

Installation Instructions for Version 7 (TS P1) of the SAS[®] System for Microsoft[®] Windows[®]

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Chapter 1, Introduction

This document provides the instructions for installing Version 7 of the SAS System under Windows, Windows NT, and Windows NT Server. Read these instructions before you attempt to install any Version 7 SAS software component in the Windows environment.

Terminology and Symbols Used in this Document

As you use these installation instructions, you will encounter terminology with which you may not be familiar. The following terms are specific to your SAS System installation and are provided here to facilitate the installation process. Please look for other unfamiliar terms in the glossary at the end of this document.

SASROOT Directory

is the directory where you install the SAS System. This is also referred to as *destination*. The `CORE` directory and several predefined subdirectories are created under the `SASROOT` directory. You may choose any directory as the `SASROOT` directory for the SAS System. For example, valid `SASROOT` directories include:

- ❑ `C:\SAS`
- ❑ `D:\SAS_WIN`
- ❑ `E:\SAS\APPS`

For the examples in this manual, the `SASROOT` directory always appears as `SASROOT`.

The following icon is used throughout this document to identify a particular type of information:

- ✓ The CHECKMARK symbol indicates a set of items that should be verified before proceeding with the installation.

Pre-installation Checklist

Before you begin installing the SAS System, make sure you review the following checklist and perform the tasks requested. Once you have completed the checklist, turn to the section appropriate for your installation.

- ✓ Review all the items in your product package.
- ✓ Make sure your hardware meets the specifications indicated on the System Requirements sheet contained in your installation package.
- ✓ Verify the release of Windows you are running. Version 7 of the SAS System requires Windows NT, Version 4.0 or later, or Windows 95 or later.
- ✓ Read the `FEDGOVT.TXT` file (U.S. Federal Government employees only). This file is located on the CD-ROM in the `\sas` directory.

Unless otherwise noted, your product package from SAS Institute contains all the items listed in the Transmittal Letter. The product package is shipped to the SAS Installation Representative at your site. If you think any items are missing from your package, contact your SAS Installation Representative, who in turn may need to contact SAS Institute.

Proper Handling of Your Media

Before you begin your installation, review the following tips for proper handling of your SAS System CD-ROM.

- Clean the CD and the CD drives regularly with head cleaning kits
- Return your CD to its protective packaging when not in use.

SAS Setup Help for Installing the SAS System

The online help should be considered the primary source of installation instructions and should be consulted for assistance prior to and during the installation process. It contains a number of helpful installation examples.

The online help also contains useful information for administrators such as how the SAS System handles the Windows registry, operating Silent Setup, Silent Setup support for System Management Server, and more.

The installation program provides online help for you to use at any point during the installation. The help is provided in a native Windows environment. To access the online help, select the `Help` button or F1 at any time while the SAS Setup program is running. The `Help` button is available in the lower right corner of your screen in the SAS Setup program.

Online Help for Using the SAS System

To take advantage of the latest features in Version 7 of the SAS System, it is strongly recommended that you install Internet Explorer, Release 4.01 SP1, which is included on your source media. The following new features in the SAS System rely on its availability.

The Help System

The recommended and highest quality Help System takes advantage of Microsoft's HTMLHelp technology, which relies on the availability of Internet Explorer, Version 4.0 or later. This new technology provides advanced search capabilities, easier indexing and compressed files that consume less disk space. (Should you choose not to install Internet Explorer, Release 4.01, SAS Setup will install the Help System in the form of basic HTML documents, viewable through any Web browser.)

HTML Viewer

With Internet Explorer, Version 4.0 or later installed, you will have the ability to view output in the format of HTML from within a SAS System window. Without it, you will still be able to create output in HTML format, but you will have to use an external browser to view the results.

SAS Setup will install Internet Explorer, Release 4.01 SP1 if you so choose. This install does not modify your desktop and will not change your default Web browser. You will have the option of removing this release and returning to your previous version (if one was previously installed) by means of the Add/Remove Programs menu in the Windows Control Panel.

Exiting SAS Setup

At any time while SAS Setup is running, you can select `Cancel` or press the F3 key to terminate the installation. SAS Setup will terminate after removing any files that have been installed.

If you are installing SAS over an existing SAS System and you exit SAS Setup prematurely, you may jeopardize the integrity of the existing SAS System.

Additional Documentation

For additional information, refer to the SAS/OnlineDoc CD in your package for a complete library of SAS software documentation.

Chapter 2, Installing the SAS[®] System

This chapter provides a brief introduction to installing the SAS System for Windows. In addition, information is provided to assist you in making some decisions prior to starting the installation process, and example installation scenarios are included. A more complete set of example installation scenarios is provided in the online help provided in the SAS System Setup program (referred to as *SAS Setup* in these instructions). To access the online help, press F1 or click the `help` icon once SAS Setup is running.

SAS Setup should be run during an initial SAS System installation and when you are adding additional components to an existing SAS System installation. If you have an existing Release 6.12 of the SAS System, SAS Setup will allow you to continue to have this Release 6.12 of the SAS System registered, or it will allow you to register Version 7 of the SAS System.

If Release 6.12 of the SAS System is found and SAS Setup determines that file extensions are registered to Release 6.12, a dialog will be presented to allow you to select to which release you want to register file extensions. If you select Release 6.12, existing SAS registry entries will not be changed.

You can use SAS Setup to perform three types of installation configurations:

- Personal
- Client
- Server

The *Personal* installation provides a standalone SAS System with all files installed on a hard disk on the local PC. You can choose whether to perform a *Complete* or *Custom setup* type of *Personal* installation. During a *Custom* installation, you can select the list of components to be installed and make additional decisions to tailor the installation to your needs. A *Complete* installation allows you to select only the destination of the SAS System and therefore installs all licensed components in that location.

The *Client* installation allows the SAS System to be run from a CD or network location with a minimum of space required on the local machine.

The *Server* installation is provided for network administrators so that SAS Setup can be utilized to place all files of selected components onto a disk that will then be used for subsequent installation processes. This type of installation also bypasses all Windows registry and local configuration updates so it should be used only for creating an image that will be used for subsequent re-installation of the SAS System on to another PC. When the *Server* installation is selected, the re-install component is always selected. As a result, both help systems will be installed. This is required to fully support re-installation from the server.

Before Starting SAS Setup

Before you start SAS Setup, ensure that you have sufficient disk space on the installation target. Refer to the *System Requirements* document for the amount of space needed to install each component of the SAS System. Keep in mind that the disk-blocking factor and drive compression settings may affect the actual amount of required space. If sufficient space is available, a *Personal* installation will provide the best performance.

Complete the following steps:

1. Decide where the user files should be stored during execution of the SAS System. The default for the SASUSER library is the following location:

On Windows NT:

```
<Windows NT operating system folder>\Profiles\<userid>\Personal  
\My SAS Files
```

On Windows 95 and Windows 98:

```
<My Documents folder>\My SAS Files
```

SAS Setup will allow you to change the location of the SASUSER library. However, notice that the default provides a unique SASUSER library for each user on a Windows NT system.

2. Choose a location for the SAS System temporary work file. The default for the work files is the following location:

%TEMP\SAS Temporary Files
3. If you want to use an alternative location for the work files, SAS Setup will allow you to do so.
4. If you are installing to a Windows NT, Version 4.0 system, SAS Setup will determine whether you have Windows NT, Version 4.0, Service Pack 3 (SP3) installed. It is strongly recommended that SP3 be installed. Make sure you install it before running SAS Setup. SP3 is required for Internet Explorer 4 to function properly.
5. SAS Setup will determine whether Microsoft Internet Explorer Version 4 is installed. If it is not installed, SAS Setup will give you the option of installing it. It is recommended that you do so. On Windows NT, systems administrative privileges are required to install Internet Explorer. You must have a Web browser installed. Version 3 or later of Internet Explorer or Netscape Navigator is acceptable. The Web browser should be installed prior to running SAS Setup.

Starting the SAS System Installation Process

To start the SAS System installation process, complete the following steps:

1. Be certain to close all non-essential Windows applications.
2. If using Windows 98, it is strongly recommended that no more than three network drives be mapped.
3. Insert the installation media into the source drive. The SAS System startup screen should appear. If this does not happen, open the `My Computer` window and double-click on the `CDROM` icon to display the startup screen. Click on the `SAS System Setup` choice and the installation process will begin.
4. You can invoke the SAS Setup program directly as follows:

```
<source drive>:\sas\setup
```

Example Installation Scenarios

This section describes the typical steps you will follow when you perform a *Personal Complete*, *Personal Custom*, or *Client* installation. Read the section that is appropriate for the type of installation you are performing. The `Back` buttons on any screen can be used to return to the previous screen to alter any choices.

Performing a *Personal Complete* Installation

The following steps are typically followed when performing a *Personal Complete* installation:

1. Carefully read the `Welcome` screen and then click on `Next`.
2. Carefully read the `License Information` screen and then click on `Next` if you accept the terms.
3. After SAS Setup finishes initializing, verify that the *Personal* installation is selected and then click on `Next`.
4. Verify that the default setting of *Complete* setup type is selected and then click on `Next`.
5. The `Choose Destination Location` dialog is now displayed. Carefully select the destination for the SAS System. Be sure the destination has sufficient disk space since you will be installing a full SAS System. Once you have selected the location, click on `Next`.
6. The `Select Data Files Folder` dialog is now displayed. Either accept the default location, or enter the desired location for the user `Data Files Folder`. Then, click on `Next`.

7. The `Select Temporary Files Folder` dialog is displayed next. Once the desired location for the SAS work area is displayed, click on `Next`. For some types of SAS processing, large files may be used in this location so ensure that you have adequate space in the selected location.
8. The `Additional Installation Options` dialog is now displayed. Make the desired choices. Online help is available for assistance. When finished, click on `Next`.
9. The `Review Installation Choices` dialog is now displayed. Verify that the correct choices are displayed. If not, use the `Back` buttons to step back through the dialogs to make any necessary corrections. Once you are satisfied with your choices, click on `Next`.

SAS Setup will now begin copying files and creating the SAS System installation.

Performing a *Personal Custom* Installation

The following steps are typically followed when performing a *Personal Custom* installation:

1. Carefully read the `Welcome` screen and then click on `Next`.
2. Carefully read the `License Information` screen and then click on `Next` if you accept the terms.
3. After SAS Setup finishes initializing, verify that the *Personal* installation is selected and then click on `Next`.
4. Select the *Custom* setup type and then click on `Next`.
5. The `Choose Destination Location` dialog is now displayed. Carefully select the destination for the SAS System. Be sure that the destination has sufficient disk space to install all of the SAS System components. Once the location is selected, click on `Next`.
6. The `Select Data Files Folder` dialog is now displayed. Either accept the default location, or enter the desired location for the user `Data Files Folder`. Then, click on `Next`.
7. The `Select Temporary Files Folder` dialog is displayed next. Once the desired location for the SAS work area is displayed, click on `Next`. For some types of SAS processing, large files may be used in this location so ensure that you have adequate space in the selected location.
8. The *Custom* installation component listbox is displayed next. By default, all components are selected. Either deselect the components that are not desired, or click on the `Unselect All` button and then individually select the desired components. SAS Setup will recompute the estimated disk space requirement as you select or deselect components. When you are finished, click on `Next`.

9. If a disk space problem is detected, the `Drive Summary` dialog is displayed. Respond to this as appropriate. Then, click on `Next`.
10. The `Additional Installation Options` dialog is now displayed. Make the desired choices. Online help is available for assistance. When finished, click on `Next`.
11. The `Select Program Folders` dialog is displayed. Choose the folder where the SAS System icons are to be installed. Once the desired folder is chosen, click on `Next`.
12. Finally, the `Review Installation Choices` dialog is displayed. Verify that the correct choices are displayed. If not, use the `Back` buttons to step back through the dialogs and make any necessary corrections. Once you are satisfied with your choices, click on `Next`.

SAS Setup will now begin copying files and creating the SAS System installation.

Performing a *Client* Installation

The following steps are typically followed when performing a *Client* installation:

1. Carefully read the `Welcome` screen and then click on `Next`.
2. Carefully read the `License Information` screen and then click on `Next` if you accept the terms.
3. After SAS Setup finishes initializing, select the *Client* installation and then click on `Next`.
4. The `Choose Destination Location` dialog is now displayed. This location will be used for configuration files. Carefully select the desired location and click on `Next`.
5. The `Select Data Files Folder` dialog is now displayed. Either accept the default location, or enter the desired location for the user `Data Files Folder`. Then, click on `Next`.
6. The `Select Temporary Files Folder` dialog is displayed next. Once the desired location for the SAS work area is displayed, click on `Next`. For some types of SAS processing, large files may be used in this location so ensure that you have adequate space in the selected location.
7. The `Additional Installation Options` dialog is now displayed. Make the desired choices. Online help is available for assistance. When finished, click on `Next`.
8. The `Select Program Folders` dialog is displayed. Choose the folder where the SAS System icons are to be installed. Once the desired folder is chosen, click on `Next`.
9. Finally, the `Review Installation Choices` dialog is displayed. Verify that the choices displayed are correct. If not, use the `Back` buttons to step

back through the dialogs to make any necessary corrections. Once you are satisfied with your choices, click on `Next`.

SAS Setup will now begin copying files and creating the SAS System installation.

Performing a *Server Custom* Installation

The following steps are typically followed when performing a *Server Custom* installation:

1. Carefully read the `Welcome` screen and then click on `Next`.
2. Carefully read the `License Information` screen and then click on `Next` if you accept the terms.
3. After SAS Setup finishes initializing, select the *Server* installation and click `Next`.
4. Select the *Custom* setup type and click `Next`.
5. The `Choose Destination Location` dialog is now displayed. Carefully select the destination for the SAS System. Be sure that the destination has sufficient disk space to install all of the SAS System components. Once the location is selected, click on `Next`.
6. The *Custom* installation component listbox is displayed next. By default, all components are selected. Either deselect the components that are not desired, or click on the `Unselect All` button and then individually select the desired components. SAS Setup will recompute the estimated disk space requirement as you select or deselect components. When you are finished, click on `Next`. Be certain that the SAS Setup installation support component is selected. Re-installation from this *Server* install will not be possible unless re-installation support is selected.
7. Finally, the `Review Installation Choices` dialog is displayed. Verify that the correct choices are displayed. If not, use the `Back` buttons to step back through the dialogs and make any necessary corrections. Once you are satisfied with your choices, click on `Next`.

SAS Setup will now begin copying files and creating a re-installable SAS System image. Both help systems will be installed.

Chapter 3, Invoking the SAS[®] System

After it is properly installed, Version 7 of the SAS System under Windows can be invoked in the following ways:

- Click on `Start`, select `Programs`, and choose `The SAS System`. Then, click on the icon labeled `The SAS System for Windows Version 7`.
- Select the `Run` command from the `Start` button menu. Supply the full path to both the `SAS.EXE` and the `SASV7.CFG` files for the SAS System installation you want to execute as shown in the following example:

```
C:\SAS\SAS.EXE
```

When you invoke the SAS System, it searches for a `SASV7.CFG` file in the current directory. If it does not find one, the SAS System searches directories specified in the `PATH` variable and in the root directory of the current drive. Finally, the directory that contains the `SAS.EXE` file is searched. If the SAS System does not find a `SASV7.CFG` file in one of these places, the invocation fails.

For more information on running the SAS System under Windows, refer to *SAS Companion for the Windows Environment, Version 7, Second Edition*, and *Windows Environment: Changes and Enhancements to the SAS System, Version 7*.

Chapter 4, Technical Support Services

Direct technical support is provided by SAS Institute to the designated SAS Installation Representative and SAS Support Consultant at your site. These individuals should be the initial contacts for any user who needs technical assistance. Many programming problems result from a misunderstanding of how the software works, or a failure to use correct syntax. An experienced SAS Support Consultant can spot these errors quickly. These individuals can also search the SAS Notes database to see if a solution for your problem is provided. If the SAS Installation Representative or SAS Support Consultant cannot solve your problem, they can contact the Institute for further assistance.

SAS Institute provides technical support via the World Wide Web, by phone, mail, electronic mail, or dial-up computer access.

For technical support via the World Wide Web, use the following URL:

<http://www.sas.com/ts/>

For technical support by phone, **call (919) 677-8008** between the hours of 9 a.m. and 8 p.m., Eastern Standard Time, weekdays. For technical support by mail, address all correspondence to:

SAS Institute
Technical Support Division
SAS Campus Drive
Cary, NC 27513-2414

Electronic mail access is available to SAS Installation Representatives and SAS Support Consultants through the Electronic Mail Interface to Technical Support (EMITS). This facility allows you to track a technical support problem or add information to a previously reported problem. The following lists additional electronic support that the Technical Support Division provides:

TSNEWS-L Mail and File List

allows you to receive the latest information from SAS Institute's Technical Support Division.

Anonymous FTP

allows you to send or receive information from SAS Institute Technical Support using FTP.

Electronic Fax Service

allows you send and receive faxes more quickly.

Appendix A, Post-Installation Setup for SAS/ASSIST® Software

This appendix 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 Program 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 Locals...Create Group Profile. To add users to a group profile, select Locals...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 the SAS System.

Appendix B, Post-Installation Setup for SAS/CONNECT® Software

The first section in this appendix, "Storing and Locating SAS/CONNECT Script Files", describes the use of the sample script files shipped with SAS/CONNECT software. The next sections in this appendix list supported software for access methods available on Windows and Windows NT respectively, and outline configuration procedures for those access methods requiring additional configuration. The final section documents installing and configuring the Windows Spawner program.

The access methods supported for the SAS System on Windows are EHLLAPI, DECNET, NETBIOS, TELNET, TCP/IP, and APPC. These methods are described in the order listed. See the section for the access methods that you are using at your site for requirement information.

The access methods supported for the SAS System on Windows NT are EHLLAPI, DECNET, NETBIOS, TELNET, TCP/IP, and APPC. These methods are described in the order listed. See the section for the access methods that you are using at your site for requirement information.

Refer to *Communications Access Methods for SAS/CONNECT and SAS/SHARE Software* for information on the access methods supported by other systems.

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 `SASV7.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 `SASV7.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 Access Methods Supported under Windows 95 and Windows 98

The access methods supported for the SAS System on Windows are EHLLAPI, DECNET, NETBIOS, TELNET, TCP/IP, and APPC. These methods are described in the order listed.

EHLLAPI

For the EHLLAPI access method, a supported emulation package must be installed on the Windows node. The following emulation products are supported:

- Attachmate's EXTRA Personal Client, Version 6.1+
- Wall Data's Rumba 95/NT, Version 5.0+
- IBM's PCOM (Personal Communications) Version 4.1+
- McGill Systems TCP3270, Version 3.0+
- Any Windows 32-bit emulation program that supports the EHLLAPI or WinHLLAPI standards.

The EHLLAPI access method requires that the supported emulation package be listed in the `Autoexec Path` statement as shown in the following example:

```
path=C:\ehllapi_package;%Path%
```

DECNET

The following software is required to use the DECnet access method:

- Digital Equipment Corporation's Pathworks 32 with Microsoft's Winsock Version 2.0.

NETBIOS

For the NETBIOS access method, SAS/CONNECT software supports the NETBIOS protocol that is included with Windows.

TELNET and TCP/IP

Using the TELNET or TCP/IP access method, a Windows user can connect to any supported platform that is on the TCP/IP network, is running a release of the SAS System that has the corresponding access method support, and has SAS/CONNECT software licensed. With the TCP/IP access method, one of the supported TCP/IP products must be installed on any node, local or remote, that you want to use with SAS/CONNECT software. For the TELNET access method, a supported TCP/IP package must be installed on the local node. The remote node does not have to run a supported TCP/IP product, but must run some TCP/IP product to make the node accessible via TELNET.

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

APPC

One of the following software packages is required to use the APPC access method with the SAS System under Windows:

- Microsoft SNA Server, Version 2.11 SP1 (Service Pack 1) or subsequent versions
- IBM's Personal Communications Version 4.11 or subsequent versions
- Any program that supports WOSA (Windows Open Services Architecture) APPC (Win APPC) standard.

System Configuration for Access Methods Supported under Windows NT

The access methods supported for the SAS System on Windows NT are EHLLAPI, DECNET, NETBIOS, TELNET, TCP/IP, and APPC. These methods are described in the order listed.

EHLLAPI

The EHLLAPI access method requires one of the following emulation packages:

- Wall Data's Rumba 95/NT, Version 5.0
- Attachmate's EXTRA Personal Client, Version 6.1+
- Any Windows NT 32-bit emulation program that supports the EHLLAPI or WinHLLAPI standards.
- IBM's PCOM (Personal Communications) Version 4.1+

The EHLLAPI access method requires that the supported emulation package be listed in the `Autoexec Path` statement as shown in the following example:

```
path=C:\ehllapi_package;%Path%
```

DECNET

The following software package is required to use the DECnet access method if you have Windows 4.0 installed:

- Digital Equipment Corporation's Pathworks 32

Network Drive Restrictions

Remote SAS/CONNECT sessions cannot access any network drives. This is due to security concerns under Windows NT. The Microsoft Development Library contains more information. See the Windows NT Knowledge Base articles #Q124184, Q132679, and Q122702. This may be addressed in a future release of the SAS System and/or Pathworks. If you require access to a network file, that file can be accessed by copying it to a local drive.

Security Considerations

Signing into a Windows NT system or out of a Windows NT system requires that user information be supplied. This information is called the Access Control Information (ACI) and is specified as part of the `REMOTE=` value for the DECnet access method. If default user information has been configured, you only need to specify the remote nodename; otherwise, you must include username and password information in the ACI. The complete form of the ACI is:

```
%let rmtnode=node"user pass"::;  
options remote=rmtnode;
```

where `user` can be a valid username for the remote system, or a question mark can be used and you will be prompted for the username at signon time; and where `pass` can either be a valid password for the username, or a question mark can be used, and you will be prompted for the password at signon time.

Note: If a password is not required for an account, it can be omitted from the ACI.

Refer to your Pathworks documentation for information on setting up default accounts.

NETBIOS

For the NETBIOS access method, SAS/CONNECT software supports the NETBIOS protocol that is included with Windows NT.

TELNET and TCP/IP

Using the TELNET or TCP/IP access method, a Windows user can connect to any supported platform that is on the TCP/IP network, is running a release of the SAS System that has the corresponding access method support, and has SAS/CONNECT software licensed. With the TCP/IP access method, one of the supported TCP/IP products must be installed on any node, local or remote, that you want to use with SAS/CONNECT software. For the TELNET access method, a supported TCP/IP package must be installed on the local node. The remote node does not have to run a supported TCP/IP product, but must run some TCP/IP product to make the node accessible via TELNET.

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

APPC

One of the following software packages is required to use the APPC access method with the SAS System under Windows NT:

- Microsoft SNA Server, Version 2.11 SP1 (Service Pack 1) or subsequent versions
- IBM's Personal Communications Version 4.11 or subsequent version.
- Any program that supports WOSA (Windows Open Services Architecture) APPC (Win APPC) standard.

Configuring the SAS Windows Spawner Program

The SAS Windows Spawner is stored in the `!SASROOT\CONNECT\SASEXE` directory and can be executed manually from the `!SASROOT` directory at any time. SAS Setup installs the SAS Windows Spawner by executing `SPAWNER.EXE` with the following options:

`-install`

causes the SAS Windows Spawner to install itself as an Windows NT service. By default, the SAS Windows Spawner will be installed to run with security.

`-comamid protocol_name`

`protocol_name` can be TCP, DECnet, or NETBIOS. You must specify at least one. If more than one is specified, then you must include more than one `-comamid` option on the command line. There is no default value for this option.

`-netname name`

`name` can be a 1 to 8 character string and is the network name that is used by NETBIOS.

By default, when the SAS Windows Spawner is installed as a Windows NT 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 NT service (run it from your system prompt), the Windows NT, Version 4.0 userid used to start the SAS Windows Spawner must be a member of the Administrator group 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 NT, Version 4.0 userid specified at signon needs only this User Right:

- log on as a batch job

Using Encryption with the Spawner

If you are using encryption with the PC spawner you must either invoke the spawner with the `-path` option in order to tell the spawner where to find the encryption modules, add the directory to the OS path, or copy the modules to the directory from which you run the spawner. If you are running the spawner as a service, the `-path` option will not work so you must choose one of the other solutions.

The DLL for the CryptoAPI support is installed in:

```
$sasroot\securewin\sasexe\tcpdcapi.dll
```

and the DLL for the SAS support is installed in:

```
$sasroot\core\sasexe\tcpdencr.dll
```

Changing a Secured Spawner to a Non-Secured Spawner

When the spawner is installed as a service, it is installed to run secured by default. If you wish to run an unsecured spawner as an NT service, you can execute a file in order to change the spawner mode to unsecured. The following lines should be put into a file and either run with the REGEDIT command or imported into the registry editor through the pulldown menu:

```
/* sample contents of file */  
REGEDIT4  
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\SAS Job Spawner\Parameters]  
"security"=hex:00,00,00,00
```

Refer to "The PC Spawner Program" in *Communications Access Methods for SAS/CONNECT and SAS/SHARE* for complete information on using the SAS Windows Spawner.

Appendix C, Post-Installation Setup for SAS/EIS[®] Software

With Version 7 of the SAS System, the SAS/EIS Metabase facility has been converted to the new Common Metadata Repository. The Common Metadata Repository is a general-purpose metadata management facility that provides common metadata services to different SAS/EIS applications. The Common Metadata Repository enables SAS/EIS software to share metadata with other SAS System products.

For existing SAS/EIS software users, using the Common Metadata Repository requires a one-time setup and conversion. Complete all of the steps in the following sections before you attempt to use SAS/EIS software.

Note: You must have write access to the SASHELP directory to complete the steps in the sections below.

Specifying the System Repository Manager Location

Complete the following steps to update the SAS System registry item, REPOSITORY_MGR, with the location of the default repository manager path at your site.

1. Create a directory that will be dedicated exclusively to the storage of repository manager files, !SASROOT\RPOSMGR for example. This directory should not be used to store other SAS files.
2. Type REGEDIT from a SAS command line. From the toolbar, select Tools, then Options, and then Registry Editor. From the Select Registry View window, select View All, then select OK. Select OK in the dialog window. From the toolbar, select File and then Close to close the Registry Editor.
3. Type REGEDIT again from a SAS command line. Under the HKEY_SYSTEM_ROOT tree, expand CORE and REPOSITORY. Select the REPOSITORY_MGR node. From the toolbar, select Tools, then Options, then Registry Editor. Select Open HKEYS_SYSTEM_ROOT for write access. Then, select OK.
4. Select the Path item in the right window. From the right mouse button pop-up menu, select Modify. Enter the path from step 1. For example, !SASROOT\RPOSMGR. Select OK to close the Edit String Value window. From the toolbar, select File and then Close to close the Registry Editor and save the changes.

Setting Up the System Repository Manager Files

Complete the following steps to set up the necessary system repository manager files:

1. From a SAS command line type `REPOSMGR` and then select the Setup Repository Manager icon.
2. From the Repository Manager Setup window, verify the path as being the System Repository Manager path you specified in step 1 and then select OK.
3. From the Installation Warning window, select Yes to generate the necessary repository manager files.

You have now completed set up for the System Repository Manager. You can create additional repository managers (a user repository manager for example) by repeating the steps above using a different path.

Setting Up the SASHELP Repository

Complete the following steps to set up the SASHELP repository used by the Report Gallery templates:

1. From a SAS command line, type `REPOSMGR` and then select Repository Registration.
2. From the Repository Registration window, select New.
3. From the Register Repository (New) window, type `SASHELP` (in uppercase) in the Repository field and then type the full directory path where the EIS catalog is located in the Path field (`!SASROOT\EIS\SASHELP\` for example). In the Description field, you can enter any character string (`SAS/EIS SASHELP Repository` for example). Select OK to close the Register Repository (New) window, then Close to exit the Repository Registration window.

Note: Repositories cannot span multiple directories in that 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 Existing SAS/EIS Metabases

Please refer to the SAS/EIS software online documentation for instructions on converting SAS/EIS metabases.

Appendix D, Installing SAS/IntrNet[®] Software

Introduction

If you licensed SAS/IntrNet software and have completed the installation instructions described earlier in this document, you have installed the SAS server components of SAS/IntrNet software (referred to as the SAS/IntrNet server). The SAS/IntrNet CD that is included with your SAS Software package contains complete documentation for SAS/IntrNet software.

Installing SAS/IntrNet Web Server or Client Components

SAS/IntrNet software also includes components that must be installed on a Web server or on individual client machines. To install any of the additional SAS/IntrNet components:

1. Locate the SAS/IntrNet software CD that is included in your SAS Software package and mount the CD according to the platform-specific instructions that are provided on the inside cover.
2. In a browser, view the `index.htm` page that is located in the root directory of your CD.
3. From the `index.htm` page, select the `Installation` button and follow the instructions provided on the `Installing SAS/IntrNet Software` page.

Configuring SAS/IntrNet Components

Both the SAS/IntrNet server and the Web server components require additional configuration before you can use them in your Web-enabled environment. Configuration information is provided as part of the documentation contained on the SAS/IntrNet CD.

Updates to Components and Documentation

Additional documentation and component updates may be available from our Web site at www.sas.com/rnd/web/intro.html. You may want to monitor the `What's New` page (`new.html`) for information about new or updated components.

Appendix E, Post-Installation Setup for SAS/SHARE® Software

This appendix discusses the access methods that are available with Version 7 of SAS/SHARE software.

Selecting a Communications Access Method

To implement SAS/SHARE software, complete the following steps:

1. Determine access method to use.

Communication between a SAS/SHARE server and user is handled by a communications access method, which is a part of the SAS System that uses underlying communications software to exchange messages and data. There are currently five different access methods available for use with this release of SAS/SHARE software under Windows. They are described in the table below.

You may choose to use one, two, or three of them, depending on your needs and your communications/networking hardware and software configuration. To use an access method, you must have the supporting software on each workstation on which a SAS/SHARE server or user will execute. The following table shows the supported communications software for each access method.

Access Method	Communications Software Required
NETBIOS	Microsoft's NETBIOS driver for Windows
DECnet	Dependent on version of Windows. Refer to Appendix B, "Post-Installation Setup for SAS/CONNECT Software" for communications software required.
TCP/IP	Microsoft's TCP/IP driver for Windows
APPC	Microsoft SNA Server, Version 2.1+ or later, or any program that supports Microsoft's APPC WOSA standard

2. Set SAS system options to specify selected access method(s).

The SAS system options `COMAMID=`, `COMAUX1=`, and `COMAUX2=` specify the communications access methods to be used. These options can be specified in the SAS command, or in a SAS configuration file. The `COMAMID=` option can also be specified in an `OPTIONS` statement. Only the `COMAMID=` option is required to use SAS/SHARE software. You should only specify values for the `COMAUX1=` and `COMAUX2=` options when it is necessary for SAS users at your site to use more than one access method to communicate with SAS server(s).

The table below shows the value to specify for these options to identify each access method:

Access Method	COMAMID=/COMAUX1= /COMAUX2= Value
NETBIOS	NETBIOS
DECnet	DECNET
TCP/IP	TCP
APPC	APPC

For a server, these three options have essentially the same meaning; each access method specified by these options will be initialized when the server is started, making the server accessible to users via any of those access methods.

For example, for a server that is to be accessible only to users who use the NETBIOS access method, specify the following:

```
COMAMID=NETBIOS
COMAUX1=
COMAUX2=
```

For a server that is to be accessible to users who use either the NETBIOS access method or the APPC access method, specify the following:

```
COMAMID=NETBIOS  
COMAUX1=APPC  
COMAUX2=
```

or

```
COMAMID=APPC  
COMAUX1=NETBIOS  
COMAUX2=
```

For a user session, the access method specified by the `COMAMID=` option is the first one used to attempt to connect to a server. If the server is not found, the access method specified by the `COMAUX1=` option is used. If the server still is not found, the access method specified by the `COMAUX2=` option is used.

For example, to cause a user session to use only the NETBIOS access method, specify the following:

```
COMAMID=NETBIOS  
COMAUX1=  
COMAUX2=
```

Note: It is not necessary to specify `COMAUX1=` or `COMAUX2=` if you do not want to specify a secondary or tertiary access method.

To cause a user session to first try to locate a server using the APPC access method, and then to use the TCP/IP access method if the server is not found, specify the following:

```
COMAMID=APPC  
COMAUX1=TCP  
COMAUX2=
```

To cause a user session to try the NETBIOS, APPC, and TCP/IP access methods in that order, specify the following:

```
COMAMID=NETBIOS  
COMAUX1=APPC  
COMAUX2=TCP
```

System Configuration for the NETBIOS Access Method

For the NETBIOS access method, SAS/SHARE software supports the NETBIOS protocol that is included with Windows.

System Configuration for the APPC Access Method

See "System Configuration for the APPC Access Method," and "System Configuration for the CPIC Access Method," in Appendix A, "Post-Installation Setup for SAS/CONNECT Software," for information.

System Configuration for the TCP/IP Access Method

Software Requirements

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

Define server names in the TCP/IP SERVICES file

Complete the following steps:

1. Locate the `SERVICES` file.

If you are using Windows NT, then the `SERVICES` file is in the subdirectory off of your Windows directory and is named `system32\drivers\etc`. If you are using Windows, then the `SERVICES` file is in the Windows directory.

2. Specify the server names and port assignments.

Each SAS server that runs on a network must be defined 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 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.

System Configuration for the DECNET Access Method

See "System Configuration for the DECNET Access Method," in Appendix A, "Post-Installation Setup for SAS/CONNECT Software."

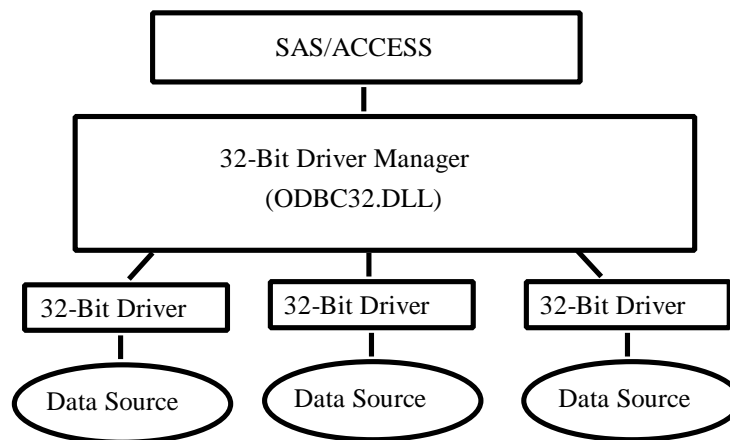
Appendix F, Installing SAS/ACCESS® Interface to ODBC Software

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 32-bit ODBC driver for the source 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 Windows NT, Windows 95, or Windows 98, you need 32-bit drivers. The application calls the 32-bit Driver Manager (ODBC32.DLL), which in turn calls the 32-bit drivers. The following figure illustrates the architecture:



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 Software for Relational Databases: Reference, Version 7, First Edition*. For more information about ODBC, refer to *Microsoft ODBC 3.0 Programmer's Reference and SDK Guide*.

SAS/ACCESS ODBC Conversion Utilities

The SAS/ACCESS ODBC Conversion Utilities are included in the SAS/ACCESS Interface to ODBC software. It helps Version 6 SAS/ACCESS Interface to AS/400 and SAS/ACCESS Interface to Microsoft SQL Server users move from a native DBMS interface connection to an ODBC interface connection on Version 7 of the SAS System.

For AS/400 Users:

Before you can use the ODBC Conversion Utilities for AS/400 Interface, you need to install IBM's Client Access ODBC Driver (32-bit) V3.00.0004 or above. If your AS/400 Client Access installation loaded a Client Access ODBC Driver prior to this version, you can download Program Temporary Fix (PTF) SF42728 or later from ftp.software.ibm.com for an update. This service pack for the Client Access product can be found in the `/as400/products/clientaccess/win32/v3rlm2/servicepack/` directory. When this update is applied, Version 3.00.0004 or later of the ODBC driver should be installed.

You are also required to create a data source name. You can use the ODBC administrator to add it. The data source name 'AS400' is recommended. If you want to use another data source name, set the SAS environment variable `AS400DSN` to the data source name you assigned. Quotes are required if blanks or special characters are included. You may want to create it as a system DSN instead of a user DSN if you have more than one user who may want to use the same workstation to access the AS/400 database.

Complete the following steps to create a data source for AS/400 database access:

1. Run ODBC Administrator from the Control Panel or Start menu.
2. Click the `User DSN` or `System DSN` tab.
3. Click the `Add` button and then choose `Client Access ODBC driver (32-bit)` from the pop-up windows.

4. Click the `General` tab and enter `AS400` (or another name) in the `Data Source Name` field. Choose `System` from the pull-down menu and enter a `userid`.
5. Click the `Server` tab. Leave blanks or enter your default libraries for search.
6. Click the `Format` tab. Choose `System Naming Convention`.
7. Click the `Performance` tab. Uncheck the box for `Enable Extended Dynamic Support`.

For Microsoft SQL Server Users:

Before you can use the ODBC Conversion Utilities for Microsoft SQL Server Interface, you must install Microsoft's SQL Server ODBC Driver (32-bit) V2.65.0213 or above. This file can be found in the Microsoft ODBC Desktop Drivers 3.5 or later and can be downloaded from the Microsoft web site.

It is recommended, but not required to create a data source name. You can use ODBC administrator to add it. You must set the SAS environment variable `MSSQLDSN` as the data source name you assigned. Quotes are required if blanks or special characters are included. You can create it as a system DSN instead of a user DSN if you have more than one user who may use the same workstation to access the Microsoft SQL Server database.

Complete the following steps to create a data source for Microsoft SQL Server database access:

1. Run ODBC Administrator from the Control Panel or Start menu.
2. Click the `User DSN` or `System DSN` tab.
3. Click the `Add` button and choose `SQL Server` from the pop-up window.
4. Enter any name in the `Data Source Name` field. This name needs to match the value you set for the SAS environment variable `MSSQLDSN`.
5. Choose or enter the `Server` field which you defined using SQL Client Configuration Utility.
6. Enter a network address if you desire.
7. Click the `Options` button. Enter a database name if you desire.

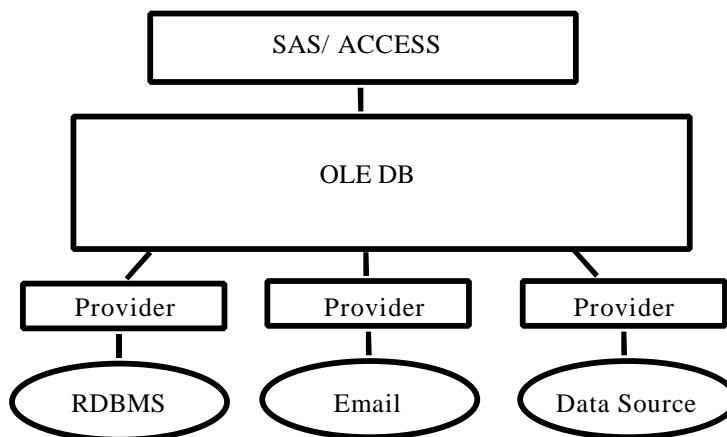
Appendix G, Installing SAS/ACCESS® Interface to OLE DB Software (Experimental)

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

- Base SAS Software
- SAS/ACCESS Interface to OLE DB Software (Experimental)
- An OLE DB provider for the source which you want to access data
- Microsoft Data Access Components (MDAC) 1.5 or higher from Microsoft

The OLE DB solution allows different technologies to be used by defining a standard interface. SAS/ACCESS Interface to OLE DB software with OLE DB providers gives you access to different data sources. An OLE DB provider processes OLE DB interface calls from and returns results to SAS/ACCESS software. You can get OLE DB providers from Microsoft, your database vendor, or other third party software vendors.

To run SAS/ACCESS software on Windows NT, Windows 95, or Windows 98, you need OLE DB providers. The application calls the OLE DB loadable library (oledb.dll), which in turn calls the OLE DB providers. The following figure illustrates the architecture:



Appendix H, Installing SAS/ACCESS® Interface to ORACLE Software

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

- Base SAS software
- SAS/ACCESS Interface to ORACLE software
- ORACLE SQL*Net Client, Version 7.3 or above

Before using SAS/ACCESS Interface to ORACLE software, you must install the ORACLE SQL*Net Client, Version 7.3 or above on the same PC where SAS/ACCESS Interface to ORACLE software will be used.

If you are using ORACLE, Version 7.3 client, you need:

- ORACLE SQL*Net Client, Version 2.3 for Windows NT and Windows 95
- ORACLE Protocol Adapter(s), Version 2.3 for Windows NT and Windows 95

Note: If you are installing ORACLE SQL*Net Client, Version 2.3 on Windows 98, please obtain Version 7.3.4.0 or later of the ORACLE 7 Client software.

If you are using ORACLE, Version 8.0 client, you need:

- ORACLE Net8 Client, Version 8.0 for Windows NT and Windows 95
- ORACLE Protocol Adapter(s), Version 8.0 for Windows NT and Windows 95

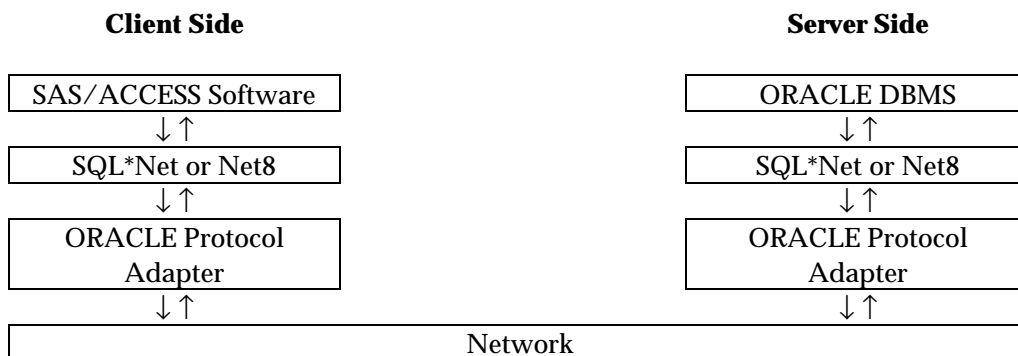
Note: If you are installing ORACLE Net8 Client, Version 8.0 on Windows 98, please obtain Version 8.0.5.0 or later of the ORACLE 8 Client software.

Client-Server Architecture

SAS/ACCESS Interface to ORACLE software runs on the client machine (Windows). It accepts user input and sends requests to ORACLE SQL*Net (or Net8) client to be transported across the network to the server.

The ORACLE database and ORACLE SQL*Net (or Net8) listener are running on the server machine (Windows NT, UNIX, or others). The listener accepts the connection from the client on the network. It then delivers SAS/ACCESS requests to the ORACLE database.

SAS/ACCESS Interface to ORACLE software only supports ORACLE client V7.3 or above. However, it can interface to any version of ORACLE databases running on the server.



Installing SQL*Net (or Net8)

Run the ORACLE Installer and select SQL*Net Client (or Net8 Client) and one or more ORACLE protocol adapters. It is strongly recommended that you install/use ORACLE TCP/IP Adapter for your database connection.

If you are using Net8 Client for database connection, you must set the ORACLE system variable ORAOCI as the name for an ORACLE client DLL. For example, if you are using ORACLE, Version 8.0.3 for Windows NT. You can set the value of ORAOCI as 'C:\ORANT\BIN\ORA803.DLL' in the Windows NT Registry (REGEDT32).

Assigning the Default Path for the ORACLE Server

After you install ORACLE SQL*Net Client software, you may want to specify the default connect string by defining the default path for ORACLE Server. When you use SAS/ACCESS interface software without specifying any `PATH` statement/field, SAS/ACCESS software uses the defined default path.

For Windows NT:

Complete the following steps:

1. Run Windows registry editor (REGEDT32)
2. Select `HKEY_LOCAL_MACHINE...SOFTWARE...Oracle`
3. Select `Edit...Add Value`
4. Enter `LOCAL` as the Value Name and then select `OK`
5. Enter your connect-string for the `String` field in the pop-up dialog box
6. Select `OK`.

For Windows 95 and Windows 98:

Complete the following steps:

1. Run Windows registry editor (REGEDIT).
2. Select HKEY_LOCAL_MACHINE...SOFTWARE...Oracle.
3. Select Edit...New...String Value.
4. Enter LOCAL as the Value Name and then select Edit...Modify.
5. The Value Name field now says Local.
6. Enter your connect-string for the Value Data field in the pop-up dialog box.
7. Select OK.

For more information about SAS/ACCESS Interface to ORACLE, refer to the ORACLE chapter in *SAS/ACCESS Software for Relational Databases: Reference, Version 7, First Edition*.

Appendix I, Setting Up the SAS ODBC Driver

The SAS ODBC Driver allows you to access, update, and manipulate SAS data from ODBC-compliant applications, such as Microsoft Access, Microsoft Excel, Visual Basic, and PowerBuilder. The SAS ODBC Driver provides read and write access to databases such as IBM DB2 and ORACLE via SAS/ACCESS software running on remote SAS servers. Furthermore, SAS views can be defined to join database tables from different vendors, creating a virtual data warehouse for your ODBC-enabled applications.

The SAS ODBC Driver uses the TCP/IP protocol to access your data. It is not required that the SAS System be installed on the client machine to access a remote SAS server via ODBC. Accessing local SAS data requires Base SAS software to be installed on the client machine.

TCP/IP support allows users to access both local and remote SAS servers on a variety of host platforms.

A remote server requires that Base SAS software, SAS/SHARE software, and SAS/SHARE*NET software is installed.

Version 7 of the SAS ODBC Driver provides transparent access to your SAS data from your favorite ODBC-enabled applications.

- Full compliance with ODBC date, time, and timestamp datatypes.
- Support for the ODBC numeric, string, date, and time scalar functions, providing access to SAS functions through a standard ODBC interface.
- The 32-bit SAS ODBC Driver supports all 32-bit Windows applications.
- New, easy-to-use setup dialogs.
- Improved diagnostics featuring ODBC-compliant "multi-layered" error reporting, which provides server- and driver-generated error messages.
- Allows System Data Source Name (DSN) to be used for 32-bit SAS ODBC driver.

Installing the SAS ODBC Driver

The SAS ODBC Driver setup program is included on your SAS System installation media.

To start the SAS ODBC Driver installation process, complete the following steps:

1. Insert the SAS installation media into the source drive.
2. Select `Start...` and then `Run...`
3. Type the following command to install the 32-bit driver under Windows:

```
<source_drive>:\ODBCDRV\SETUP
```

In both cases, `source_drive` is the drive containing the SAS installation media.

Whether you typed the above command or you installed the SAS ODBC Driver from the SAS Setup Autoplay program by selecting the `SAS ODBC Driver Installation` option. The Installation Wizard will lead you through the installation process.

Note: For information about configuring the SAS ODBC Driver, refer to **SAS ODBC Driver Technical Report: User's Guide and Programmer's Reference #55272**. You can download this document from the SAS Institute Web site using the following link:

```
http://www.sas.com/service/doc/intro.html
```

Select the `Technical Report` link to access this Technical Report.

This Technical Report contains detailed information on configuring and using the SAS ODBC Driver. It is highly recommended that you obtain the Technical Report, especially if you are new to using the SAS ODBC Driver.

If you do not have access to the Internet, this Technical Report has also been included online on the SAS ODBC Driver's installation CD-ROM.

Technical Support

For support issues and problems please contact SAS Technical Support at 919-677-8008 and ask for a PC consultant. Let the consultant know you are running the Version 7 SAS ODBC Driver.

Appendix J, Testing the Installation

This appendix provides information on how to execute programs to test the success of your installation. Most products include *test streams*, as well as benchmark results for comparison. These test streams execute several programs to test various parts of the product. They are located in the `!SASROOT\CORE\SASTEST` subdirectory. The installation test streams can be installed directly from the installation media using SAS Setup for *Custom* installation. Install the test stream component from each of the following products: Base SAS, SAS/ETS, SAS/GRAPH, SAS/IML, SAS/OR, SAS/QC, and SAS/STAT software. The `DOS FC` command is used to compare the benchmark results with those results generated at your site. To execute test streams, perform the following steps:

1. Change directory to the `SASROOT` directory.
2. Complete the following steps:
 - a. Invoke a command prompt.
 - b. Change to the `SASROOT` directory.
 - c. Enter `SAS CORE\SASTEST\testxxxx.sas` to invoke the test stream, where `xxxx` is the product name (BASE, STAT, for example)
3. Examine the results of the test stream using a text editor. The results are stored in a text file named `TESTxxxx.out`. This file is stored in the “SAS user files area” in a subdirectory named `xxxx`, where `xxxx` is the product name. For example, let’s assume that you are running on Windows NT, and when setup prompts you for the SAS user files area, you accept the default location of “My SAS Files”. Then after running the install test stream for the base product, the test results would be found in your Windows NT profile area under the `Personal/My SAS Files/BASE` path with the name `testbase.out`.
4. If the resulting file shows any compare errors, check the appropriate `.LOG` file for any error messages.

SAS/GRAPH software includes a master test stream, but does not include any benchmarks. This test stream exercises each of the SAS/GRAPH procedures. After executing `TESTGRAF.SAS` as described above, examine the file `TESTGRAF.LOG` for any error messages.

Appendix K, Updating Your SAS® System SETINIT

The SAS System is licensed on an annual basis. In order to run each software product you license from SAS Institute, current licensing information must be maintained. This information resides in the `SETINIT.SAS` file. The installation process copies the `SETINIT.SAS` file to the `!SASROOT\CORE\SASINST` subdirectory. When you install the SAS System, the SETINIT information is used to initialize the software for the current licensing period.

You must update your SETINIT when:

- the license period has expired in the `SETINIT.SAS` file on the installation media.
- the license has expired in your currently installed SAS System.
- when you license new or additional products of the SAS System.

Updating your license requires new SETINIT information, which is sent to the SAS Installation Representative at your site. This information is usually provided on a diskette. You need this new SETINIT to update your licensing information. If you are the SAS Installation Representative at your site and you have not received a new SETINIT since renewing your license, contact the Contracts Division at SAS Institute at (919) 677-8003.

You should update your SETINIT by executing the SIUPDATE program using one of the following methods:

- using the `Update SAS V7 License Information` icon
- during installation of the SAS System
- executing from the command line.

Using the Update SAS V7 License Information Icon

During the installation of the Core component of Version 7 of the SAS System, the `Update SAS V7 License Information` program icon was created in either the program folder you selected or on the `Start|Programs` button for Explorer-interfaced platforms. The default program folder is *The SAS System*.

The SAS System has a built-in 60-day grace period that begins the day after your license expires. This grace period provides extra operating time so that the SAS Installation Representative at your site can renew the license through the Technical Support Division at SAS Institute. During the grace period, warning messages may appear when updating your license information, but your SAS System will still be functional. Once the grace period expires, the SAS System cannot be invoked until the license information has been updated.

If your SAS System Version 7 license has expired, use the `Update SAS V7 License Information` icon to reapply the `SETINIT.SAS` file to reinitialize the SAS System to your new licensing period. You can do this provided the expiration date in your updated `SETINIT.SAS` file is past the current date. If the expiration date is prior to the current date (i.e., your SAS System is licensed on a trial basis), you cannot use the `Update SAS V7 License Information` icon to apply the `setinit`; you must apply the `setinit` manually. See the section, "Executing from the Command Line," in this appendix for more information.

Note: You should only use the `Update SAS V7 License Information` icon if the expiration date in your `SETINIT.SAS` file is past the current date. See the section, "Executing From the Command Line" later in this appendix if your expiration date in your `SETINIT.SAS` file contains a date that is past the current date.

Double-click on the `Update SAS V7 License Information` icon to invoke the licensing program.

SAS Setup uses the `SASV7.CFG` file to determine the location of the `SASROOT` and `SASFOLDER` system variables. After providing the directory where the `SASV7.CFG` file is located, select `Next`. You will then be asked to verify the `SASROOT` and `SASFOLDER` locations.

`SASROOT` is the location of `SAS.EXE` for the SAS installation that you are updating. `SASFOLDER` is the working folder of your installed SAS System, and must be the same as what is stored in your `SASV7.CFG` file.

Select `F1` or the `Help` button to receive online help during the install. Select `Next` to continue updating the SAS license information, or `Cancel` to exit `SIUPDATE`.

Verify that this is the correct location for the `SASROOT`. SAS Setup uses the `CORE` directory when updating the SAS license, so `SAS.EXE` must be in this directory. `SASROOT` is the location of `SAS.EXE` for the SAS installation that you are updating.

Select `Next` to continue updating the SAS license information, `Back` to return to the previous screen, or `Cancel` to exit `SIUPDATE`.

Verify that this is the correct location for the `SASFOLDER`. `SASFOLDER` is the working folder of your installed SAS System, and must be the same as what is stored in your `SASV7.CFG` file.

Select `Next` to continue updating the SAS license information, `Back` to return to the previous screen, or `Cancel` to exit `SIUPDATE`.

Once you have supplied the installation location of the Core SAS product, indicate whether or not your updated (new) `SETINIT.SAS` file is located on the network/diskette.

Select `Yes` if your new `SETINIT.SAS` is located on a network drive or on diskette. If your `SETINIT.SAS` file is on paper and not on diskette or accessible

via the network, select **No**. You will be asked if you want to manually correct your existing `SETINIT.SAS` file.

If your new `SETINIT.SAS` is located on a network drive or diskette, provide the directory where your updated `SETINIT.SAS` file is located and select **Next**. Your SAS license will be updated.

If your new `SETINIT.SAS` file is not accessible on the network or diskette, select **Back** to return to the previous dialog. Select **No** on this question dialog so that you will be given the opportunity to edit the license information.

Select **Yes** if you would like to manually edit the `SETINIT.SAS` file that resides in the `!SASROOT\CORE\SASINST` directory. If you select **No**, `SIUPDATE` will end and the SAS license will not be updated.

Updating Your SAS SETINIT during Installation of the SAS System

The installation process, SAS Setup, copies the `SETINIT.SAS` file into the `!SASROOT\CORE\SASINST` directory. (The `SETINIT.SAS` file can also be found on the installation media). If the `SETINIT.SAS` file appears correct to the SAS Setup program, the license update is executed automatically during the installation process. If the SAS Setup program determines the `SETINIT.SAS` file is expired or invalid, SAS Setup allows you to specify a directory path containing valid license information to apply. (Expired files are often sent to non-U.S. customers to enable them to customize their `SETINIT.SAS` file with correct information while installing the SAS System).

Executing From the Command Line

You can update your licensing information from the command line in one of two ways:

- Execute `SIUPDATE` from the command line:

Invoke the `SIUPDATE.EXE` program from the `!SASROOT\CORE\SASINST` subdirectory. This will take you through the same routine as the `Update SAS V7 License Information` icon does to update the `SETINIT`.

- Execute SAS from the command line to run the `SETINIT.SAS` file interactively:

Invoke the SAS System and include the `SETINIT.SAS` file in the program editor by clicking your right mouse button and then select `File...Open...Read`. Type in the full path and name of the `SETINIT.SAS` file as shown in the following example and then select `OK`:

```
C:\SAS\CORE\SASINST\SETINIT.SAS
```

Note: This example assumes the SAS System was installed on `C:\SAS` and that command lines are turned off. If command lines are turned on, the right mouse button will work and you must issue the `include` command as shown in the following example:

```
inc 'C:\SAS\CORE\SASINST\SETINIT.SAS'
```

Make all the appropriate changes according to your paper `SETINIT` and then submit the program by pressing the `F8` key or by typing `SUBMIT` on the command line. If there are differences between the `SETINIT` information that is displayed, and the paper `SETINIT`, the following errors are displayed in the `LOG` file:

```
Error: Incorrect information was entered for the password.
```

Recall the `SETINIT.SAS` file by pressing the `F4` key, or by typing `RECALL` on the command line. Check each line to ensure that the information displayed in the program editor matches the paper `SETINIT` exactly.

- If your license has expired, manually invoke SAS with special options that will allow the `SETINIT` to be applied.

1. To invoke the SAS System using the Windows style taskbar, select `Start` and then `Run`. If you are using the Windows Program Manager, select `File` and then `Run`.
2. Type the following:

```
<source drive>:\sas\sas.exe -setinit
-sysin c:\setinit.sas
-config <source drive>:\sas\sasv7.cfg
```

Licensing Process Problems

If the SAS licensing process encounters problems applying the new updated `setinit`, a window is displayed. Select `Yes` to review the error log. The SAS licensing program launches the default system editor to review the error log. Select `No` to bypass review of the error logs.

Appendix L, Using Silent Setup

Silent Setup allows you to record an installation and then play it back later in order to install the SAS System on other machines. Using Silent Setup can save system administrators a lot of time when they are installing software on many different machines. Follow the steps in this appendix and read the help screens before you attempt to record an installation. In addition, make sure the machine to which you are installing has enough free disk space before continuing.

Recording an Installation

Submit the command `setup /r` to begin recording an installation. By default, the path and the filename of the recorded session is set to your Windows directory as shown in the following example:

```
C:\win95\setup.iss
```

If you want to record the session elsewhere, submit the following command:

```
setup /r/fl<path and filename of the recording session>
```

Note: Do not leave a space between `fl` and the next argument as shown in the following examples:

```
setup /r/flC:\mydir\myfile.iss (correct)
setup /r/fl C:\mydir\myfile.iss (incorrect)
```

Refer to online help for additional information about the use of Silent Setup.

Record Mode Options

Record mode creates a file of the recorded session in the Windows directory (such as WIN95). The following options determine how Silent Setup should behave when encountering certain situations during playback:

- **Replace Existing Registry Keys**
determines whether Silent Setup will replace existing registry keys that it needs during playback. This includes replacement of existing Release 6.12 of the SAS System registry keys.
- **Install Spawner on Windows NT**
installs the Job Spawner service when doing a *Personal* installation on Windows NT.
- **Ignore File Copy Errors**
allows Silent Setup to continue run even when it encounters file copy errors.

Playing Back an Installation

Submit the command `setup /s` to play back a previously recorded installation. By default, the path and filename of the recorded session is your Windows directory as shown in the following example:

```
C:\win95\setup.iss
```

If you recorded the session elsewhere, submit the following command:

```
setup /s/f1<path and filename of the previously recorded session>
```

Note: Do not leave a space between `f1` and the next argument as shown in the following examples:

```
setup /s/f1C:\mydir\myfile.iss (correct)
setup /s/f1 C:\mydir\myfile.iss (incorrect)
```

Troubleshooting

Should Silent Setup encounter a problem during playback, ***the status dialog disappears and all files and changes made to your system are reversed, leaving the system in its original state.*** Because Silent Setup runs without user intervention, determining the cause of the termination can sometimes be difficult. The following are possible reasons why Silent Setup could terminate during playback:

- The drive to which you are installing does not contain enough free disk space. Free up some disk space and try again.
- The order of dialog prompts that you recorded in the response file (`setup.iss`) is not the same as the order of dialog prompts that Silent Setup is encountering (silently) during playback. This is the most common problem. Try running a normal interactive Silent Setup on the machine in question and note any dialog prompts that were not recorded in the original response file. This may require recording a new response file to use on machines like the one exhibiting the problem.

Recording External Setups

Silent Setup will not record external setups such as SAS Viewer or the ODBC Driver setups. If you choose to record these external setups, at the time you play back the recorded session, you will be prompted to install the external setups.

Appendix M, System Management Server

Note: Refer to Microsoft documentation for detailed information about installation and use of Microsoft's System Management Server (SMS).

The Silent Setup feature allows repeated installs to a specific configuration of the SAS System without having to step through all of the dialogs. This allows the SAS System to be installed using Microsoft's SMS. Either the standard configuration or a custom configuration can be used for installs. Custom scripts can be recorded and added as additional setup variations in the SAS System package for SMS. These custom scripts are provided for the automated setup variations defined in the SAS System Package Definition File (PDF).

Options for Silent Setup when Installing via SMS

Note: These options must appear ahead of any options defined by InstallShield (-r, -s, and -f1 are defined by InstallShield).

The options are:

`nostatus` Using the `nostatus` option results in a truly Silent Setup that runs in the background and displays nothing. Without this option, as shown previously, a status dialog will be displayed in the upper-right corner of your display. The `nostatus` option should be used for SAS System installations via SMS.

For example:

```
setup -nostatus -s -f1C:\myscript.iss
```

`path=<drive>\<path>` Using the `path=` option overrides the destination that is recorded in the ISS script. Without this option, as shown previously, the SAS System will be installed to the drive and directory that are recorded in the ISS script. A drive and directory must be included with this option.

Note: The usual failure mode for a Silent Setup is an aborted installation without an error or failure message. If you suspect that a Silent Setup has failed, look for `INS0432.MP` using the Task Manager, then Processes. This process will be active if Silent Setup is still running.

The Silent Setup (ISS) script provided at `core\sasinst` is:

```
sastyp.iss
```

`sastyp.iss` does a full install.

This script installs the SAS System to `C:\SAS`. See Appendix L, "Using Silent Setup" if you want to specify the destination at setup time.

Using Package Definition Files (PDF)

The following PDFs provide the following setup variations:

- Automated *Complete* Setup Type
- Automated Uninstall

Automated indicates unattended install is supported for that variation. The default target directory for the automated setups and for the `uninstall` command line string is `C:\SAS`. An SMS administrator can use the `path=<drive:\path>` argument to install to a different target drive and directory if desired. The `uninstall` command line should also be changed.

- *Custom* Setup Type

A *Custom* setup type provides for an SMS-initiated interactive installation.

PDF for the SAS System

```
[PDF]
Version=1.0
```

```
[Package Definition]
Product=The SAS System
Version=7
Comment=The SAS System Version 7
SetupVariations=Automated Complete, Custom, Automated Uninstall
WorkStation Access=UserRead, GuestRead
```

```
[Automated Complete Setup]
CommandLine=setup.exe -nostatus -SMS -s -
f1.\core\sasinst\sastyp.iss
CommandName=Personal Complete Setup for The SAS System
UserInputRequired=False
SynchronousSystemExitRequired=False
SupportedPlatforms=Windows NT (x86), Windows95, Windows 98
```

```
[Custom Setup]
CommandLine=setup.exe -SMS
CommandName=SAS Custom Setup
UserInputRequired=True
SynchronousSystemExitRequired=False
SupportedPlatforms=Windows NT (x86), Windows95, Windows 98
```

```
[Automated Uninstall Setup]
```

```
CommandLine=uninst.exe -fc:\sas\deisl1.isu -y -a -  
c"c:\sas\uninst.dll  
CommandName=Uninstall SAS  
UserInputRequired=False  
SynchronousSystemExitRequired=False  
SupportedPlatforms=Windows NT (x86), Windows95, Windows 98
```

```
[Setup Package for Inventory]  
InventoryThisPackage=True  
Detection Rule Part 1=file 1
```

```
[file 1]  
FILE=sas.exe  
COLLECT=FALSE  
;The following can also be filled out as necessary. Remove the  
leading quote mark from each line to be used:  
;Checksum=  
;CRC=  
;Date=  
;Size=  
;Time=  
;BYTE=  
;WORD=  
;LONG=  
;Token 1=  
;Token 2=  
;Token 3=  
;Token 4=
```


Federal Government Rights Notice

If your installation is a federal government site or a federal government prime contractor site, contractual requirements include a usage rights notice, which you should examine. This notice is file `FEDGOVT.TXT` and is copied automatically during installation. The file is located in `!SASROOT\FEDGOVT.TXT`.

Review the rights notice and provide a way for other users at your installation to review it also. For example, you could add the notice as a `NEWS` item or use the `ECHO` option telling your users to read the file. For more information on these options, refer to Chapter 7, "SAS System Options," in *SAS Companion for the Microsoft Windows Environment, Version 7, First Edition*.

Glossary

This glossary defines terms that are used in the installation documentation and terms that you may encounter during installation of the SAS System. The terms are listed in alphabetic order.

AUTOEXEC.SAS

contains SAS statements that are executed automatically when the SAS System is invoked. This file is described in more detail in *SAS Companion for the Microsoft Windows Environment, Version 7, First Edition*.

Client Installation

The SAS System components are not installed on a local disk but are enabled to be executed from the installation medium. The *Client* installation is a full installation. Only a few essential files will be installed locally.

Complete Installation

installs all of the components that are licensed for your site. Available for the *Personal* and *Server* installations. Note that the *Complete* setup type includes the re-installation support component only when used with the *Server* installation.

Custom Installation

allows you to select components of the SAS System to be installed. Within each component are options that include Required Files and possibly sample programs, sample data, help files, and others. Available for the *Personal* and *Server* installations.

Personal Installation

provides a standalone SAS System with all files installed on the local PC. With a *Personal* installation, you can choose whether to perform a *Complete* or *Custom* setup type.

Re-installation Support

The re-installation support component provides the capability of installing a SAS System from which the SAS Setup can again be run. The re-installation support component is always installed with the *Server* installation.

SASV7.CFG

contains special SAS configuration options. This file is shipped with default option settings. You can edit the file and change the default settings. This file is installed in the `SASROOT` directory, but you can copy it to the directory from which you invoke the SAS System. For more information about this file, refer to *SAS Companion for the Microsoft Windows Environment, Version 7, First Edition*.

SAS Support Consultant

is a person designated at your site to assist SAS users with SAS software.

SAS Installation Representative

is a person appointed at your site to act as the liaison between the site and SAS Institute. This person is the contact for all SAS software matters.

SASROOT Directory

is the directory where you install the SAS System. It is called the `SASROOT` because the executable file (`SAS.EXE`) is stored in this directory, as well as the `CORE` subdirectory. You can choose any directory as the `SASROOT` directory for the SAS System. Pay particular consideration to the space requirements for the components installed in `SASROOT`.

Server Installation

allows network administrators to use SAS Setup to place all files of selected components onto a disk that will then be used for subsequent installation processes. The *Server* installation also bypasses all local configuration updates so it should be used only for creating an image that will be used for subsequent re-installation of the SAS System on to another PC. Both help systems are installed.

SETINIT

updates your SAS System licensing information. The SAS System is licensed on an annual basis. In order to run each software product you license from SAS Institute, current licensing information must be maintained. This information resides in the `SETINIT.SAS` file. When you install the SAS System, the `SETINIT` information is used to initialize the software for the current licensing period.

SAS Setup Program

enables you to install the SAS System and configure your SAS operating environment.

SIUPDATE

is a program that updates your SETINIT on an installed SAS System.

Technical Support Services

are provided by SAS Institute to the designated SAS Installation Representative and SAS Support Consultant. These individuals should be the initial contact for any user who needs technical assistance.

Template File

an outline of a SETINIT.SAS file. A template file is often sent to non-US customers to enable them to customize their SETINIT.SAS file with correct information.

Test Streams

are SAS programs that test the success of your installation. Test streams are not available for all SAS System components.