Configuration Guide
for SAS® 9.2 Foundation
for Microsoft® Windows®
for 64-Bit Itanium-based Systems

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Using This Guide

This document describes the configuration instructions for SAS 9.2 Foundation, which is made up of server-side Base SAS and a variety of server-side SAS products (the exact products vary by customer). Information about the configuration of mid-tier and client-side products are available from your SAS Software Navigator.

The server-side configuration instructions contained in this document are for the configuration of a generic SAS server. For information about configuring OLAP, workspace and stored process servers, please see *SAS Integration Technologies: Server Administrator's Guide*. This material can be found at http://support.sas.com/documentation/configuration/index.html.

Chapter 1: Post-Installation Setup for the Metabase Facility

In Version 7 of the SAS System, the SAS/EIS Metabase facility was converted to the V7 Common Metadata Repository. The Common Metadata Repository is a general-purpose metadata management facility that provides common metadata services to various metadata-driven applications.

Using the Common Metadata Repository requires a one-time setup of the System repository manager. If the repository manager was set up in a previous release it may not need to be set up again. The steps in the following sections should be completed before you attempt to use the Metabase Facility. For Metabase Facility users who were using a release prior to Version 7, using the Common Metadata Repository requires a conversion. For more information, see the V8 OLAP Server Topic "Converting Legacy Metabases."

Setting Up the System Repository Manager Files

Complete the following steps to set up the necessary system repository manager files. You must have write access to `SASHELP` in order to specify the system repository manager.

Note: This process sets the default location for the repository manager for your site. Individual users may specify their own repository manager location by following the steps below and not selecting the **Write values to system registry** check box.

1. Create a directory that will be dedicated exclusively to the storage of repository manager files, for example: `!SASROOT\RPOSMGR`.

    This directory should not be used to store other SAS files.

2. At a SAS command line, type `REPOSMGR` and then select **Setup Repository Manager**.

3. In the Repository Manager Setup window, Library will default to `RPOSMGR`. For Path, specify the path from Step 1, above, and then select the **Write values to system registry** check box. Then select **OK**.

4. In the resulting dialog window, select **Yes** to generate the necessary repository manager files.

    This completes the setup for the System Repository Manager. You can create additional repository managers (a user repository manager, for example) by repeating the steps above and by using a different path.

Registering the SASHELP Repository in the Repository Manager

The SASHELP repository is used in various samples, including the SAS/EIS Report Gallery templates. Before the steps below are taken, a repository manager must be created (see previous section). Complete the following steps to register the SASHELP repository in the Repository Manager:

1. At a SAS command line, type `REPOSMGR` and then select **Repository Registration**.

2. In the Repository Registration window, select **New**.

3. In the Register Repository (New) window, type `SASHELP` (in uppercase) in the **Repository** field, and then type the full directory path where the CORE catalog is located in the Path field, for example:

    `!SASROOT\CORE\SASHELP`

4. In the Description field, you can type any character string (for example, `SASHELP Repository`). Select **OK** to close the Register Repository (New) window. Select **Close** to exit the Repository Registration window.

Note: *Repositories cannot span multiple directories because the path cannot contain concatenated directories. If you have existing metabases in concatenated directories, you should copy the metabases to a single path that will be referenced as a repository.*

Converting Version 6 SAS/EIS Metabases to Version 8 Repositories

For step-by-step instructions on converting Version 6 metabases to Version 8 repositories, please refer to the topic "Converting existing SAS/EIS metabases" in the SAS/EIS online Help.

Chapter 2: Post-Installation Instructions for National Language Support (NLS)

This chapter contains information on post-installation configuration for Asian and European language support.

Important: *To run a localized SAS image, your operating system must be configured to use a Windows regional setting appropriate to the localized image. You may experience unexpected results if the regional setting and the localized image are not consistent.*

If multiple SAS localizations have been installed on the system, you may need to change the regional setting for each localized SAS image before invocation. For information on how to change or to use regional settings, refer to your Microsoft Windows documentation.

Chinese, Japanese, and Korean DBCS Support

This section explains how to change the default settings for the `DBCSLANG` and `DBCSTYPE` system options and how to specify Asian font catalogs.

Note: *The `DBCSLANG` and `DBCSTYPE` system options (described in the next section) should be used to set locale for Asian character sets only. The `LOCALE` and `ENCODING` system options, described in the SAS Help System, are used to set locale for European languages.*

Changing the Default DBCSLANG and DBCSTYPE Option Settings

When you install SAS 9.2 Foundation and choose to load NLS language translations, the installation automatically sets default values for the `DBCSLANG` and `DBCSTYPE` system options based on the language selection and platform. For example, if you install Primary Japanese on Windows 2000, the configuration file (`!sasroot\nls\ja\sasv9.cfg`) sets `DBCSLANG` to *JAPANESE* and `DBCSTYPE` to *PCMS*.

Changing the Configuration File for Unicode Server

To run the Unicode Server, edit the configuration file for your system with the following changes:

1. Remove the `DBCSLANG` and the `DBCSTYPE` options from the configuration file.

2. Add the `ENCODING` option and set the value to *UTF-8* (`ENCODING=UTF-8`).

3. To define a default locale other than English, add the `LOCALE` option and set the value to your desired locale setting (`LOCALE=default-locale`).

4. Add the `FONT` and `SYSGUIFONT` options and set the values to a TrueType font e.g., *Thorndale Duospace*.

For more information, please visit <http://support.sas.com/> and see the white paper *SAS 9.1.3 SP4 Unicode Environment*.

Asian Font Catalogs

The default configuration files for Asian language editions already contain font definitions. (However, the configuration file for DBCS extensions does **not** contain font definitions.) Asian font

catalogs reside in subdirectories (by language) for easy installation. If you want to change the font catalog, you can specify it in either the configuration file or in your SAS session.

With the exception of Traditional Chinese fonts, Asian fonts reside in the `SASHELP.FONTS` catalog. The default configuration file for the Traditional Chinese language edition already contains font definitions. (However, please note that the configuration file for DBCS extensions does **not** contain font definitions.) To use Traditional Chinese fonts, you can specify them either in the configuration file or in your SAS session.

Installing Traditional Chinese Fonts

To use Traditional Chinese fonts, you must install the Traditional Chinese localization. You will also need to modify your configuration file, as described in the following section.

Specifying the Font Catalog in the Configuration File for Traditional Chinese Fonts

If you are not running a Traditional Chinese localization but you want to use the Traditional Chinese fonts, you need to modify the configuration file to set `GFONTx` to

```
-set gfontx !SASROOT/nls/zt/font-name
```

In this statement,

- *x* represents a value from 0-9.
- *font-name* represents the name of the font catalog you want to use.

Specifying the Font Catalog in a SAS Session for Traditional Chinese Fonts

To specify the font catalog in a SAS session, submit the following `LIBNAME` statement:

```
-libname gfontx !sasroot\nls\langcode\font-name
```

In this statement,

- *x represents a value from 0-9.*
- *font-name represents the name of the font catalog you want to use.*

European Language Support

The following sections explain different methods for configuring your system for locale, describe how to set up your local session to transfer data to a remote session, and provide a list of `devmap` and `keymap` values that match the locales on your operating system.

Configuring SAS 9.2 for Locale

If you want to configure your SAS session for a locale other than the default locale, you have two methods from which to choose to achieve that goal. This section explains those methods.

Changing the Default LOCALE Option Setting

When you install SAS 9.2 Foundation and you choose to load NLS language translations, the installation automatically sets the LOCALE system option to the default value for the language installed. The `LOCALE` option is set in the system configuration file for each language installed.

For example, `!SASROOT\nls\fr\sasv9.cfg` sets `LOCALE` to `French_France` by default.

If you want to change the default locale setting for SAS, you can set the `LOCALE` system option to the appropriate language in your system configuration file.

For example, you can edit `!SASROOT\nls\fr\sasv9.cfg` and change `-locale French_France` to `-locale French_Canada`.

Running SAS in a Different Locale

To set the locale for SAS 9.2 at your site, add the `LOCALE` system option to your configuration file. You can find a list of locale values in the *SAS 9.2 National Language Support (NLS) User's Guide*.

When you read or write a file, SAS 9.2 expects the data in the external files to be in the session encoding. To specify a different encoding, refer to the documentation for the `ENCODING` system option in the `FILENAME`, `INFILE`, or `FILE` statement in the *SAS 9.2 National Language Support (NLS) User's Guide*.

When `LOCALE` is set, the `ENCODING` system option will be set to an encoding that supports the language for the locale. SAS 9.2 expects user data to be in the encoding that matches the `ENCODING` option. If you prefer an encoding other than the most common encoding for the locale, you can also set the `ENCODING` system option in the configuration file.

When the `ENCODING` option is set, the `TRANTAB` option will always be set to match the `ENCODING` system option. The transport format trantabs (translation tables), set by the `TRANTAB` option, are used by the `CPORT` and `CIMPORT` procedures to transfer SAS data files. These trantabs are also used by the `UPLOAD` and `DOWNLOAD` procedures for transferring files and catalogs, remotely submitting code to the server, and returning logs and listings to the client.

The Output Delivery System (ODS) creates output using the encoding that matches the `ENCODING` system option. If you would like your output created using a different encoding, please refer to the documentation for the Output Delivery System.

For more information, refer to the *Base SAS 9.2 Procedures Guide* in base SAS software for documentation about `PROC CPORT` and `PROC CIMPORT`. Refer to the *SAS/CONNECT 9.2 User's Guide* for documentation on `PROC UPLOAD` and `PROC DOWNLOAD`.

Additional Information

Depending on the applications you run, additional setup may be required for your system. Refer to the following sections for more information about configuring your system to run with alternate locales.

Locale Setup on the Remote Server

Note: *The `%LS( )` macro was new in SAS 9.1. This macro replaced the functionality of the Locale Setup Window that was used in previous releases. References to "SAS System 9" in the following section refer to all releases of SAS software from SAS System 9 forward.*

If you are running SAS System 9 as both your client and server sessions, it is not usually necessary to run the `%LS( )` macro to do any further locale setup. The locale of a server should be compatible with the locale of your client session; otherwise, your data may be corrupted.

If your SAS System 9 client is connecting to a session running a release of SAS prior to SAS

System 9, you can use the %LS( ) macro to set up the remote SAS environment for data transfer. As the Locale Setup Window did in previous releases, the `%LS( )` macro copies the host-to-host translation tables from the `LOCALE` catalog into `SASUSER.PROFILE`. The `%LS( )` macro does not set the encoding for the SAS session.

If you use SAS/CONNECT to connect to a remote SAS server, you will need to set up the server session for the locale that the SAS client is using. You must set up the server after signing on to the remote session from the client.

The following examples show how to set locale for remote connections:

Connecting SAS System 9-to-SAS System 9: Use the `LOCALE` option at startup. The `LOCALE` option value of the SAS client and server sessions should be the same. For example,

```
sas –locale Spanish_Spain
```

Connecting SAS System 9 and a previous release of SAS:

- SAS System 9 receives the data: Use the LOCALE option on the SAS System 9 side at start up. Example:

```
sas –locale Spanish_Mexico
```

- Previous release receives the data: Start SAS System 9 with the LOCALE option at start up. Example:

```
sas –locale Spanish_Guatemala
```

Then use the `%LS( )` macro in SAS System 9 to set up the host-to-host translation tables on the previous release after connection is established. For example, submit the following code from the Program Editor:

```
%ls(locale=Spanish_Guatemala, remote=on);
```

Devmaps and Keymaps for SAS/GRAPH Software

If you are running SAS/GRAPH software and you want to display non-ASCII characters, set the appropriate devmaps and keymaps to match your current encoding. The devmap and keymap entries are located in the `SASHELP.FONTS` catalog. To get the correct devmaps and keymaps for your encoding, you should use the `%LSGRAPH` macro.

There are two ways in which the `%LSGRAPH` macro automatically sets up an environment:

- copies the devmap and keymap entries that match your encoding to the `GFONT0.FONTS` catalog

- changes the name of the entry to the name DEFAULT so the devmaps and keymaps will be loaded for you

The following example uses `%LSGRAPH` to set the correct devmap and keymap (WLT2) for a Polish user on the Windows platform:

```
libname gfont0 'your-font-library';
%lsgraph(wlt2);
```

Here is a list of the devmaps and keymaps that match the locales on your platform:

Locale	Devmap and Keymap Name
Arabic_Algeria	wara
Arabic _Bahrain	wara
Arabic _Egypt	wara
Arabic_Jordan	wara
Arabic_Kuwait	wara
Arabic_Lebanon	wara
Arabic_Morocco	wara
Arabic_Oman	wara
Arabic_Qatar	wara
Arabic_SaudiArabia	wara
Arabic_UnitedArabEmirates	wara
Arabic_Tunisia	wara
Bulgarian_Bulgaria	wcyr
Byelorussian_Belarus	wcyr
Croatian_Croatia	wlt2
Czech_CzechRepublic	wlt2
Danish_Denmark	wlt1
Dutch_Belgium	wlt1
Dutch_Netherlands	wlt1
English_Australia	wlt1
English_Canada	wlt1
English_HongKong	wlt1
English_India	wlt1
English_Ireland	wlt1
English_Jamaica	wlt1
English_NewZealand	wlt1
English_Singapore	wlt1
English_SouthAfrica	wlt1
English_UnitedKingdom	wlt1
English_UnitedStates	wlt1
Estonian_Estonia	wbal
Finnish_Finland	wlt1
French_Belgium	wlt1
French_Canada	wlt1
French_France	wlt1
French_Luxembourg	wlt1
French_Switzerland	wlt1
German_Austria	wlt1
German_Germany	wlt1
German_Lichtenstein	wlt1
German_Luxembourg	wlt1

Locale	Devmap and Keymap Name
German_Switzerland	wlt1
Greek_Greece	wgrk
Hebrew_Israel	wheb
Hungarian_Hungary	wlt2
Icelandic_Iceland	wlt1
Italian_Italy	wlt1
Italian_Switzerland	wlt1
Latvian_Latvia	wbal
Lithuanian_Lithuania	wbal
Norwegian_Norway	wlt1
Polish_Poland	wlt2
Portuguese_Brazil	wlt1
Portuguese_Portugal	wlt1
Romanian_Romania	wlt2
Russian_Russia w	cyr
Serbian_Yugoslavia	wcyr
Slovakian_Slovakia	wlt2
Slovenian_Slovenia	wlt2
Spanish_Argentina	wlt1
Spanish_Bolivia	wlt1
Spanish_Chile	wlt1
Spanish_Colombia	wlt1
Spanish_CostaRica	wlt1
Spanish_DominicanRepublic	wlt1
Spanish_Ecuador	wlt1
Spanish_ElSalvador	wlt1
Spanish_Guatemala	wlt1
Spanish_Honduras	wlt1
Spanish_Mexico	wlt1
Spanish_Nicaragua	wlt1
Spanish_Panama	wlt1
Spanish_Paraguay	wlt1
Spanish_Peru	wlt1
Spanish_PuertoRico	wlt1
Spanish_Spain	wlt1
Spanish_UnitedStates	wlt1
Spanish_Uruguay	wlt1
Spanish_Venezuela	wlt1
Swedish_Sweden	wlt1
Turkish_Turkey	wtur
Ukrainian_Ukraine	wcyr

Chapter 3: SAS/ACCESS Interfaces

Configuring SAS/ACCESS Interface to ODBC Software

Before you can use SAS/ACCESS Interface to ODBC software, the following products are required:

- Base SAS Software
- SAS/ACCESS Interface to ODBC Software
- A 64-bit ODBC driver for the source from which you want to access data

The ODBC solution allows different technologies to be used by defining a standard interface. SAS/ACCESS Interface to ODBC software with ODBC drivers provides you with access to different databases. An ODBC driver processes ODBC function calls from (and returns results to) SAS/ACCESS software. You can get drivers from Microsoft, your database vendor, or other third party software vendors.

To run SAS/ACCESS software on 64-bit Windows, you need 64-bit drivers. The application calls the Driver Manager, which in turn calls the 64-bit drivers.

The ODBC Driver Manager and Administrator are Microsoft products that are included with all ODBC drivers. When you install an ODBC driver, the ODBC Driver Manager and Administrator are also installed. The ODBC Administrator should appear as an icon in the control panel. However, it can also appear as an icon in the Start menu instead.

After you install the ODBC driver, you can use the ODBC Administrator to define and manage the data sources. A data source associates a particular ODBC driver with the data you want to access through that driver. It can consist of information about the data you want to access and its associated operating system, DBMS, and network platform (if any) used to access the DBMS. For information about how to configure your data sources, refer to the documentation provided with your ODBC drivers.

For more information about SAS/ACCESS to ODBC, refer to the ODBC chapter in *SAS/ACCESS 9.2 for Relational Databases: Reference*. For more information about ODBC, refer to Microsoft ODBC 3.0 Programmer's Reference and SDK Guide.

Configuring SAS/ACCESS Interface to Oracle Software

Before SAS/ACCESS Interface to Oracle software can be used, the following products are required:

- **Base SAS software**
- **SAS/ACCESS Interface to Oracle software**
- **Oracle client/server, Release 9i or above**

After the Oracle client/server installation process is complete, ensure that the path to the Oracle client libraries is appended to the `PATH` system variable. The Oracle libraries are usually located in the directory `ORACLE_HOME/bin`. If the `PATH` variable does not have `ORACLE_HOME/bin`, you will see the following error:

```
ERROR: The SAS/ACCESS Interface to ORACLE cannot be loaded.
ERROR: Image SASORA found but not loadable.
```

For more information about SAS/ACCESS Interface to Oracle, refer to the Oracle chapter in *SAS/ACCESS 9.2 for Relational Databases: Reference.*

Chapter 4: Post-Installation Setup for SAS/ASSIST Software

This chapter describes how to add an optional master profile to SAS/ASSIST software. You can use a master profile to override the default settings as sent by SAS Institute. This allows you to provide a customized setup for SAS/ASSIST software. With the master profile, you can control the profile options of all SAS/ASSIST users from one central place. For information on the profile options, refer to *SAS/ASSIST Software Administrator's Guide*.

Adding a Master Profile

Complete the following steps to add a master profile to SAS/ASSIST software:

1. Specify the location of the master profile by creating a new directory that all users of SAS/ASSIST software will have read access to.

    All users with write access to this directory will automatically also have write access to the master profile in SAS/ASSIST software. Select a name that conforms to the naming conventions at your installation. The name of this new directory must be stored in an entry in the SASHELP library. This requires that you have write access to the SASHELP library.

    On line 1 of the **Editor** window of the SAS Display Manager System, type the physical pathname of the master profile directory. Execute the Save command to store this in the SASHELP.QASSIST catalog. For example:

    ```
    SAVE SASHELP.QASSIST.PARMS.SOURCE
    00001 S:\SAS\ASSIST\PARMS
    00002
    00003
    ```

    The location of the master profile is now known by SAS/ASSIST software.

2. Create the master profile.

    The first time SAS/ASSIST software is started, a master profile is created if SASHELP.QASSIST.PARMS.SOURCE contains the name of an existing physical pathname, and the person who starts SAS/ASSIST software has write access to this physical pathname.

3. Customize the master profile by starting SAS/ASSIST software and selecting **Setup … Profiles ... Master/group ...**

    If you have write access to the SAS library containing the master profile, you can specify default values for your installation. New users will use these values as they start SAS/ASSIST software.

    Note: *If you restrict values by typing* R *in* Status*, users will not be allowed to change the values you define.*

    You can run SAS/ASSIST software in two different styles - workplace or block menu. The block menu can be new style or old style. You can control this using the profile options below.

    ```
    Run workplace:

    SAS/Assist style:        Workplace

    Run block menu new style:
    ```

```
SAS/Assist style:      Block Menu
Save selections on end: Yes
Menu Style:            New

Run old style:
SAS/Assist style:      Block Menu
Save selections on end: Yes
Menu Style:            Old
```

By setting the default values in the master profile, you can control if users should use the new or old style of SAS/ASSIST software. In addition, there are many other profile options. For more information on these options, refer to *SAS/ASSIST Software Administrator's Guide*.

4. Create group profiles.

   From the master profile, it is possible to create group profiles to allow groups of users to have different setups. The master profile controls group profiles and user profiles when a user is not a member of any group. All users are indirectly controlled by the master profile when option values are set to a restricted (R) status.

   From **Setup...Master/Group...,** select **Tools...Create Group Profile**. To add users to a group profile, select **Tools...Update User Group**. By default, the userid is found in the macro variable &SYSJOBID. This value is set in the option Userid in the master profile (option type System Administration). Change the value if your site uses another variable to keep the userid. If the value name starts with &, it is a macro variable; otherwise, it is an environment variable, which is set before the start of SAS 9.2.

Chapter 5: Post-Installation Setup for SAS/CONNECT Software

The TCP/IP access method is supported for SAS 9.2 Foundation on 64-bit Windows. Refer to *Communications Access Methods for SAS/CONNECT and SAS/SHARE Software* for information on the access methods supported by other systems. This document can be found at `http://support.sas.com/documentation/onlinedoc`.

Note: *APPC is not supported for Windows IP (64-bit).*

Storing and Locating SAS/CONNECT Script Files

Several sample script files are shipped with SAS/CONNECT software. SAS/CONNECT software uses these script files to establish a connection to a remote SAS session.

The `SASSCRIPT` configuration option points to the location of the SAS/CONNECT script files. The `SASSCRIPT` option is used by SAS/ASSIST software and can be used by user-written SCL applications.

Under Windows, the script files are installed into the `!SASROOT\CONNECT\SASLINK` directory by default. The following line is added to the `SASV9.CFG` file when SAS/CONNECT software is installed:

```
-SASSCRIPT !SASROOT\CONNECT\SASLINK
```

If you want to move the script files to another directory, you must edit the `SASV9.CFG` file and update the `SASSCRIPT` option with the new directory location. This option can also be specified from the **Tools/Options/System/Communications/Networking** and **encryption** selection in `DMSEXP` mode.

System Configuration for TCP/IP under 64-bit Windows

For the TCP access method, SAS/CONNECT software supports Microsoft's TCP/IP System Driver, which is provided with Windows.

Configuring the SAS Windows Spawner Program

The SAS Windows Spawner is stored in the `!SASROOT` directory and can be executed manually from the `!SASROOT` directory at any time. You can run the SAS Windows Spawner as a service by executing `SPAWNER.EXE` with the `-install` option. By default, the SAS Windows Spawner will be installed to run with security. For complete documentation on the Windows Spawner and the supported options, see *Communications Access Methods for SAS/CONNECT and SAS/SHARE Software*.

Note: *If you are upgrading to SAS 9.2 Foundation and you run a spawner from a previous release as a service, you should stop and delete the existing spawner service. The SAS 9.2 CONNECT spawner can then be installed as a Windows service.*

By default, when the SAS Windows Spawner is installed as a Windows service, it runs under the `LocalSystem` userid that has all required User Rights for running the SAS Windows Spawner. If you do not install the SAS Windows Spawner as a Windows service (run it from your system

prompt), the Windows userid used to start the SAS Windows Spawner must be the local Administrator of the machine and must have the following User Rights:

- act as part of the operating system
- bypass traverse checking (the default is everyone)
- increase quotas
- replace a process level token
- log on locally (the default is everyone)

The Windows userid specified at signon needs only the User Right "log on as a batch job."

Chapter 6: Post-Installation Configuration for SAS/IntrNet Software

This chapter has information for your SAS/IntrNet installation. It will help you install, configure, and test your SAS/IntrNet components.

The procedures for installing SAS software using the SAS Deployment Wizard are described in other documentation and are not available in this chapter. In addition, the installation of a Web server it is not described in SAS documentation because it is the administrator's responsibility.

When SAS/IntrNet software has been installed, configured and tested using the procedures described in this chapter, review the latest version of the SAS/IntrNet product documentation online at `http://support.sas.com/documentation/onlinedoc/IntrNet/index.html`. The "What's New" page at this Web site lists any recent changes to the product or documentation.

Overview

All SAS/IntrNet installations are made up of two components:

1. The SAS/IntrNet server (also referred to as *the Application Server*). This is where SAS Foundation is installed.

2. CGI Tools (also referred to as *the Broker*). This is where the `broker.cfg` file and its supporting files are installed.

When you install SAS/IntrNet, choose between these two installation configurations:

- Type A - The SAS/IntrNet server and CGI Tools components are both installed on the same system machine. The Web server must be installed before starting the SAS installation.

- Type B -The SAS/IntrNet server component is installed on one system machine and the CGI Tools component is installed on a different system machine. The Web server must be installed on the CGI Tools system prior to installing CGI Tools.

Type A and Type B require different installation steps:

Type A Installation Steps	Type B Installation Steps
Confirm that the Web server software (IIS, Apache etc.) is on the same server as your SAS/IntrNet system.	Confirm that the Web server software (IIS, Apache, etc.) is on the machine where you will install the CGI Tools.
Install your SAS products. Check "CGI Tools for the Web Server" and "SAS/GRAPH Java Applets" in the "Select Products to Install" menu.	On your application server system, start your SAS installation. Uncheck "CGI Tools for the Web Server" in the "Select Products to Install" menu.
	On your Web server system machine, start your SAS installation. Uncheck all products except "CGI Tools for the Web Server" and "SAS/GRAPH Java Applets" in the "Select Products to Install" menu.

Type A Installation Steps	Type B Installation Steps
	You can optionally check the IntrNet Monitor or Connect Drivers.
Test the Broker	
Configure a Socket Service	
Start the Socket Service	
Test the Socket Service	

Refer to your Web server's documentation for its installation procedures.

Installing and Configuring SAS/IntrNet Software

Install Your Web Server Software

Refer to your *QuickStart Guide* for a description of how to start your SAS software installation.

Install Your SAS Software

If you are performing a Type A installation (as described in the "Overview" above), confirm that your Web server software is installed before starting your SAS software installation. Check "CGI Tools for the Web Server" and "SAS/GRAPH Java Applets" in the **Select Products to Install** dialog.

If you are performing a Type B installation, do *both* of the following:

- Install the SAS software on the SAS System side, unchecking "CGI Tools for the Web Server" and "SAS/GRAPH Java Applets" in the **Select Products to Install** dialog.

- Start the SAS software install on the Web server and check "CGI Tools for the Web Server" and "SAS/GRAPH Java Applets" in the **Select Products to Install** dialog. SAS/IntrNet Monitor and SAS/CONNECT Driver for Java are optional selections. Uncheck everything else.

CGI Tools Installation Dialogs

The following windows appear for CGI Tools for the Web Server and SAS/GRAPH Java Applets for all installations. For information about the fields, click **Help** on any dialog.

Customary entries are documented following each screen shown below. Customize the entries according to your environment.
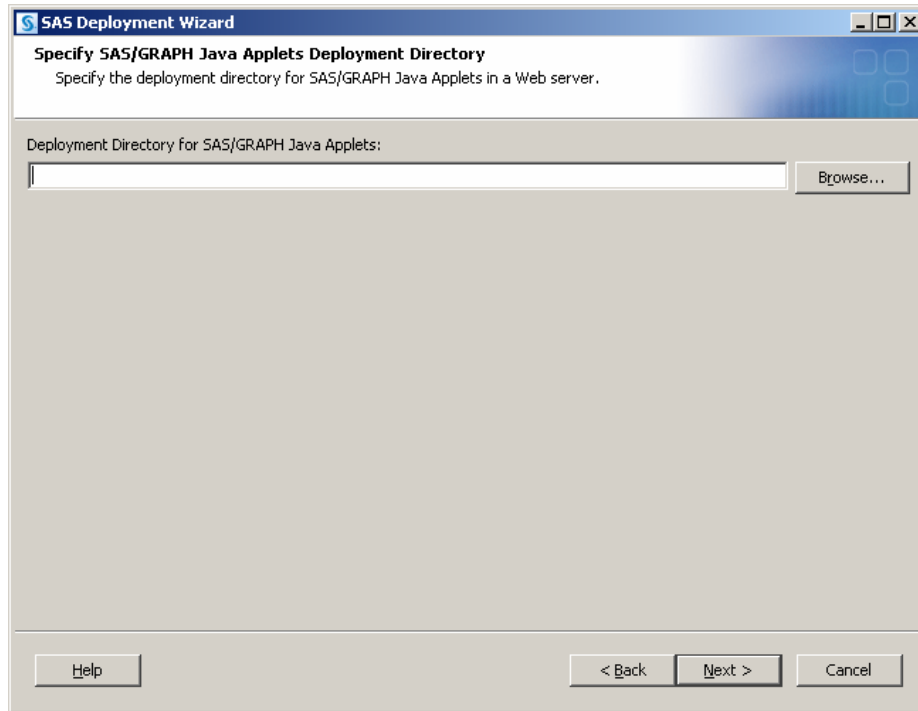
Deployment Directory for SAS/GRAPH Java Applets:

This is part of the SAS/GRAPH Java applets installation. The applets can be installed in any valid folder location.

This location will be available to the CGI Tools installation, which will copy the graph applets to the `/sasweb/graph` directory on the Web server.
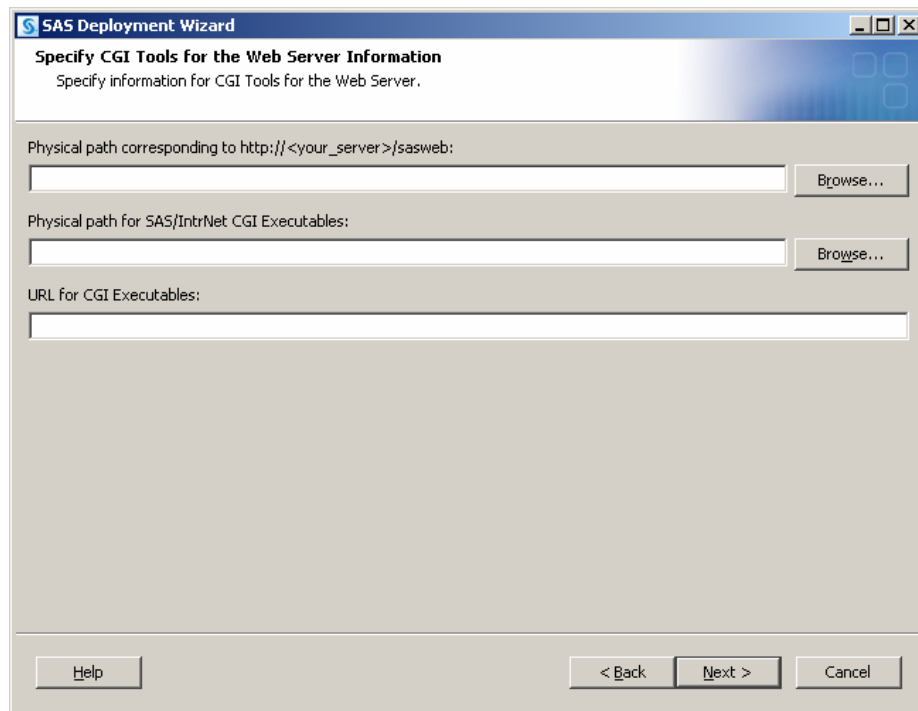
The following are examples of common entries for popular Web servers. Customize your entries according to your own Web server environment. These fields will tell SAS where your Web server software is located.

Physical path corresponding to `http://<your_server>/sasweb`:

IIS: `C:\Inetpub\wwwroot\sasweb`

Apache (Windows): `C:\program files\Apache Software Foundation\Apache2.2\ htdocs\sasweb`

Apache (UNIX):   `/usr/local/apache2/htdocs/sasweb`

Physical path for SAS/IntrNet CGI Executables:

IIS: `C:\Inetpub\scripts`

Apache (Windows): `C:\program files\Apache Software Foundation\Apache2.2 \cgi-bin`

Apache (UNIX):   `/usr/local/apache2/cgi-bin`

URL for CGI Executables:

IIS: `http://<web_servername>/scripts`

                          Example: `http://abcserver.comp.com/scripts`

Apache (Windows): `http:// <web_servername>/cgi-bin`

                          Example: `http://abcserver.comp.com/cgi-bin`

Apache (UNIX):   `http://<web_servername>/cgi-bin`

                          Example: `http://abcserver.comp.com/cgi-bin`
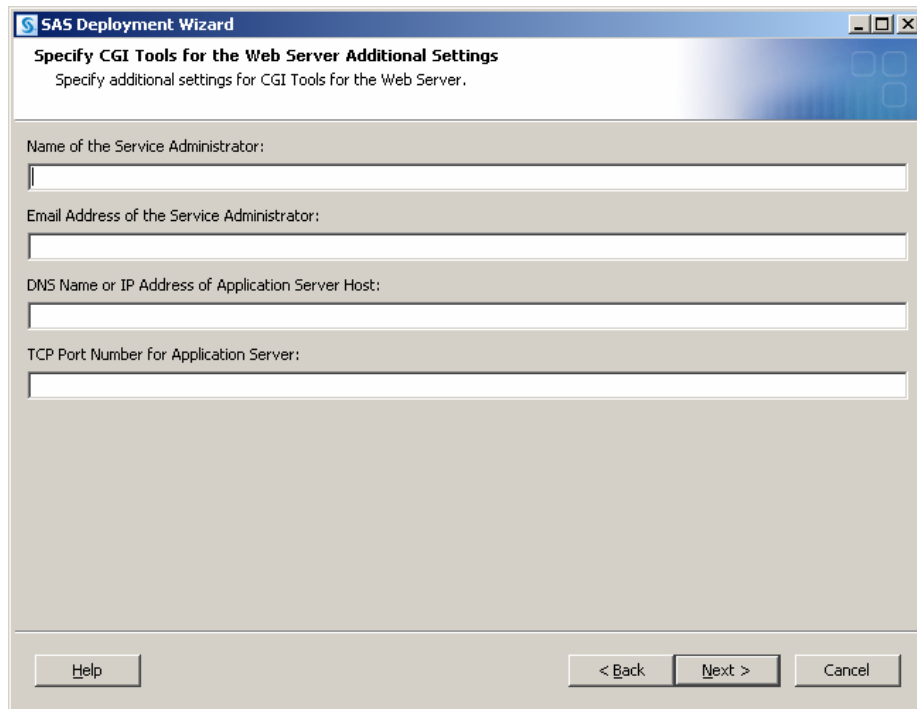
Note that your entries for this dialog are added to the `broker.cfg` file. The `broker.cfg` file is a text file that can be edited after the installation is complete.

Name of the Service Administrator:

(optional) Enter the name of the administrator (for example, John Doe).

**Email Address of the Service Administrator:**

(optional) Enter the e-mail address of the administrator (for example, NetAdmin@comp.com).

DNS Name or IP Address of Application Server Host:

Enter the DNS name or IP address of the application server host where SAS Foundation is located.

TCP Port Number for Application Server:

The customary default port number is 5001, but you can use any valid available port on your system between 256 – 65535.
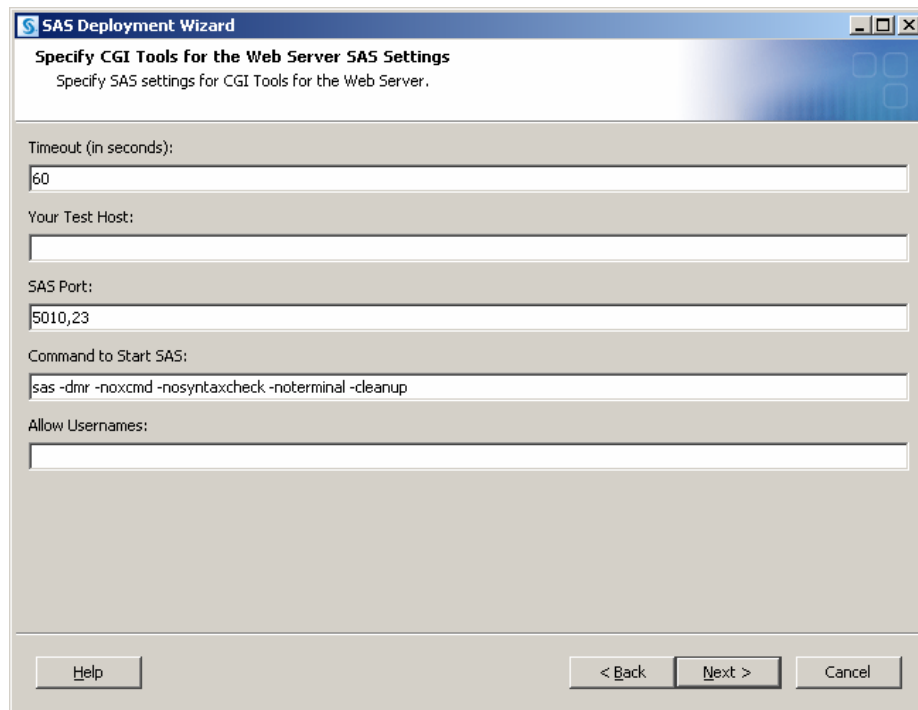
Click **Next** at this dialog unless you are using JConnect. If you are using JConnect, enter values that are valid for your site.

Installing CGI Tools and SAS Foundation on Machines with Different Operating Systems

Your SAS Foundation system's operating system might be different than your CGI Tools system's operating system. For example, your SAS Foundation might be installed on a Windows system and your CGI Tools might be installed on a UNIX system. The CGI Tools installation from the SAS Deployment Wizard will detect the destination operating system and install the appropriate operating system-specific software.

There are two methods to make the SAS Software Depot available to the installer on the destination CGI Tools system. Choose the method that is appropriate for your site's available facilities:

- Launch the set-up from a SAS Software Depot that resides on a remote system. You might need to use a cross-platform file access method such as NFS or SAMBA to connect the two systems.

- Create media from an existing depot using the SAS Deployment Wizard and use that media on the host machine. This process is described more thoroughly in the *SAS Deployment Wizard Users Guide*, available from Install Center (`http://support.sas.com/documentation/installcenter/92/documents/index.html`).

Note: *SAS/IntrNet operation requires TCP/IP connectivity between the SAS Foundation system and the CGI Tools system, regardless of the operating systems on which these components are installed.*

Test the Web Server

To determine if the Web server is running, launch the Web server's browser and enter `http://localhost`. This will return a Web page if the Web server is running.

If you do not receive a Web page, you must debug or reinstall your Web server before continuing.

Test the Application Broker

To verify that CGI Tools was installed correctly and can access the `broker.cfg` file, point your Web browser to the following URL:

Windows:

IIS: `http://<web_servername>/scripts/broker.exe`

Apache: `http://<web_servername>/cgi-bin/broker.exe`

Other hosts:

`http://your_webserver/cgi-bin/broker`

Replace `your_webserver` with the name of the Web server. The URL path might also need to be changed if you installed CGI Tools to a different directory. You should see a Web page similar to the following:

```
SAS/IntrNet Application Dispatcher

Application Broker Version 9.2 (Build 1494)

Application Dispatcher Administration

SAS/IntrNet Samples

SAS/IntrNet Documentation - requires Internet access
```

If you do not receive this page, you must debug your Web server installation before continuing. Verify that your Web server is enabled for CGI execution in the directory where you installed the Application Broker (`broker.exe` and `broker.cfg` files). This directory was determined by what was entered for **Physical path for SAS/IntrNet CGI Executables** during the CGI Tools installation above.

Configure a Default Application Dispatcher Service

You must create a default Application Dispatcher service to run any of the sample programs supplied with SAS/IntrNet. You should create the default service with the SAS/IntrNet Configuration Utility `inetcfg` Services can be created on Windows platforms with a configuration utility that is accessible from the Start menu.

Perform the following steps to create and start the default service:

1. From the Start menu, select **Programs** ➜ **SAS** (or other program group where SAS is installed) ➜ **IntrNet** ➜ **Create a New IntrNet Service**.

2. The IntrNet Config Utility Welcome window appears. Read the information in the Welcome window, and then select **Next** to continue.

3. Select **Create a Socket Service**, then select **Next** to continue.

4. Type *default* as the name of the new service. Select **Next** to continue.

5. Specify the directory where you want the configuration utility to place your service directory and control files. The default location (under your `SASROOT` directory) is recommended. Select **Next** to continue.

6. Type the TCP/IP port number that you reserved for the default Application Dispatcher service. Select **Next** to continue.

7. A password is not necessary for the default service. You can add an administrator password later if you use this service for production applications. Select **Next** to continue.

8. The Create Service window displays all of the information that you specified for this service. Verify that the information is correct and then select **Next** to create the service.

9. Select **Next** and then **Finish** to complete the setup of the default service.

10. From the Start menu, select **Programs** ➜ SAS (or other program group where SAS is installed) ➜ **IntrNet** ➜ **default Service** ➜ **Start Interactively**. Your default Application Server should now be running.

Starting and Stopping the Default Service

As stated above, from the Start menu, select Programs ➜ SAS (or other program group where SAS is installed) ➜ IntrNet ➜ default Service ➜ Start Interactively. Your default Application Server should now be running.

Testing the Socket Service

1. To make sure that the service was installed and started correctly, point your Web browser to this URL:

   Windows:

   IIS: `http://<web_servername>/scripts/broker.exe`

   Apache: `http://<web_servername>/cgi-bin/broker.exe`

   Other hosts:

   `http://your_webserver/cgi-bin/broker`

> Replace *your_webserver* with the name of the Web server. The URL path might also need to be changed if you installed the Application Broker to a different directory. You should see the following Web page: `SAS/IntrNet Application Dispatcher`
>
> `Application Broker Version 9.2 (Build 1494)`
>
> `Application Dispatcher Administration`
>
> `SAS/IntrNet Samples`
>
> `SAS/IntrNet Documentation - requires Internet access`

2. Click on the **Application Dispatcher Administration** link to see if the Application Broker can read the `broker.cfg` file. The Application Dispatcher Services Web page should open.

3. Verify connectivity between the Application Server and the Web server. Click on the **Application Dispatcher Administration** link and then click on the **ping** link under **SocketService default** heading. If the ping is successful, you should see:

   ```
   Ping. The Application Server <hostname>:<port_number> is
   functioning properly.
   ```

4. To complete installation testing, type this URL in your browser address line:

   Windows:

   IIS:

   ```
   http://your_webserver/scripts/broker.exe?_service=default&_progra
   m=sample.webhello.sas
   ```

   Apache:

   ```
   http://your_webserver/cgi-
   bin/broker.exe?_service=default&_program=sample.webhello.sas
   ```

   Other hosts:

   ```
   http://your_webserver/cgi-bin/broker?_service=default&_program=
   sample.webhello.sas
   ```

   You should see the string "Hello World!" in large bold type in your browser. If you do not, add the debug option to create a log:

   Windows:

   IIS:

   ```
   http://your_webserver/scripts/broker.exe?_service=default&_progra
   m=sample.webhello.sas&_debug=131
   ```

    Apache:

   ```
   http://your_webserver/cgi-
   bin/broker.exe?_service=default&_program=sample.webhello.sas&_debug=131
   ```

   Other hosts:

   ```
   http://yourWebserver/cgi-
   bin/broker?_service=default&_program=sample.webhello.sas&_debug=131
   ```

   Save the log screen on the browser for SAS Technical Support.

Configure Additional Services

This chapter describes how to configure only a simple default Application Dispatcher service. There are many reasons you may want to configure additional services, including segregating applications by security or performance requirements and implementing more scalable servers. See the "Using Services" section of the SAS/IntrNet Application Dispatcher documentation at `http://support.sas.com/documentation/onlinedoc/intrnet/index.html` information on configuring additional services, using the Load Manager, and adding pool services.

Chapter 7: Installing SAS/SECURE Software Client Components

SAS/SECURE software includes client components that non-SAS System client applications can use to communicate with a SAS server in a secure environment. To use encryption between a non-SAS System client and a SAS server with SAS/SECURE software licensed, you must install the SAS/SECURE client components on the client machine. The SAS/SECURE client components are available in the SAS/SECURE folder accessible through the SAS Software Navigator.

Note: *This installation is not necessary if the SAS System is your client. The SAS System installs the components that it needs as part of the SAS System install process.*

SAS/SECURE for Windows Clients

The SAS/SECURE components needed by Windows clients can be installed by running the SAS Software Navigator to access the SAS/SECURE Windows Client Components. The `secwin.exe` executable available in this folder installs the files necessary for the IOM Bridge for COM to use the CryptoAPI algorithms.

SAS/SECURE for Java Clients

The SAS/SECURE components for Java clients provide encryption support for Java applications. You can incorporate this support into applications that are written using the following components:

- SAS/SHARE driver for JDBC
- SAS/CONNECT driver for Java
- IOM Bridge for Java

The SAS/SECURE components needed by Java clients can be installed by running the SAS Software Navigator to access the SAS/SECURE Java Component. This folder contains two JAR files that enable Java clients to use the CryptoAPI algorithms:

- `sas.rutil.jar` - should be copied to the location where the client you are running gets started.
- `sas.core.jar` - included in case you do not already have one however, this will probably not be needed.

The `sas.rutil.jar` file should be copied to the location(s) where you installed each of the following products. They are listed below with their respective default installation locations.

- for SAS MC, *<SAS_HOME>*`\SASManagementConsole\9.2`
- for OLAP Cube Studio, *<SAS_HOME>*`\SASOlapCubeStudio\9.2`
- for SAS Data Integration Studio, *<SAS_HOME>*`\SASETLStudio\9.2`
- for SAS Information Map Studio, *<SAS_HOME>*`\SASInformationMapStudio\1.0`

In these examples, *<SAS_HOME>* is specified through the SAS Software Navigator, with `C:\Program Files\SAS` as the default.

After the file is copied where you need it, you can use algorithms other than `sasproprietary`.

Chapter 8: Post-Installation Setup for SAS/SHARE Software

This chapter discusses the access methods that are available with SAS/SHARE software.

For more information, refer to *Communications Access Methods for SAS/CONNECT and SAS/SHARE Software*. This document can be found at `http://support.sas.com/documentation/onlinedoc`.

Communication between a SAS/SHARE server and user is handled by a communications access method, which is a part of SAS 9.2 Foundation that uses underlying communications software to exchange messages and data. Currently, TCP/IP is the access method available for use with this release of SAS/SHARE software under 64-bit Windows.

To use the TCP/IP access method, you must have the supporting software on each workstation on which a SAS/SHARE server or user will execute. The communications software required by TCP/IP is Microsoft's TCP/IP Network Protocol.

System Configuration for the TCP/IP Access Method

Software Requirements

For the TCP/IP access method, SAS/SHARE software supports Microsoft's TCP/IP Network Protocol, which is provided with Windows.

Define server names in the TCP/IP SERVICES file

Complete the following steps:

1. Locate the `SERVICES` file.

    This file is located under the `\windows` or `\winnt` directory paths depending on the specific Windows operating system and upgrade method. For example, under a machine configured with a Windows 2000 operating system, the directory path is named

    ```
    <drive letter>:\winnt\system32\drivers\etc
    ```

2. Specify the server names and port assignments.

    We suggest that you define each SAS/SHARE server that runs on a network as a service in the `SERVICES` file. Each entry in this file associates a service name with the port number and protocol used by that service. An entry for a SAS/SHARE server has the form:

    ```
    <server name>  <port number>/<protocol>      # <comments>
    ```

    The server name must be 1-8 characters in length. The first character must be a letter or underscore; the remaining seven characters can include letters, digits, underscores, the dollar ($) sign, or the at (@) sign. The port number must be above 1024, as any port number equal to or less than 1024 is reserved. The protocol must always be TCP.

    An entry for a server whose name is MKTSERV might look like this:

    ```
    mktserv  5000/tcp    # SAS server for Marketing and Sales
    ```

The server name is specified with the `SERVER=` option in the `PROC SERVER` statement in the server's SAS session and in the `PROC OPERATE` and `LIBNAME` statements in user and server administrator programs. If the server name is not defined, you must use `__port#` syntax.

For more information about the options used with `PROC SERVER`, `PROC OPERATE`, and `LIBNAME` procedures, please refer to the *SAS/SHARE 9.2 User's Guide*.

Client-Side Components

SAS/SHARE software includes client components that are used outside of your SAS installation. These components are available from the SAS 9.2 Software Download site and are described below:

SAS/SHARE Data Provider

The SAS/SHARE data provider enables you to access, update, and manipulate SAS data using OLE DB- and ADO-compliant applications on Windows platforms.

SAS ODBC Driver

The SAS ODBC driver enables you to access, update, and manipulate SAS data from ODBC-compliant applications on Windows platforms.

SAS/SHARE Driver for JDBC

The SAS/SHARE driver for JDBC enables you to write applets, applications, and servlets that access and update SAS data. The Java Tools package that includes the SAS/SHARE driver for JDBC also includes the SAS/CONNECT driver for Java. If you are writing Java programs using these interfaces, you may also want to use the tunnel feature. This optional feature can be used with the Java applets you write to solve some common configuration problems.

SAS/SHARE SQL Library for C

The SAS SQL Library for C provides an application programming interface (API) that enables your applications to send SQL queries and statements through a SAS/SHARE server to data on remote hosts.

NLS Information

Sites that develop or support international applications that use SAS/SHARE software should refer to the chapter "Post-Installation Instructions for National Language Support (NLS)" on page 3.

Chapter 9: Windows XP Performance Monitor and Event Log Support

Support for Windows XP Performance Monitor will allow advanced users and administrators to observe some internal characteristics of SAS 9.2 Foundation. This facilitates performance analysis and tuning of SAS 9.2 Foundation. Also, support for the Event Log on these operating systems allows the tracking of critical errors in SAS 9.2 Foundation and SAS Setup.

The user account installing SAS 9.2 Foundation must have administrator privileges to install these features, so non-administrators will not get these features by default. They can be added later by invoking setup.exe (found under the sas folder on the **Setup** Disk). To install the Windows XP Performance Monitor and Event Log, use this command:

```
Setup /zperfmon
```

The XP Performance Monitor is uninstalled when SAS 9.2 Foundation 64-bit is uninstalled.