

Installation Instructions for Release 8.2 (TS2M0) of the SAS[®] System for OS/2[®]

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Chapter 1, Introduction

This document provides the instructions for installing Release 8.2 (TS2M0) of the SAS System under OS/2. Please read these instructions before you attempt to install any Release 8.2 SAS software product in the OS/2 environment.

Terminology and Symbols Used in this Document

As you use these installation instructions, you may 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

The SASROOT Directory is 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. The following are examples of valid SASROOT directories:

- C:\SAS
- D:\SAS_OS2
- E:\APPS\SAS

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

The CHECKMARK symbol

The CHECKMARK symbol is an icon that is used throughout this document to indicate a set of items that should be verified before proceeding with the installation

- ✓ The CHECKMARK symbol as used in this manual.

Pre-installation Checklist

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

- ✓ Review all the items in your product package.
- ✓ Make sure your hardware meets the specifications indicated on the System Requirements sheet contained in your installation package.

- ✓ Verify the release of OS/2 you are running. Release 8.2 of the SAS System requires Warp 4.0 or higher.
- ✓ Read the `FEDGOVT.TXT` file (U.S. Federal Government employees only). This file is located on the CD-ROM in the `\sas` directory.

Unless otherwise noted, your product package from SAS 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. Depending upon which products are to be installed, you may require more than one CD.

Proper Handling of Your Media

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

- Clean the CD and 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 or press F1 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. Use the online help as your primary source of installation information for Release 8.2 of the SAS System. It contains a number of example installation scenarios.

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 or press the F3 key to terminate the installation. The SAS System will terminate after removing any files that have been installed.

Additional Documentation

Refer to the SAS OnlineDoc CD included in your package for a complete library of Release 8.2 SAS software documentation.

Chapter 2, Installing the SAS[®] System

This chapter provides a brief introduction to installing the SAS System for OS/2. In addition, information is provided to assist you in making some decisions prior to starting the installation process, and example installation scenarios are included. A more complete set of example installation scenarios will be found in the online help provided in the SAS System Setup program (referred to as *SAS Setup* in these instructions). To access the online help, press F1 or click the `help` icon once SAS Setup is running.

Release 8.2 (TS2M0) of the SAS System uses a Web Browser to view the online help and online documentation. It is strongly recommended that when using Warp 4, you use Netscape Communicator, Version 4.04 or later. Refer to the appendix “Installing the Netscape Web Browser for OS/2 Warp 4” on page 39 for installation instructions for Netscape Communicator.

SAS Setup should be run during an initial SAS System installation or when you are adding additional components to an existing SAS System installation.

If your OS/2 PC has a previously installed copy of Release 8.2 of the SAS System, that copy should be removed utilizing the `Purge` function within SAS Setup. If you have an existing installation of a previous version of the SAS System, it should not be affected by a Release 8.2 SAS System installation as long as you install to a different location.

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

- Personal
- Client
- Server

The *Personal* installation provides a standalone SAS System with all files installed on a disk on the local PC. With a *Personal* installation, you can choose whether to perform a *Complete* or *Custom* setup type. The *Complete* option allows for installation of all SAS System components found on the CD in a location that you choose. During a *Custom* installation, you can select the list of components to be installed locally and make additional decisions to tailor the installation to your needs.

The *Client* installation allows the SAS System to be run from a CD or network location with a minimum of space required on the local machine. The type of configuration you choose should be based on local disk storage and performance. The SAS System performs best with files installed on the local PC.

The *Server* installation is provided for network administrators so that SAS Setup can be utilized to place all files of selected components onto a disk that will then be used

for subsequent installation processes. This type of installation also bypasses all local configuration updates so it should be used only for creating an image that will be used for subsequent re-installation of the SAS System on to another PC.

Before Starting SAS Setup

Review the available disk space on the installation target to be certain that sufficient space is available. The *System Requirements* document provides estimates of the amount of space required to install each component of the SAS System. Keep in mind the disk-blocking factor and drive compression settings may affect the actual amount of space required. If sufficient space is available, a *Personal* installation will provide the best performance. The *System Requirements* document provides information on file system requirements.

User files associated with the SASUSER library will be placed in the SASUSER subdirectory of the SASROOT directory.

The SAS System temporary work file storage will be placed in the SASWORK subdirectory of the SASROOT directory.

Starting the SAS System Installation Process

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

1. Insert the installation media into the source drive.
2. Run `<source drive>:\SAS\setup` to start the SAS Setup program.

Example Installation Scenarios

This section describes the typical steps you will follow when you perform either a *Personal Complete*, *Personal Custom*, or *Client*, *Server Complete*, *Server Custom* installation. Read the section that is appropriate for the type of installation you are performing.

Performing a *Personal Complete* Installation

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

1. Carefully read the `welcome` screen. Then, click on `Continue`.
2. After SAS Setup finishes initializing, verify that the *Personal* installation is selected and then click on `OK`.
3. Verify that the default setting of *Complete* setup type is selected and then click on `OK`.
4. The `Choose Destination Location` dialog is now displayed. Carefully select the destination for the SAS System. Be sure the destination has sufficient

disk space since you will be installing a full SAS System. Once you have selected the location, click on `OK`.

5. If there is an existing SAS System in the destination you have chosen, the `Purge/Modify` dialog appears. You can either `Purge` (completely remove the existing SAS System) or `Modify` (overwrite it with a new SAS System). If you want to select a different destination for this installation, click on `Cancel` to return to the `Choose Destination Location` window.

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

Performing a *Personal Custom* Installation

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

1. Carefully read the `Welcome` screen and then click on `Continue`.
2. After SAS Setup finishes initializing, verify that the *Personal* installation is selected and then click on `OK`.
3. Select the *Custom* setup type and then click on `OK`.
4. The `Choose Destination Location` dialog is now displayed. Carefully select the destination for the SAS System. Be sure that the destination has sufficient disk space to install all of the SAS System components selected. Once the location is selected, click on `OK`.
5. If there is an existing SAS System in the destination you have chosen, the `Purge/Modify` dialog will appear. You can either `Purge` (completely remove the existing SAS System), or `Modify` (overwrite with a new SAS System). If you want to select a different destination, click on `Cancel` to return to the `Choose Destination Location` window.
6. The *Custom* installation component listbox is displayed next. By default, all components are selected. Either deselect the components that are not desired, or click on the `Unselect All` button and then individually select the desired components. SAS Setup will recompute the estimated disk space requirement as you select or deselect components. When you are finished, click on `OK`.

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

Performing a *Client* Installation

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

1. Carefully read the `Welcome` screen and then click on `Continue`.
2. After SAS Setup finishes initializing, select the *Client* installation and then click on `OK`.

3. The `Choose Destination Location` dialog is now displayed. This location will be used for configuration files. Carefully select the desired location and click on `OK`.
4. If there is an existing SAS System in the destination you have chosen, the `Purge/Modify` dialog will appear. You can either `Purge` (completely remove the existing SAS System) or `Modify` (overwrite with a new SAS System). If you want to select a different destination for this installation, click on `Cancel` to return to the `Choose Destination Location` window.

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

Performing a *Server Complete* Installation

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

1. Carefully read the `Welcome` screen and then click on `Continue`.
2. After SAS Setup finishes initializing, select the *Server* installation and then click on `OK`.
3. Verify that the default setting of *Complete* setup type is selected and then click on `OK`.
4. The `Choose Destination Location` dialog is now displayed. Carefully select the destination for the SAS System. Be sure the destination has sufficient disk space since you will be installing a full SAS System. Once you have selected the location, click on `OK`. This destination location must not be at the root level of a drive or of a directory that is shared to a network

SAS Setup will now begin copying files and creating a re-installable SAS System image.

Performing a *Server Custom* Installation

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

1. Carefully read the `Welcome` screen and then click on `Continue`.
2. After SAS Setup finishes initializing, select the *Server* installation and then click on `OK`.
3. Select the *Custom* setup type and then click on `OK`.
4. The `Choose Destination Location` dialog is now displayed. Carefully select the destination for the SAS System. Be sure the destination has sufficient disk space since you will be installing a full SAS System. Once you have selected

the location, click on `OK`. This destination location must not be at the root level of a drive or of a directory that is shared to a network

5. If there is an existing SAS System in the destination you have chosen, the `Purge/Modify` dialog will appear. You can either `Purge` (completely remove the existing SAS System), or `Modify` (overwrite with a new SAS System). If you want to select a different destination, click on `Cancel` to return to the `Choose Destination Location` window.
6. The *Custom* installation component listbox is displayed next. By default, all components are selected. Either deselect the components that are not desired, or click on the `Unselect All` button and then individually select the desired components. SAS Setup will recompute the estimated disk space requirement as you select or deselect components. When you are finished, click on `OK`.

SAS Setup will now begin copying files and creating a re-installable SAS System image.

Chapter 3, 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 `SASV8.CFG` file in the current directory. If it does not find one, the SAS System searches directories specified in the `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 `SASV8.CFG` 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 8, Second Edition*, and *OS/2 Environment: Changes and Enhancements to the SAS System, Version 8*.

Chapter 4, Technical Support Services

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

SAS 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.

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
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.

In addition to EMITS, the SAS Technical Support Division provides the following forms of electronic support:

TSNEWS-L Mail and File List

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

Anonymous FTP

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

Electronic Fax Service

allows you send and receive faxes more quickly.

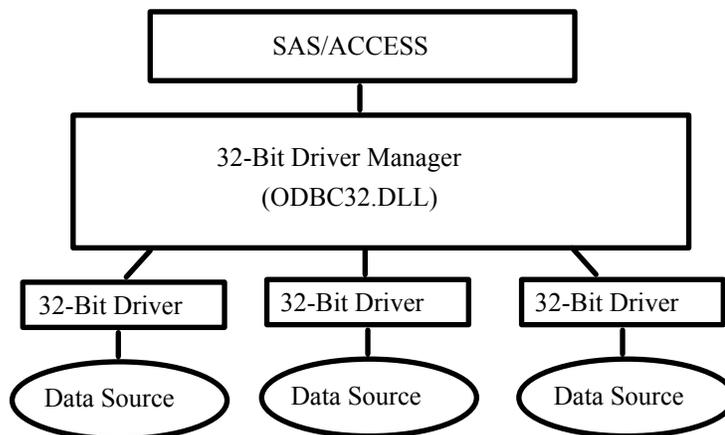
Appendix A, Installing SAS/ACCESS[®] Interface to ODBC Software

Before you can use the SAS/ACCESS Interface to ODBC Software, you must have the following products installed:

- Base SAS software
- SAS/ACCESS Interface to ODBC software
- A 32-bit ODBC driver for the source from which you want to access data

Note: SAS/ACCESS Interface to ODBC software has been tested using the MERANT DataDirect Connect ODBC driver and the DataDirect SequeLink ODBC driver.

The ODBC solution is to allow different technologies to be used by defining a standard interface. SAS/ACCESS Interface to ODBC software with ODBC drivers allows users to access different databases. An ODBC driver processes ODBC function calls from and returns results to SAS/ACCESS software. You can get drivers from Microsoft, your database vendors, or other third party software vendor. The following figure illustrates this architecture:



Appendix B, 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 Client for OS/2, Version 7.3

Before using SAS/ACCESS Interface to ORACLE software, you must install the ORACLE SQL*Net Client for OS/2, Version 7.3 on the same PC where SAS/ACCESS Interface to ORACLE software will be used.

For ORACLE V7.3 client software, you need to install the following:

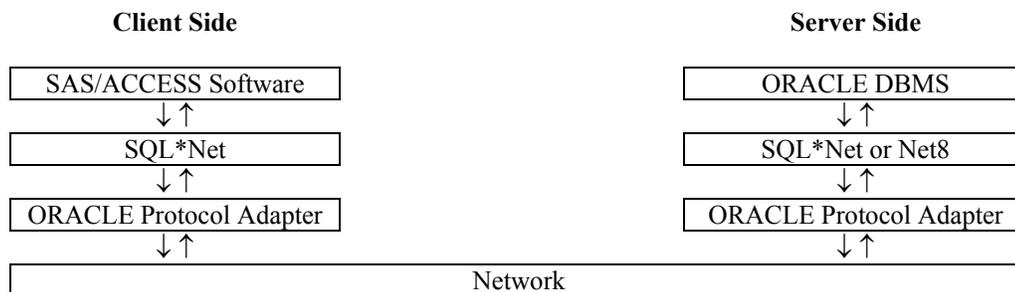
- ORACLE SQL*Net Client v2.3 for OS/2
- ORACLE Protocol Adapter(s) v2.3 for OS/2

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.

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

SAS/ACCESS Interface to ORACLE supports ORACLE client Version 7.3. However, it can interface to any version of ORACLE databases running on server.



Installing SQL*Net

Run the ORACLE Installer and select `SQL*Net Client` and one or more ORACLE Protocol Adapters. It is strongly recommended that you install and use ORACLE TCP/IP Adapter for your database connection.

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, 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.

Appendix C, 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. This allows you to provide a customized setup for SAS/ASSIST software. With the master profile, you can control the profile options of all SAS/ASSIST users from one central place. For information on the profile options, refer to *SAS/ASSIST Software Administrator's Guide*.

Adding a Master Profile

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

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

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

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

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

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

2. Create the master profile.

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

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

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

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

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

Run workplace:

SAS/Assist style: Workplace

Run block menu new style:

SAS/Assist style: Block Menu

Save selections on end: Yes

Menu Style: New

Run old style:

SAS/Assist style: Block Menu

Save selections on end: Yes

Menu Style: Old

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

4. Create group profiles.

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

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

Appendix D, 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 EHLLAPI, NETBIOS, 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 *Communications Access Methods for SAS/CONNECT and SAS/SHARE Software* for information on the access methods supported by other systems.

Storing and Locating SAS/CONNECT Script Files

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

The `SASSCRIPT` configuration option points to the location of the SAS/CONNECT script files. The `SASSCRIPT` option is used by SAS/ASSIST software, and can be used by user-written SCL applications 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 `SASV8.CFG` file:

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

If you want to move the script files to another directory, you must edit the `SASV8.CFG` file and update the `SASSCRIPT` option with the new directory location.

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 or subsequent version
- IBM's PCOM (Personal Communications) 4.1 for 32-bit EHLLAPI support or subsequent versions
- Any OS/2 Warp 4.0 or later emulation program that supports the EHLLAPI standard

System Configuration for the NETBIOS Access Method

Note: This information is required to use NETBIOS.

Under OS/2 Warp 4.0 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 Warp 4.0 or later
- 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.

System Configuration for the TCP Access Method

Note: This information is required to use TCP.

Using the 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 TCP/IP access method, SAS/CONNECT software supports IBM's TCP/IP System Driver, which is provided with OS/2.

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

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 program that provides SNA LU6.2 APPC (Advanced Program-to-Program Communications)

Appendix E, Post-Installation Setup for SAS/GRAPH[®] Software

Using SAS/GRAPH Software, Release 8.2 you can produce interactive charts and plots for Web publishing. The GCHART, GCONTOUR, GMAP, GPLOT, and G3D procedures can produce scripted ActiveX Controls or Java Applets in HTML pages using the SAS/GRAPH Java or ActiveX drivers and the Output Delivery System (ODS). The DS2GRAF, DS2CSF, and META2HTM macros can also be used to generate HTML output with embedded ActiveX Controls or Java Applets.

The following controls and applets are available:

ContourApplet (ctrapp.jar)

A scriptable Java applet for visualization of Contour and Surface plots in a Web browser. The applet supports outline and filled modes and interactive exploration of the data. ContourApplet is supported by the SAS/GRAPH Java driver with ODS.

GraphApplet (graphapp.jar)

A scriptable Java applet for visualization of 2D and 3D charts in a Web browser. The applet supports Bar charts, Pie charts and Scatter Plots, and interactive exploration of the data. GraphApplet is supported by the SAS/GRAPH Java driver with ODS, and also by the DS2GRAF macro.

MapApplet (mapapp.jar and related map data jar files)

The Java Map Applet is a scriptable Java graphics control that allows the user to embed interactive spatial data in a Java 1.1 compliant Web page. The Web page is created with PROC GMAP and uses the map jar files that correspond to the SAS Map Data Sets. MapApplet is supported by the SAS/GRAPH Java driver with ODS.

MetaViewApplet (metafile.zip)

A Java applet for displaying SAS/GRAPH metagraphics data. MetaViewApplet is supported by the SAS/GRAPH metagraphics driver and the META2HTM macro.

RangeViewApplet (rvapplet.jar)

A Java applet for displaying a Critical Success Factor (CSF). A CSF is a graphic that visually represents the position of some value in a range of data. RangeViewApplet is supported by the DS2CSF macro.

SAS/GRAPH Control for ActiveX

This ActiveX control enables you to embed interactive graphs in Web pages and OLE documents (in Microsoft Office products), as well as in applications written in Visual Basic, C++, HTML, and JavaScript. When the graph is displayed, you can point-and-click to rotate, change, or further investigate the graph.

In Release 8.2 of SAS software, the SAS/GRAPH Control for ActiveX supports the following graph types:

- Area plots
- Bubble plots
- Line plots
- Regression plots
- Surface plots
- Bar charts
- Contour plots
- Maps
- Scatter plots
- Box-and-Whisker plots
- High-Low plots
- Pie charts
- Standard Deviation plots

SAS/GRAPH Control for ActiveX is supported by the SAS/GRAPH ActiveX driver with ODS, and also by the DS2GRAF macro.

Client Components

Documentation for the SAS/GRAPH Client Components can be found on the SAS Web site at <http://www.sas.com/rnd/webgraphs>. Documentation for the HTML Formatting Tools (including the DS2GRAF, DS2CSF, and META2HTM macros) can be found at <http://www.sas.com/rnd/web/format>.

All the Java applet clients except the RangeView Applet are installed with SAS/GRAPH Software. The applets are located in !APPLETLOC. To determine the location of !APPLETLOC, run PROC OPTIONS or view the SAS configuration file to find the value of APPLETLOC.

If you wish to publish SAS/GRAPH output on a Web server or create SAS/IntrNet applications using SAS/GRAPH, you may need to install these SAS/GRAPH clients on your Web server. The clients can be copied from APPLETLOC (applets only) or the *SAS Client-Side Components* CD included with your SAS Software distribution. See the installation instructions on the *SAS Client-Side Components* CD for more information on installing SAS/GRAPH clients on a Web server.

Appendix F, 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 8, 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 not, 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 G, Installing IT Service Vision® Solution Software Release 2.5

IT Service Vision Functionality

IT Service Vision is a data management and presentation software package for evaluating the delivery of services to your IT users. With IT Service Vision, you can report on the utilization and service levels from such diverse parts of your IT operation as file servers, mainframes, telephone PBXes, Help Desks, or network links using one tool.

IT Service Vision has both client and server components. The server software is required to process, reduce, and/or update the data in a performance data warehouse (PDB) located on your system. The client software is required only if you want to access a performance data warehouse on a remote server system from a client PC platform.

IT Service Vision Server runs on Microsoft Windows NT Server, OS/390 and selected UNIX operating systems.

IT Service Vision Client runs on Microsoft Windows platforms supported by Release 8.2 of the SAS System and OS/2.

For the latest installation information about IT Service Vision, please download the Installation Instructions from the Library section of the IT Service Vision home page, <http://www.sas.com/vision/itservice>.

Installing IT Service Vision

Migration Considerations

If you have modified your SITELIB library, you will need to save a copy of it so that you can merge it into the new SITELIB library. Please see the instructions relating to "Site Library Considerations" on page 31.

If you have an existing IT Service Vision installation and want to migrate from SAS Version 6 to SAS Version 8, refer to the conversion information in the directory !SASROOT\cpe\itsvdocs\convert.htm and at www.sas.com/itsvconv.

Installation Customizations

IT Service Vision Solution will be installed into the !SASROOT\cpe folder. If you wish to customize your IT Service Vision installation, or see any additional SAS System components present on your media, select `Customize` from the Solutions

screen. For example, you can choose not to install additional sample PDBs and DeskTop Reporter files by clicking on the Options button (while IT Service Vision is highlighted) and then deselecting Samples.

Installing IT Service Vision Documentation

After the product is installed, the `itsvdocs` tree must be expanded. To do this, follow the steps below to execute the self-extracting file named `itsvdocs.exe`, located in `!sasroot\cpe\sasmisc`:

1. Open an OS/2 DOS window and change directories to `!sasroot\cpe`.
2. At the command prompt, type the name of the executable file:

```
sasmisc\itsvdocs.exe
```

3. When asked if you want to replace three existing files, enter `y` for yes.

Note: `!sasroot` refers to the directory in which SAS is installed (e.g., `<source drive>:\SAS`).

Installing IBMNULL Device Drivers for OS/2 Users

If you want to produce hardcopy output for IT Service Vision reports using standalone or native SAS/GRAPH device drivers such as PS or HPLJ3SI, you will need to install the IBMNULL device driver. To install this driver, follow the instructions in the appendix "Installing the IBMNULL Device Driver for Use with SAS/GRAPH Software" on page 25.

Starting IT Service Vision

To start IT Service Vision from within the SAS System, issue the `itsv` command in the SAS toolbox command area. You can issue the `itsv` command in the SAS toolbar command area or after the `Command===>` prompt, which is obtained by clicking on `Globals => Options => Command Line`. You can also start IT Service Vision Release from within SAS by submitting this statement via the Program Editor:

```
%CPSTART( );
```

To start the DeskTop Reporter from the IT Service Vision Release main window, select the path `Reporting => Access DeskTop Reporter`.

IT Service Vision Documentation

For more information on running and configuring IT Service Vision, please see *Getting Started with IT Service Vision, Release 2*.

Online documentation is also available from within SAS and IT Service Vision. From SAS, select `Help => Getting Started with SAS Software => Help on SAS software Products => IT Service Vision`.

From the IT Service Vision user interface, select OnlineHelp => IT Service Vision Help => Help on SAS software Products =>IT Service Vision.

Select OnlineHelp => Other ITSV Documentation for the following documents.

Note: The itsvdocs tree must first be expanded as described above under "Installing IT Service Vision"

- Install Instructions
- Server Setup Guide - Printable versions of the Setup guide are also available in !SASROOT\cpe\itsvdocs\sa\pdfs
- Showroom - Also directly available with a Web browser from !SASROOT\cpe\itsvdocs\showroom\welcome.htm
- QuickStart Examples - Also directly available with a Web browser from !SASROOT\cpe\itsvdocs\qs\welcome.htm
- Migration - Also directly available with a Web browser from !SASROOT\cpe\itsvdocs\convert.htm and at www.sas.com/itsvconv

Site Library Considerations

First Time Installations

If you are installing IT Service Vision for the first time you may want, at some future date, to create a separate SITELIB directory to store site-wide options or customizations, such as your site's preferred graphics device. The supplied version of this directory containing default values will have been created in !SASROOT\cpe\siteLib during the default production installation of IT Service Vision.

Wherever you choose to locate SITELIB, you must have write access to it, and all other IT Service Vision software users must have read access. If you choose to re-locate SITELIB, follow the instructions in the section "Modifying the Pointer to the Default SITELIB Library" on page 33.

Upgrading existing installations

If this is not your first installation of IT Service Vision, it is strongly recommended that you consider the location of your existing production SITELIB before you install. Without planning, you risk overlaying and losing existing PDB and site options.

When you installed IT Service Vision previously, a directory containing default values was created in !SASROOT\cpe\siteLib. Since then, you may have created another SITELIB library and re-programmed IT Service Vision to use this new location as its default SITELIB. If you are not sure if this happened, you can find out by starting SAS and your existing IT Service Vision interactively, and then issuing the LIBNAME command from the command line in the toolbar. Note the location of the SITELIB library.

In either case, you should close your LIBNAME window, the IT Service Vision application, and the SAS session and make a backup of that whole directory now. This will ensure that you have a method of restoring the directory's contents if a problem occurs after the update.

If this is not your first installation of IT Service Vision, you now need to consider the maintenance of the SITELIB library. In the SASMISC directory just installed, locate a member called CPSITEUP. This code will merge your old, production SITELIB library with your newly installed version. Please read the following sections for details on site libraries and how to run the code.

Maintaining SITELIB with Previous IT Service Vision Installations

Note: The following section is relevant when this is not a first installation of IT Service Vision.

When a new version or release of IT Service Vision is installed, a new SITELIB library is created. This ensures that you are able to access any SITELIB updates that may have been made in the product.

However, since you have the opportunity to update the menu and other SITELIB datasets, you will probably want to save your modifications and avoid re-engineering them in the new library from scratch. To preserve your modifications, we have supplied code that will merge your existing production SITELIB datasets and catalogs in with the new versions. This code is contained in the !SASROOT\cpe\sasmisc directory.

If you have an existing production SITELIB library that contains site-wide options or datasets that you want to make available to the new release of IT Service Vision, locate the CPSITEUP member and review its contents.

The CPSITEUP code refers to three SITELIB libraries:

1. The newly installed SITELIB, referred to as NEWSITE,
2. The current, production/default SITELIB (whether it is the previously installed SITELIB or a subsequently re-located version), referred to as OLDSITE, and
3. PRODSITE, which is used in referring to your chosen location for the production SITELIB for the newly installed release of IT Service Vision.

So, before running CPSITEUP, ensure that the following updates have been made:

- NEWSITE points to your newly installed SITELIB.
- OLDSITE points to your current production/default SITELIB.
- PRODSITE points to a directory or library from which you want to run IT Service Vision. This could be the same location as OLDSITE or NEWSITE, in which case those libraries will be overwritten, or it could be somewhere new.

Run the CPSITEUP code, following the instructions at the top of the code.

If you have decided to use a SITELIB library whose location is not that of the newly installed SITELIB, CPSITEUP will also update the pointer held in PGMLIB so that your chosen SITELIB becomes the new default SITELIB. You will not need to perform the task described in the following section, "Modifying the Pointer to the Default SITELIB library."

Other tools that are available for modifying site-wide options are the macros %CPPDBOPT and %CPHDAY, both of which are documented in the IT Service Vision Macro Reference.

Modifying the Pointer to the Default SITELIB Library

A SITELIB directory and its files must be write-able by the IT Service Vision administrator and readable by all other IT Service Vision software users.

When IT Service Vision is started using the %CPSTART macro, you have the option of specifying the SITELIB= parameter. This is not required and is usually not specified. If it is specified, the SITELIB= value is used as the SITELIB library for only that invocation. Otherwise, the default SITELIB library will be used.

This default value is stored in the PGMLIB library and is set at installation to be the name of the newly installed SITELIB library. If you need to change that default, submit the following program:

Note: Update-access to the PGMLIB library and its components is required.

```
LIBNAME PGMLIB '!SASROOT\cpe\pgmlib\';  
DATA PGMLIB.CPSITE;  
CPSITE="name.of.new-or-updated.SITELIB";  
RUN;
```


Appendix H, Post-Installation Setup for SAS/MDDDB Server[®] Software

SAS/MDDDB Server Software includes an OLE DB provider, Open OLAP Server Software. The Open OLAP Server allows you to access, update, and manipulate MDDDB data on your SAS System from OLE DB- and ADO- compliant applications on Windows platforms.

The Open OLAP Server is packaged as a self-installing program for Windows platforms and is available on your SAS Software installation at `!SASROOT\mddbserver\sasmisc` or on the *SAS Client-Side Components* CD included with your SAS Software distribution.

The `oosc130.exe` file is a Windows executable and must be copied to the Windows platform using a binary transfer protocol such as FTP. The installation instructions for this component can be found at `!SASROOT\mddbserver\sasmisc\oosc130.txt` or on the *SAS Client-Side Components* CD.

Appendix I, Post-Installation Setup for the Metabase Facility

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

Using the Common Metadata Repository requires a one-time setup. If the repository manager was set up in a previous release, it may not need to be set up again. The steps in the following sections should be completed before the Metabase Facility is used. For Metabase Facility users who were using a release prior to Version 7, using the Common Metadata Repository requires a conversion.

Setting Up the System Repository Manager Files

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

1. Create a directory that will be dedicated exclusively to the storage of repository manager files.

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

2. At a SAS command line, type `REPOSMGR` and then select `Setup Repository Manager`.
3. In the Repository Manager Setup window, `Library` will default to `RPOSMGR`. For `Path`, specify the path from Step 1, above. Then select the `Write values to system registry` check box. Then select `OK`.
4. In the resulting dialog window, select `Yes` to generate the necessary repository manager files.

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

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

Registering the SASHELP Repository in the Repository Manager

The SASHELP repository is used in various samples. Before beginning the steps below a repository manager must be created (see previous section). Complete the following steps to register the SASHELP repository in the Repository Manager:

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

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

Appendix J, Installing the Netscape Web Browser for OS/2 Warp 4

The following pieces of software are provided on a separate CD:

- The Netscape Communicator v4.04
- IBM OS/2 Warp Developer Kit, Java Edition
- The IBM OS/2 Feature Installer

You will need to install these products to read online help within the SAS System and in order to view ODS output from within the SAS System. This installation process makes use of the `pkunzip2.exe`, which is usually found as the `\ibmcom\pkunzip2.exe` on the OS/2 boot drive.

Installing the Netscape Web Browser

To install the Netscape web browser, follow the steps below:

1. Insert the CD containing Netscape Communicator into the CD-ROM drive.
2. Create a temporary working directory on a local disk and move into that directory.
3. Assuming that E: is the CD-ROM drive, take the following steps to install Netscape Communicator v4.04 on an OS/2 Warp 4 machine:
 - A. Run the `E:\comm404.exe`

This will extract the installation files set from the `comm404` archive. The `readme` document explains in detail how this package should be installed and what system requirements exist.
 - B. Run `install.exe`
 - C. Reboot the PC
4. Again move into the temporary working directory on the OS/2 PC and remove all existing files in that location. Then follow these steps:
 - A. Run the command `C:\ibmcom\pkunzip2.exe E:\firunpkg.zip`
 - B. Run `fisetup.exe`
 - C. Reboot the PC

5. Again move into the temporary working directory on the OS/2 PC and remove the existing files in that location. Then follow these steps:
 - A. Run the `E:\java117os2.exe -di -ov`
 - B. Run `install.exe`
 - C. Reboot the PC
6. You may delete the temporary working directory and its contents.

Configuring the Netscape Web Browser

To configure Netscape Communicator version 4.04, follow these steps:

1. Start Netscape.
2. Open the `Edit->Preferences` dialog.
3. Click on the `Navigator` category and change the Home Page location as desired.
4. Click on the `Advanced` category and check the `Enable Java` button.
5. Click on the `OS/2 Preferences` category and then on the `IBM Java Properties` button.
6. Confirm that the Java path is defined. (It should be similar to `C:\Java11\dll\JAVAI.dll`).
7. In the `Java Options` entry field, add `-nojit` to what is already there.
8. Close the `IBM Java Advanced Properties` dialog by clicking on the `OK` button.
9. Close the `Preferences` dialog by clicking on the `OK` button.

Appendix K, Post-Installation Instructions for Setting up National Language Support (NLS)

This release for NLS contains a variety of new and powerful features. Depending on which version of the SAS System you have installed, there may be additional settings that must be configured. This appendix will guide you through the configuration of these options.

For localized languages, all of the options described in this appendix are set to the default by the system. These settings can be changed in the configuration file, if necessary.

European Language Support (ELS)

Starting with this release, SAS expands and simplifies its support for national languages. This applies to data as well as to code, and is especially important for international customers who are running applications in client/server, cross-platform environments. Many features have been consolidated into a simple `LOCALE` option for a simplified user interface.

Using the `LOCALE` option, you can set the locale and encoding SAS assumes for external data, catalogs and data sets. The following section provides some specific instructions for installing and setting up your system to run in a locale other than the default. More detailed instructions are provided in the following sections, with specific information about how the options and Locale Setup Window (LSW) influence the SAS System.

If you do plan to select a locale other than the default, you may also benefit from the additional notes starting on page 46. If you will be running SAS as a server on your platform serving a SAS client on an EBCDIC platform, please see the section “Locale Setup on the Remote Server.” Following this, SAS/GRAPH users will find instructions for setting up the correct devmpaps and keymaps in the section “Devmaps and Keymaps for SAS/GRAPH Software.”

Background

A *locale* reflects the local conventions, language, and culture for a particular geographical region. A locale’s conventions may include the formatting of dates, times, and numbers. Locale is not the same as language; a language may be spoken in many countries where conventions are very different. It is also worth noting that a country may have more than one official language. For example, Canada has two languages: English and French.

An *encoding* is a set of characters, with each character having been assigned a unique number. The SAS System uses the encoding to process data.

In Release 8.1, you could run the LSW to select a locale and encoding for the SAS session. Locale information was stored in the SAS Registry and was queried by applications that needed to be aware of the locale name, encoding, Euro character, and translation tables. For example, the SAS session used the trantab information stored in the CORE\LSW\INIT registry to set the TRANTAB system option at startup.

Starting in this release, three new system options are provided to give you more flexibility in setting up the locale and session encoding for your SAS session. The LSW has been redesigned to allow you to enhance the environment set by these new options.

NLS-Related System Options

NLS-related system options were added to this release. The LOCALE option allows you to set the locale for your SAS session and sets the ENCODING, DFLANG, and TRANTAB system options. The ENCODING option sets the encoding that SAS uses for processing external data. ENCODING also sets the TRANTAB system option.

These options are valid in the configuration file and at session startup. They are documented in the *SAS Companion for the OS/2 Environment, Version 8*.

LOCALE

The LOCALE option specifies a locale setting for your SAS session. When LOCALE is set, the DFLANG, TRANTAB, and ENCODING options are also updated to match the locale you selected.

LOCALE option values contain the language name. For some locales, you can also specify a country name or region to provide more specific locale information. For example, valid locales for France are French and French_France. See the *SAS Companion for the OS/2 Environment* for values that can be specified for LOCALE.

When LOCALE is set, the DFLANG system option is set to a value that corresponds to the chosen locale or *English* if no corresponding value is available. For more information about the DFLANG option, please refer to *SAS Language Reference: Dictionary, Version 8*.

The locale you set also has a common encoding that is used most often on the platform where the SAS system is running. When the LOCALE option is set, the ENCODING option is set to match this common locale encoding and also sets the TRANTAB option to support the encoding. However, if the ENCODING option is also specified on the SAS command line or in the config file, the ENCODING option will set the SAS session encoding.

Unlike the LSW, the LOCALE option does not store values in the SAS registry. Run PROC OPTIONS to display the value of the LOCALE option.

ENCODING

The ENCODING option sets the encoding that SAS uses for in-memory strings and external files. The ENCODING option can be set by specifying ENCODING at startup or, more commonly, by specifying a value in the LOCALE option that uses an encoding other than the default compiler encoding. *Compiler encoding* is the encoding used to compile the SAS system. Valid values for ENCODING are listed in the *SAS Companion for the OS/2 Environment*.

Note: ENCODING values on one platform are not necessarily supported on another platform.

When ENCODING is set, the TRANTAB option is also set. On most platforms, all of the first five slots are filled:

- local to transport
- transport to local
- upper case
- lower case
- character classification trantabs

For more information about the TRANTAB option, please refer to the *SAS Language Reference*.

SAS will assume that external data is in the specified encoding. If your files are in a different encoding, use the ENCODING option in the FILENAME, INFILE, or FILE statement to indicate the correct encoding. If you use the SAS Display Manager to manage your files, you will also need to specify ENCODING in the INCLUDE or FILE commands to indicate an encoding other than the current encoding.

Locale Setup Window

In this release, the Locale Setup Window (LSW) has been redesigned to work in conjunction with the new system options described above. Unless you are in Administrator Mode, the LSW will only list the languages that are supported by the current encoding. This allows you to set additional options or safely change to a locale that is supported for that session.

When a new locale is set, the DFLANG system option is set to a value that corresponds to the chosen locale or *English* if no corresponding value is available. The hex value of the Euro character is also set for the locale. The DFLANG and Euro values are stored in the SAS Registry.

The TRANTAB option string is stored in the registry with the new setting. As in Release 8.1, the LSW does copy the trantabs from the LOCALE catalog into the SASUSER.PROFILE and SASCFG.HOST catalogs if you have the proper permissions. The LSW will also create trantabs using the TRABASE naming convention at your request.

The LSW does not set the encoding for the SAS session. Please refer to the Locale Setup Window documentation in the SAS System Help for complete information.

Configuring Your System for Locale

If you would like to configure your SAS session for a locale other than the default, you have several options. This section shows how to use the options described above to get the results you want from the SAS System.

Changing the Default LOCALE Option Setting

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

For example, `!SASROOT/nls/fr/sasv8.cfg` sets LOCALE to French by default.

Note: The English version does not set the LOCALE by default.

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

For example, edit `!SASROOT/nls/fr/sasv8.cfg` and change `-locale French` to `-locale French_Canadian`.

Running SAS in a Different Locale

To set the locale for the SAS system at your site, add the LOCALE system option to your configuration file. You can find a list of locale values in the *SAS Companion for the OS/2 Environment*.

When you read or write a file, the SAS System expects the data in the external files to be in the compiler encoding. The *compiler encoding* is the encoding used to compile the SAS System on the platform where you run SAS. To specify a different encoding, see the documentation for the ENCODING option in the FILENAME, INFILE, or FILE statement in the *SAS Companion for the OS/2 Environment*.

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

When the ENCODING option is set, the TRANTAB option will always be set to match the ENCODING system option. The transport format trantabs, set by the TRANTAB option, are used by the CPORT and CIMPORT procedures to transfer SAS data files. These trantabs are also used by the UPLOAD and DOWNLOAD procedures for

transferring files and catalogs, *rsubmitting* code to the server, and returning logs and listings to the client. However, the transport format trantabs are not used for SAS data set transfer. Please see the next section for a description of the host-to-host trantabs that are set up by the LSW.

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

For more information, please see the *SAS Procedures Guide, Version 8* in the base SAS software for documentation about `PROC CPORT` and `PROC CIMPORT`. Please see the *SAS/CONNECT User's Guide, Version 8* for documentation on `PROC UPLOAD` and `PROC DOWNLOAD`.

Configuring Your System with the Locale Setup Window

The Locale Setup Window extends the support of the NLS options. To access the Locale Setup window, select `Solutions -> Accessories -> Locale Setup` from the SAS Explorer window menu.

You will need to run the LSW in Administrator mode and to select the locale if one of the following conditions is true:

- You are using `PROC UPLOAD` and `PROC DOWNLOAD` to transfer a SAS data set, and both your client and server sessions are Version 7 or later.
- Applications at your site reference trantabs created using the `TRABASE` application.
- You use Remote Library Services or Cross Environment Data Access to access SAS files, views, or external data sets.

For more information, please refer to the Locale Setup Window documentation in SAS System Help.

Running SAS with Special Locale Settings

The LSW extends the support of the locale in your SAS System. The LSW will set the Euro character that matches the encoding and copy the host-to-host trantabs into place. The host-to-host trantabs have a different purpose than then transport trantabs that are set in the `TRANTAB` system option by the `LOCALE` and `ENCODING` system options.

The host-to-host trantabs that the LSW sets up are used by `PROC UPLOAD` and `PROC DOWNLOAD` for SAS data set transfer, Cross Environment Data Access (or CEDA), and Remote Library Services (RLS). Please see the *SAS/CONNECT User's Guide* for information on the procedures. Also, refer to the *SAS/CONNECT User's Guide* and *SAS/SHARE User's Guide* for documentation on RLS.

If users at your site need to use trantabs that were created by the Version 6 TRABASE sample program, the LSW can be used to copy those trantabs into place as well.

Additional Information

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

Locale Setup on the Remote Server

The LSW also sets up the remote SAS environment for data transfer. If you are running this release of SAS in a locale other than the default, you can set up the locale on the remote SAS environment by running the LSW or submitting the `%lswbatch()` macro. Either of these can be run after you signon to the remote session.

If you are using SAS/CONNECT to connect to a remote SAS server, you will need to set up the server session for the locale SAS is using. You must do this after signing on to the remote session.

To set up the locale on the remote session, you can either run the LSW or use the `%lswbatch()` macro. In the LSW, select your language and set the Remote Submit option before closing the window.

You can also achieve remote locale setup by running the `%lswbatch()` macro after you signon to the remote session. To set up the locale on the remote session, run `%lswbatch` with the `locale=` and `remote=` parameters. Set the `locale=` to match the `LOCALE` option you set for your client session. For example, if you are running MVS with `LOCALE=Danish`, use the following `%lswbatch()` macro after your signon to the remote session:

```
%lswbatch(locale=Danish, remote=on);
```

Devmaps and Keymaps for SAS/GRAPH Software

If you are running SAS/GRAPH and your SAS session locale is not the default, you will need to use the devmaps and keymaps for the locale. The devmap and keymap entries you need are in the `SASHELP.LOCALE` catalog. You will need to copy those that match the locale to your `GFONT0.FONTS` catalog.

Change the name of the entry to 'default' so they will be loaded for you. For example, a Polish user on an OS/2 platform would need to use the devmap and keymap named `p852`.

```
libname gfont0 'your-font-library';  
%lswgraph(p852);
```

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

Locale	Devmap and Keymap Name
Arabic	p864
Bulgarian	p866
Byelorussian	p866
Croatian	p852
Czech	p852
Danish	p858
Dutch	p850
English	p437
English_Australia	p850
English_Britain	p858
English_Canada	p850
English_Caribbean	p850
English_Ireland	p858
English_Jamaica	p850
English_NewZealand	p850
English_SouthAfrica	p850
English_UnitedStates	p437
Estonian	p922
Finnish	p858
French	p858
French_Belgium	p858
French_Canada	p850
French_France	p858
French_Switzerland	p858
German	p858
German_Austria	p858
German_Germany	p858

Locale	Devmap and Keymap Name
German_Switzerland	p858
Greek	p869
Hebrew	p862
Hungarian	p852
Icelandic	p850
Italian	p858
Italian_Italy	p858
Italian_Switzerland	p858
Latvian	p921
Lithuanian	p921
Norwegian	p858
Polish	p852
Portuguese	p850
Portuguese_Brazil	p850
Portuguese_Portugal	p850
Romanian	p852
Russian	p866
Serbian	p866
Slovakian	p852
Slovenian	p852
Spanish	p858
Spanish_Spain	p858
Spanish_LatinAmerica	p850
Swedish	p858
Turkish	p857
Ukrainian	p866

Additional Documentation

This section lists documentation referenced throughout the appendix. Please refer to these documents for more detailed information.

- “Locale Setup Window” and “Locale Setup Window Item Descriptions” in the SAS System Help
- *SAS Companion for the OS/2 Environment, Version 8*
- *SAS/CONNECT User’s Guide, Version 8*
- *SAS Language Reference: Dictionary, Version 8*
- *SAS Procedures Guide, Version 8, Volumes 1 & 2*
- *SAS/SHARE User’s Guide, Version 8*

Appendix L, Post-Installation Setup for SAS[®] OLAP Server Software

Setting up Access Control without SAS/EIS Software on Your Server

Please keep in mind that Access Control Setup consists of three steps:

1. Set your Access Control Key - modifies `SASHELP.MB`
2. Set your Access Control environment (`aclroot`, `ac_active` flag, etc.) - modifies `SASHELP.AC`
3. Create your Access Control definitions (users, groups, the actual ACL) - data sets `PASSWD`, `GROUPS`, and `ACL` in `aclroot`

Each of these steps can be performed interactively in a set of windows (where available), or programmatically.

Starting the Access Control Setup Dialog Window

Use the command `AF C=SASHELP.EISSRV.STARTAC.SCL <USER=uid
PASSWD=password>`

Follow the instructions in Help or the description in *SAS/EIS Software: Administrator's Guide - Access Control Tasks* to assist you through the setup process. On 3270 platforms, where the Access Control Setup GUI is not very comfortable to use, you may prefer to do your AC setup programmatically. Please see the following section on more information on that.

Setting Your Access Control Key and Environment Programmatically

Setting the Access Control Key

The Access Control Key is stored in the entry `SASHELP.MB.ACLAPWM.SCL`. You need write access to this entry in order to change the Access Control Key. Please refer to *How to set up write access to SASHELP.AC and SASHELP.MB* for more information on that.

Using a command

Use the following command to set the Access Control Key (for setting the Access Control Key to ADMIN):

```
AF C=SASHELP.EISSRV.SETAPW.SCL PW=ADMIN
```

- To reset the Access Control Key to its initial status (no key set), pass in an empty string (" ").
- Use the special value "0" to use no Access Control Key.
- Use the option ECHO=Y to dump the settings in the log.

Using a statement

Use the following command to submit the command as a SAS statement:

```
DM 'AF C=SASHELP.EISSRV.SETAPW.SCL PW=ADMIN';
```

Using SCL

Within SCL code, you can use the following method call to set the Access Control Key:

```
CALL METHOD ('SASHELP.MBEISSRV.APWUTIL','CREAAPWM', flag, pw-value, rc);
```

where

- flag is 0 or 1. 0 indicates to not use a control key; 1 indicates to use a control key.
- pw-value is the value of the new control key. If flag is 0, this value is ignored
- rc is 0 if the update was successful; 1 if it was not successful

Setting the Access Control Environment

The Access Control Environment information is stored in the entry SASHELP.AC.ACLINIT.SCL. You need write access to this entry in order to change the Access Control Environment settings. Please refer to *How to set up write access to SASHELP.AC and SASHELP.MB* for more information.

Using a command

Use the following command to set the Access Control Environment:

```
AF C=SASHELP.EISSRV.SETAC.SCL
APW=access control key
ACTIVE=Y/N
ACLROOT=access control root path
ACLSERV=server
LOGIN=login application
AUTOUSER=Y/N
LIBSEC=Y/N
PW_ENCRYPT=Y/N
DISP_CLASS=access control start class
QUERY_CLASS=access control query class
SERVER_CLASS=access control server class
ADMIN_CLASS=access control administration class
ECHO=Y
```

Using a statement

submit the previous command using a DM statement, e.g.,

```
DM 'AF C=SASHELP.EISSRV.SETAC.SCL APW=ADMIN ACTIVE=Y
ACLROOT="path" ' ;
```

Using SCL

Within SCL code, you can use the following method call to set the Access Control Environment:

```
CALL METHOD ('SASHELP.EISSRV.ACLUTIL', 'CREAACLI', rc, flag
active, aclroot, aclserv, login_window, autouser_enabled,
libsec, pw_encrypt, disp_class, query_class, server_class,
admin_class);
```

<i>Key</i>	<i>Description</i>
APW	The Access Control Key (required for setac)
ACTIVE	Y/N to switch access control on or off
ACLROOT	The path of a directory that holds the ACL files
ACLSERV	The name of the remote session or share server for ACLROOT. If the session is local, this parameter should be blank.
LOGIN	The four-level name of the AF application or APPLSCR to use as a login dialog. The default is SASHELP.EISSRV.GATE_KPR.FRAME - a dialog with entry for User ID and Password, and OK and Cancel buttons. There is one other login dialog provided with the system, SASHELP.EISSRV.GATE_KP2.FRAME, which has an additional Change Password button.
AUTOUSER	Y/N to indicate whether to allow the use of the USER= and PASSWD= options on the EIS, RUNEIS, and METABASE commands. If these options are given, no login dialog appears (Default=Y)
LIBSEC	Y/N to indicate when the temporary library to access access control files is to be allocated 'Y' (default): the ACLTMP library is allocated before and deallocated after each access to the ACL files. Use this setting to assure that the ACL files don't show up in the SAS Explorer. 'N': the ACLTMP library is allocated once at access control server initialization and deallocated at access control server termination.

PW_ENCRYPT	Y/N indicates whether to encrypt the user password stored in the PASSWD file. (Default=Y).
DISP_CLASS	The class used to start the access control subsystem and optionally display a login dialog. The default is SASHELP.EISSRV.ACLDISP.CLASS
QUERY_CLASS	The class used to satisfy queries on the current access control permissions. The default is SASHELP.MB.ACLMAIN.CLASS.
SERVER_CLASS	The class used for loading and persisting acl information. The default is SASHELP.EISSRV.ACLSERV.CLASS.
ADMIN_CLASS	The class used managing user and group information and for updating the ACL. The default is SASHELP.MB.ACLADMIN.CLASS.
ECHO=Y	Dump the current and updated settings in the LOG.
RC	(creaacli only) a flag that indicates if the update was successful, where '0' indicates that the update was successful and '1' indicates that it was not.

Doing Your Access Control Definitions (Users, Groups, ACL) Programmatically

To do your Access Control definitions programmatically, you need to know some basics about the storage of User and Group information and the actual Access Control List.

The Access Control definitions are stored in three data sets in the Access Control Root Path. The data sets are password-protected and encrypted using the Access Control Key.

User definitions are stored in the PASSWD data set. Group definitions are stored in the GROUPS data set. The Access Control List is stored in the ACL data set.

To do your definitions, proceed using the following steps:

1. Set up the Access Control Key and Environment page 53
2. Set a libname ACL on your aclroot path page 53
3. Define the groups page 53
4. Define the users page 54
5. Create your metabase registrations page 56
6. Create your ACL page 56
7. Initialize partial ACL data sets page 56
8. Edit the partial ACL data sets page 57
9. Merge the partial ACL data sets page 60

1. Set up the Access Control Environment

Here is a simple example of how to Set up the Access Control Environment. Choose an Access Control Key, and create a location where you want to store your AC definitions. Then submit:

```
DM 'AF C=SASHELP.EISSRV.SETAPW.SCL PW=access control key';
DM 'AF C=SASHELP.EISSRV.SETAC.SCL
  APW=access control key
  ACLROOT="access control root path"
  PW_ENCRYPT=N';
```

Note: By default, user passwords stored in the `PASSWD` data set are encrypted using the `_encryptPassword` method of the `ACLSERV` class. This adds an additional layer of protection to the information stored in the `PASSWD` data set. To be able to store plain text passwords in the `PASSWD` data set when managing the user setup outside of the Access Control definition dialogs, use `PW_ENCRYPT=N` option when setting up the access control environment.

2. Set a libname ACL on your ac1root path

```
LIBNAME ACL "access control root path";
```

3. Define the groups

The `GROUPS` data set holds the names and descriptions of the access control groups. The data set has one record for each group defined to the system. When the `GROUPS` data set is initially created, two additional records are also added, one for the `SYSTEM` (Administrator) and another for the `USERS` (Users) group.

A Group name can have from three to eight characters. Group names begin with a letter, and are followed by letters, numbers, or underscores. Letters must be in upper case.

The `GROUPS` data set has the following structure:

GROUP	\$8	Group Name (needs to be upper case!)
DESC	\$32	Group Description

You can edit the `ac1.groups` data set by using an interactive facility, like `FSEDIT`, or `FSVIEW`, or data management tools like the data step.

Example for using a data step:

```
data work.groups;
  infile datalines;
  length group $8 desc $32;
  input group / desc &;
  datalines;
  SALES
```

```

Sales Staff
MKT
Marketing
MGMT
Management
;
proc sort data=work.groups;
by group;
proc sort data=acl.groups(pw=access control key);
by group);
data acl.groups(pw=access control key);
merge acl.groups(pw=access control key) work.groups;
by group;
run;

```

Group names must be upper case valid SAS names, of three to eight characters length.

Please note that when you first activate Access Control (using either the Access Control Setup window, or the SETAC facility) a GROUPS data set is created in your aclroot path, with the two groups SYSTEM and USERS already defined. That is why the previous data step merges your new definitions with the already existing ones.

4. Define the users

The PASSWD holds the definitions for the access control users. The following information is stored for each user:

User id	A 32-character string that must start with a character, followed by characters, numbers, or underscores. The user id is stored in upper case.
Description	Mixed case, free format descriptive string.
Groups	Names of the groups a user belongs to, in upper case, separated by commas.
Password	A 16-character string that must start with a character, followed by characters, numbers, or underscores. By default, this password is stored encrypted using the _encryptPassword method of the ACLSERV class. Use PW_ENCRYPT=N when setting up the access control environment to use unencrypted passwords. Unencrypted passwords are stored in upper case.
Creation date/time	A SAS datetime value indication the creation time of the user's record.

The data set holds one record for each user of the system. When the PASSWD data set is initially created, one record for the ADMIN user (password ADMIN) is added.

The PASSWD data set has the following structure:

USERID	\$32	User ID (upper case)
FULLNAME	\$32	User Description
GROUP	\$198	User Groups
PASSWORD	\$16	User Password
C_DATET	\$8	DateTime

You can edit the `acl.passwd` data set by using an interactive facility, like `FSEDIT`, or `FSVIEW`, or a data management tool like the data step.

Example for using the data step:

```

data work.passwd;
  infile datalines dsd;
  length userid fullname $32 group $198 password $16 c_datet
  8;
  format c_datet datetime16.;
  c_datet=time();
  input userid / fullname & / group / password ;
  datalines;
  MJONES
  Markus Jones
  SALES
  MJONES1
  OFIELDS
  Oscar Fields
  MKT
  OFIELDS1
  ABEAN
  Abraham Bean
  SALES,MKT,MGMT
  ABEAN1
  ;
proc sort data=work.passwd;
  by userid;
proc sort data=acl.passwd(pw=admin);
  by userid;
data acl.passwd(pw=admin);
  merge acl.passwd(pw=admin) work.passwd;
  by userid;
run;

```

Userids must be upper case valid SAS names, of 3 to 32 characters length. Passwords must be upper case valid SAS names, of 3 to 16 characters length.

Please note that when you first activate Access Control (using either the Access Control Setup window, or the SETAC facility) a PASSWD data set is created in your `aclroot` path, with the user ADMIN (password ADMIN) already defined. That is why the previous data step merges your new definitions with the already existing ones.

5. Create your metabase registrations

If you have not already done so, create your metabase registrations now. An Access Control definition is always linked to an existing metabase registration.

Use the METABASE command to invoke the Metabase GUI.

6. Create your ACL

Now, for each group/metabase registration combination, fill a data set with the structural information from the metabase registration, and, if needed and available, with the class column value combinations. There is a utility, FILLACL, that does that for you. Then edit those partial data sets to set your access control tags. And finally, merge the partial ACL data sets back into ACL.ACL.

A. Initialize partial ACL data sets

Note: The FILLACL utility uses the SAS OLAP Server classes to access the data. If you do not have SAS/EIS software, you might have to run the following utility first, to make sure the correct data model classes are being used:

```
DM 'AF C=SASHELP.EISSRV.SET_OLAP_CLASSES.SCL
  MODMGR=SASHELP.EISSRV.MODMGR.CLASS
  MODMGRE=SASHELP.EISSRV.MODMGRE.CLASS
  EMDDDB_C=SASHELP.EISSRV.EMDDDB_C.CLASS';
```

Use the FILLACL utility to create a data set with the same structure as the ACL data set, and initialize it with information from the registration and the data.

```
DM 'AF C=SASHELP.EISSRV.FILLACL.SCL
  APW=access control key
  OUTDS=partial ACL data set name
  GROUP=groupname
  REP="repository name"
  REG="registration name"
  LEVEL=ALL/DIMSONLY';
```

using a different OUTDS= value each time, and setting the other options accordingly.

FILLACL accepts the following named parameters:

<i>Key</i>	<i>Description</i>
APW	The access control key. This is required.
OUTDS	The data set where the partial ACL file should be written. If the data set exists, it will be overwritten.
GROUP	Name of the user group for initializing the GROUP column (upper case!)
REP	The name of the repository in which the registration is stored. Use quotes if the repository name contains blanks or special characters.
REG	The name of the metabase registration to use. Please note that the typical registration name has the form LIB.MEM, e.g., SASHELP . PRDMDDB. By default, a metabase registration has the name of the SAS file (data set or MDDB) that was registered.
LEVEL	ALL/DIMSONLY. ALL is the default. DIMSONLY only reads out the structural information, no data values.

B. Edit the partial ACL data sets

Edit each data set created by FILLACL, using an interactive facility like FSEEDIT or FSVIEW. Usually, you would only edit the TAG column. Use TYPE, VALUE, and ITEM to identify the element for which a tag will be set.

For example, to drop the COUNTRY variable, find the record with TYPE=CL, VALUE=COUNTRY, and set a 'D' in the TAG column.

Do not set any values for TAG in those records that you do not want to restrict. These records will be removed when merging the partial ACL data sets in the next step.

Please refer to *SAS/EIS Software: Administrator's Guide - Using Access Control* for information on how to use Access Control tags.

Each partial ACL has the following structure:

GROUP	\$8	Group Identifier
TARGET	\$17	Target Identifier
TYPE	\$2	Information Type
ITEM	\$42	Information Item
VALUE	\$200	Information Value
TAG	\$1	Access Control Tag

The columns hold the following information:

Column name Description - values

GROUP	Name of the group to which the access control definitions in the current record apply (upper case!)	
TARGET	The ID of the metabase registration to which the access control definitions in the current record apply, or #A, for applications/application databases, or #F, for application functions.	
TYPE	Record type: If TARGET is a metabase registration ID:	
	T	Table
	H	Hierarchy
	HL	Hierarchy Level
	A	Analysis variable (ANALYSIS, COMPUTED)
	S	Statistic
	C	Category variable (CATEGORY)
	CL	Category variable level (data value)
	If target is #A:	
	AP	for application
	AD	for application database
	If target is #F: Always F	

VALUE	Depending on TYPE, value can be:	
	Type	Value
	T	TABLE (dummy value when the whole table is being dropped)
	H	Hierarchy name
	HL	Hierarchy level name
	A	Analysis variable name
	S	Statistic keyword
	C	Category variable name
	CL	Category variable value. Special value #T for _Total_
	AP	Application name (2-level)
	AD	Application Database name (4-level)
	F	Function id.
ITEM	Additional identifier, set to identify what the VALUE refers to for	
	HL	to identify the hierarchy
	CL	to identify the Category variable
	S	to identify the Analysis variable

TAG	Access Tag. This is the only column you would typically edit. Valid tags are as follows:	
	D	Drop
	K	Keep
	I	Initial
	H	Hide
	S	Show
	Valid TAGs by TYPE:	
	T	D
	A	D, K, H
	S	D, K
	H	D, K
	C	D, K
	CL	D, K, I, H, S
	HL	D, K, I
	AP	D, K
	AD	D, K
	F	D, K

C. Merge the partial ACL data sets

The result is a collection of data sets. To merge them and remove the unneeded observations (the ones with TAG= ' '), submit:

```

data acl.acl(pw=access control key encrypt=yes);
set work.one
work.two
.
.
;
if tag = ' ' then delete;
run;

```

Write Access to SASHELP.AC and SASHELP.MB

1. Choose an empty library or path for use as a playpen. Later you can either merge it into your SASHELP library, or concatenate it in front of your SASHELP path.

```
libname playpen 'path';
proc catalog;
  copy in=sashelp.ac out=playpen.ac;
  copy in=sashelp.mb out=playpen.mb;
  select aclapwm.scl;
run;quit;

catname sashelp.ac (playpen.ac);
catname sashelp.mb (playpen.mb sashelp.mb);
```

2. Set up your Access Control Key and Environment. When setting up your SAS application server, or distributing the application to your users, make sure the modified catalogs are concatenated in front of your SASHELP path by modifying the SAS CONFIG file, or the SAS clist accordingly.

Specifying OLAP Classes

The following utility program can be used to override the default OLAP Server classes and specify your custom OLAP Server classes.

```
DM `AF C=SASHELP.EISSRV.SET_OLAP_CLASSES.SCL
MODMGR=
MODMGRE=
EMDDB_C=
DP=
MDVIEWER=
MDMODEL=
`;
```

SET_OLAP_CLASSES accepts the following named parameters:

<i>Key</i>	<i>Description</i>
MODMGR	The 4-level name of the model manager class.
MODMGRE	The 4-level name of the model manager engine class.
EMDDB_C	The 4-level name of the model coordinator class.
DP	The 4-level name of the data provider class.
MDVIEWER	The 4-level name of the OLAP metadata viewer class.
MDMODEL	The 4-level name of the OLAP metadata model class.

Appendix M, Post-Installation Setup for SAS/SECURE® Software

SAS/SECURE software includes client components that you can use to create non-SAS System client applications that communicate with a SAS server in a secure environment. To use encryption between a non-SAS System client and a SAS Server with SAS/SECURE software licensed, you must install the SAS/SECURE client components on the client machine.

SAS/SECURE Client for Windows

The `secwin.exe` executable installs the files necessary for the IOM Bridge for COM to use the CryptoAPI algorithms. It also contains a TAR and ZIP file that is used to develop Java clients that utilize the encryption support.

SAS/SECURE Client for Java

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

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

Client-Side Components CD

The SAS/SECURE client components are available in the `!SASROOT\securdom\sasmisc` (for U.S. domestic customers) or `!SASROOT\securnt1\sasmisc` (for all other customers) directory and on the *SAS Client-Side Components* CD included with your SAS Software distribution.

Appendix N, Updating Your SAS® System SETINIT

The SAS System is licensed on an annual basis. In order to run each software product you must apply a Product Authorization code provided by SAS Institute Inc. This authorization code 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 license period.

You must update your SETINIT in the following circumstances:

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

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

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

- using the Update SAS V8 Product Authorization Information icon
- during installation of the SAS System
- executing from the command line

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 Product Authorization 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 Product Authorization 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 “Using the Update SAS System Release 8.2 Authorization Icon” below.

Using the Update SAS System Release 8.2 Icon

During installation of the Core product of Release 8.2 (TS2M0) of the SAS System, the Update SAS V8 Product Authorization Information program icon was created in the program folder you selected (the default program folder name is The SAS System).

This new Release 8.2 (TS2M0) program icon simplifies the authorization process for the SAS System. Use the Update SAS V8 Product Authorization Information icon when renewing your license in the following situations:

- after adding new products
- when renewing your SAS System Release 8.2 Product Authorization before it expires
- when renewing your SAS System Release 8.2 Product Authorization after it expires.

Double-click on the Update SAS V8 Product Authorization Information to invoke the SETINIT.SAS program.

The SAS System has a built-in 60-day grace period that begins the day after your Product Authorization expires. This grace period provides extra operating time so that the SAS Installation Representative at your site can renew the Product Authorization through the Customer Service Department at SAS. 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 V8 Product Authorization Information icon if the expiration date in your updated SETINIT.SAS file is past the current date. See the section "Executing from the Command Line" on page 67 of this appendix if your expiration date in your SETINIT.SAS file contains a date that is past the current date.

SAS Setup uses the SASV8.CFG file to determine the location of the SASROOT and SASFOLDER system variables. After providing the directory where the SASV8.CFG file is located, select OK. 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 SASV8.CFG file.

Select F1 or the Help button to receive online help during the install. Select OK to continue updating the SAS Product Authorization information, or Cancel to exit SIUPDATE.

Verify that this is the correct location for the SASROOT. SAS Setup uses the CORE directory when updating the SAS Product Authorization, 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 authorization information, or `Cancel` to exit `SIUPDATE`.

Next, verify the location of the `SASFOLDER`. `SASFOLDER` is the working folder of your installed SAS System, and must be the same as what is stored in your `SASV8.CFG` file.

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

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

Select `Yes` if your new `SETINIT.SAS` is located on a network drive or on diskette. If your `SETINIT.SAS` file is on paper and not on diskette or accessible via the network, select `No`. You will be asked if you want to manually correct your existing `SETINIT.SAS` file.

If you have selected `YES` to indicate that your `SETINIT.SAS` is located on a network drive or diskette, provide the directory where your updated `SETINIT.SAS` file is located and select `OK`. Your Product Authorization will be updated.

Alternatively, if you have selected `NO`, indicating that the updated `SETINIT.SAS` is on paper, now select `YES`, showing that you would like to manually edit the `SETINIT.SAS` file that resides in the `!SASROOT\core\sasinst` directory. Selecting `NO` in this dialog will end the `SIUPDATE` program and the SAS Product Authorization will not be applied.

Executing from the Command Line

You can update your Product Authorization 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 V8 Product Authorization 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 error message is 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 Product Authorization 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
```

Authorization Process Problems

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

Appendix O, Implementing SAS/SHARE[®] Software

This appendix discusses the access methods that are available with Release 8.2 (TS2M0) 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 four 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.

<u>Access Method</u>	<u>Communications Software Required</u>
APPC	IBM's CM/2, Version 1.11 IBM's Communication Service for OS/2 WARP, Version 4+ Any SNA LU6.2 APPC Interface
IBM NETBIOS 3.0 Interface NetBIOS Submit Interface	IBM's Extended Services Novell's NetWare Requester for OS/2 IBM Extended Services
TCP/IP	IBM's TCP/IP Network Protocol, which is provided with OS/2

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/SHARE users at your site to use more than one access method to communicate with SAS/SHARE 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

For a SAS/SHARE 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 SAS/SHARE 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 SAS/SHARE 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

For more information, please see "System Configuration for the APPC Access Method," on page 21 in the appendix "Post Installation Setup for SAS/CONNECT Software."

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.

Software Requirements

The following NetBIOS products are supported:

- Novell's NetWare Requester for OS/2 Warp 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.

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.

❑ 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.

❑ 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.

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 NetBIOS Enum 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 NetWare Requester for OS/2 supports this feature 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.

Software Requirements

Define SAS/SHARE 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.

For all other versions of TCP/IP, refer to your documentation to find out where the SERVICES file is installed.

2. Specify the server names and port assignments.

Each SAS/SHARE 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/SHARE server has the form:

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

The server name must be 1-8 characters in length. The first character must be a letter or underscore; the remaining seven characters can include letters, digits, underscores, the dollar (\$) sign, or the at (@) sign.

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

```
mktserver    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.

Client-Side Components

SAS/SHARE software includes client components that are used outside of your SAS installation. These components are described below:

SAS/SHARE Data Provider

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

SAS ODBC Driver

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

SAS/SHARE Driver for JDBC

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

SAS/SHARE SQL Library for C

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

SAS/SHARE client components are delivered with SAS/SHARE Software and may be found in the `!SASROOT\share\sasmisc` directory. See the `readme.txt` file in this directory for a description of each component file. SAS/SHARE client components are also available on the *SAS Client-Side Components* CD included with your SAS Software distribution.

U.S. Government Rights Notice

If your installation is a United States government site or a U.S. 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 8, "SAS System Options," in *SAS Companion for the OS/2 Environment, Version 8, 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 8, Second Edition*.

❑ **Client Installation**

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

❑ **Complete Installation**

installs all of the components that are authorized for your site. Available for the *Personal* and *Server* installations.

❑ **Custom Installation**

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

❑ **Personal Installation**

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

❑ **Reinstallation Support**

The reinstallation support component provides the capability of installing a SAS System from which the SAS Setup can again be run.

❑ **SAS Installation Representative**

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

❑ **SAS Setup Program**

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

- ❑ SAS Support Consultant

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

- ❑ SASROOT Directory

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

- ❑ SASV8.CFG

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 8, 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.

- ❑ Server Installation

allows network administrators to use SAS Setup to place all files of selected components onto a disk that will then be used for subsequent installation processes. The *Server* installation also bypasses all local configuration updates so it should be used only for creating an image that will be used for subsequent re-installation of the SAS System on to another PC. The destination location for a server installation must not be at the root level of a drive or of a directory that is shared to a network.

- ❑ SETINIT

updates your SAS System Product Authorization information. The SAS System is authorized on an annual basis. In order to run each software product you must obtain a Product Authorization code from SAS Institute. This information resides in the SETINIT . SAS file. When you install the SAS System, the SETINIT information is used to initialize the software for the current authorization period.

- ❑ SIUPDATE

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

- ❑ Technical Support Services

are provided by SAS Institute to the designated SAS Installation Representative and SAS Support Consultant. These individuals 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.