Installation Instructions for the SAS® System under OS/2®, Release 6.12 (TS055 and above)

Table of Contents

Getting Started 1
How This Book is Organized 1
Terminology and Symbols Used in this Document 3
Pre-Installation Checklist 4
Proper Handling of Your Media 5
Getting Help 5
Exiting Setup 6
Additional Documentation 6

Chapter 1, Installing the SAS System 7
Sample Installation Configurations 7
    Installation Configuration for Network Administrators 8
Starting the SAS System Installation Process (for all install types) 9
    Generating Diskette Images from CD-35 13
    Detecting Existing SAS Files 18
    Setting Up the SAS/GRAPH Font Utility 24
Performing a Custom Installation 24
Troubleshooting 33
Exiting SAS Setup 36

Chapter 2, Applying Maintenance to Your SAS System 37
Installing Maintenance from CD-ROM 37
Starting the SAS System Maintenance Setup Process 37
Installing SAS System Maintenance 38
Removing SAS System Maintenance 42
Notes on the Installation Process 43
Re-Installation Support 44

Chapter 3, The Directory Structure of the SAS System 45

Chapter 4, Invoking the SAS System 47

Chapter 5, Using the Utility Application 49

Chapter 6, Technical Support Services 51

Appendix A, Post-Installation Setup for SAS/CONNECT Software 53
Storing and Locating SAS/CONNECT Script Files 53
System Configuration for the Asynchronous Access Method 54
System Configuration for the EHLLAPI Access Method 54
System Configuration for the NETBIOS Access Method 55

System Configuration for the SPX Access Method 55
SPX Support with Novell's NetWare Requestor for OS/2 55
OS/2 Considerations 56
System Configuration for the TELNET and TCP Access Methods 56
System Configuration for the APPC Access Method 57
Software Requirements 57

Appendix B, Installing SAS/ACCESS Interface to AS/400 Data Software 59
Software Requirements 59
Installing AS/400 Files 59
Configuring SAS/ACCESS Interface to AS/400 Data Software 60
Using SAS/ACCESS Interface to AS/400 Data Software 63

Appendix C, Binding SAS/ACCESS Interface to DATABASE 2 OS/2 Software 65

Appendix D, Installing SAS/ACCESS Interface to SYBASE and SQL Server Software 67

Appendix E, Installing SAS/ACCESS Interface to ORACLE Software 69
Client-Server Architecture 69
Installing SQL*Net 70
Assigning the Default Path for ORACLE Server 70

Appendix F, Installing SAS/ACCESS Interface to ODBC Software 71

Appendix G, Post-Installation Setup for SAS/ASSIST Software 73
Profile Changes and Enhancements 74
Converting User Profiles from a Previous Release 75
Converting Existing Master and Group Profiles 77

Appendix H, Implementing SAS/SHARE Software 79
Selecting a Communications Access Method 79
System Configuration for the APPC Access Method 81
System Configuration for the SPX Access Method 82
System Configuration for the IBM NETBIOS 3.0 Interface and NetBIOS Submit Interface Access Methods 82
Software Requirements 82
SAS System Configuration 83
System Options 83
Environment Variables 83
Troubleshooting 85
System Configuration for the TCP/IP Access Method 85
Software Requirements 86
Define Server Names in the TCP/IP SERVICES File 86

Appendix I, Installing the IBMNULL Device Driver for Use With SAS/GRAPH Software 87
Using SAS/GRAPH Native Drivers 87
Installing the IBMNULL Device Driver 87

Appendix J, Invoking SAS/TUTOR Software 91

Appendix K, Testing the Installation 93

Appendix L, Updating Your SAS System SETINIT 95
Using the Update License Information Icon 96
Updating Your SAS SETINIT during Installation of the SAS System 96
Utilizing the SAS System Version 6.12 License Icon 97
Updating Your SAS SETINIT during Installation of the SAS System 100
Executing From the Command Line 100
Licensing Process Problems 102

Appendix M, Generating Diskette Images 103

Appendix N, Post-Installation Setup for the SQL Query Window 107

Federal Government Rights Notice 109

Glossary 111

Getting Started

This document provides the instructions for installing Release 6.12 of the SAS System under OS/2. Please read these instructions before you attempt to install any Release 6.12 SAS software product in the OS/2 environment.

How This Book is Organized

This section provides an overview of the information in this document. The following is a description of each chapter and appendix:

- Chapter 1, "Installing the SAS System," provides instructions for installing the SAS System in any of the following situations:
  - installing the SAS System on a PC where it does not currently exist
  - installing the SAS System over an existing version
  - installing only SAS products or product components.
- Chapter 2, "Applying Maintenance to Your SAS System," provides instructions for installing maintenance software for the current release of the SAS System.
- Chapter 3, "The Directory Structure of the SAS System," lists all of the directories that are created when you install the SAS System.
- Chapter 4, "Invoking the SAS System," explains how to start the SAS System once you complete the installation process.
- Chapter 5, "Using the Utility Application," explains the facilities available for updating and modifying parts of the SAS System. For example, information is provided for decompressing SAS/GRAPH map data sets.
- Chapter 6, "Technical Support Services," describes the SAS Institute Technical Support services that are available to you.
- Appendix A, "Post-Installation Setup for SAS/CONNECT Software," outlines required configuration procedures for various access methods.
- Appendix B, "Installing the SAS/ACCESS Interface to AS/400 Data," describes how to complete the installation of the SAS/ACCESS Interface to AS/400 Data.
- Appendix C, "Binding the SAS/ACCESS Interface to Database 2 OS/2," describes how to bind the SAS/ACCESS Interface to a database.

- Appendix D, "Installing the SAS/ACCESS Interface to SYBASE and SQL Server," explains the steps that must be taken before you can use the SAS/ACCESS Interface to SYBASE and SQL Server.

- Appendix E, "Installing the SAS/ACCESS Interface to ORACLE Server describes how to complete the installation of the SAS/ACCESS Interface to ORACLE Server.

- Appendix F, "Installing SAS/ACCESS Interface to ODBC Software" describes how to complete the installation of SAS/ACCESS Interface to ODBC Software.

- Appendix G, "Post-Installation Setup for SAS/ASSIST Software," describes how to complete the installation of SAS/ASSIST software.

- Appendix H, "Implementing SAS/SHARE Software," discusses access methods that are available with this release of SAS/SHARE software under OS/2.

- Appendix I, "Installing the IBMNULL Device Driver For Use With SAS/GRAPH Software," explains how to install the IBMNULL device driver for producing hardcopy output from SAS/GRAPH software using native SAS/GRAPH device drivers.

- Appendix J, "Invoking SAS/TUTOR Software," describes how you can invoke the SAS/TUTOR courses.

- Appendix K, "Testing the Installation," provides information on how to execute programs to test the success of your installation.

- Appendix L, "Updating Your SAS System SETINIT," explains how to update your licensing information when you renew or extend a SAS software product license.

- Appendix M, "Generating Diskette Images," explains how to generate diskette images for the SAS System.

- Appendix N, "Post-Installation Setup for the SQL Query Window," explains the steps you need to follow to successfully use the sample table named `EMPLOYEE` listed in the SQL Query Window online documentation.

A Glossary is also provided.

Terminology and Symbols Used in this Document

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

The SASROOT Directory

is the directory where you install the SAS System. 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_OS2`
- `E:\APPS\SAS`

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

The following icons are used throughout this document to identify particular types of information:

The ATTENTION symbol indicates a section that is of particular interest to the SAS Installation Representative or SAS Support Consultant.

❑ The BOX symbol indicates a list of items.

The CD symbol indicates information that is specific to the CD-ROM version of the SAS System.

✔ 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. If you are not sure which section you should read, see the section, "How This Book is Organized," earlier in this chapter.

- ✔ 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 OS/2 you are running. Release 6.12 of the SAS System requires Warp 3.0 or higher.
- ✔ Read the `COPYRITE.TXT` file. If you are installing from CD-ROM, this file is located on the CD-ROM in the `\sas` directory. If you are installing from diskette, this file is located on the SAS installation diskette at the root directory.
- ✔ Read the `FEDGOVT.TXT` file (U.S. Federal Government employees only). If you are installing from CD-ROM, this file is located on the CD-ROM in the `\sas` directory. If you are installing from diskette, this file is located on the SAS installation diskette at the root directory.
- ✔ Run the Setup program.

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.

Your SAS System is shipped either on CD-ROM, CD-35, or on diskettes. If you ordered your software on CD-ROM, your entire system, including products, is contained on the CD. If you ordered your software on diskettes, you should find the following four diskette types in your package:

- ❑ *SAS System Setup Diskette*

  contains programs needed to install SAS software. The SAS Setup diskette contains information for installing all diskettes provided with your package.

- ❑ *Core SAS System Diskettes*

  contain required components that are used by all products within the SAS System. Base SAS software is also part of this grouping. The CORE diskettes are installed with the SAS `Setup` command.

- *Add-on Product Diskettes*

  contain one or more product diskettes for each SAS Software product licensed at your site. If your site has not licensed any add-on products--that is, products other than Base SAS Software--additional diskettes are not part of the package.

- *SAS Notes Diskettes*

  contain SAS Usage Notes, Documentation Notes, and an application that lets you select SAS Notes and run SAS sample library programs.

Proper Handling of Your Media

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

Diskettes:

- Acclimate the diskette media to room temperature 24 hours before writing or reading.
- Avoid exposing diskettes to rapid changes in environmental conditions.
- Do not touch or wipe the recording surface.
- Avoid placing the diskettes near objects generating a magnetic field, such as motors, magnets, etc.
- Return your diskettes to their protective packaging when not in use.

CD-ROM:

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

Getting Help

The installation program provides online help for you to use at any point during the installation. The help is provided in a native OS/2 environment. To access the online help, select the `Help` button at any time while the SAS Setup program is running. The `Help` button is always shown at the lower right corner of your screen in the SAS Setup program.

Exiting Setup

At any time while SAS Setup is running, you can select the `Exit F3` button in the lower right corner of your screen to terminate the installation. The SAS System will not be completely installed if you exit prior to completion. You can run the SAS Setup program at a later time to complete the installation.

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

Additional Documentation

The primary reference document for Release 6.12 of the SAS System for OS/2 is the *SAS Companion for the OS/2 Environment, Version 6, Second Edition.* For additional information, the following manuals are available to assist you with Version 6 of the SAS System:

- ❑ *OS/2 Environment: Changes and Enhancements to the SAS System, Release 6.12*
- ❑ *OS/2 Environment: Changes and Enhancements to the SAS System, Release 6.11*
- ❑ *OS/2 Environment: Changes and Enhancements to the SAS System, Release 6.10*
- ❑ *SAS Language and Procedures: Usage, Version 6, First Edition*
- ❑ *SAS Language and Procedures: Usage 2, Version 6, First Edition*
- ❑ *SAS Language: Reference, Version 6, First Edition*
- ❑ *SAS Procedures Guide, Version 6, Third Edition*
- ❑ *SAS/GRAPH Software: Reference, Version 6, First Edition*
- ❑ SAS Technical Report P-222, *Changes and Enhancements to Base SAS Software, Release 6.07*
- ❑ SAS Technical Report P-242, *SAS Software: Changes and Enhancements, Release 6.08*

Chapter 1, Installing the SAS® System

When you receive the SAS System for OS/2, you are either installing a new version or release of the SAS System, or you are applying maintenance to your existing 6.12 SAS System. (If you are applying maintenance, you can skip this chapter and follow the instructions in Chapter 2, "Applying Maintenance to Your SAS System.")

This chapter discusses each of the three types of installations you can perform:

- Typical
- Compact
- Custom

This chapter describes each of these types of installations. Read the section that applies to your installation.

Sample Installation Configurations

- Select `Typical` if you want to install all of the products on the SAS System CD, but do not need the Help files, Sample files, or Test programs.

- Select `Compact` if you are only interested in Data Step functionality. This will save hard drive space but no procedures will be available.

- Select `Custom` and then `Standalone Installation` if you want to install all of the products from the SAS System CD, including Help files, sample files, and test programs. Otherwise, if you want to install selected products and define the components for each product installed from the SAS System CD to your local hard drive or to a network location for personal use, select the products by clicking on the `Un/Select Product` button so that a check appears in the box beside the product name. To install only parts of a product, select `Components` after highlighting or selecting a product name. From the Components window you can then deselect the parts of a product that you do not want installed.

- Select `Custom` and then `Client Installation` and then choose a Full install if you want to access the SAS System directly from the CD-ROM or from a shared network location. Only system files are installed locally to your disk drive. If you do not have a valid site license applied, you will be prompted to supply licensing information. Additional system files that are required by the licensing process will be copied to your local drive. For more information, see Appendix M, "Updating Your SAS System SETINIT."

  Note: You do not have to install SAS/GRAPH fonts if you do not plan to use SAS/GRAPH software.

- Select `Custom` and then `Client Installation` and then choose a `Selective` install if you want to run the SAS System from a CD or network but would like to increase the speed of SAS/CORE or some other components. Select the products by clicking on the `Un/Select` Button for the product name that you want installed locally. The products you select here will run more efficiently since they will be accessed directly from the hard drive you install them to.

- Select `CD or Client` and then choose a `Selective` install if you want to run the SAS System from a CD or shared network location, and would like to increase the speed of the CORE of the SAS System, or some other products but do not want all of a particular product installed. Select the products so that a check mark appears in the box beside the component name. To select only parts of a product, select `Options` after highlighting or selecting a product. From the Options window you can then deselect the parts/options of a product that you do not want installed.

Installation Configuration for Network Administrators

To make the SAS System available so that users can either install or run the SAS System, it is recommended that you use one of the methods listed below. The first and second are preferable since they reduce the chances for variation between the original and secondary image.

1. Mount the CD on the network.

Note: Assuming network stability, this method has no variance from the original image.

2. xcopy the entire CD to the network using the following command:

```
xcopy d:\sas\*.* g:\sas /v/e/s
```

Note: This method will vary from the original image only if xcopy fails.

3. Use Setup to install the Reinstallation Support and all other applicable components.

Note: This method executes a very complex series of copy, update, registration, etc. operations that are intended to work but inherently increase the potential for a difference between the original image and the network image. This option is meant to cover European users who have an agent CD, but only a few of the components are licensed. For example, if Core and Base SAS software are licensed, and you only want these components on the network with the setinit applied, install Core, Base, and Reinstallation Support applying the correct setinit at the end. Users can then install SAS from this installed version of the SAS System.

Starting the SAS System Installation Process (for all install types)

Before you begin your SAS System installation, review the information in "Pre-installation Checklist."

The SAS Setup program enables you to install the products of the SAS System and configure your SAS operating environment.

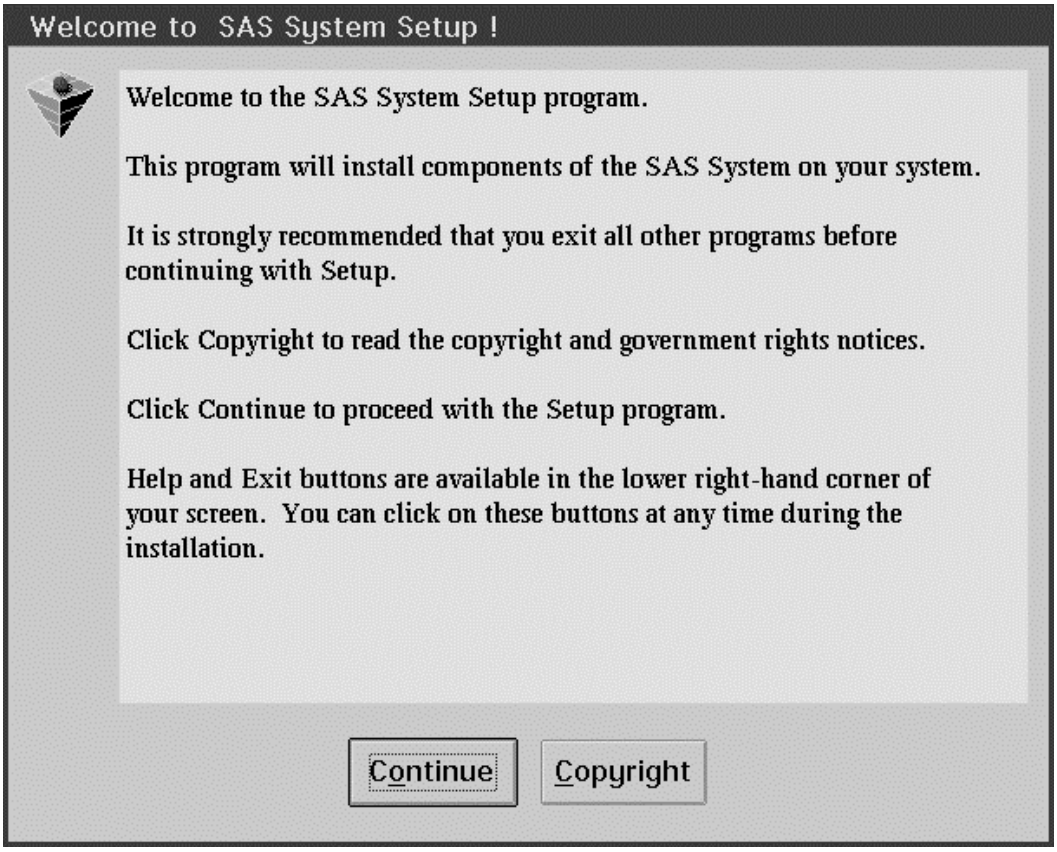
To start the SAS System installation process, complete the following steps:

1. Start OS/2. Close all other OS/2 applications.

2. Insert the installation media into the source drive.

3. With OS/2 running, type `<source_drive>: \SAS\Setup` in the Command prompt to start the Setup program. If you are installing from diskettes, type `<source_drive>:\Setup`.

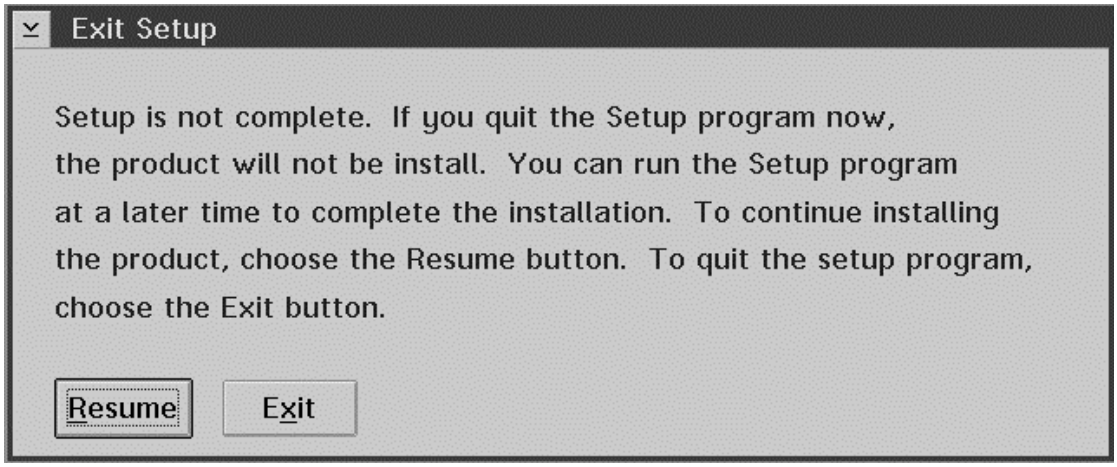
When the SAS Setup program is first started, a window indicating that Setup is initializing will be displayed for a few seconds as this initialization occurs. Within a few seconds, the `Welcome to SAS System Setup!` screen is displayed as shown below:



At any time while the SAS Setup program is running, you can access the online help by selecting the `Help` button. The `Help` button is always shown at the lower right corner of your screen.

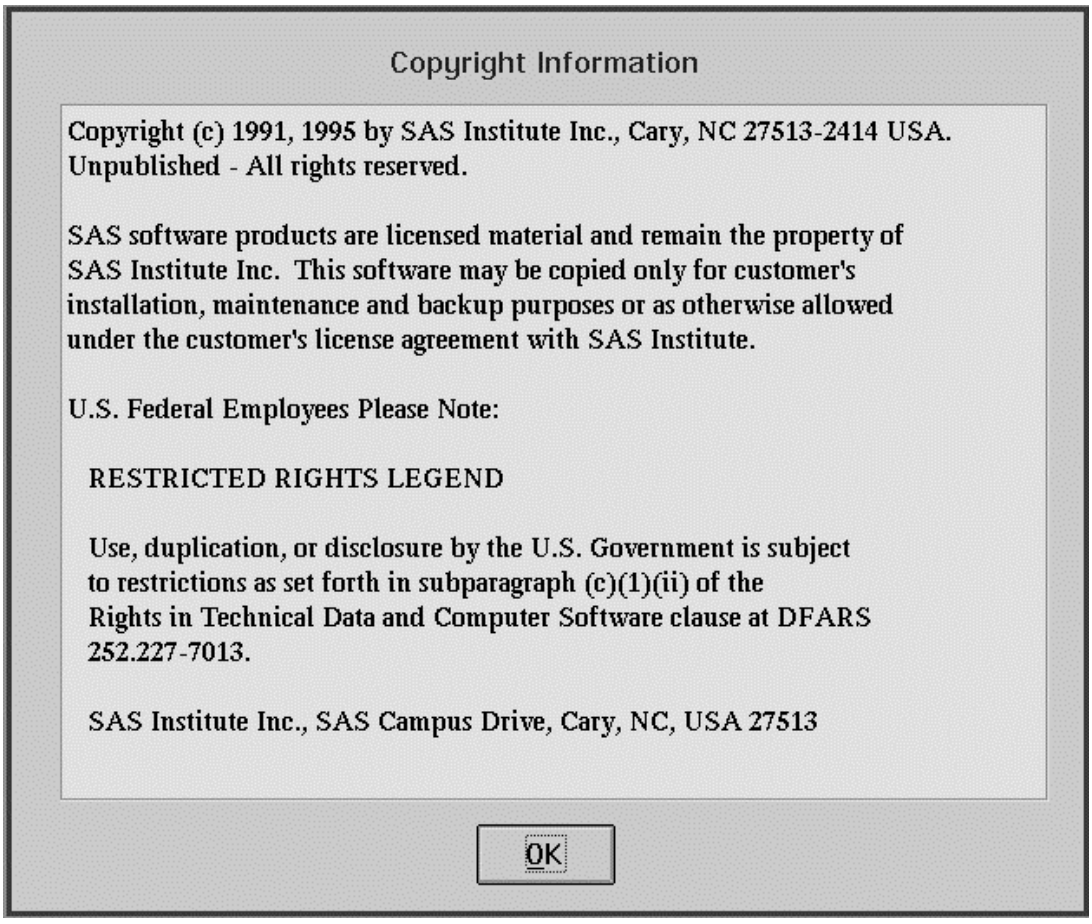
At any time while the SAS Setup program is running, you can select the `Exit F3` button to exit the program. The SAS System will not be completely installed if you exit the SAS Setup program during installation. You can run the SAS Setup program again at a later time to complete the installation.

When you select the `Exit F3` button, the `Exit Setup` window is displayed as shown below. When the `Resume` button is selected, you are returned to the previous screen. If the `Exit` button is selected, the SAS Setup program is terminated.



While in the `Welcome to SAS System Setup!` screen, it is recommended that new users read the SAS System copyright and federal government information by selecting the `Copyright` button.

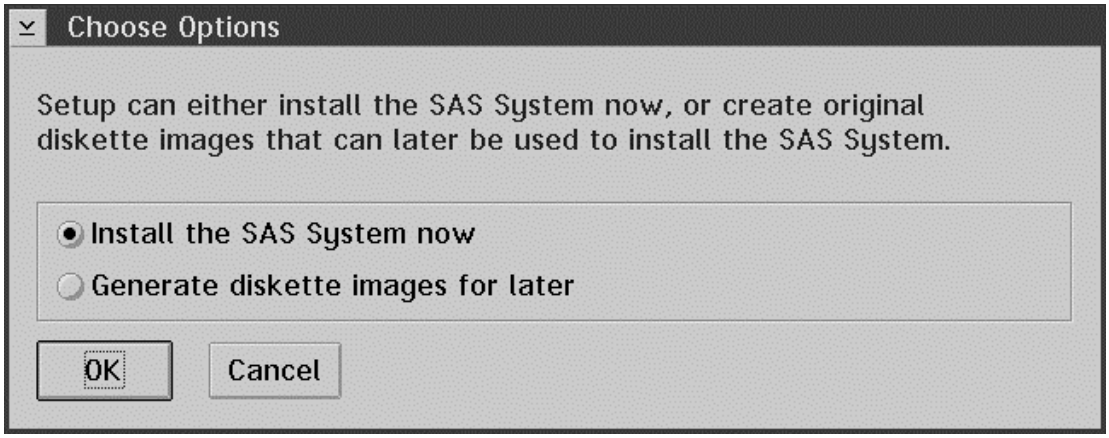
When the `Copyright` button is selected, the `Copyright Information` window is displayed as shown below:



After reading the copyright information, continue with the installation by clicking on `OK`.

Generating Diskette Images from CD-35

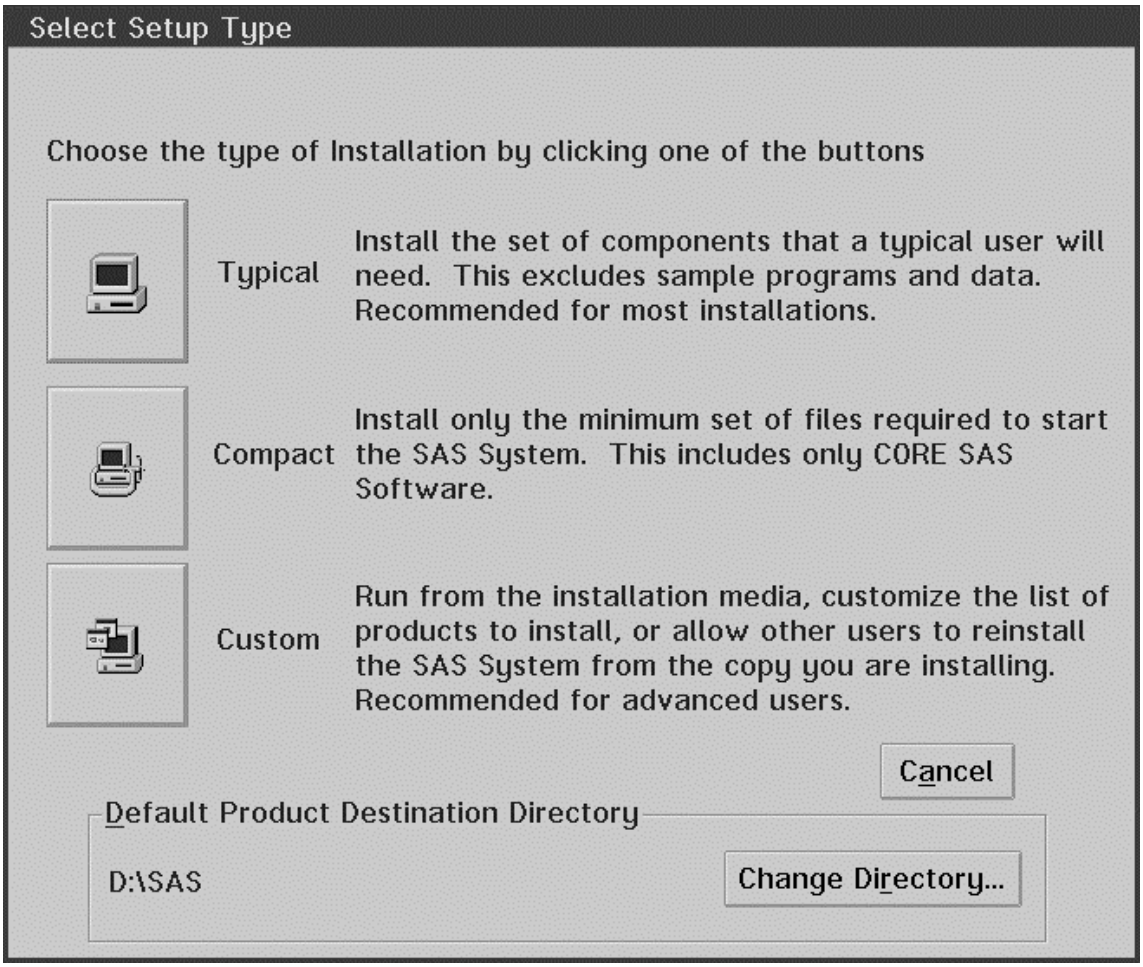
If you are running from a CD-35 CD-ROM, you will be asked to either install the SAS System, or generate diskette images. If you choose to generate diskette images, see Appendix M, "Generating Diskette Images" for more information. If you choose to install the SAS System, you will be asked to select the desired Setup type.



If you are not running from a CD-35 image, you can select `Continue` from the `Welcome to SAS System Setup` screen to continue with Setup of the SAS System. At this time the SAS Setup program examines your system to verify system parameters. You are then asked to select the desired Setup type. The following types are supported by the Setup program:

Type of Installation	Description
`Typical`	installs the components that a typical user will need. This is recommended for most installations. *Note:* Samples and test streams will not be installed.
`Compact`	installs only the files necessary to start the SAS System. This installs only CORE SAS software. Only basic SAS System features and procedures can be used.
`Custom`	allows you to customize the list of installed products. All of the products do not need to be installed to the same location.

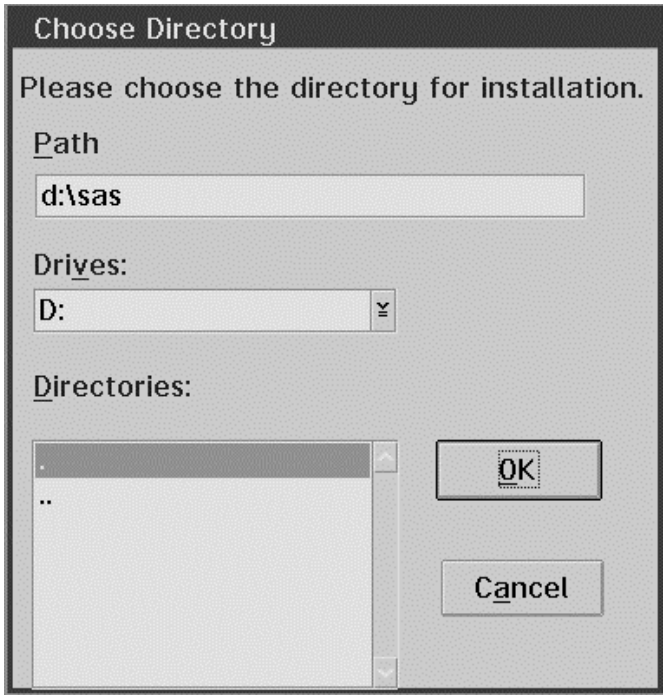
These choices are available from the `Select Setup Type` window as shown below:



The following options are also available from the `Select Setup Type` window:

Option	Description
`Cancel`	returns you to the `Welcome to SAS Setup!` dialog.
`Change Directory`	displays the default location for the installation of products in the SAS System. You can also browse other disks or directories to select the installation directory. The installation directory you select becomes the default installation location for the remainder of the installation.

If you select the `Change Directory` button, you are given an opportunity to select an alternate directory or drive in the `Choose Directory` window shown below.



You can type in the desired path or select the directory or drive for installation of the SAS System. After designating your preferred installation directory and drive, select the `OK` button to return to the `Select Setup Type` window. Select `Cancel` to keep the previous destination setting and return to the `Select Setup Type` window.

If you have selected an installation directory that does not exist, you are given the opportunity to have the new directory created for you by SAS Setup in the `Question` window shown below:

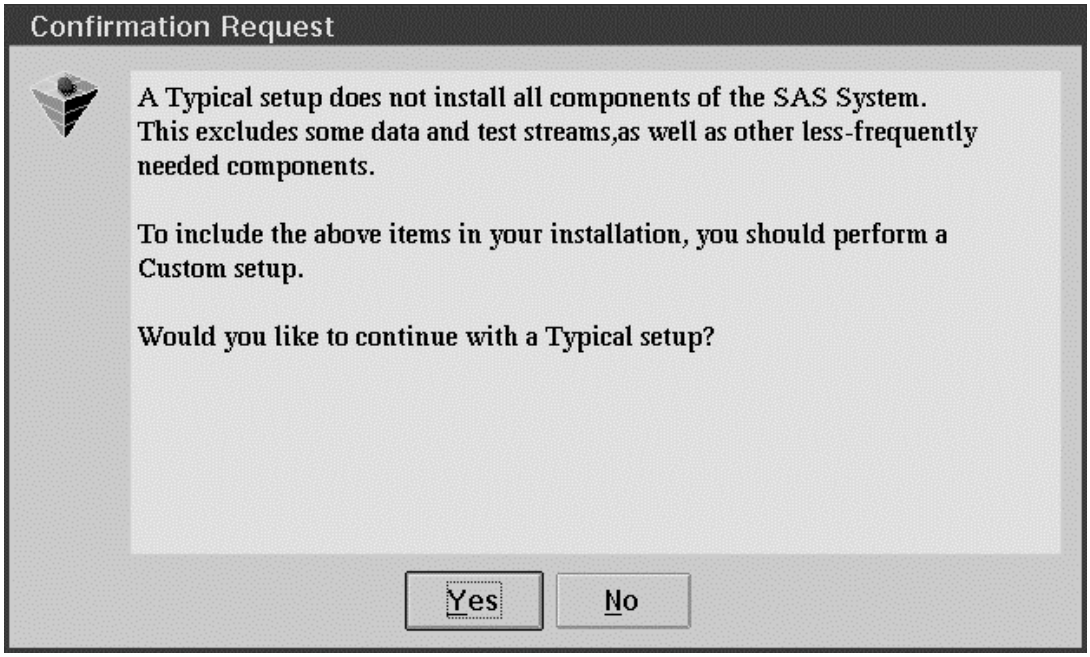
Select `Yes` to have the new directory created for you. Once the directory has been created, you are returned to the `Select Setup Type` window. If you select `No`, or if SAS Setup is unable to create the directory you specified, you are returned to the `Choose Directory` window.

The SAS Setup program cannot continue until you have specified an existing installation directory. You must either specify an installation directory from the `Choose Directory` window and allow SAS Setup to create it, or specify a valid existing installation directory.

Once you have designated the desired installation directory for the SAS System from the Select Setup Type window, select one of the three installation types (Typical, Compact, or Custom).

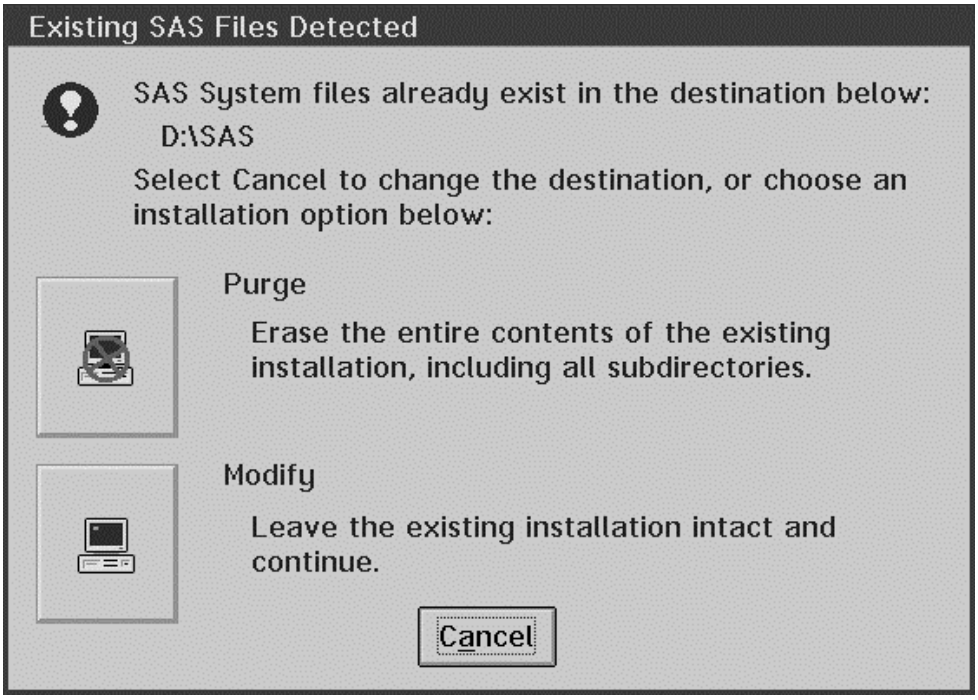
Note: If you select a Custom installation, refer to "Performing a Custom Installation," later in this chapter. The remainder of this section pertains to Typical and Compact installations.

When you choose a Typical install, the following window warns you that some components of the SAS System will not be installed. You must choose a Custom setup if you will need any of these components. Otherwise, you can continue with the Typical install.



Detecting Existing SAS Files

SAS Setup will detect any version of the SAS System present in the selected installation directory. You will have the opportunity to purge the existing copy, modify it, or select another directory as shown in the `Existing SAS Files Detected` window below:



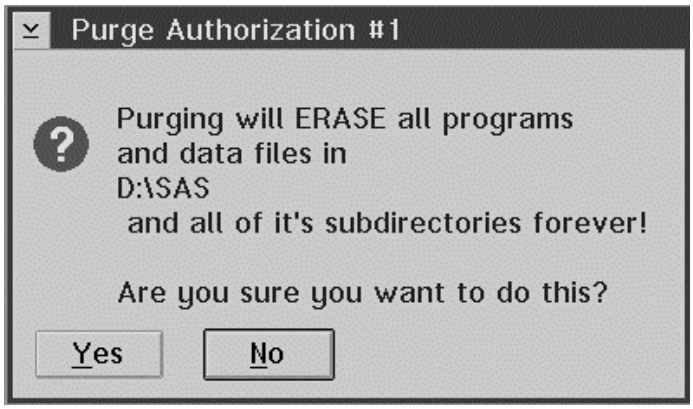
Your options are as follows:

Option	Description
`Purge`	erases ALL products, files, and subdirectories under the destination directory. This option also erases any user files stored in these locations.
`Modify`	adds selections to the existing SAS directory. No products are deleted.
`Cancel`	returns you to the `Select Setup Type` window where you can designate a different installation directory.

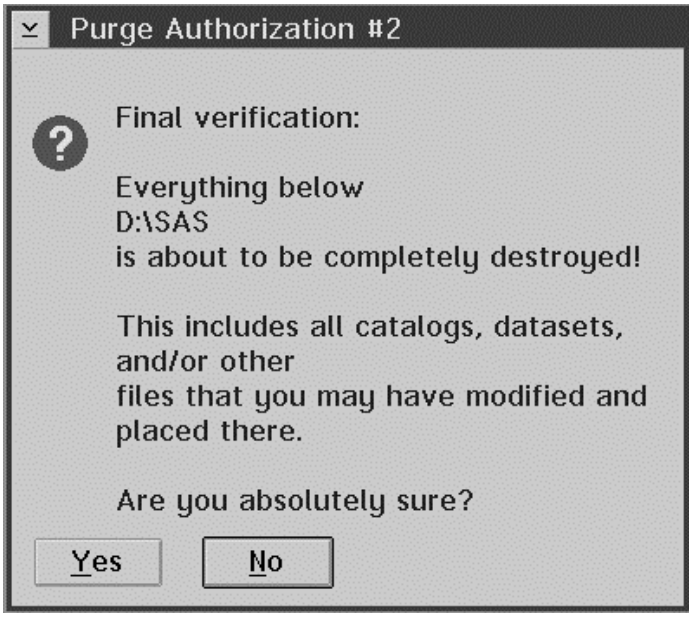
If you select `Modify`, SAS System files are now copied into the selected installation directory. If you do not want to begin the actual file copying process, select `Cancel` to return to the `Select Setup Type` window.

Caution! If you select Purge note that ALL files under the selected directory are removed. SAS Setup notes this fact twice to avoid any confusion.

If you select `Purge`, you are given the opportunity to continue or abort as shown in the Purge Authorization #1 window displayed below:



Select `No` to return to the `Existing SAS Files Detected` window. Select `Yes` to allow the purge to proceed. All SAS System and user created files will be purged from your system. If you select `Yes`, you are given a final opportunity to verify that you want to continue with the purge as shown in the `Purge Authorization #2` window displayed below:

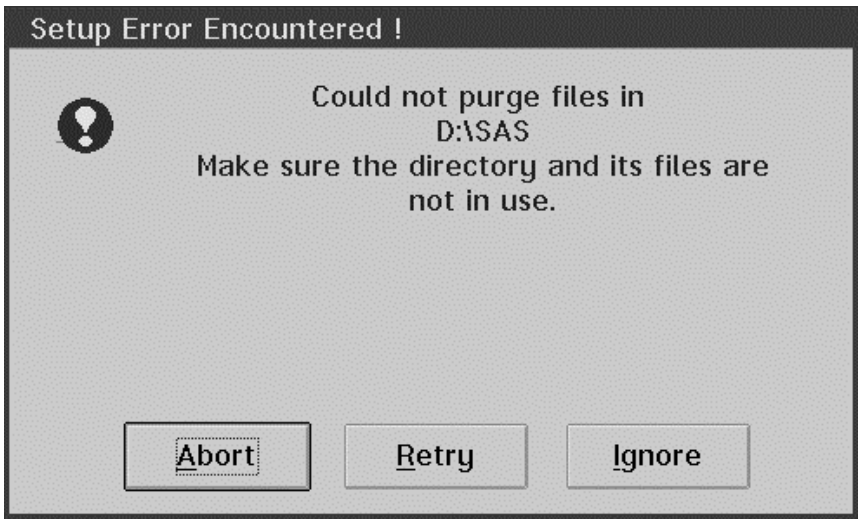


Caution! Selecting `Yes` purges all files and directories below the specified installation location.

If final verification of the selected purge is desired, select `Yes` to erase all user and SAS files and subdirectories at the indicated installation directory.

Once the purge has been selected and successfully completed, the actual file copying process of the SAS System files will begin into the selected installation directory. If you do not want to begin the actual file copying process, or if you want to abort the purge, select `No` to return to the `Existing SAS Files Detected` window.

Note: If you select `Purge`, you may receive an error message similar to the following:

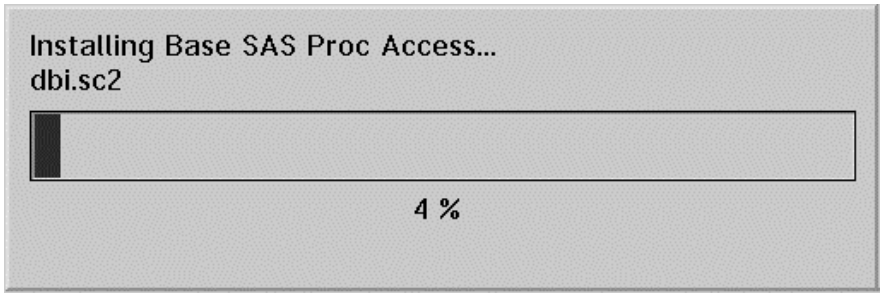


This could indicate that an active program or DOS window is using the directory.

Select `Abort` if you want to abort the purge, and select `Retry` to re-attempt the purge. Select `Ignore` if you want to continue and therefore ignore the files that the system could not purge.

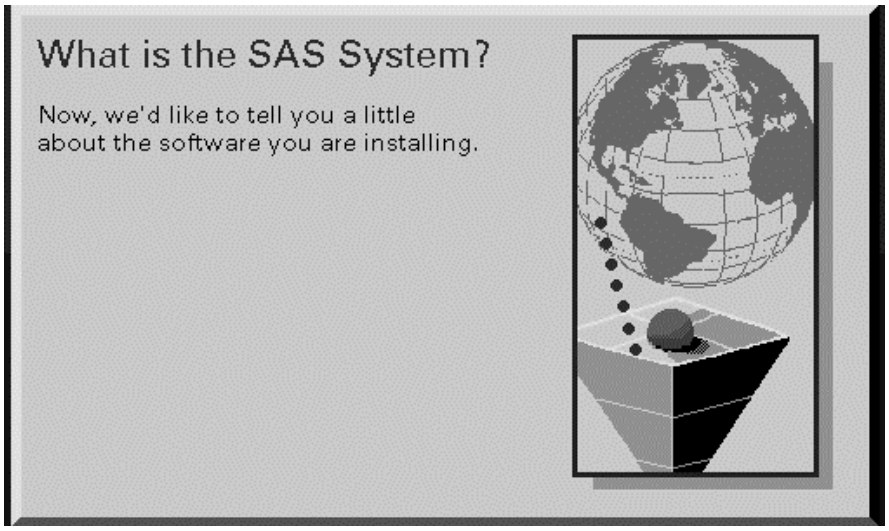
The following indicators are present while files are being copied to your system:

The *Installation Status Bar* reports on the progress of the overall installation. It indicates the product currently being installed, the name of the file currently being copied, and the percentage of the entire installation that has been completed.

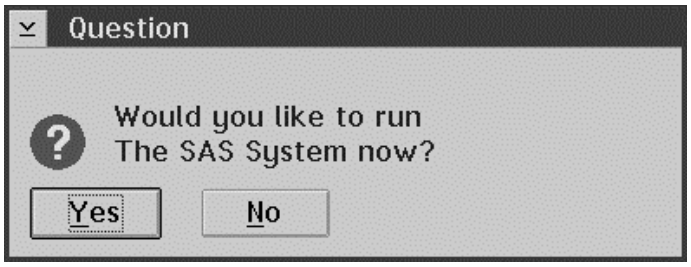


The *File Status Gauge* reports on the status of an individual file as it is copied:

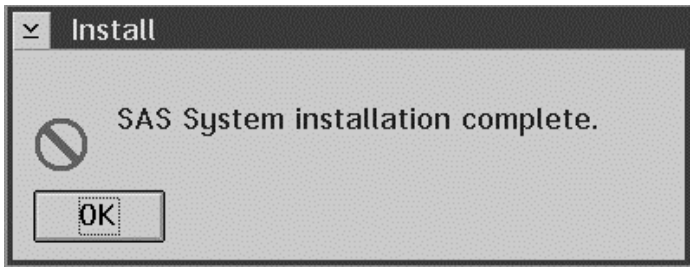
As products are installed, a *product information image* is displayed to inform you about product features and general information as the installation continues.



After the selected products have been copied, you are given the opportunity to run the SAS System as shown below:



You can run the SAS System now by selecting `Yes`. Select `No` to complete the SAS System Setup as indicated by the window below:



The SAS System installation is now complete. Select `OK` to exit the SAS Setup program and return to the OS/2 environment.

Setting Up the SAS/GRAPH Font Utility

SAS/GRAPH software can output data to printing devices and to your screen. The font utility is designed to allow you to set up your own devices catalog and copy fonts you have installed on your system into your devices catalog.

To run the SAS/GRAPH font utility, invoke the SAS System and then complete the following steps:

1. Select `Utility Applications` from the `Help` menu.

2. Select `SAS/GRAPH Font Management Utility` and then select `OK`.

3. If the displayed hardcopy device information is correct, select `OK`.

   If you need to change the device, select one choice for device type on the screen and then either enter your desired name, or enter a `?` to display a selection list of values for the device name. Select a device type, provide the device name, and select `OK` to continue, or `GOBACK` to quit.

Performing a Custom Installation

This section describes each of the three types of Custom installations that can be performed from CD-ROM media:

- Standalone

  you explicitly select all program products you want SAS Setup to install to the installation directory you specified on your local drive or shared network location. Typical and Compact installations (as described earlier) perform a standalone installation but do not allow you to select specific program products to install from the installation media to your local drive.

- Full Client

  system-specific features are set up and the appropriate working directories for the SAS System are created on your local drive at an installation directory you specified. No SAS System products are copied to your local drive in this case. All SAS System products will be run from a shared network location or from the CD-ROM.

  This installation is typical for the user who has limited disk drive space. Performance is impacted in a full client installation.

- Selective Client

  you select which products you want installed to your local drive or shared network location. Remaining products will be run from a shared network or CD-ROM location. Any necessary working directories or files will be stored locally on your disk drive.

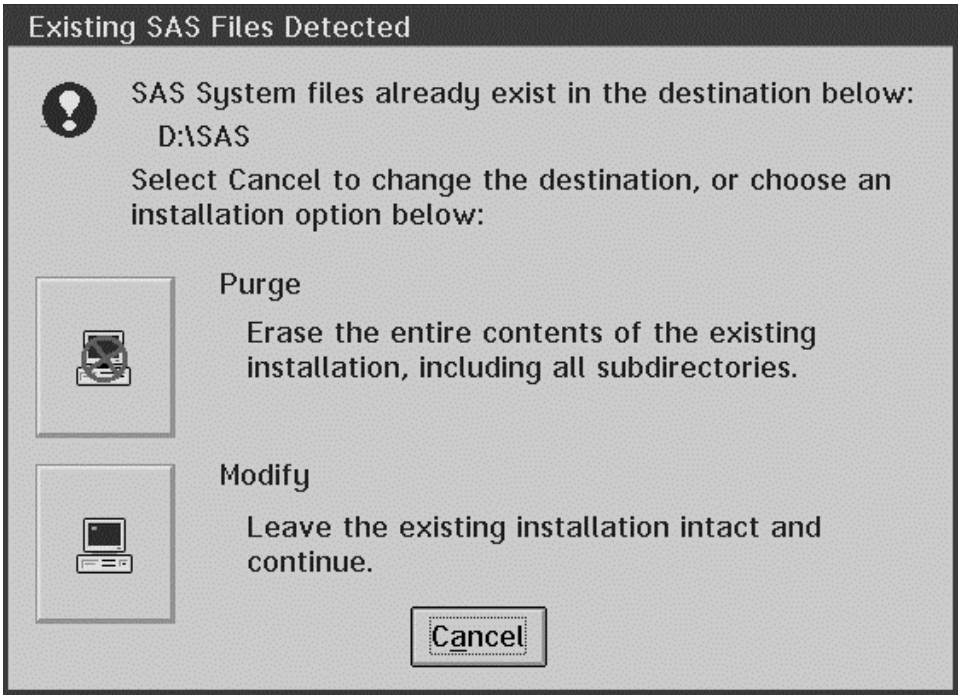
Note: Before you select `Custom` from the `Select Setup Type` window as shown above, be sure that the `Default Product Destination` directory is correct. Select `Change Directory` to modify the installation destination.

If you are performing a custom installation from a CD-35 CD-ROM, then you must perform a standalone installation. You can then proceed to the section describing the product selection window for custom installations.

Complete the following steps to perform a Custom installation:

1. Select `Custom` from the `Select Setup Type` window.

   SAS Setup examines your system, detecting any version of the SAS System present in the selected installation destination. If any version of the SAS System is present, the `Existing Files Detected` window is displayed as shown below:



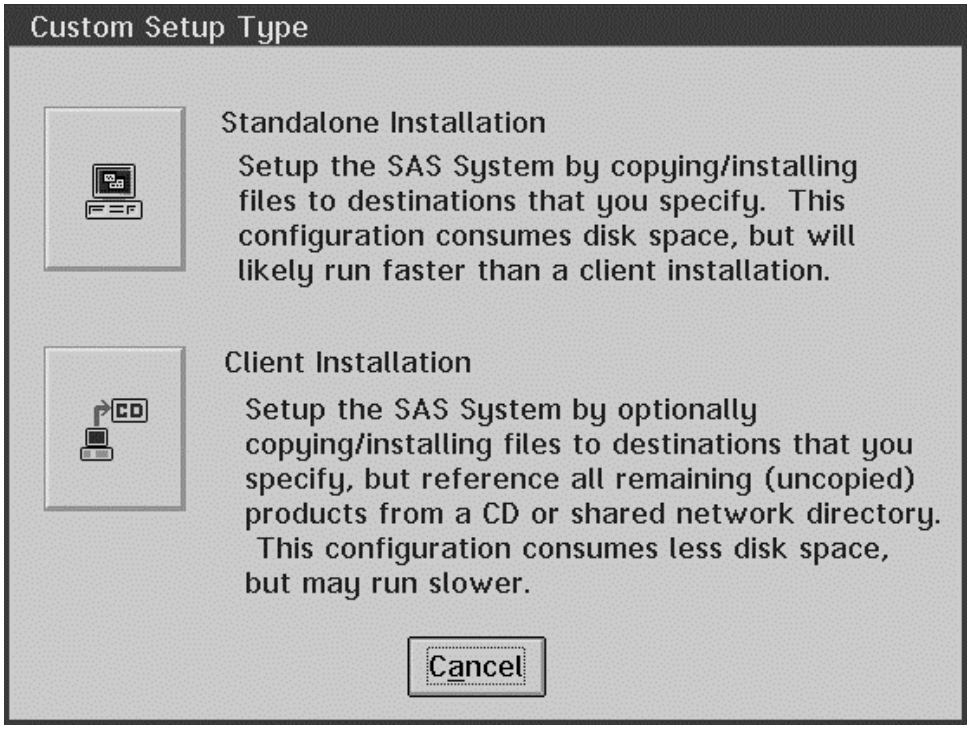
   If you select `Modify` from the `Existing SAS Files Detected` window, product selections will be added to the existing SAS directory. No products will be deleted.

If you select `Purge`, you are given the opportunity to continue or abort in either of two following Purge Authorization windows.

Selecting `Cancel` will return you to the `Select Setup Type` window where you can select `Change Directory` to change the default product destination directory.

2. Select either `Standalone Installation` or `Client Installation` from the `Custom Setup Type` window as shown below:

Note: If you are installing from floppy diskettes or a CD-35 image, go to the Custom Installation window later in this chapter. The following window does not display if you are installing from floppy diskettes or a CD-35 image; the Custom Installation window is displayed instead.



From this window, you have the following options:

- `Standalone Installation`

  all licensed products that you explicitly select to install will be installed to the local installation directory previously specified on the `Select Setup Type` window. Only installed SAS products are accessible. Uninstalled licensed products contained on the installation media are not accessible. The SAS System can be used without the installation CD or continued network access. Since files are installed locally, performance is improved at the cost of local disk space.

- `Client Installation`

  some or all SAS System products can be accessed from a shared network location or CD-ROM. There are two types of client installations, full and selective. In either client installation, continued access to a shared network location or CD-ROM is required for full functionality of the SAS System. In either client installation, the SAS System can be run as a private or shared user application. The client installation is typically for the site that accepts poorer performance due to limited disk drive availability. Performance can be improved by optionally installing selected products to your local drive while accessing all remaining (uncopied) products from a shared network location or CD-ROM.

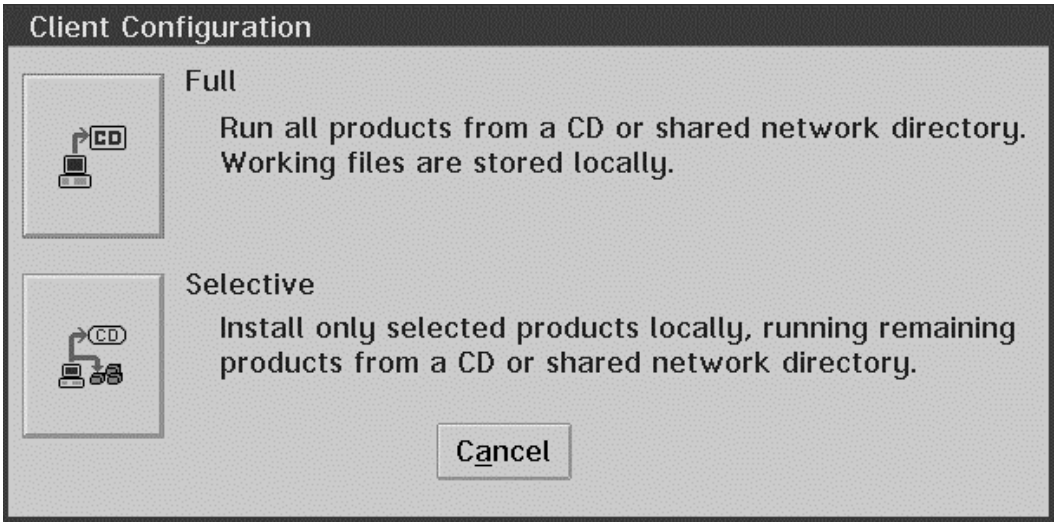
- `Cancel`

  returns you to the `Select Setup Type` window.

Select `Standalone Installation` from the `Custom Setup Type` window to select which products you want installed to your designated directory. (This differs from a Typical Installation as described earlier, in that a Typical Installation installs all products to your specified directory.)

If you select `Client Installation`, the following options are available as shown in the window below:

Note: This window does not appear if you are installing from floppy diskettes or CD-35 media. The Custom Installation window is displayed instead.



From this window, you have the following options:

❑ `Full`

creates appropriate working directories for the SAS System on your local drive. No SAS System products are copied to your local disk drive.

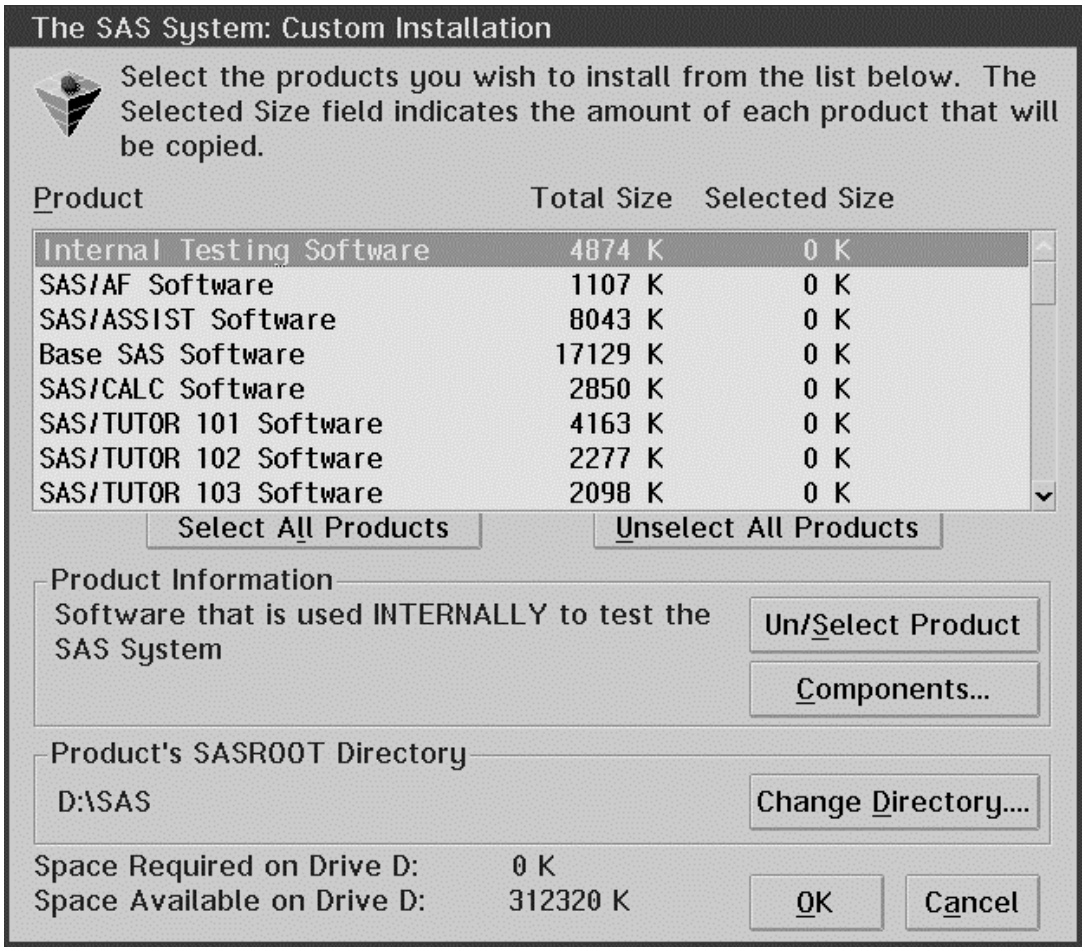
❑ `Selective`

you choose which SAS System products you want installed locally. Remaining products are run from the CD-ROM or a shared network location. Working files and directories are stored locally on your disk drive.

❑ `Cancel`

returns you to the `Custom Setup Type` window.

Whether you choose `Standalone Installation` from the `Custom Setup Type` window, or `Selective Client` from the `Client Configuration` window, you can then select the individual SAS System products to be installed to your local disk as shown in the `SAS System Version 6.12 Custom Installation` window below. As selections are made, the amount of local disk space required will be determined and displayed in the following window:



Note that all products are initially deselected by default. As a result, the selected sizes are initialized to 0 for each of the different products. To view the size requirements for the various products, look in the `Total Size` column. Space available at the designated installation directory is shown in the lower left corner of the window. As products are selected or de-selected for installation, the `Space Required` field is updated.

The buttons on this screen allow the following actions to be performed:

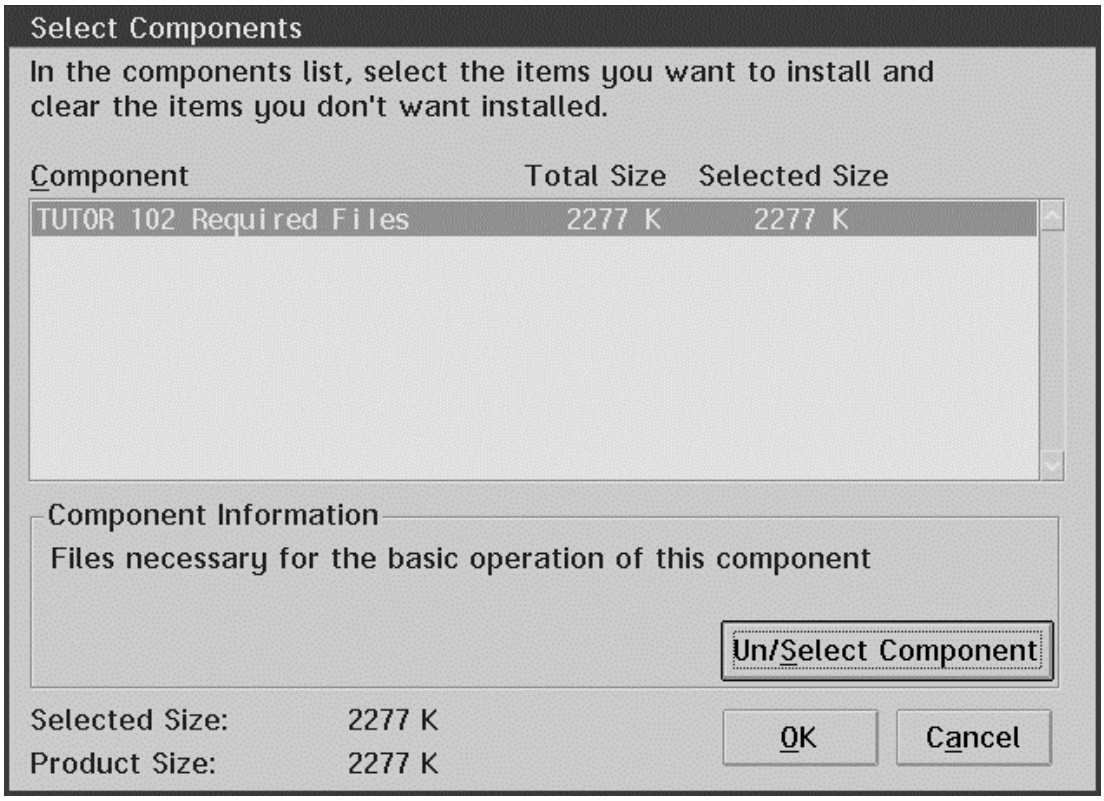
Select All Products	selects products and components for installation. Selected Size=Total Size.
Unselect All Products	de-selects all products and components for installation. Selected Size=0.
Un/Select Product	selects or de-selects a product once it has been highlighted. Note that when a product is deselected, its value in the Selected Size column is 0.
Components	Permits portions of products to be selected or de-selected for installation.
Change Directory	Allows you to modify your designated installation directory for specific products.
OK	Select OK to agree with the products and components you have selected to be installed.
Cancel	Allows you to return to the previous window without selecting any products or components.

In selecting the licensed products of the SAS System you want to install, note that some products may require other SAS products to operate with full functionality.

To select or de-select a product or component for installation, complete the following steps:

1. Highlight the product name and press the Un/Select Product button. You can also double-click on the product name to select or de-select for installation.

2. If you do not want to install an entire product, select or de-select components of the product by selecting the `Components` button. The `Select Components` window is displayed as shown below:



3. Highlight the product component you want to select or de-select and press the `Un/Select Component` button. You can also double-click on the component name to select or deselect it. Note that when you select or deselect a component, its value in the `Selected Size` column adjusts. A size of 0 indicates the component is not selected. Any other value indicates the component is selected.

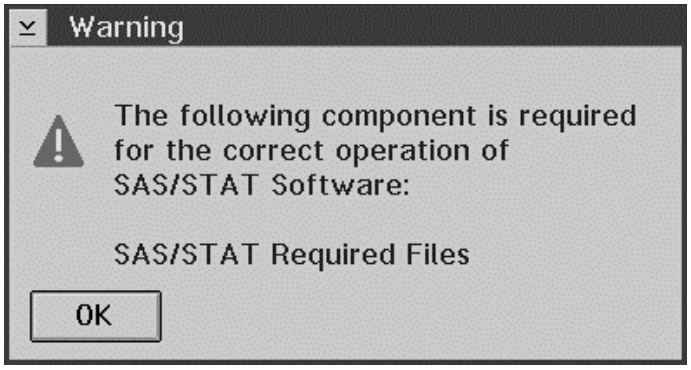
4. From the `Select Components` window, select the `OK` button to complete the component selection and return to the `SAS System Version 6.12 Custom Installation` window to continue your product selection.

   Note: If you select `Cancel` from the `Select Components` window, no components are selected or de-selected and you are returned to the `SAS System Version 6.12 Custom Installation` window.

5. Continue selecting/deselecting products and components as necessary.

   Many SAS System products have required components. Omitting the required product component when selecting product components for installation can result in product functionality problems.

   When selecting components of a product, if the required component has not been selected, the following window is displayed:



   Select `OK` to indicate whether or not SAS Setup should continue with the current component selection. The following window is displayed:

   Select `No` to return to the Select Component window where you can select the required product component.

   Select `Yes` to continue the installation with the product components selected. You will be returned to the SAS System Version 6.12-Custom Installation window. Required product components can always be installed at a later time.

After all the desired products and components have been selected, select the `OK` button from the `SAS System Version 6.12 Custom Installation` window to proceed with the installation. SAS System files are now copied into the selected installation directories. If you do not want to begin the actual file copying process, select `Cancel` from the `SAS System Version 6.12-Custom Installation` window.

Troubleshooting

The SAS Setup program checks your system for various features, and will display an advisory window if a problem is detected. The advisory window will not prevent the installation from continuing, but will note that a potential problem has been encountered that can prevent the SAS System from functioning correctly.

Local Disk Space:

If you do not have enough disk space to install the selected components, you will have the opportunity to select a different destination or modify your product selection list. In this case, setup has detected insufficient disk space to install the selected components. You can delete unnecessary files or subdirectories on the targeted drive and restart the SAS System Setup.

TEMP Environment Variable:

When the Setup program starts the installation of the SAS System, a number of files are copied to your local disk that are then removed at the end of installation. The target location that Setup uses for these temporary files depends in part on your configuration.

The CONFIG.SAS file normally sets a value for the environment variable TEMP. For example, the entry in CONFIG.SYS could be, `SET TEMP=C:\TEMP`. If Setup detects that this variable is set, that path will be used for the temporary files.

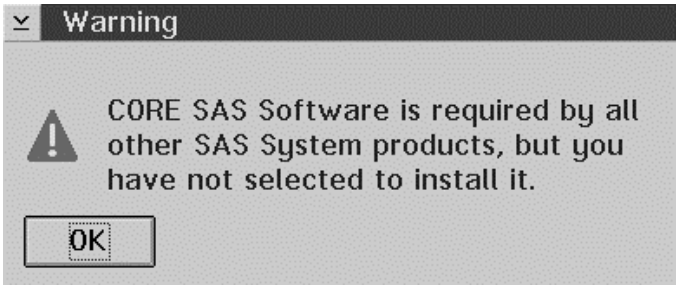
There could be a problem if the environment variable that Setup uses happens to be set to the root of the boot drive. Under certain conditions, system files could be damaged so that the operating system would not boot. For this reason, if Setup detects that the location of the temporary files would be the root of a drive, an error message is displayed and Setup will terminate. If this message is displayed when Setup is started, edit your CONFIG.SYS file and add an entry using the following form:

```
SET TEMP=d:\xxxxxxxx
```

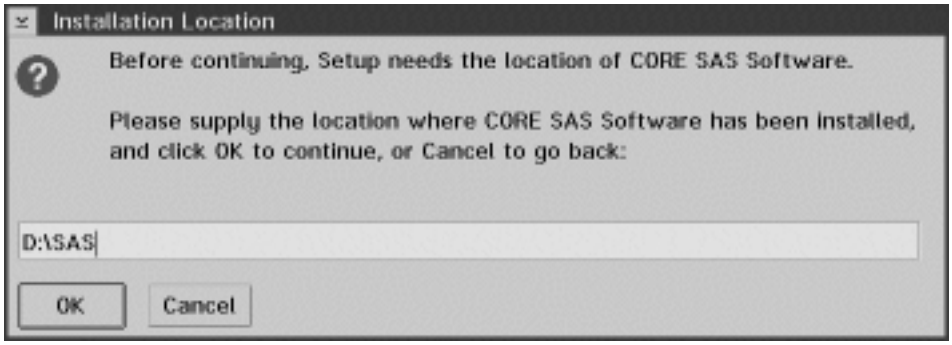
where `d` is the drive letter you want to use and `xxxxxxxx` is the directory on that drive where you can copy the temporary files. Ensure that the directory exists and that at least 2 megabytes of free space is available on the drive, and then reboot OS/2 before running Setup again.

Requirement that CORE SAS software be installed:

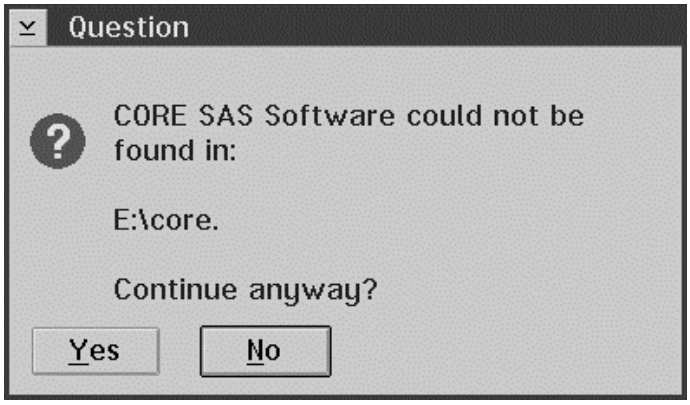
During a custom standalone installation, CORE SAS software must be selected or already installed. If you have not selected the product CORE, the following window is displayed:



SAS Setup has detected that CORE SAS software has not been selected for installation. CORE SAS software is required by all other SAS System products. Select `OK` to be given the opportunity to indicate to which directory the core product has been previously installed. The following window is displayed:



Provide SAS Setup with the location of the CORE SAS software. Enter the installation directory of CORE and select `OK` to continue. If CORE has not been previously installed, or you are uncertain as to where it was installed, select `Cancel` to return to the `Select Setup Type` window.



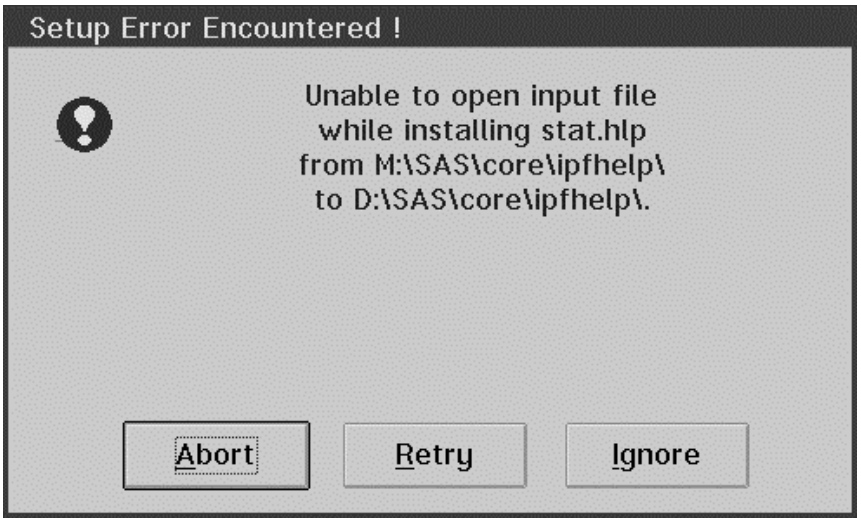
The window above indicates SAS Setup was unable to find CORE SAS software at the location you designated. Select `No` to return to the previous window where you can designate the installation location of CORE SAS software.

Select `Yes` to continue and the SAS software products you previously selected for installation will be installed.

File installation errors:

If a problem is encountered during the installation of the SAS System, an error window will be displayed. This window will indicate the name of any file currently being copied and a brief explanation of the problem. Press the `HELP` button for more detailed information about each particular error.

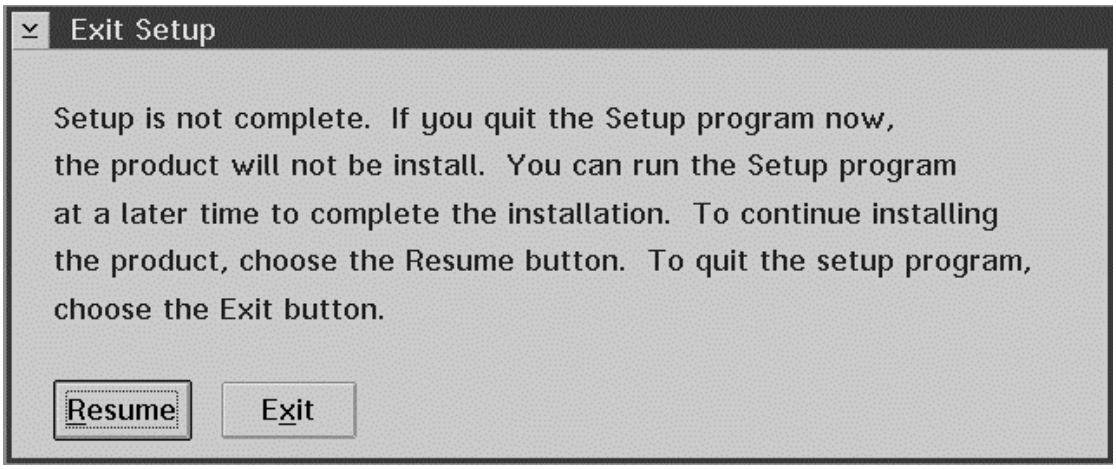
In this example, an input file cannot be installed, possibly resulting from the CD-ROM being dismounted or a network access error.



Exiting SAS Setup

At any time while SAS Setup is running, you can select the `Exit F3` button in the lower right corner of your screen to terminate the installation. The SAS System will not be completely installed if you exit prior to completion. You can run the SAS `Setup` program at a later time to complete the installation.

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



Chapter 2, Applying Maintenance to Your SAS System

This chapter provides instructions for installing maintenance to your SAS System under OS/2 from CD-ROM. There is no method available for installing maintenance from diskettes.

Installing Maintenance from CD-ROM

If you received maintenance for the SAS System on CD-ROM, complete the instructions in this section to apply maintenance.

Starting the SAS System Maintenance Setup Process

1. Start OS/2.

2. Insert the installation media into the CD-ROM drive.

3. Type the following command at an OS/2 command prompt:

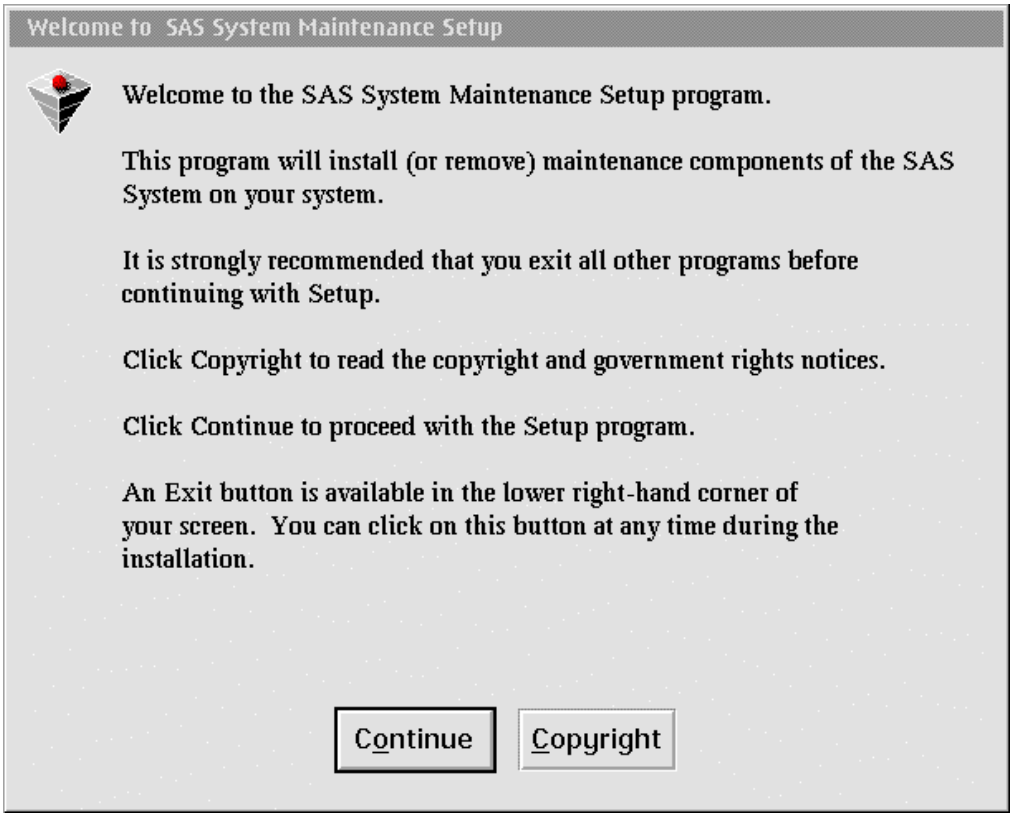
   ```
   <source_drive>:\SETUP
   ```

   For example, if the source media is in drive E:, type:

   ```
   E:\SETUP
   ```

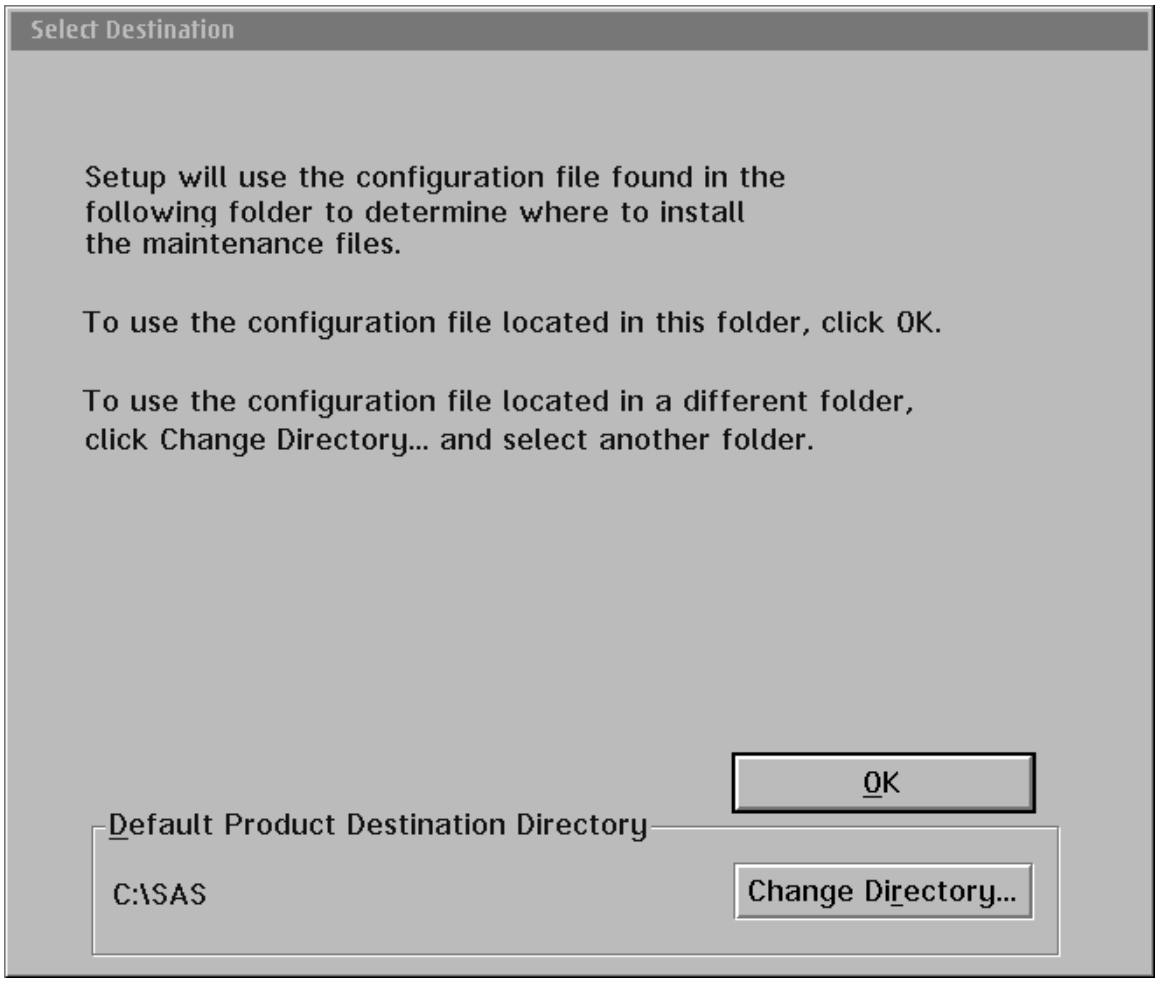
Installing SAS System Maintenance

After the initialization of the Setup program, the `Welcome to SAS System Maintenance Setup` window is displayed as shown below:



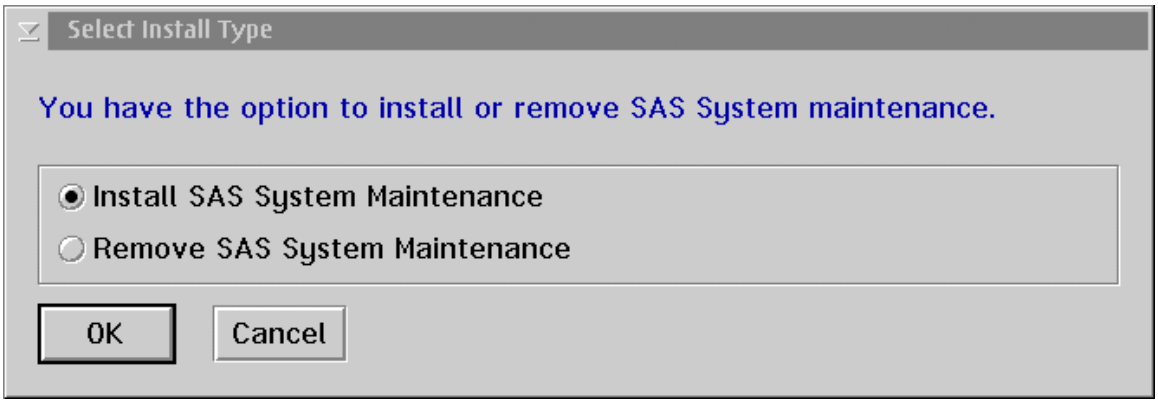
Suggested Action: Click `Copyright` to view the copyright information. After viewing, click `OK` in the `Copyright` window and then click `Continue` in the `Welcome to SAS System Maintenance Setup` window.

Next, the `Select Destination` window is displayed. The Maintenance Setup program determines what files to install and where to install them using the information provided in the SAS configuration file.



Suggested Action: Specify the directory where the SAS configuration file is located and then click `OK`.

From the `Select Install Type` window, you have the option to install the maintenance on the CD-ROM or remove maintenance after it has been installed.

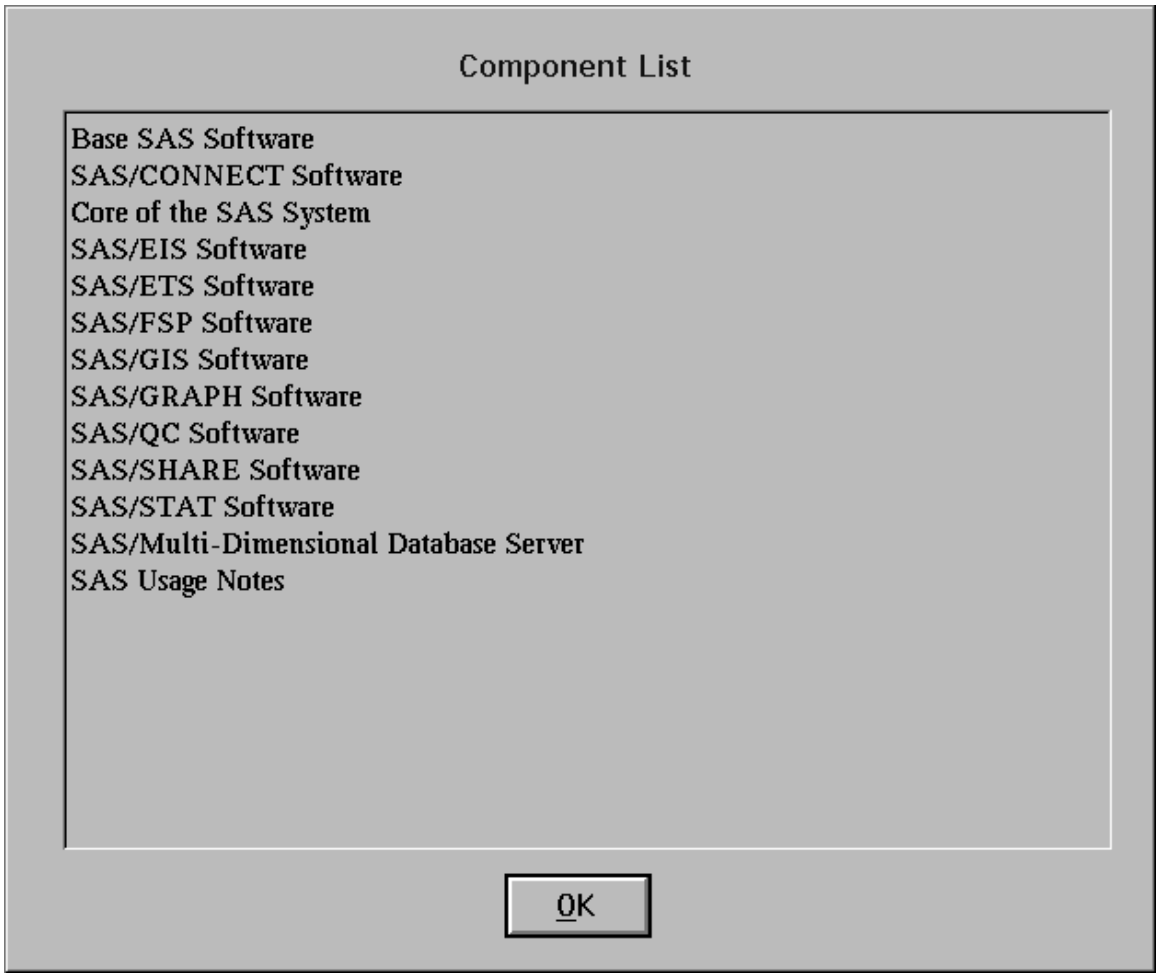


Suggested Actions: Select `Install SAS System Maintenance` and then click `OK`.

Setup will make a backup of existing files for which maintenance is installed. You have the option of disabling this feature from the `Select Backup Feature` window shown below. If you deselect the `Enable backup feature` check box, you will not be able to remove maintenance. In order to return to the pre-maintenance SAS System, you would need to reinstall the SAS System from the production media.

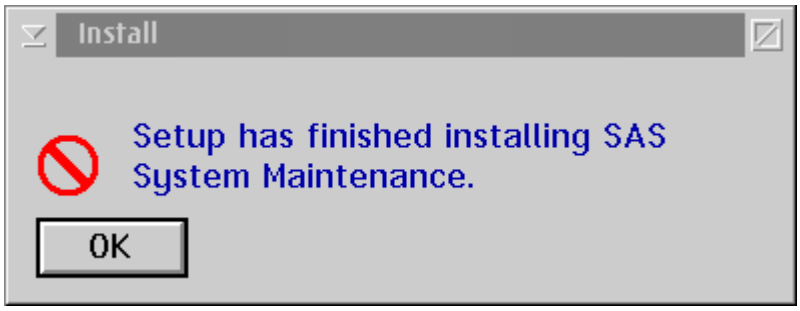
Suggested Actions: Enable the backup feature and then click `OK`.

After the Setup program has determined what products should be installed, it displays the list of products in the `Component List` window shown below.



Suggested Action: Review the products in the list. If the product list is correct, click `OK`. Otherwise, click `Cancel` and verify that the information in the configuration file is correct.

If the maintenance files have been installed successfully, the `Setup Complete` dialog is displayed as shown below.

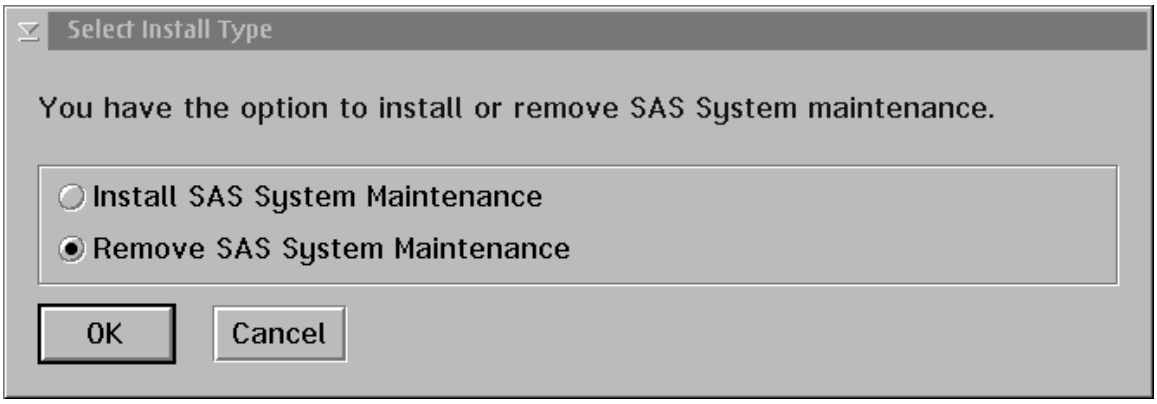


Suggested Action: Click `OK`.

Removing SAS System Maintenance

After maintenance has been applied to the SAS System, you may uninstall the maintenance using the Maintenance Setup program. Follow the steps as given in the section, "Installing SAS System Maintenance", selecting `Remove SAS System Maintenance` in the `Select Install Type` dialog.

Note: Setup should not be used to remove maintenance if the backup feature was disabled during installation.



Notes on the Installation Process

File Backups

During the installation of maintenance, Setup creates a backup of existing files. The backups are stored in the folder `!SASROOT\Backup`. For example, a backup of `sasfreq.dll` would be created in `!SASROOT\Backup\base\sasexe` with the name `sasfreq.dll`. Only one backup version is made. If disk space is at a minimum, there is an option to disable the backup feature.

Installation Types

There are five types of installations to perform when installing the SAS System: Typical or Compact, Custom, Client/Full, and Client/Selective. The following information describes the behavior of Setup for each of the installation types.

Typical or Compact Install

With a Typical or Compact install, components are installed on the local machine. All pre-selected components are installed to the same directory.

Setup determines what components are installed and where by referencing the configuration file. It then installs the appropriate maintenance components.

Custom Install

With a Custom install, all products are installed on the local machine. You choose what components (and options within components) to install and where.

Setup determines what components are installed and where by referencing the configuration file. It then installs the appropriate maintenance components.

Setup does not determine what options of a component have been installed. For example, if only Base SAS Required Files and Base SAS Reporting Files were selected to be installed from the Base component, all maintenance for Base is installed rather than just those files that apply to the Base SAS Required Files and Base SAS Reporting Files.

Client/Full Install

With a Client/Full install, all components are accessed on a network or from the CD-ROM. The following are created on the local machine: configuration file, an uninstall file, `SASUSER` directory, `SASWORK` directory, and `SASCFG` directory.

Setup determines what components are available by referencing the configuration file on the local machine. If write access is not permitted to the network image of the SAS System, Setup displays that maintenance cannot be applied. If write access is allowed, Setup installs the appropriate maintenance components.

Client/Selective Install

With a Client/Selective install, components are installed either locally and on a network or CD-ROM. You choose what components (and options within components) to install and where.

Setup determines what components are installed and where by referencing the configuration file on the local machine. With the structure of the configuration file, if a component is found on the local machine and on the network, the local copy is the only one that is updated. If write access to the network is not permitted for all components, Setup updates the local components. You must verify that the network has been updated as well.

Setup does not determine what options of a component have been installed. For example, if only Base SAS Required Files and Base SAS Reporting Files were selected to be installed from the Base component, all maintenance for Base is installed rather than just those files that apply to the Base SAS Required Files and Base SAS Reporting Files.

Re-Installation Support

The SAS System can be "re-installed" from a network copy. If maintenance is applied to the network copy, all re-installations should perform a Custom or Client/Selective install choosing maintenance as one of the components. If not all the maintenance components are to be installed, select the appropriate options within the maintenance component. For example, if Base SAS, SAS/GRAPH, and CORE are to be installed, you must select the Base, Graph, and Core options within the maintenance component. Otherwise, all maintenance components will be installed.

All other installation types may be incomplete as new files may be added to the SAS System during maintenance.

Chapter 3, The Directory Structure of the SAS® System

The following directories and subdirectories are created when the SAS System is installed:

`SASROOT`

the root of the SAS System. It contains the CORE directory.

`SASROOT\product\SASEXE`

contains the executable SAS software files.

`SASROOT\product\SASHELP`

contains the SAS help files and catalogs.

`SASROOT\product\SASMACRO`

contains the SAS macro files.

`SASROOT\product\SASMSG`

contains the SAS message files.

`SASROOT\product\SAMPLE`

contains the sample library programs.

`SASROOT\product\SASTEST`

includes the test stream programs.

`SASROOT\CORE\SASINST`

includes the installation process software.

`SASROOT\CORE\SASDLL`

contains the host executable SAS files.

`SASROOT\BASE\SASSAMP`

contains the native format sample programs.

`SASROOT\CORE\IPFHELP`

contains the help files.

`SASROOT\CONNECT\SASLINK`

contains portions of SAS/CONNECT software.

`SASROOT\CONNECT\SASTTY`

includes `TTY.EXE` translation tables.

`SASROOT\USAGE\SASHELP`

contains SAS Notes files.

`SASROOT\SASCFG`

contains the configuration files for the SAS Desktop application.

Chapter 4, Invoking the SAS® System

Under OS/2, you can start the SAS System in either of the following ways:

- Double-click on the SAS (icon) Object.
- Type the following SAS command at an OS/2 prompt:

```
<drive:><path>SAS
```

  where `<path>` is the location where SAS is installed (the SASROOT).

When you invoke the SAS System, it searches for a `CONFIG.SAS` file in the current directory. If it does not find one, the SAS System searches directories specified in the `OS/2 PATH` command, 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 `CONFIG.SAS` file in one of these places, the invocation fails.

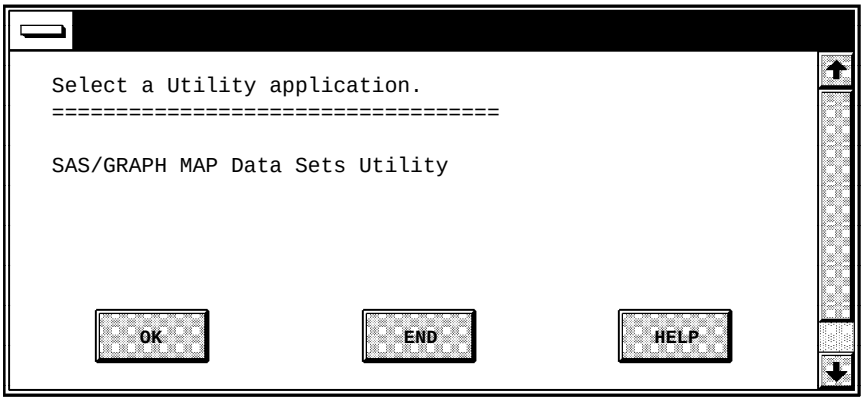
For more information on running the SAS System under OS/2, refer to *SAS Companion for the OS/2 Environment, Version 6, Second Edition,* and *OS/2 Environment: Changes and Enhancements to the SAS System, Release 6.12.*

Chapter 5, Using the Utility Application

The Utility Application provides a framework for invoking several utility features of the SAS System. The list of utility features is dynamic, and the utilities you receive depends on the products and components of the SAS System for which you are licensed. When you install the CORE of the SAS System, the Utility Application is automatically installed for you. For more information about the Utility Application, refer to *SAS Companion for the OS/2 Environment, Version 6, Second Edition* or *OS/2 Environment: Changes and Enhancements for the SAS System, Release 6.12.*

You can access the Utility Application through the `Help` pull-down on the SAS Application Workspace (AWS) action bar. When you select the Utility Application, the SAS System determines which utility features are installed, displays a list of the features, and lets you make a selection. If no utility features are currently installed, a message to this effect is displayed in the `Utility Application` window.

An example of a utility feature of the SAS System is the ability to compress and decompress SAS/GRAPH map data sets, as shown below. The map data sets are compressed by default if you are installing the SAS System from CD-35, CD-ROM, or diskettes. They must be decompressed before you can use them with SAS/GRAPH software. Selecting this feature allows you to decompress any compressed map data set. You can also use this feature to compress a map data set that you have previously decompressed but are not currently using. Compressing unused map data sets saves disk space.



Note: Maps are not compressed on the CDRM version of the SAS System. You can use them directly from the CD. You do not need to decompress them as discussed in the preceding example. Maps *are* compressed on the diskette version of the SAS System.

Chapter 6, Technical Support Services

Direct technical support is provided by SAS Institute to the designated SAS Installation Representative and SAS Support Consultant(s) 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 by phone, call (919) 677-8008 between the hours of 9 a.m. and 8 p.m., Eastern Standard Time, weekdays. For technical support via the World Wide Web, use the following URL:

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

For technical support by mail, address all correspondence to:

> SAS Institute, Inc.
> 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 the additional electronic support provided by the Institute's Technical Support Division:

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/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 remaining sections in this appendix list supported software for access methods available on OS/2, and outline configuration procedures for those access methods requiring additional configuration.

The access methods supported for OS/2 are ASYNC, EHLLAPI, NETBIOS, SPX, TELNET, TCP/IP, and APPC. These methods are described in the order listed. You should refer to the section for the access method that you will be using at your site for requirement information. Refer to *SAS/CONNECT Software: Usage and Reference, Version 6, Second Edition* and *SAS Software: Changes and Enhancements, Release 6.12* 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 as well.

Under OS/2, the script files are installed into the `!SASROOT\CONNECT\SASLINK` directory by default. When SAS/CONNECT software is installed, the following line is added to the `CONFIG.SAS` file:

```
-SASSCRIPT !sasroot\connect\saslink
```

If you want to move the script files to another directory, you must edit the `CONFIG.SAS` file and update the SASSCRIPT option with the new directory location.

System Configuration for the Asynchronous Access Method

Note: This information is required to use ASYNC.

In order to use the asynchronous access method with SAS/CONNECT software and OS/2 2.11 or higher, you must use a serial port that is controlled by the basic `COM.SYS` driver. This access method will not function with the OS/2 Extended Services ACDI support for serial ports.

Basic serial port support is automatically installed when OS/2 2.11 or higher is installed. Make sure the following statement is in your `CONFIG.SYS` file:

```
DEVICE=C:\OS2\COM.SYS
```

Note: The `COM.SYS` driver on your system may be installed on a drive other than the `C:` drive.

System Configuration for the EHLLAPI Access Method

Note: This information is required to use EHLLAPI.

For the EHLLAPI access method, a supported emulation package must be installed on the OS/2 node. The following emulation products are supported:

- IBM's CM/2 Version 1.11
- IBM's PCOM (Personal Communications) 4.1 for 32-bit EHLLAPI support or subsequent versions.
- Any OS/2 2.11 or later emulation program that supports the EHLLAPI standard.

Sample `CONFIG.SYS` files, as well as other information, are included on the install media in `!SASROOT\CONNECT\SASMISC`. Refer to the `README.OS2` file for details.

System Configuration for the NETBIOS Access Method

Note: This information is required to use NETBIOS.

Under OS/2 Version 2.11 or later, SAS/CONNECT software provides access methods to support both the IBM NetBIOS 3.0 Interface, and the LAN Manager 1.0 Submit Interface. The following products are supported for the IBM NetBIOS 3.0 Interface:

- ❑ IBM's NTS/2, Version 1.0 or higher
- ❑ IBM's LAN Enabler, Version 2.0 or higher
- ❑ IBM's LAN Server, Version 2.0 or higher.

The following products are supported for the LAN Manager 1.0 Submit Interface:

- ❑ Novell's NetWare Requestor for OS/2 2.11
- ❑ IBM's LAN Enabler, Version 2.0 or higher
- ❑ IBM's LAN Server, Version 2.0 or higher.

Note: Be sure to use the same vendor or compatible vendors on both sides of the connection. Microsoft and IBM NetBIOS are compatible, but neither is compatible with Novell.

Sample configuration files are included on the install media in `sasroot\CONNECT\SASMISC`. Refer to the `README.OS2` file in this directory for more information.

System Configuration for the SPX Access Method

Novell's Sequenced Packet Exchange (SPX) is a communications protocol that provides guaranteed delivery of Internetwork Packet Exchange (IPX) packets. IPX enables NetWare workstations to communicate with NetWare servers, and SPX adds the connection-oriented features required for reliable client/server communication. To use the SPX access method under OS/2, you must be running

- ❑ Novell's NetWare Requestor for OS/2, Version 2.10 or later.

SPX Support with Novell's NetWare Requestor for OS/2

To install Novell SPX under OS/2, install the netware requestor, make sure netware functions properly, and make sure statements similar to the following are in your `CONFIG.SYS` file:

```
DEVICE=C:\NETWARE\IPX.SYS
DEVICE=C:\NETWARE\SPX.SYS
```

To check if Novell IPX and SPX loads properly, watch the messages at boot time.

OS/2 Considerations

In order for the SPX access method to work properly it must be configured so that it does not violate the buffer size limitations of the Novell Requestor. The OS/2 requestor defaults to a buffer size of 1514 bytes. Because of this, the SPX access method also defaults to a buffer size of 1514 bytes. However, you cannot send buffers larger than 576 bytes over a bridge. Therefore, if you plan to use SPX over a bridge you must indicate to the SPX access method and the Novell Requestor that the buffer size should be 576.

- To inform SAS of the desired buffer size you must set the environment variable SPXMSGSIZE to have a value of 576.

- To indicate the buffer size to the Novell Requestor you must put a buffers statement under the link support attribute in the `net.cfg` file. For example:

```
link support
buffers 30 576
```

The 576 is the size of the buffers and the 30 is the number of buffers. The product of these 2 numbers cannot exceed 64K.

The maximum buffer size for Ethernet is 1514, and the maximum buffer size for Token Ring is 4202 bytes. If you are using a Token Ring network, you may want to change the buffers statement in your `net.cfg` to use 4202 byte buffers and set SPXMSGSIZE to 4202.

System Configuration for the TELNET and TCP Access Methods

Note: This information is required to use TELNET or TCP.

Using the TELNET or TCP access method, you can connect to any supported platform on the TCP/IP network that is running a release of the SAS System that has the corresponding access method support, and has SAS/CONNECT software installed. With the TCP access method, one of the supported TCP/IP products must be installed on any node, both local and 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 requires a TELNET DAEMON to be configured through the TCP/IP product, but does not require a supported TCP/IP product to make the mode accessible through TELNET.

The following TCP/IP products are supported:

- ❑ IBM'S TCP/IP Version 3.0 or higher
- ❑ FTP Software's PC/TCP for OS/2 Version 1.3 or higher
- ❑ Wollongong's Pathway Version 1.2 or higher
- ❑ Novell's LAN Workplace for OS/2 Version 3.0 or higher, which allows you to use OS/2 as a local node only.

When you configure IBM TCP/IP for OS/2, you must provide the hostname under the `Configure Services` option. If you attempt to signon with SAS/CONNECT software and you have omitted the hostname, you receive the following error message:

```
ERROR: Access method initialization failed.
```

System Configuration for the APPC Access Method

Information is provided as a reference for establishing an environment to use the SNA APPC capabilities provided in APPC (Advanced Program-to-Program Communications) within your SAS applications. You must complete this configuration for each workstation on which SAS/CONNECT software or SAS/SHARE software will be used. This information is included on the install media in the `!SASROOT\CONNECT\SASMISC` and `!SASROOT\SHARE\SASMISC` directories. Refer to the `README.OS2` file in these directories for details.

Note: Currently, only a single SAS/CONNECT remote session or a single SAS/SHARE server may be running on a workstation at any one time. This is due to global characteristics in the `RECEIVE_ALLOCATE` interface with Communications Manager. Methods to circumvent this are being investigated

Software Requirements

The APPC access method, for use with SAS/CONNECT and SAS/SHARE software on OS/2, requires one of the following systems software packages:

- ❑ IBM’s CM/2 Version 1.11
- ❑ IBM'S Communication Service for OS/2 WARP, Version 4 or subsequent versions.
- ❑ any OS/2 2.11 emulation program that supports IBM's APPC standard.

Appendix B, Installing SAS/ACCESS® Interface to AS/400 Data Software

This appendix discusses issues related to the installation of the SAS/ACCESS Interface to AS/400 Data under Release 6.12 of the SAS System on OS/2. Creating sample tables, configuration options, and using the interface are explained in the sections below.

Software Requirements

The SAS/ACCESS Interface to AS/400 Data is based on the Remote SQL API provided in the 16-bit PC Support/400 product. IBM has replaced PC Support/400 with Client Access/400. However, the PC Support/400 programs are still distributed with Client Access/400 to aid in providing compatibility. In order to use the SAS/ACCESS interface, the PC Support/400 product must be installed on the PC where SAS is executing. In addition, PC Support/400 has additional communications requirements to provide connectivity to the AS/400.

Installing AS/400 Files

The sample tables used in the manual examples can be created in an SQL collection on the AS/400. The SQL collection and tables can be created by executing a sample SAS program. This program takes advantage of the PROC SQL Pass-Through facility. To locate this SAS program, select `Sample Programs` from the Help menu. Then select `Using SAS Sample Programs` and `SAS/ACCESS for AS/400`. This will present you with a list of sample programs that should be used with the SAS/ACCESS Interface to AS/400 Data. Select `Creating AS/400 Tables Used in Examples` to view the SAS program that will create the sample tables on the AS/400. From the Services menu, select `Copy to file`. This saves the SAS program in a temporary file named TEXT.TMP in the current directory.

To create the sample tables, run the SAS program in TEXT.TMP from an interactive SAS session or in batch mode.

Configuring SAS/ACCESS Interface to AS/400 Data Software

OS/2 environment variables used by the interface should be specified in the `CONFIG.SAS` file. To set an environment variable, use the -SET system option in the `CONFIG.SAS` file. The following is an example of the SET option:

```
-SET AS400BUF 10
```

This example sets the AS400BUF environment variable to `10`. Character values can also be assigned to environment variables. When assigning character values, quotes should not be used to enclose the string unless the string is an AS/400 library or file name containing special (lowercase) characters.

The following is a list of environment variables used by the SAS/ACCESS Interface to AS/400 Data. Their purpose, valid values, and default values are discussed.

`AS400PLU`

Specifies the Partner Logical Unit name by which communications manager recognizes the AS/400 host. If this environment variable is not set, a default of `5250PLU` is used.

`AS400CMT`

Indicates the level of commitment control and locking under which the interface should operate. Valid values are:

`NONE` No commitment control. Default locking is used. (This is the same as using `NO` in previous releases of the interface.)

`CHG` Change control. Update locks for updatable cursors only. Update locks for unchanged records are released as the cursor moves to the next row. Locks for changed rows are released at commit or rollback. Otherwise, no locks are released.

`CS` Cursor Stability control. Always uses a read or update lock as appropriate. Read locks and update locks for unchanged records are released as the cursor moves to the next row. Locks for changed rows are released at commit or rollback.

`ALL` Full commitment control and locking. All locks acquired are maintained until a commit or rollback occurs. (This is the same as using `YES` in previous releases of the interface.)

If a level of commitment control is specified (any value other than `NONE`), commitment control is used. However, use of commitment control prohibits the access of non-journalled database files.

For more information refer to IBM's *Application System/400 Systems Application Architecture Structured Query Language/400 Programmer's Guide*: SC41-9609-01.

The default value for this variable is `NONE`.

AS400DEC

Indicates the numeric decimal separator to be used. Valid values are a period `(.)` or comma `(,)`. Do not surround the values with quotes.

The default value is period `(.)`.

AS400BUF

Defines the size of the buffer used for data transfers. Valid values are integers from `1` to `31`. The values represent the size of the buffer in kilobytes.

The default value is `5K`.

AS400UPD

Indicates if rows that are returned from a select statement can be updated. A value of `YES` indicates that select statements should be invoked so that rows can be modified. `NO` does not allow updates of selected rows.
In addition to the ability to update rows, this variable affects I/O with the AS/400. When a value of `YES` is used, records are returned from the AS/400 one at a time, and rows can be fetched from several different tables at the same time. However, if a value of `NO` is used, rows are returned from the AS/400 in blocks, and rows can only be fetched from one table at a time. If you intend to read data from only one table during the execution of a procedure, then you may want to set this environment variable to `NO` to increase performance.

If this environment variable is not set, a default of `YES` is used.

AS400DAT
AS400TIM

Defines the format for dates, times, and timestamps that were added to AS/400 in Version 2 Release 1.1. Defines the format of the date and time values returned to the engine from the AS/400. The name of the environment variable used for the date format is AS400DAT. For the time format, it is AS400TIM. The following table shows the possible values for these variables, and which values are valid for a particular format:

Variable Value	Valid for AS400DAT	Valid for AS400TIM
YMD	Y	N
MDY	Y	N
DMY	Y	N
JUL	Y	N
HMS	N	Y
ISO	Y	Y
USA	Y	Y
EUR	Y	Y
JIS	Y	Y

By default, date values are returned from the AS/400 in the format specified by the QDATFMT system value on the AS/400. This same value should be specified as the value for the AS400DAT environment variable. Currently, there is no system value for the time format, and the default is HMS. However, if the time format is modified by another means (such as modifying the time format associated with the PC Support job that is communicating with the engine), then that time format should be specified for the AS400TIM environment variable.

AS400NNC

Indicates how the SAS System should treat a missing SAS character value when attempting to insert values into a column that is defined as either NOT NULL or NOT NULL WITH DEFAULT. When a value of NULL is specified, any attempt to insert a SAS missing value into a column defined as NOT NULL or NOT NULL WITH DEFAULT will fail. If a value of BLANKS is specified, blanks are inserted into the column for the missing values. Note that the SAS System always inserts NULL values for SAS missing values into columns defined as NULL.

Using SAS/ACCESS Interface to AS/400 Data Software

The SAS/ACCESS Interface to AS/400 Data requires PC Support/400 (Version 2 Release 1.1 or higher) be started prior to using any of the interface features. PC Support can be started by:

- ❑ issuing the `STARTPCS` command from an OS/2 command prompt
- ❑ selecting `Start PC Support` from the PC Support/400 group menu.

Communications Manager must also be running prior to starting PC Support.

The SAS/ACCESS Interface to AS/400 Data is capable of reading, adding, updating, and deleting rows from both SQL controlled database files and conventional database files. One restriction exists, in that, if the `AS400CMT` environment variable is set to something other than `NONE`, conventional AS/400 database files cannot be accessed unless journalling is activated.

Because the SAS/ACCESS interface uses the Remote SQL API to retrieve data from the AS/400, SQL terms are used in our documentation to describe the AS/400 data objects. The following table gives SQL terms and their equivalent in conventional AS/400 terminology:

SQL Term	Conventional AS/400 Term
`Collection`	`Library`
`Table`	`Database File`
`Row`	`Record`
`Column`	`Field`

The SQL server used by the Remote SQL API operates as if `COMMIT(*ALL)` were specified when the `AS400CMT` environment variable is set to `ALL`. This means that ALL locks acquired on records remain active until a commit or rollback occur. In other words, if a user invokes `PROC FSEDIT` on a table and scrolls past the first three rows, UPDATE locks will be active on ALL of those rows until a commit or rollback.

The SAS ACCESS Interface to AS/400 Data issues commits under two conditions:

- ❑ when the user of `PROC FSEDIT` or `PROC FSVIEW` issues a save command
- ❑ when a table is closed and no other tables are currently open in the SAS session.

For example, if a user has FSEDIT invoked multiple times concurrently on AS/400 tables, then a commit will not be issued until one of the following conditions are met:

- the user issues a `save` command from an FSEDIT session
- all FSEDIT and other procedures have ended, and there are no AS/400 tables in use by the SAS session.

Appendix C, Binding SAS/ACCESS® Interface to DATABASE 2 OS/2 Software

Before attempting to use the SAS/ACCESS Interface to DATABASE 2 OS/2, the application must be bound to the database using the DB2/2 `SQLBIND` command. This step should typically be done at installation, or after creating new databases. This step assumes the userid `SASDEMO` is defined to User Profile Services, and that this user issues the bind request. You are logged on with the SAS DEMO userid. If you have multiple databases defined, this should be done for each one. Be sure to check your SAS software installation directories to verify the path for the bind module `SASDB2.BND`. The following example assumes that the SAS System is installed in the `C:\SAS` directory. If this is not the case with your installation, modify the command accordingly. To bind the SAS/ACCESS Interface to Database 2 OS/2, perform the following steps:

1. From an OS/2 window, invoke the `SQLBIND` command file as follows:

```
SQLBIND C:\SAS\ACCESS\SASMISC\SASDB2.BND database_name
```

2. After binding the application to the database, you should grant the authority to execute the application as would be appropriate to your site installation. Use the Command Line Interface (CLI) or the SQL Query facility under Query Manager to issue an `SQL GRANT` command. The following `GRANT` command allows all userids to execute the interface:

```
GRANT EXECUTE ON PROGRAM SASDEMO.SASDB2 TO PUBLIC
```

For more information concerning the `SQLBIND` command, refer to the following DB2/2 product manuals:

DATABASE 2 OS/2 Programming Guide (S62G-3665-00)
DATABASE 2 OS/2 Command Reference (S62G-3670-00).

Appendix D, Installing SAS/ACCESS® Interface to SYBASE and SQL Server Software

Before using the SAS/ACCESS Interface to SYBASE and SQL Server, you must install the DB-Library and appropriate Net-Library client software on the PC where the interface will be used. Check with your database administrator (DBA) to determine if this software is already installed at your site.

SAS/ACCESS software runs on 32-bit OS/2 clients using 4.6 or 10.0.2 and higher of the OpenClient DB-Library for OS/2. The SAS System determines at run-time which Open Client DB-Library is in use, and loads the appropriate compatible SAS DLL.

For more information about the SAS/ACCESS Interface to SYBASE and SQL Server, refer to *SAS/ACCESS Interface to SYBASE and SQL Server: Usage and Reference, Version 6, First Edition*.

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

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

- ❑ Base SAS software
- ❑ SAS/ACCESS Interface to ORACLE software
- ❑ ORACLE SQL*NET for OS/2.

Client-Server Architecture

SAS/ACCESS Interface to ORACLE runs on the client machine (OS/2). It accepts user input and sends requests to ORACLE SQL*Net (client) to be transported across the network to the server.

ORACLE7 database software and a SQL*Net listener (Server) are running on the server machine. The SQL*Net listener accepts the connection from the client on the network. It then delivers the SAS/ACCESS requests to the ORACLE7 database.

An ORACLE SQL*Net V1.x client can talk to servers that support SQL*Net V1.x and an ORACLE SQL*Net V2.x client can talk to servers that support SQL*Net V2.x. You can also have a client and/or server which supports both SQL*Net V1.x and SQL*Net V2.x. However, you cannot have a SQL*Net V1.x client connecting to a server that only supports SQL*Net V2.x. For example, an ORACLE client installed on NT for SQL*Net V2.x can connect to an ORACLE server (7.1, 7.2, 7.3 and so on) on any platform (Solaris 2, HP/UX, AIX, Digital UNIX, OpenVMS, Windows NT, and so on) which is also running SQL*Net V2.x. SQL*Net is a communication transport layer product and it does not care about the version number of the server that it is connecting to and fetching data from to pass back to the client application.

Installing SQL*Net

Before using the SAS/ACCESS Interface to ORACLE server, you must install the ORACLE SQL*Net Client on the same PC where the SAS/ACCESS interface will be used.

To install ORACLE SQL*Net Client on OS/2, it is recommended that you use one of the following options:

- install SQL*Net from "ORACLE products for OS/2 Version 7.2".
  You can find them from CD-ROM Part #A36241-1.

- install SQL*Net from "ORACLE products for OS/2 Version 7.1".
  You can find them from CD-ROM Part #A34712-1.

Note: If you are using the ORACLE Client, Release 7.3, please contact SAS Institute Technical Support to obtain updated support modules.

Assigning the Default Path for 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.

From the `\ORAOS2\XBIN\CONFIG.ORA` file:

- If you use *SQL*Net V1*, define the `LOCAL` parameter as follows:

  ```
  LOCAL=network_prefix:server_name[:system_id]
  ```

- If you use *SQL*Net V2*, define the `LOCAL` parameter as follows:

  ```
  LOCAL=TNS:service_name
  ```

  where `service_name` is defined in:

  ```
  \ORAOS2\NETWORK\ADMIN\TNSNAMES.ORA
  \ORAOS2\NETWORK\ADMIN\SQLNET.ORA
  ```

Refer to your ORACLE SQL*Net User's Manual for more information.

Note: If you are using ORACLE SQL*Net, Version 2.3 (from ORACLE, Version 7.3 Client Software, please contact SAS Institute Technical Support to obtain the latest support files.

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

Before you can use the SAS ODBC Pass-Through engine, you must install an OS/2 ODBC driver for the database management system (DBMS) you want to access. An ODBC driver processes ODBC function calls from, and returns results to SAS/ACCESS software. You can get drivers from your database vendors, or other third party software providers.

The ODBC Driver Manager and Administrator are ODBC components that are included with most 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 ODBC folder created during the driver installation.

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 Interface to ODBC software, refer to *SAS/ACCESS Software: Changes and Enhancements: SQL Procedure Pass-Through Facility, Version 6*. For more information about ODBC, refer to *Microsoft ODBC 2.0 Programmer's Reference and SDK Guide*.

Appendix G, 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: Changes and Enhancements, Version 6*.

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 the 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 and selecting `SETUP ... Master/group...`

If you have write-access to the SAS library containing the master profile you can specify default values for your installation. These values will be used by new users 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.

SAS/ASSIST contains a new menu bar and a new saving mechanism that are controlled using the profile options below.

```
Run old style:

Save selections on end:    No
Menu Style:                Old

Run new style:

Save selections on end:    Yes
Menu Style:                New
```

By setting the default values in the master profile you can control if users should use the new or old style SAS/ASSIST software. In addition, there are many other profile options. For more information on these options, refer to *SAS/ASSIST Software: Changes and Enhancements, Version 6*.

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.

Profile Changes and Enhancements

To enhance the profile feature for Query and Reporting, some changes have been made to the profile structure. A new profile option, `Query exit`, has been added to the user profile in `Type:Query`. Another new profile option, `Additional Information`, has been added to `Type:Query Manager`. This enables users who are running queries against SAS data to obtain customized information about the data they are accessing.

Converting User Profiles from a Previous Release

There are many ways to convert your user profile. One is to simply note any changes you have made to your user profile, exit SAS/ASSIST software, delete the profile, SASUSER.PROFILE.PASSIST.SLIST, and reinvoke SAS/ASSIST software. A profile with the new format will be created. You can now update your new profile with the option values you noted in your original profile.

Another way you can convert your user profile is to use a conversion program that is provided with this release. In the Program Editor window type and submit the following to convert to the new structure:

```
proc display cat=sashelp.qassist.profconv.scl; run;
```

The SAS Administrator may want to ensure that all users of SAS/ASSIST software convert their user profiles soon after the new release is installed. This can be done using the Master Profile (see the section, "Adding a Master profile" for information on creating a master profile). You will take advantage of the SAS/ASSIST start program, a profile option that runs a program when SAS/ASSIST software is invoked. The program must be a SOURCE entry; therefore you must save the code in a source entry in a library that is accessible by all users such as SASHELP.

In this example, the source is saved in SASHELP.QASSIST.PROFCONV.SOURCE. If you currently have a SAS/ASSIST start program that is used globally you can add the code in that program. If individual users have their own SAS/ASSIST start programs, it may be best to have them simply type and submit the code in the Program Editor. Complete the following steps:

1. Type the following in the Program Editor window:

   ```
   proc display cat=sashelp.qassist.profconv.scl; run;
   ```

2. Select `Save As...Write to Object` from the `File` pull-down menu.

3. Enter the following destination object name:

   ```
   SASHELP.QASSIST.PROFCONV.SOURCE
   ```

4. Select `OK`.

5. After the Master Profile has been created, open it and select `Type: General`

6. Specify the following: (The R status forces the user's profile to be updated)

Cmd Option	*Value*	*Status*
SAS/ASSIST start program	*SASHELP.QASSIST.PROFCONV.SOURCE*	*R*
Type of start program	*Catalog*	*R*

Note: Once the conversion program has run, it can run again and again without effect. The administrator will have to leave these values in place until he feels confident that all users have used SAS/ASSIST software. The users will see a pop-up window indicating the above profile value change when they first access SAS/ASSIST software after the new release is installed and this technique is implemented. You may want to let them know to expect it. Existing users are notified that this option value has been changed when SAS/ASSIST software is invoked.

When the administrator is confident that all users have invoked SAS/ASSIST software in the new release, he should clear the value specified for the SAS/ASSIST start program and make it available to the user. Specify the following:

Cmd Option	*Value*	*Status*
SAS/ASSIST start program		*U*
Type of start program	*Catalog*	*U*

The U status enables users to enter their own values for these options.

A pop-up window indicating these profile changes may be displayed. You can choose to accept the changes and update your profile.

Note: If you currently have a SAS/ASSIST start program that is used globally, you can add the above code to that program. If individual users have their own SAS/ASSIST start programs, it may be best to have them type and submit the code in the Program Editor.

Converting Existing Master and Group Profiles

To convert the master profile, type the following in the Program Editor and then submit it:

```
%let lib=s:\sas\assist\parms;
proc display cat=sashelp.qassist.profconv.scl; run;
```

To convert group profiles, type the following in the Program Editor and then submit it:

```
%let lib=s:\sas\assist\parms\groups;
%let cat=catalog.grpname;
proc display cat=sashelp.qassist.profconv.scl; run;
```

Note: It is possible that some or all group profiles are stored in the same physical location as the master profile as shown in the above example. If you have multiple group profiles stored in the same physical location, you do not need to submit the %let lib= statement repeatedly. For example, if you have groups GRP1, GRP2, GRP3 all stored in sasabc.sas430.groups in the ASSIST catalog, you can submit the following to convert all three groups:

```
%let lib=s:\sas\assist\parms\groups;
%let cat=assist.grp1;
proc display cat=sashelp.qassist.profconv.scl; run;
%let cat=assist.grp2;
proc display cat=sashelp.qassist.profconv.scl; run;
%let cat=assist.grp3;
proc display cat=sashelp.qassist.profconv.scl; run;
```

Appendix H, Implementing SAS/SHARE® Software

This appendix discusses the access methods that are available with Release 6.12 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 OS/2. They are described in the table below.

   You can 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 table below shows the supported communications software for each access method.

Access Method	Communications Software Required
APPC	IBM's Extended Services
IBM NETBIOS 3.0 Interface	IBM's Extended Services
NetBIOS Submit Interface	Novell's NetWare Requester for OS/2
	IBM Extended Services
TCP/IP	IBM TCP/IP Version 1.2.1 or higher Novell's LAN WorkPlace Version 3.0 for OS/2
SPX	Novell's NetWare Requestor for OS/2, Version 2.10 or later

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, in a SAS configuration file, or 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**
APPC	`APPC`
IBM NETBIOS 3.0 Interface	`NETBIOS`
NetBIOS Submit Interface	`MNETBIOS`
TCP/IP	`TCP`
SPX	`SPX`

   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 IBM NETBIOS 3.0 Interface access method, specify the following:

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

For a server that is to be accessible to users who use either the IBM NETBIOS 3.0 Interface 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 IBM NETBIOS 3.0 Interface 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 Submit Interface, APPC, and TCP/IP access methods in that order, specify the following:

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

System Configuration for the APPC Access Method

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

System Configuration for the SPX Access Method

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

System Configuration for the IBM NETBIOS 3.0 Interface and NetBIOS Submit Interface Access Methods

This section details the instructions for configuring the IBM NETBIOS 3.0 Interface and NetBIOS Submit Interface access methods. These instructions are included on the install diskettes in `!SASROOT\SHARE\SASMISC\NETBIOS.DOC`.

Software Requirements

The following NetBIOS products are supported:

- Novell's NetWare Requester for OS/2 2.11 with update OS2V2A.
- IBM's NTS/2, Version 1.0 or higher.
- IBM's LAN Enabler, Version 2.0 or higher.
- IBM's LAN Server, Version 2.0 or higher.

Because these products provide different NetBIOS APIs, there are two NetBIOS access methods:

- IBM NETBIOS 3.0 Interface access method for use with IBM's Extended Services
- NetBIOS Submit Interface access method for use with Novell's NetWare Requester.

SAS System Configuration

This section provides a list of system options and environment variables that you can use to configure your system.

System Options

The SAS system option `COMAMID=` specifies which access method SAS/SHARE software should use for communication. This option may be specified on the command line, in a SAS configuration file, or in an `OPTIONS` statement.

If you have IBM's Extended Services, specify `COMAMID=NETBIOS` to use the IBM NETBIOS 3.0 Interface access method.

If you have Novell's NetWare Requester for OS/2 2.11, specify `COMAMID=MNETBIOS` to use the NetBIOS Submit Interface access method.

Environment Variables

Environment variables can be specified in any of the following three ways:

- They may be executed on an `OPTIONS SET=NAME VALUE` statement during the SAS session. If the variable is specified in an `OPTIONS` statement during the SAS session and its value contains special characters, the value must be in quotes.
- They may be added to the `SET NAME VALUE` command in the SAS configuration file.
- They may be entered as a `-SET NAME VALUE` in the SAS command.

You can check the values of the environment variables by executing the following SAS source statements:

```
proc options;
run;
```

The following environment variables are used by both NetBIOS access methods:

`VQCAMLEN`

specifies the access method buffer and packet length. This variable determines the maximum number of characters that can be transmitted in a single packet. The value can range from `55` to `65535` characters. The default value is `4096`.

VQMLINKS

specifies the maximum number of NetBIOS sessions available to the access method. For a server this is the maximum number of users that can be connected concurrently. For a user, this is the maximum number of servers to which the user can be connected concurrently in a single user session. Specifying `0` implies the default number of sessions; this number is dependent on vendor installation and is usually `16`. The sum of the values of this variable for all SAS sessions on a given OS/2 system must be less than or equal to the system maximum for the NetBIOS software.

VQMCONVS

specifies the maximum number of outstanding NetBIOS commands available to the access method. For a server, this is roughly the maximum number of concurrent connections by users and opens of SAS files and SAS catalog entries, where each open of a given file or entry by each user is counted separately. For a user session this is roughly the maximum number of concurrent connections to different servers and opens of SAS files and SAS catalog entries, where each open of a given file or entry by the user is counted separately. Specifying `0` implies the default number of commands outstanding; this number is dependent on vendor installation and is usually `16`. The sum of the values of this variable for all SAS sessions on a given OS/2 system must be less than or equal to the system maximum for the NetBIOS software.

VQPNAME

specifies the symbolic user name to be used by a SAS/SHARE server to refer to the user session in its SAS log and in output from the `OPERATE` procedure. This variable can be any valid name up to 8 characters long. The default value for the variable is the letter `U` followed by the last `7` characters of the network hardware address.

The following environment variable is used only by the IBM NETBIOS 3.0 access method:

VQADAPTR

specifies which network adapter (or interface) card should be used. Use this variable if you have more than one adapter card and you want to use the second or subsequent one.

The following environment variable is used only by the NetBIOS Submit Interface access method:

VQNETNAME

specifies which network in the NetBiosEnum table should be used. Currently, NetWare Requester for OS/2 does not allow the access method to specify the network name, but instead always uses the first network in the table. Until this feature is supported by NetWare Requester for OS/2 you should not specify this variable.

Troubleshooting

- IBM NETBIOS 3.0 Interface access method

  Check the `\IBMCOM\LANTRAN.LOG` file for NETBIOS initialization messages.

- NetBIOS Submit Interface access method

  Make sure the NetWare Requester directory precedes the IBM Extended Services `MUGLIB` directory. If it does not, the wrong `NETAPI.DLL` file will be used and you will get incorrect return codes.

The following is a listing of error codes, return codes, their explanations, and possible remedies.

- `ERROR: File not found loading \SAS\CORE\SASEXE\SASVNNET.DLL; File contributing to error: ACSNETB`

  The IBM NETBIOS 3.0 Interface access method was loaded but the supporting IBM software was not found. Make sure that IBM's `ACSNETB.DLL` file is in the LIBPATH.

- `ERROR: File not found loading \SAS\CORE\SASEXE\SASVNMNE.DLL; File contributing to error: NETAPI`

  The NetBIOS Submit Interface access method was loaded but the supporting Novell software was not found. Make sure that Novell's `NETAPI.DLL` file is in the LIBPATH.

System Configuration for the TCP/IP Access Method

This section details the instructions for configuring the TCP/IP access method. These instructions are included on the install diskettes in `SASROOT\SHARE\MISC\TCP.DOC`.

Software Requirements

Define Server Names in the TCP/IP SERVICES File

Complete the following steps:

1. Locate the SERVICES file.

   If you are using IBM TCP/IP, the SERVICES file is located in the `ETC` directory in which the product is installed. For example, if the TCP/IP product is installed in `D:\TCPIP`, the SERVICES file is in `D:\TCPIP\ETC`.

   If you are using Novell's LAN Workplace, the SERVICES file is located in the `TCP` directory in which the product is installed. Therefore if the TCP/IP product is installed in `E:\LANWP` then the SERVICES file is in `E:\LANWP\TCP`.

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.

   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.

Appendix I, Installing the IBMNULL Device Driver for Use With SAS/GRAPH® Software

This appendix provides instructions for installing the IBMNULL device driver. This driver is supplied by IBM, but must be installed for producing hardcopy output from SAS/GRAPH software using stand-alone or "native" SAS/GRAPH device drivers, such as PS or HPLJ3SI. If you are producing output using only the OS2PRTx series of SAS/GRAPH drivers, you do not have to install the IBMNULL driver. For more information on SAS/GRAPH native drivers and the OS2PRTx series of drivers, refer to *SAS Companion for the OS/2 Environment, Version 6, Second Edition*.

Using SAS/GRAPH Native Drivers

SAS/GRAPH native drivers use internal SAS/GRAPH driver routines to generate hardcopy graphics output. If you use the SAS/GRAPH native device drivers to send graphics output to a hardcopy device through an OS/2 printer object, you must install a special IBMNULL OS/2 driver. The IBMNULL driver enables the printer object to direct the graphics data stream generated by the SAS/GRAPH native driver, to your printer, without adding any additional commands to the graphics data stream. If the IBMNULL OS/2 driver is not installed, an error message will appear in the SAS log and no graph will be produced.

Installing the IBMNULL Device Driver

To install the IBMNULL OS/2 driver, you can either add it to your current printer object, or create a new printer object. Because the SAS Printer Setup menu panel only displays the default printer for each printer object, you may want to add a new printer object specifically for the IBMNULL driver. This will allow you to leave a different driver as your default printer driver for other OS/2 printing, and allow the `SAS File...Printer...Setup` pull-down menu to always display the IBMNULL driver as one of your choices.

To create a new printer object for the IBMNULL driver, complete the following steps:

1. Click on the current printer object with your right mouse button, and then select `Copy`. A panel is displayed that asks you to specify the location of the new printer object. You will probably want this object to be on your desktop so that it can be easily accessed. Select `Copy` after setting up the location for your printer object. A panel is displayed allowing you to rename the printer object. For example, you can name the printer object IBMNULL. Select `OK` and the new object appears on your desktop. Continue to the next step to associate the new printer object with the IBMNULL printer driver.

2. Click your right mouse button on the printer object, and then select `Open...Settings`, and go to the Printer Driver tab. You may notice that other printer drivers you have previously installed for other printer objects are displayed in the Printer Driver portion of the window.

   To install the IBMNULL driver, click your right mouse button on any of the existing printer objects in the window, and then select `Install` from the menu. The resulting Install New Printer Driver panel displays a list of device drivers that are included on the OS/2 Installation Printer Driver diskettes. Page down to IBM NULL Printer Driver (`IBMNULL.DRV`) and highlight it. Select the `Install` button at the bottom of the panel. You are prompted to enter the pathname where your printer drivers are installed. If the contents of the OS/2 Printer Driver diskettes have been installed on your system or network, specify that path at this prompt. If they have not been installed, locate the Printer Driver diskettes that came with your OS/2 installation package. Place Printer Driver diskette #1 in your floppy drive and change the path to point to that drive.

   Note: The driver will probably be on Printer Driver diskette #1. If it is not there, you can insert each of the diskettes in the drive and press the REFRESH button to have it display the drivers that are on that diskette. Once you have entered the path, highlight it, and select the `Install` button. It will be added to the set of printer drivers that are already listed in this printer object.

3. Associate the IBMNULL driver with the port that your printer is connected to. For example, if your printer is connected to LPT2, go to the Output tab in the Settings window and select the `LPT2:` object. When you close the Settings window, the change is saved.

4. Make the IBMNULL driver the default driver in the IBMNULL printer object, by highlighting the Printer Driver tab of the Settings window for the printer object. A copy of it will now appear in the Default Printer Driver section of the window. It will also show up as one of the printer drivers in the SAS Printer Setup window.

   Once you have installed the IBMNULL printer driver, you can produce hardcopy graphics from SAS/GRAPH software by specifying any of the SAS/GRAPH native drivers in your SAS program. For example, to send graphics output to a Hewlett-Packard LaserJet III printer, specify the following command:

```
GOPTIONS DEVICE=HPLJS3;
```

To preview your output on the screen and then send it to the LaserJet printer, specify the following command:

```
GOPTIONS TARGET=HPLJS3;
```

When the graph is displayed on the screen, select `File...Print` in the GRAPH window to print the graph.

Refer to *SAS Companion for the OS/2 Environment* for more information on using SAS/GRAPH device drivers.

Appendix J, Invoking SAS/TUTOR® Software

SAS/TUTOR software can be invoked directly from the SAS System.

To access the SAS/TUTOR courses, complete the following steps:

1. Invoke the SAS System.

2. Select `Online Training` from the `Help` pull-down menu in the PROGRAM EDITOR window.

Appendix K, 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.

Note: Test streams are not installed as part of a Typical install. To install test streams, you must perform a Custom installation.

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 OS/2 `COMP` command is used to compare the benchmark results with those results generated at your site. Execution of these test streams is described in the following steps:

1. Change directory to the `SASROOT` directory.

2. Enter the following command to invoke the test stream:

   ```
   SAS CORE\SASTEST\TESTxxxx.SAS
   ```

   where `xxxx` is the product name (e.g., `Base`, `STAT`).

3. Examine the results of the test stream. The results are stored in a file named `TESTxxxx.OUT`. This file is stored in the `SASUSER\xxxx` subdirectory, where `xxxx` is the product name. For example, if you have installed Base SAS software in `C:\SAS`, the results are stored in the directory `C:\SAS\SASUSER\BASE\TESTBASE.OUT`.

4. If the result 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 `TESTGRAF.LOG` file for any error messages.

Appendix L, 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 that is sent to the SAS Representative at your site. This information is sometimes referred to as a *paper SETINIT*. You need this paper SETINIT to update your licensing information. If you are the SAS 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 License Information icon
- ❑ during installation of the SAS System
- ❑ executing from the command line.

Using the Update License Information Icon

During the installation of the Core component of Release 6.12 of the SAS System, the `Update SAS License Information` program icon was created in the Program Folder you selected. (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 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 6.12 license has expired, use the `Update SAS 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 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.

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 merely a template file, the utility allows you to specify a directory path containing a valid license file to run. (Template files are often sent to non-US customers to enable them to customize their `SETINIT.SAS` file with correct information.) If you get such a message, follow the editing procedure outlined in "Utilizing the SAS System Version 6.12 License Icon," later in this appendix.

Utilizing the SAS System Version 6.12 License Icon

During installation of the Core product of the SAS System Version 6.12, the `Update SAS License Information` program icon was created in the Program Folder you selected (the default program folder name is `The SAS System`).

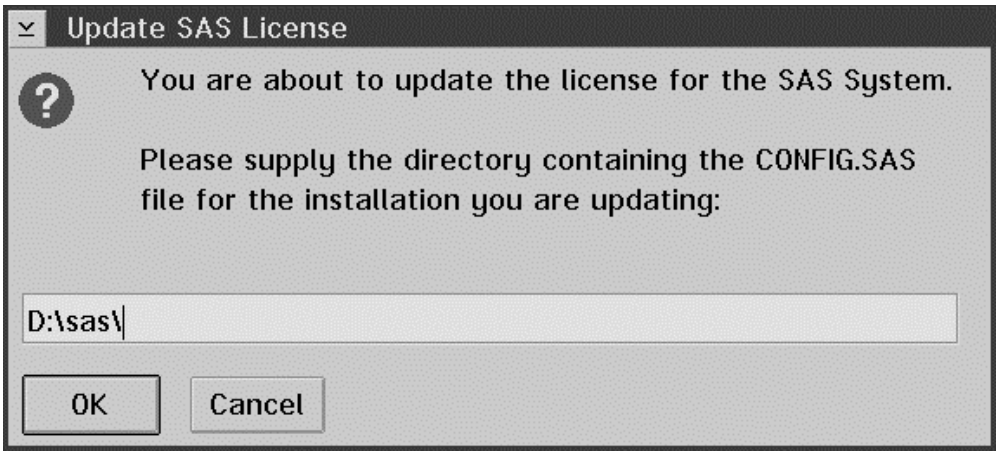
This new Version 6.12 program icon simplifies the licensing process for the SAS System. Use the `Update SAS License Information` icon when renewing your license in the following situations:

- ❑ after adding new products
- ❑ when renewing your SAS System Version 6.12 license before it expires
- ❑ when renewing your SAS System Version 6.12 license after it expires.

Double-click on the `Update SAS License Information` to invoke the licensing program. The following window is displayed:

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 Representative at your site can renew the license through the Customer Service Department at SAS Institute. During the grace period, warning messages appear in the log, but your SAS System will still be functional. Once the grace period expires, the SAS System cannot be invoked until the SETINIT has been updated.

Note: You should only use the `Update SAS 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.



SAS Setup uses the CONFIG.SAS file to determine the location of the SASROOT and SASFOLDER system variables. After providing the directory where the CONFIG.SAS 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 CONFIG.SAS file.

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

Verify that this is the correct location for the SASROOT. 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 `OK` to continue updating the SAS license information, or `Cancel` to exit Siupdate.

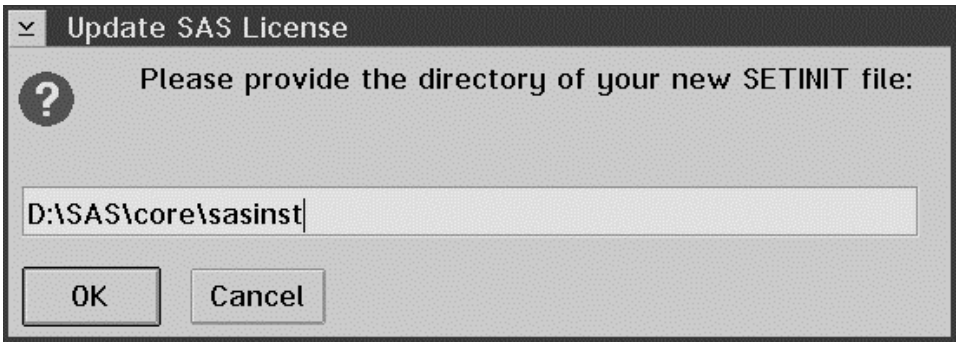
Verify that this is the correct location for the SASFOLDER. SASFOLDER is the working folder of your installed SAS System, and must be the same as what is stored in your CONFIG.SAS file.

Select `OK` 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 as shown in the window below:

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.



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 System 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, 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 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.
  ```

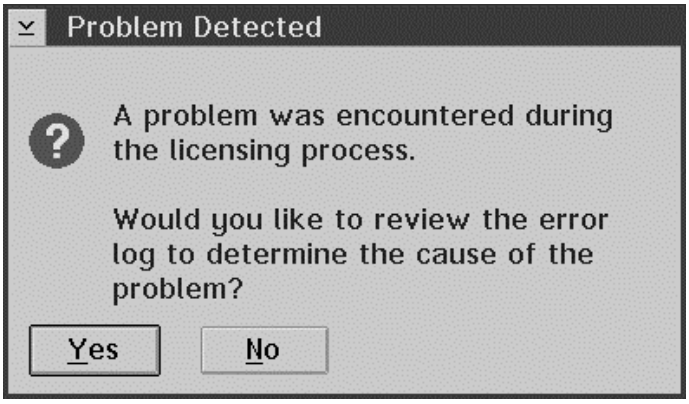
  Recall the SETINIT.SAS file by pressing the F4 key, or by typing `RECALL` on the command line. Check each line to ensure that the information displayed in the program editor matches the paper SETINIT exactly.

- If your license has expired, you can invoke SAS from the command line with special options that will allow the SETINIT to be applied.

  ```
  c:\sas\sas.exe -sysin c:\sas\core\sasinst\setinit.sas -setinit -noautoexec
  ```

Licensing Process Problems

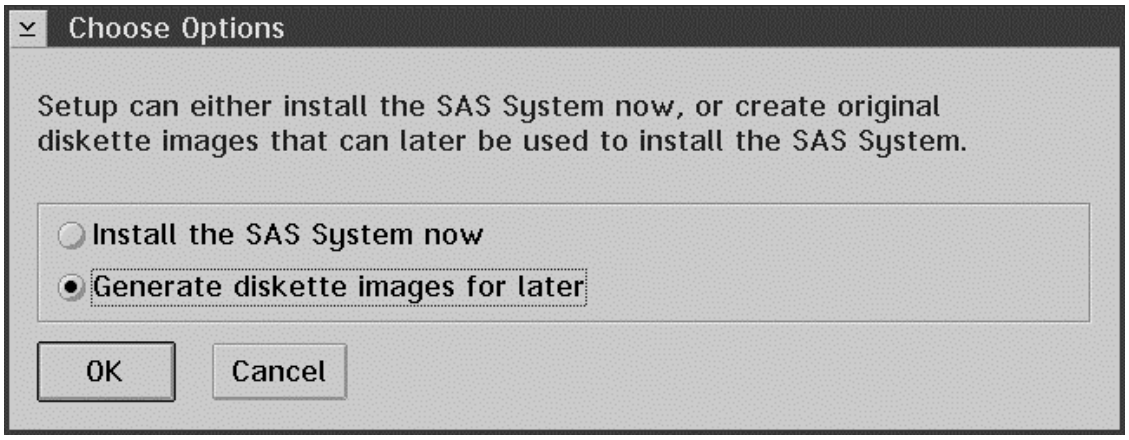
If the SAS licensing process encounters problems applying the new updated setinit, the following window is displayed:



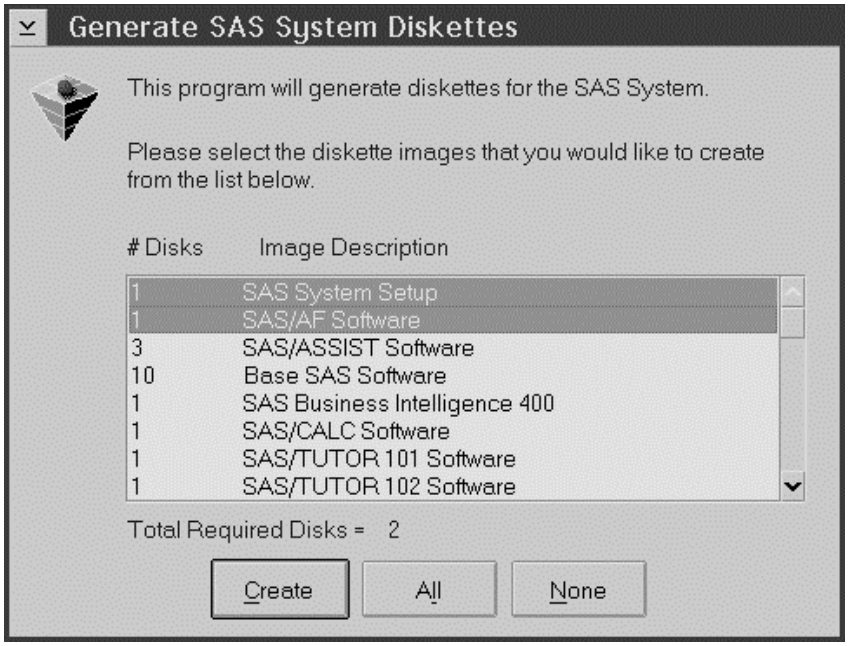
Select `Yes` to review the error log. The SAS licensing program launches the default system editor to review the error log. Select `No` to bypass review of the error logs.

Appendix M, Generating Diskette Images

If you select `Generate diskette images for later` as shown in the following `Choose Options` window, the setup program will compute diskette requirements per component.

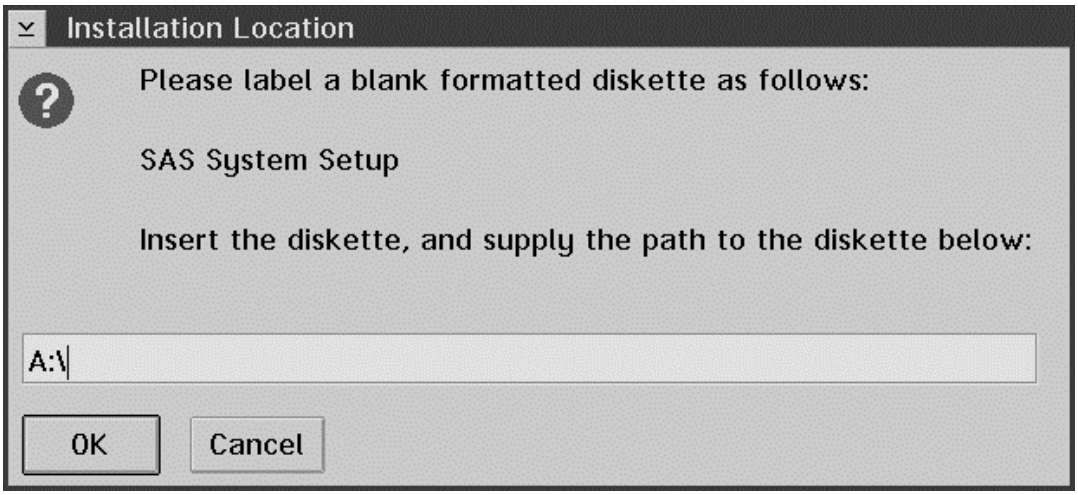


As you choose diskette images, the `Total Required Disks` field changes to reflect the number of blank formatted diskettes you will need. If you need to clear this field, select `None`. Select `Create` to begin copying files to diskette. To copy the entire SAS System to diskette, select `All`. It is recommended that you always select SAS System Setup when you generate a floppy set. This will enable you to use Setup to install the SAS image from a floppy set.

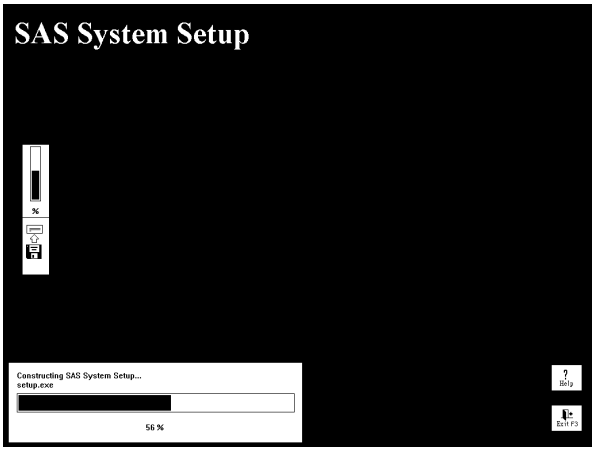


The SAS System Setup diskette that you create here will only contain information about the components you are generating diskettes for. This feature makes it easy for a System Administrator to create a floppy set with a customized components list for other users within their organization.

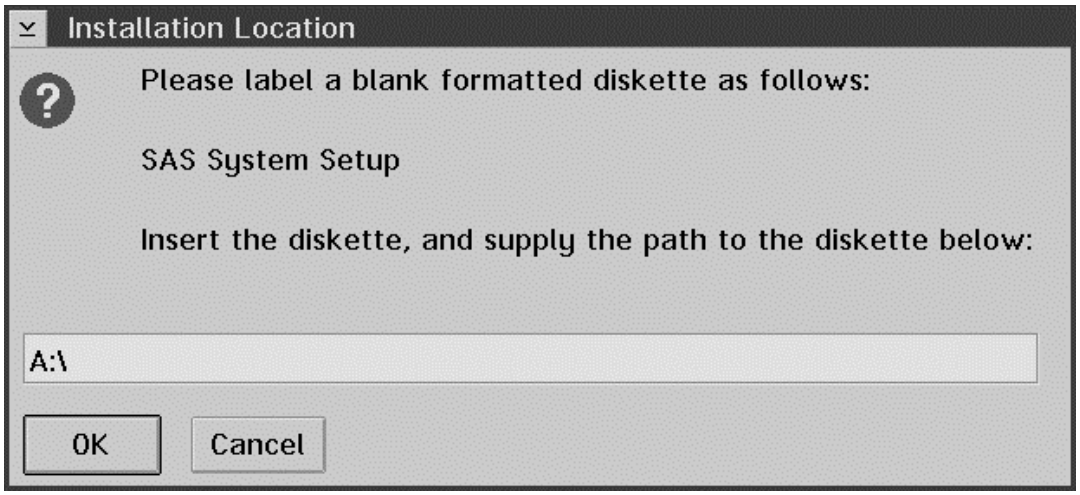
If you select `Create` you will be prompted to label and insert a diskette. This dialog displays the label that you should put on the diskette. When Setup is used later to install the SAS System from this set of floppies, it will ask for diskettes with these same labels.



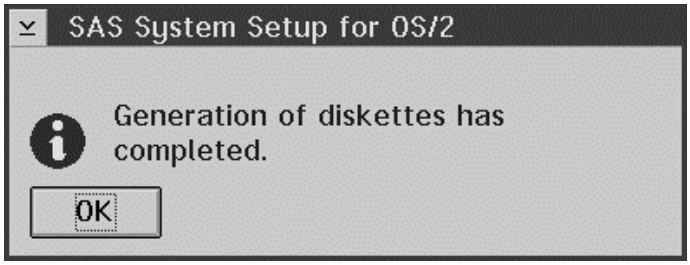
The following status screen is displayed while the diskettes are being created. For each diskette, the status bar, located at the bottom left, grows from 0% to 100%.



The following window is displayed prompting you to label and insert more diskettes as necessary:



After the diskettes have been created, the following screen is displayed. Select `OK` to terminate the Setup program.



The diskettes you generated can be used to install the component disk images that you selected. Users of these diskettes should insert the SAS System Setup diskette, change to the floppy disk drive, and type `Setup`.

Appendix N, Post-Installation Setup for the SQL Query Window

To successfully use the sample table named `EMPLOYEE` listed in the SQL Query Window online documentation, (and in the *SAS Guide to the SQL Query Window, Usage and Reference, Version 6, First Edition*), you must execute a program called RUNSAMPL.

1. To run the program, you must first submit a libname statement in the Program Editor window to assign the SAMPLE libname to the sample library as shown in the following example:

   ```
   libname sample '\SASROOT\base\sample';
   ```

   where `SASROOT` is the subdirectory in which the SAS System is installed. Check with your SAS Administrator for the location of the SAS System.

2. Include the RUNSAMPL program in the Program Editor Window by entering the following statement at a command line:

   ```
   include '\SASROOT\base\sample\runsampl.sas';
   ```

   where `SASROOT` is the subdirectory in which the SAS System is installed. Check with your SAS Administrator for the location of the SAS System.

3. Submit the program.

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 OS/2 Environment, Version 6, Second 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 OS/2 Environment, Version 6, Second Edition*.

CD-35

Designation for CD-ROM containing the SAS System in compressed diskette format. This distribution can be used to create diskettes for installing the SAS System. In addition, the SAS System can be installed directly from the CD-35 medium. The SAS System cannot be run directly from this media type.

CDRM

Designation for the CD-ROM containing the runnable image of the SAS System. This distribution provides the full range of installation mechanisms including full and selective client installs.

CONFIG.SAS

Contains special SAS configuration options. This file is shipped with default option settings. You can edit the file and change the default settings. For more information about this file, refer to *SAS Companion for the OS/2 Environment, Version 6, Second Edition*. This file is installed in the SASROOT directory, but you can copy it to the directory from which you invoke the SAS System.

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 your site and SAS Institute Inc. 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.

SETUP Program

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

Technical Support Services

Are provided by SAS Institute to the designated SAS Installation Representative and SAS Support Consultants. These individuals are the initial contact when you need technical assistance.

Template File

Is 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 products or components.

Utility Application

Determines which utility features are available to you based on the SAS System products and components that you have installed. You can select any feature that appears in the list on the UTILITY APPLICATION window.