployedComponents>
</Machine>

```

For example, from the section of XML data shown above, you could derive the following list of products to remove:

- SAS 9.1 Foundation
- Java Runtime Environment (SAS Private Version)
- SAS Management Console
- SAS Foundation Services
- SAS Query and Reporting Services

---

## Stopping SAS Servers That Are Running

---

### Overview of Stopping SAS Servers That Are Running

Before uninstalling any software on a machine, you must stop any SAS servers that are running there. To stop these servers, perform the following steps:

- 1 Determine what SAS servers, if any, are running on the machine.

On Windows systems, you can start the Task Manager and look for any SAS processes that are running. You can also go to the Services manager and look for any SAS services that are “Started.”

On UNIX systems, use the **ps** command to find instances of SAS that are running on the machine. For example, you can use the following command:

```
$ ps -ef | grep -i sas
```

This command will identify any processes that include the string “sas”.

- 2 Stop each server and, for Windows servers that are running as services, remove the services.

You can stop each server by running a script in the machine's configuration directory. You can find a script for a particular server type in the directory *SAS-config-dir\Lev1\SASMain\server-type*. The following sections provide specific information about how to stop particular SAS servers.

---

## Stopping the SAS Metadata Server

### Windows

You can stop the SAS Metadata Server in one of two ways. The second option enables you to remove the associated service as well.

- Select **Start ► Programs ► SAS ► *configuration-directory* ► Stop SAS Metadata Server**.
- Perform the following tasks from a Command Prompt:
  - 1 Change directories to *SAS-config-dir\Lev1\SASMain\MetadataServer*.
  - 2 To stop the server, enter the following command:

```
MetadataServer.bat stop
```

- 3 To remove the corresponding service, enter the command:

```
MetadataServer.bat remove
```

You will receive a message that indicates that the SAS Metadata Server has been removed and (if appropriate) that the metadata-server service has been deleted.

### UNIX

From the command line, perform the following tasks:

- 1 Change directories to *SAS-config-dir/Lev1/SASMain/MetadataServer*.
- 2 Stop the metadata server by issuing the following command:

```
$ ./MetadataServer.sh stop
```

You will receive a message indicating that the SAS Metadata Server has stopped.

---

## Stopping the SAS OLAP Server

### Windows

You can stop the SAS OLAP Server in one of two ways. The second option enables you to remove the associated service as well.

- Select **Start ► Programs ► SAS ► *configuration-directory* ► Stop SAS OLAP Server**.
- Perform the following tasks from a Command Prompt:
  - 1 Change directories to *SAS-config-dir\Lev1\SASMain\OLAPServer*.
  - 2 To stop the server, enter the following command:

```
OLAPServer.bat stop
```

- 3 To remove the corresponding service, enter the following command:

```
OLAPServer.bat remove
```

You will receive a message that indicates that the SAS OLAP Server has been removed and (if appropriate) that the OLAP-server service has been deleted.

## UNIX

From the command line, perform the following tasks:

- 1 Change directories to *SAS-config-dir/Lev1/SASMain/OLAPServer*.
- 2 Stop the OLAP server by issuing the following command:

```
$ ./OLAPServer.sh stop
```

You will receive a message indicating that the SAS OLAP Server has stopped.

## Stopping the SAS Object Spawner

### Windows

You can stop the SAS Object Spawner in one of two ways. The second option enables you to remove the associated service as well.

- Select **Start ► Programs ► SAS ► *configuration-directory* ► Stop SAS Object Spawner**.
- Perform the following tasks from a Command Prompt:
  - 1 Change directories to *SAS-config-dir\Lev1\SASMain\ObjectSpawner*.
  - 2 To stop the server, enter the following command:

```
ObjectSpawner.bat stop
```

- 3 To remove the corresponding service, enter the following command:

```
ObjectSpawner.bat remove
```

You will receive a message that indicates that the SAS Object Spawner has been removed and (if appropriate) that the object-spawner service has been deleted.

## UNIX

From the command line, perform the following tasks:

- 1 Change directories to *SAS-config-dir/Lev1/SASMain/ObjectSpawner*.
- 2 Stop the object spawner by issuing the following command:

```
$ ./ObjectSpawner.sh stop
```

You will receive a message indicating that the SAS Object Spawner has stopped.

## Stopping the SAS/CONNECT Server

### Windows

You can stop the SAS/CONNECT Server in one of two ways. The second option enables you to remove the associated service as well.

- Select **Start ► Programs ► SAS ► *configuration-directory* ► Stop SAS Connect Server**.
- Perform the following tasks from a Command Prompt:

- 1 Change directories to *SAS-config-dir\Lev1\SASMain\ConnectServer*.
- 2 To stop the server, enter the following command:

```
ConnectServer.bat stop
```

- 3 To remove the corresponding service, enter the following command:

```
ConnectServer.bat remove
```

You will receive a message that indicates that the SAS/CONNECT Server has been removed and (if appropriate) that the SAS/CONNECT service has been deleted.

## UNIX

From the command line, perform the following tasks:

- 1 Change directories to *SAS-config-dir/Lev1/SASMain/ConnectServer*.
- 2 Stop the SAS/CONNECT server by issuing the following command:

```
$ ./ConnectServer.sh stop
```

You will receive a message indicating that the SAS/CONNECT server has stopped.

## Stopping the SAS/SHARE Server

### Windows

You can stop the SAS/SHARE Server in one of two ways. The second option enables you to remove the associated service as well.

- Select **Start ► Programs ► SAS ► *configuration-directory* ► Stop SAS Share Server**.
- Perform the following tasks from a Command Prompt:
  - 1 Change directories to *SAS-config-dir\Lev1\SASMain\ShareServer*.
  - 2 To stop the server, enter the following command:

```
ShareServer.bat stop
```

- 3 To remove the corresponding service, enter the following command:

```
ShareServer.bat remove
```

You will receive a message that indicates that the SAS/SHARE Server has been removed and (if appropriate) that the SAS/SHARE-server service has been deleted.

## UNIX

From the command line, perform the following tasks:

- 1 Change directories to *SAS-config-dir/Lev1/SASMain/ShareServer*.
- 2 Stop the SAS/SHARE Server by issuing the following command:

```
$ ./ShareServer.sh stop
```

You will receive a message indicating that the SAS/SHARE Server has stopped.

---

# Uninstalling Your SAS Software

---

## Overview of Uninstalling Your SAS Software

You should now uninstall the SAS products on the list that you created after reading “Creating a List of Software to Uninstall.” Do *not* uninstall the SAS Private JRE (Java Runtime Environment). The Java uninstallers need the JRE in order to execute.

---

## Windows

To uninstall SAS software from a Windows machine, perform these steps:

- 1 Ensure that you are logged on as the SAS Installer user (the user account used to install the SAS Software) or as the Administrator (or a user in the Administrators group).
- 2 Open the Control Panel by selecting **Start ► Settings ► Control Panel**.
- 3 From the Control Panel, open the Add or Remove Programs window.
- 4 From the Add or Remove Programs window, remove the following products, in this order:
  - a SAS Configuration Wizard
  - b other SAS software (except any SAS Private JREs)
  - c SAS 9.1
- 5 Close the Add or Remove Programs window and the Control Panel.

---

## UNIX

To uninstall SAS software from a UNIX machine, perform these steps:

- 1 Ensure that you have permission to delete files from the SAS home directory (the directory in which your SAS software is installed).
- 2 Ensure that you have permission to delete files from your configuration directory.
- 3 Ensure that you are logged on as the SAS Installer user (the user account used to install the SAS Software).
- 4 Uninstall your SAS software in this order:
  - a Uninstall the SAS Configuration Wizard by executing the script **uninstall.sh** in the directory *SAS-config-dir/UninstallerData*.
  - b Uninstall your other SAS products. To uninstall a particular product, first look for an uninstall program to execute. Where available, this program is typically found in an **\_uninst** subdirectory for each product. For example, the command to uninstall SAS Management Console might be as follows:

```
$ /usr/local/SAS/SASManagementConsole/9.1/_uninst/UninstSASMC
```

Note that you must *not* **cd** to the **\_uninst** directory before executing the uninstall program.

If a product does not have an uninstall program, you can delete the software by executing the **rm** command on the product’s root directory.

- c Remove the SAS 9.1 Foundation by executing the **rm** command on the SAS root directory. Note that you must *not* **cd** to this directory before executing the command. So an appropriate command would be as follows:

```
$ rm -rf /usr/local/SAS/SAS_9.1
```

---

## Uninstalling Third-Party Software

The SAS Intelligence Platform often makes use of third-party products, such as a J2EE application server/servlet container or a WebDAV server. You can determine whether third-party software was deployed on a particular machine by reviewing your deployment plan file (`plan.xml`). To uninstall these products, use the same procedures that you used to uninstall your SAS software. (See “Uninstalling Your SAS Software.”)

The following table shows the main third-party products that are used with the platform.

**Table A3.1**

Type of Product	Products
J2EE application servers/servlet containers	<input type="checkbox"/> Apache Tomcat <input type="checkbox"/> BEA WebLogic Server <input type="checkbox"/> IBM WebSphere Application Server
WebDAV servers	<input type="checkbox"/> Xythos WebFile Server <input type="checkbox"/> Apache HTTP Server
Scheduling servers	<input type="checkbox"/> Platform JobScheduler <input type="checkbox"/> Platform Process Manager
Database servers	<input type="checkbox"/> PostgreSQL

---

## Uninstalling the SAS Private JRE and the JDK

---

### Overview of Uninstalling the SAS Private JRE and the JDK

After you have uninstalled your SAS software and your third-party software, you can uninstall the SAS Private JRE. If the JDK on the machine was being used only in support of SAS Web applications, you can also remove the JDK.

---

### Windows

To uninstall the SAS Private JRE and the JDK from a Windows machine, perform these steps:

- 1 Open the Control Panel by selecting **Start ► Settings ► Control Panel**.
- 2 From the Control Panel, open the Add or Remove Programs window.
- 3 From the Add or Remove Programs window, remove the products.
- 4 Close the Add or Remove Programs window and the Control Panel.



---

## UNIX

*Note:* This procedure only applies if you had the SAS Foundation installed. In any event, proceed with caution. Ensure that the JRE and JDK are not being used for other software on the machine before you delete the products. △

To uninstall the SAS Private JRE and the JDK from a UNIX machine, perform these steps:

- 1 Locate the directory where these products are installed, and ensure that you have permission to delete files in this directory.
- 2 Delete the product with uninstallers whenever you can. Otherwise, use the **rm** command on the root folder.

---

## Deployed Web Applications

Undeploy and delete .war and .ear files that are deployed to your J2EE application server/servlet container.

---

# Deleting Specific Files and Directories

---

## Windows

Finish the uninstall by deleting the following files and directories.

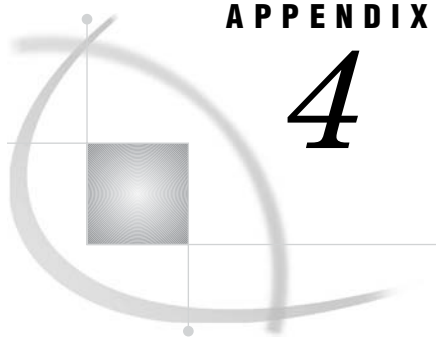
- Delete the following items from your SAS home directory (for example, **C:\Program Files\SAS**):
  - If a service pack has been applied to your system, there might be a folder named **SPn** that you need to delete.
  - There might be a **Setup Logs** folder that you need to delete.
  - There might be a SAS Foundation folder left behind—for example, **C:\Program Files\SAS\SAS 9.1**—that you need to delete.
  - There might be a **Servers** folder that you need to delete.
- Delete your SAS configuration directory.
- Delete the folder **Documents and Settings\All Users\Application Data\SAS**.
- For each person who has been using the SAS Intelligence Platform on this machine, delete the following files and directories from **Documents and Settings\user-ID**:
  - app.smc**
  - app.smc.bak**
  - errorLog\_product-name.txt**
  - SSN.log**
  - SSN.log.lck**
  - ssnprefs.xml**
  - Workspaces** folder
- In the **My Documents** folder, delete the folder **My SAS Files**.

---

## UNIX

Finish the uninstall by deleting the following files and directories.

- Delete the following items from your SAS home directory (for example, `/usr/local/SAS`):
  - If a service pack has been applied to your system, there might be a folder named `SPn` that you need to delete.
  - There might be a `Servers` folder that you need to delete.
- Delete your SAS configuration directory.
- In the home directory for each person who has been using the SAS Intelligence Platform, delete the following files and directories:
  - `.sasprefs`
  - `.ssnprefs`
  - `SSN.log`
  - `SSN.log.bak`
  - `Workspaces` directory
  - `app.smc`
  - `app.smc.bak`
  - `errorLog_SAS_Management_Console.txt`
  - `sasuser.v91` directory



## APPENDIX

## 4

## Recommended Reading

---

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### Recommended Reading

Here is the recommended reading list for this title:

- *SAS Intelligence Platform: Overview*
- *SAS Intelligence Platform: Data Administration Guide*
- *SAS Intelligence Platform: Security Administration Guide*
- *SAS Intelligence Platform: System Administration Guide*
- *SAS Intelligence Platform: Application Server Administration Guide*
- *SAS Intelligence Platform: Troubleshooting Your Initial Installation*

For a complete list of administration documentation for the SAS Intelligence Platform, see <http://support.sas.com/913administration>.

For a list of SAS documentation, see <http://support.sas.com/documentation/onlinedoc/sas9doc.html>.

For a complete list of SAS publications, see the current *SAS Publishing Catalog*. To order the most current publications or to receive a free copy of the catalog, contact a SAS representative at

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# Glossary

---

**attribute**

a characteristic that is part of the standard metadata for an object. Examples of attributes include the object's name, creation date, and modification date.

**authentication**

the process of verifying the identity of a person or process within the guidelines of a specific authorization policy.

**authentication domain**

a set of computing resources that use the same authentication process. An individual uses the same user ID and password for all of the resources in a particular authentication domain. Authentication domains provide logical groupings for resources and logins in a metadata repository. For example, when an application needs to locate credentials that enable a particular user to access a particular server, the application searches the metadata for logins that are associated with the authentication domain in which the target server is registered.

**cluster**

a group of machines that participate in load balancing. Each machine in the cluster runs an object spawner that handles client requests for connections.

**component**

a self-contained, reusable programming object that provides some type of service to other components in an object-oriented programming environment.

**credentials**

the user ID and password for a particular user account that has been established either in the operating system or with an alternative authentication provider such as Microsoft Active Directory or Lightweight Directory Access Protocol.

**daemon**

a process that starts and waits either for a request to perform work or for an occurrence of a particular event. After the daemon receives the request or detects the occurrence, it performs the appropriate action. If nothing else is in its queue, the daemon then returns to its wait state.

**data warehouse**

a collection of data that is extracted from one or more sources for the purpose of query, reporting, and analysis. In contrast to a data mart, a data warehouse is better suited

for storing large amounts of data that originates in other corporate applications or which is extracted from external data sources such as public databases.

**database server**

a server that provides relational database services to a client. Oracle, DB/2 and Teradata are examples of relational databases.

**DBMS (database management system)**

a software application that enables you to create and manipulate data that is stored in the form of databases.

**domain**

a database of users that has been set up by an administrator by using a specific authentication provider such as LDAP or the host operating system. The domain name should be unique within your enterprise. For example, you should not have a Windows domain and a Unix domain that are both named "SALES". See also authentication domain.

**encryption**

the act or process of converting data to a form that only the intended recipient can read or use.

**JAR file**

a Java Archive file. The JAR file format is used for aggregating many files into one file. JAR files have the file extension .jar.

**Java**

a set of technologies for creating software programs in both stand-alone environments and networked environments, and for running those programs safely. Java is a Sun Microsystems trademark.

**JDBC (Java Database Connectivity)**

a standard interface for accessing SQL databases. JDBC provides uniform access to a wide range of relational databases. It also provides a common base on which higher-level tools and interfaces can be built.

**JDK (Java Development Kit)**

a software development environment that is available from Sun Microsystems, Inc. The JDK includes a Java Runtime Environment (JRE), a compiler, a debugger, and other tools for developing Java applets and applications.

**job**

a metadata object that specifies processes that create output.

**load balancing**

for IOM bridge connections, a program that runs in the object spawner and that uses an algorithm to distribute work across object server processes on the same or separate machines in a cluster.

**localhost**

a keyword that is used to specify the machine on which a program is executing. If a client specifies localhost as the server address, the client connects to a server that runs on the same machine.

**login**

a combination of a user ID, a password, and an authentication domain. Each login provides access to a particular set of computing resources. In a SAS metadata environment, each login can belong to only one individual or group. However, each individual or group can own multiple logins.

**metadata identity**

a metadata object that represents an individual user or a group of users in a SAS metadata environment. Each individual and group that accesses secured resources on a SAS Metadata Server should have a unique metadata identity within that server.

**metadata object**

a set of attributes that describe a table, a server, a user, or another resource on a network. The specific attributes that a metadata object includes vary depending on which metadata model is being used.

**metadata profile**

a client-side definition of where a metadata server is located. The definition includes a host name, a port number, and a list of one or more metadata repositories. In addition, the metadata profile can contain a user's login information and instructions for connecting to the metadata server automatically.

**metadata repository**

a collection of related metadata objects, such as the metadata for a set of tables and columns that are maintained by an application. A SAS Metadata Repository is an example.

**metadata server**

a server that provides metadata management services to one or more client applications. A SAS Metadata Server is an example.

**middle tier**

in a SAS business intelligence system, the tier in which J2EE Web applications and J2EE enterprise applications execute.

**object**

in object-oriented programming, an instantiation or specific representation of a class.

**object spawner**

a program that instantiates object servers that are using an IOM bridge connection. The object spawner listens for incoming client requests for IOM services. When the spawner receives a request from a new client, it launches an instance of an IOM server to fulfill the request. Depending on which incoming TCP/IP port the request was made on, the spawner either invokes the administrator interface or processes a request for a UUID (Universal Unique Identifier).

**OLAP (online analytical processing)**

a software technology that enables users to dynamically analyze data that is stored in cubes.

**planning file**

an XML file that contains a list of the products to be installed and the components to be configured at a site. This file serves as input to both the SAS Software Navigator and the SAS Configuration Wizard.

**pre-installation checklist**

a checklist that enumerates the tasks a customer must perform before installing the business intelligence platform. The primary task is to create a set of operating system user accounts on the metadata server host. See also metadata server.

**Public Kiosk**

a public page that is displayed when a user starts the SAS Information Delivery Portal but has not yet logged on.

**resource**

any object that is registered in a metadata repository. For example, a resource can be an application, a data store, a dimension in an OLAP cube, a metadata item, an access control template, or a password.

**SAS Application Server**

in the SAS Intelligence Platform, a logical entity that represents the SAS server tier. This logical entity contains specific servers (for example, a SAS Workspace Server and a SAS Stored Process Server) that execute SAS code. A SAS Application Server has relationships with other metadata objects. For example, a SAS library can be assigned to an application server. When a client application needs to access that library, the client submits code to the application server to which the library is assigned.

**SAS data set**

a file whose contents are in one of the native SAS file formats. There are two types of SAS data sets: SAS data files and SAS data views. SAS data files contain data values in addition to descriptor information that is associated with the data. SAS data views contain only the descriptor information plus other information that is required for retrieving data values from other SAS data sets or from files whose contents are in other software vendors' file formats.

**SAS Foundation Services**

a set of core infrastructure services that programmers can use in developing distributed applications that are integrated with the SAS platform. These services provide basic underlying functions that are common to many applications. These functions include making client connections to SAS application servers, dynamic service discovery, user authentication, profile management, session context management, metadata and content repository access, activity logging, event management, information publishing, and stored process execution. See also *service*.

**SAS Management Console**

a Java application that provides a single user interface for performing SAS administrative tasks.

**SAS Metadata Server**

a multi-user server that enables users to read metadata from or write metadata to one or more SAS Metadata Repositories. The SAS Metadata Server uses the Integrated Object Model (IOM), which is provided with SAS Integration Technologies, to communicate with clients and with other servers.

**SAS OLAP Server**

a SAS server that provides access to multidimensional data. The data is queried using the multidimensional expressions (MDX) language.

**SAS Stored Process Server**

a SAS IOM server that is launched in order to fulfill client requests for SAS Stored Processes.

**SAS Workspace Server**

a SAS IOM server that is launched in order to fulfill client requests for IOM workspaces.

**SAS/CONNECT server**

a server that provides SAS/CONNECT services to a client. When SAS Data Integration Studio generates code for a job, it uses SAS/CONNECT software to submit code to remote computers. SAS Data Integration Studio can also use SAS/CONNECT software for interactive access to remote libraries.

**SAS/SHARE server**

the result of an execution of the `SERVER` procedure, which is part of SAS/SHARE software. A server runs in a separate SAS session that services users' SAS sessions by controlling and executing input and output requests to one or more SAS data libraries.



**service**

one or more application components that an authorized user or application can call at any time to provide results that conform to a published specification. For example, network services transmit data or provide conversion of data in a network, database services provide for the storage and retrieval of data in a database, and Web services interact with each other on the World Wide Web. See also SAS Foundation Services.

**servlet**

a Java program that runs on a Web server. Servlets can be considered a complementary technology to applets, which run in Web browsers. Unlike applet code, servlet code does not have to be downloaded to a Web browser. Instead, servlets send HTML or other appropriate content back to a browser or to another type of Web-based client application.

**servlet container**

an execution environment for Java servlets that contains a Java Virtual Machine. The servlet container also provides other services for servlets and for the Web applications that those servlets are part of. For example, the servlet container converts HTTP requests that are sent by clients to Java objects that servlets can work with, and it converts the output of servlets to HTTP responses. An example of a popular servlet container is the Apache Tomcat server.

**spawner**

See object spawner.

**trusted user**

a special user of a metadata server who can acquire credentials on behalf of other users in a multi-tier server environment.

**unrestricted user**

a special user of a metadata server who can access all metadata on the server (except for passwords, which an unrestricted user can overwrite but cannot read). An unrestricted user can also perform administrative tasks such as starting, stopping, pausing, and refreshing the metadata server. You are an unrestricted user if your user ID is listed in the adminUsers.txt file and is preceded by an asterisk.

**Web application**

a J2EE application that can execute in a servlet container. Such applications are distributed as Web application archive (WAR) files and can include servlets, JavaServer pages, JavaBeans, and HTML pages.

**Web browser**

a software application that is used to present Web content. To accomplish this task, the browser submits URL (Universal Resource Locator) requests to a Web server and handles any results that the request generates.

**WebDAV (Web Distributed Authoring and Versioning)**

a set of extensions to the HTTP protocol that enables users to collaboratively edit and manage files on remote Web servers.

**WebDAV server**

an HTTP server that supports the collaborative authoring of documents that are located on the server. The server supports the locking of documents, so that multiple authors cannot make changes to a document at the same time. It also associates metadata with documents in order to facilitate searching. The SAS business intelligence applications use this type of server primarily as a report repository. Common WebDAV servers include the Apache HTTP Server (with its WebDAV modules enabled), Xythos Software's WebFile Server, and Microsoft Corporation's Internet Information Server (IIS).

**workspace**

in the IOM object hierarchy for a SAS workspace server, an object that represents a single session in SAS.

**XML (Extensible Markup Language)**

a markup language that structures information by tagging it for content, meaning, or use. Structured information contains both content (for example, words or numbers) and an indication of what role the content plays. For example, content in a section heading has a different meaning from content in a database table.

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