

# **Configuration Guide for SAS<sup>®</sup> 9.1.3 Foundation for UNIX<sup>®</sup> Environments**



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# Chapter 1 – Introduction

## Audience

This document is intended for the SAS Installation Representative, designated as the person responsible for installing and maintaining SAS software for UNIX systems at your site.

This document describes the configuration instructions for SAS 9.1.3 Foundation, which is made up of server-side Base SAS and a variety of server-side SAS products (the exact products vary by customer). Information about the configuration of mid-tier and client-side products is available from your SAS Software Navigator.

The server-side configuration instructions contained in this document are for the configuration of a generic SAS server. If you wish to configure your server for more specific functions, such as a Workspace Server or Stored Process Server, please refer to the *SAS 9.1.3 Intelligence Platform: Application Server Administration Guide* located at <http://support.sas.com/documentation/configuration/913admin.html>. If you wish to configure your server as an OLAP Server, please refer also to *SAS 9.1.3 Intelligence Platform: Application Server Administration Guide*, at the same location. If you wish to configure your server as a Metadata Server, please refer to the *SAS 9.1.3 Intelligence Platform: System Administration Guide*, also at the same location.

## Understanding This Book

This document conforms to the following conventions:

Courier	Courier type indicates commands, directory paths, file names, menu items, Internet addresses, etc.
<i>Italics</i>	Italic type indicates documentation references or key notes.
<b>Bold</b>	Bold type indicates important text or concepts.
UPPERCASE	Uppercase type indicates variable and option settings.
Dollar sign \$ Pound sign #	A dollar sign \$ or pound sign # at the beginning of an example indicates a sample UNIX command line.

## Contacting SAS

If you need to contact SAS, refer to the *SAS Technical Support Information* document for information about who to contact and how to contact them. The document may be located by opening the **Documentation for Installing and Configuring SAS** CD or Install Center. On the first page, select **SAS Basic Installation Edition Kit**, then select **SAS Technical Support Information** in the “Service and Support” section.

## **Accessing Release Documentation**

Release documentation is included on the **Documentation for Installing and Configuring SAS CD**, consisting of Alert Notes, System Requirements, Installation Instructions and Configuration Guide. The latest versions of these enclosures are available on the Install Center Web page,

<http://support.sas.com/documentation/installcenter/913/kit/index.html>.

To see the documentation included in your installation kit, visit the Install Center Web site and click **Basic Installation Edition Kit** under “SAS 9.1.3.”

## Chapter 2 – Restricted Options

SAS 9.1.3 Foundation options can be "restricted" by a site administrator so that once they are set by the administrator, they may not be changed by a user. An option can be restricted globally, by group, and by user. To restrict an option it must be added to the appropriate SAS 9.1.3 Foundation configuration file and this file must have the permissions set by the administrator so that it cannot be updated by users. The option files are processed in the following order: global, group and user. If an option is specified in multiple files then the last occurrence gets used.

### ***Global Restrictions***

Create the file `!SASROOT/misc/rstropts/rsasv9.cfg` and add options to this file in the normal config file format.

### ***Group Restrictions***

Create a file of the following format:

```
!SASROOT/misc/rstropts/groups/<groupname>_rsasv9.cfg
```

and add options to this file in the normal config file format.

Example: For user `smith` in the group `staff`: the file name would be `staff_rsasv9.cfg`.

### ***User Restrictions***

Create a file of the following format:

```
!SASROOT/misc/rstropts/users/<userid>_rsasv9.cfg
```

and add options to this file in the normal config file format.

Example:

For user `smith`, the file name is `smith_rsasv9.cfg`.

### ***Additional information***

To verify that an option has been set correctly follow this example:

1. Assume the option `-EMAILSYS=SMTP` was specified in one of the restricted configuration files.
2. Submit the following code:

```
proc options restrict; run;
```

The SAS log should then show a message similar to

```
Option Value Information For SAS Option EMAILSYS
Option Value: SMTP
Option Scope: SAS Session
How option value set: Site Administrator Restricted
```

The following describes the process when a user attempts to change the option value.

1. Assume the option `-NOTHEADS` was specified in one of the restricted configuration files.

2. Submit the following code:

```
options THREADS;
```

The SAS log should then show a message similar to

```
options THREADS;
-----
          36
WARNING 36-12: SAS option THREADS is restricted by your Site
Administrator and cannot be updated.
```

**Note:** Only one Group Restrictions File will be read during SAS processing. The effective groupid of the SAS process that is running is used in the determination of which Group Restrictions File to use.

**Note:** If the effective userid of the SAS process that is running does not have a corresponding entry in the `/etc/passwd` file, then only the global restricted option and the group restricted options files will be read.

**Note:** If the effective groupid of the SAS process that is running does not have a corresponding entry in the `/etc/group` file, then only the global restricted option and the user restricted options files will be read.

## Chapter 3 – Post-Installation Configuration for SAS/ACCESS Software

**Important:** *The steps outlined in this chapter assume that the SAS Installation Representative at your site has installed SAS/ACCESS software and completed the first phase of SAS/ACCESS software configuration.*

*Refer to the System Requirements to determine if the combination of your operating system and the version or release of your DBMS is supported by the SAS/ACCESS interface you want to configure.*

*The first phase of SAS/ACCESS software configuration involves completing the steps in Chapter 2 of the Installation Instructions concerning how to perform SAS/ACCESS software configuration during the initial installation of SAS 9.1.3. However, SAS/ACCESS software configuration can be performed after the initial installation of SAS 9.1.3 Foundation and the SAS Installation Representative may not have completed the steps in Chapter 2 of the Installation Instructions. If so, then the SAS Installation Representative needs to complete the steps documented in Chapter 3 of the Installation Instructions to finish the first phase of SAS/ACCESS software configuration.*

*Once the first phase of SAS/ACCESS software configuration has been completed, you can then proceed with the instructions in this chapter.*

Before beginning the second phase of SAS/ACCESS software configuration, you should determine the following information about your DBMS:

- The version or release of the DBMS client shared libraries installed on your operating system. This is important due to potential incompatibilities between DBMS versions or releases.
- The location of the DBMS client shared libraries. This is important so that SAS/ACCESS software can be loaded at execution time.

Refer to the following sections for detailed DBMS-specific instructions on configuring your environment to interface with your SAS/ACCESS software.

### SAS/ACCESS Interface to DB2 Software

The SAS/ACCESS Interface to DB2 executable uses shared libraries, referred to in UNIX as shared objects. You must add the location of the shared libraries to one of the system environment variables, and, if necessary, indicate the DB2 version that you have installed at your site. You must also set the `INSTHOME` environment variable to your DB2 home directory before setting the environment variables as shown in the examples.

AIX	
Bourne Shell	<code>\$ LIBPATH=\$INSTHOME/lib:\$LIBPATH</code> <code>\$ export LIBPATH</code>
C Shell	<code>\$ setenv LIBPATH \$INSTHOME/lib:\$LIBPATH</code>

<b>HP-UX and HP-UX for the Itanium Processor Family Architecture</b>	
Bourne Shell	\$ SHLIB_PATH=\$INSTHOME/lib:\$SHLIB_PATH \$ export SHLIB_PATH
C Shell	\$ setenv SHLIB_PATH \$INSTHOME/lib:\$SHLIB_PATH
<b>Linux for Intel Architecture, Linux for Itanium-based Systems, Solaris, and Solaris for x64</b>	
Bourne Shell	\$ LD_LIBRARY_PATH=\$INSTHOME/lib:\$LD_LIBRARY_PATH \$ export LD_LIBRARY_PATH
C Shell	\$ setenv LD_LIBRARY_PATH \$INSTHOME/lib:\$LD_LIBRARY_PATH

## SAS/ACCESS Interface to HP Neoview Software

The HP Neoview ODBC drivers are ODBC API-compliant shared libraries, referred to in UNIX as shared objects. You must include the full path to the shared libraries in the shared library path as shown below so that the ODBC drivers can be loaded dynamically at run time.

<b>Linux for Intel Architecture and Solaris</b>	
Bourne Shell	\$ LD_LIBRARY_PATH=\$ODBCHOME/lib:\$LD_LIBRARY_PATH \$ export LD_LIBRARY_PATH
C Shell	\$ setenv LD_LIBRARY_PATH \$ODBCHOME/lib:\${LD_LIBRARY_PATH}
<b>HP-UX and HP-UX for the Itanium Processor Family Architecture</b>	
Bourne Shell	\$ SHLIB_PATH=\$ODBCHOME/lib:\$SHLIB_PATH \$ export SHLIB_PATH
C Shell	\$ setenv SHLIB_PATH \$ODBCHOME/lib:\${SHLIB_PATH}

## Registering SAS/ACCESS Interface to HP Neoview

The following SAS procedure must be run so that the Access to HP Neoview product is registered with the SAS system catalog:

```
PROC NICKNAME CAT=sashelp.core engine;
  add nickname=neoview module=sasioneo desc="SAS/ACCESS to Neoview"
  preferred eng;
quit;
```

## SAS/ACCESS Interface to Informix Software

For SAS 9.1 or higher, SAS/ACCESS Interface to Informix software uses an ODBC interface to access Informix.

You may have to edit the `.odbc.ini` file in your home directory with a text editor to configure data sources. Some ODBC driver vendors may allow system administrators to maintain a centralized copy by setting the environment variable `ODBCINI`. Please refer to your ODBC driver's vendor documentation to find more specific information.

The ODBC drivers are ODBC API-compliant shared libraries, referred to in UNIX as shared objects. You must add the location of the shared libraries to one of the system environment variables so that ODBC drivers can be loaded dynamically at run time. You must also set the

InformixDIR environment variable to your Informix home directory before setting the environment variables as shown in the examples.

AIX	
Bourne Shell	\$ LIBPATH = \$InformixDIR/lib/cli:\$InformixDIR/lib/esql:\$LIBPATH \$ LIBPATH
C Shell	\$ setenv LIBPATH \$InformixDIR/lib/cli:\$InformixDIR/lib/esql:\$LIBPATH
HP-UX and HP-UX for the Itanium Processor Family Architecture	
Bourne Shell	\$ SHLIB_PATH=\$InformixDIR/lib/cli:\$InformixDIR/lib/esql:\$SHLIB_PATH \$ export SHLIB_PATH
C Shell	\$ setenv SHLIB_PATH \$InformixDIR/lib/cli:\$InformixDIR/lib/esql:\$SHLIB_PATH
Tru64 UNIX and Solaris	
Bourne Shell	\$ LD_LIBRARY_PATH=\$InformixDIR/lib/cli:\$InformixDIR/lib/esql:\$LD_LIBRARY_PATH \$ export LD_LIBRARY_PATH
C Shell	\$ setenv LD_LIBRARY_PATH \$InformixDIR/lib/cli:\$InformixDIR/lib/esql:\$LD_LIBRARY_PATH

## SAS/ACCESS Interface to Microsoft SQL Server Software

The SAS/ACCESS product contains the DataDirect Technologies Microsoft SQL Server ODBC driver component that is unloaded during the SAS/ACCESS Software Configuration phase of the installation. The setup/configuration procedures are described below.

During the SAS/ACCESS Software Configuration for MS SQL Server, you entered a directory in which the DataDirect Technologies driver components were unloaded. This directory becomes the ODBC\_HOME directory, which is used to set up the paths to the shared libraries as well as the odbc.ini file below. You must set the ODBC\_HOME environment variable to your ODBC home directory before setting the ODBCINI and shared library environment variables as shown in the examples below.

The odbc.ini system information file contains a list of possible data sources to connect to your Microsoft SQL Server servers. You must configure at least one data source in order to use the SAS/ACCESS Interface to Microsoft SQL Server. A sample odbc.ini file is located in the ODBC\_HOME directory as odbc.ini.sample. You will have to edit the odbc.ini file with a text editor to configure the data sources. The general format of the odbc.ini file is shown below:

```
[ODBC Data Sources]
sqlserver=DataDirect <driver version> SQL Server Wire Protocol

[sqlserver]
Driver=<my install dir>/lib/S0msss<file version>.so
Description=DataDirect <driver version> SQL Server Wire Protocol
Address=<SQLServer host>,<SQLServer server port>
AnsiNPW=Yes
Database=<db>
LogonID=
Password=
QuotedId=yes
```

```
[ODBC]
InstallDir=<my install dir>
Trace=0
TraceDll=<my install dir>/lib/odbcdrac.so
TraceFile=odbcdrac.out
```

Note that the <driver version> and <file version> specifications describe specific versions of the DataDirect Microsoft SQL Server driver that is installed with SAS/ACCESS to Microsoft SQL Server. The <driver version> in your `odbc.ini` will already contain the latest version of the DataDirect driver that SAS ships. Also, the <file version> will contain a two number version that will describe the version of the actual driver library. You will not need to update these two version specifications in your `odbc.ini`.

You should replace all occurrences of <my install dir> in the sample `odbc.ini` with the path and directory name you specified during the SAS/ACCESS Software Configuration for MS SQL Server. This is the same directory that is specified by the `ODBCHOME` environment variable that you set earlier in this section.

You should also replace <SQLServer host> with the IP address or named server of your SQL Server machine, <SQLServer server port> with the port number that your SQL Server is listening on (typically 1433), and <db> with the name of your SQL Server database.

In the above example, `sqlserver` is the name of the configured data source name that is used in the `DSN=` option when assigning a `libname` to the SAS/ACCESS to MS SQL Server engine.

A sample completed `odbc.ini` is shown below for reference:

```
[ODBC Data Sources]
sqlserver=DataDirect 4.20 SQL Server Wire Protocol

[sqlserver]
Driver=/install/sas/driver/lib/S0msss19.so
Description=DataDirect 4.20 SQL Server Wire Protocol
Address=199.255.255.255,1433
AnsiNPW=Yes
Database=users
LogonID=
Password=
QuotedId=yes

[ODBC]
InstallDir=/install/sas/driver
Trace=0
TraceDll=/install/sas/driver/lib/odbcdrac.so
TraceFile=odbcdrac.out
```

After you configure your data sources, you must set the `ODBCINI` environment variable to the location and name of your `odbc.ini`:

- **For Bourne Shell**  
`ODBCINI=$ODBCHOME/odbc.ini`  
`export ODBCINI`
- **For C Shell**  
`setenv ODBCINI $ODBCHOME/odbc.ini`

The DataDirect Microsoft SQL Server ODBC drivers are ODBC API-compliant shared libraries, referred to in UNIX as shared objects. You must include the full path to the shared libraries in the

shared library path as shown below so that the ODBC drivers can be loaded dynamically at run time.

<b>Linux for Intel Architecture, Linux for Itanium-Based Systems, Solaris, and Solaris for x64</b>	
Bourne Shell	\$ LD_LIBRARY_PATH=\$ODBCHOME/lib:\$LD_LIBRARY_PATH \$ export LD_LIBRARY_PATH
C Shell	\$ setenv LD_LIBRARY_PATH \$ODBCHOME/lib:\${LD_LIBRARY_PATH}
<b>AIX</b>	
Bourne Shell	\$ LIBPATH=\$ODBCHOME/lib:\$LIBPATH \$ export LIBPATH
C Shell	\$ setenv LIBPATH \$ODBCHOME/lib:\${LIBPATH}
<b>HP-UX and HP-UX for the Itanium Processor Family Architecture</b>	
Bourne Shell	\$ SHLIB_PATH=\$ODBCHOME/lib:\$SHLIB_PATH \$ export SHLIB_PATH
C Shell	\$ setenv SHLIB_PATH \$ODBCHOME/lib:\${SHLIB_PATH}

## Linux for Intel Architecture

### **Registering SAS/ACCESS Interface to Microsoft SQL Server**

For SAS 9.1.3 on Linux for Intel Architecture, the following SAS procedure must be run so that SAS/ACCESS Interface to Microsoft SQL Server is registered with the SAS system catalog:

```
PROC NICKNAME CAT=sashelp.core engine;
add nickname=sqlsvr module=sasiosrv desc="SAS/ACCESS to Microsoft
SQL Server"
preferred eng;
quit;
```

### **Installing the DataDirect ODBC Client Pieces**

In SAS 9.1.3 on Linux for Intel Architecture, there is currently no way to use SASSETUP to configure SAS/ACCESS Interface to Microsoft SQL Server and in get the bundled in DataDirect ODBC client pieces in place. Because of this, manual intervention is required on the part of the installer. SAS 9.1.3 customers need to take the following steps to accommodate SAS/ACCESS Interface to Microsoft SQL Server:

1. CD to the !SASROOT/misc/dbi directory.
2. Copy the lnxsqsvr.tar file to the directory where you wish the DataDirect ODBC client pieces to reside.
3. From this directory, run the following command from the Linux prompt:

```
tar -xvf lnxsqsvr.tar
```

4. Proceed with the configuration steps as outlined above.

## SAS/ACCESS Interface to MySQL Software

The SAS/ACCESS Interface to MySQL executable uses shared libraries, referred to in UNIX as shared objects. You must add the location of the MySQL shared libraries to the shared library path environment variable specific to your operating system. Due to the way MySQL Client libraries are distributed, on most operating systems you will need to link the SAS ACCESS to MySQL module against the MySQL client libraries on your system using the following process.

1. Set the following environment variables:

**MYSQL\_CLIENT\_DIR**= directory location for the newly linked MySQL client module; needs to be set on your PATH so SAS can load the module (variable not needed on Linux for Intel Architecture and Linux for Itanium-based Systems)

**MYSQL\_LIBDIR**= MySQL Client Install location (use location of dynamic client libraries – by default, /usr/lib, on Linux for Intel Architecture and Linux for Itanium-based Systems)

**SASROOT**= SAS installed directory location (variable not needed on Linux for Intel Architecture and Linux for Itanium-based Systems)

For example, if you have installed MySQL in the directory /usr/local/mysql/4.1.7, and SAS is installed in /usr/local/sas then you would need to do the following:

<b>AIX, HP-UX, Solaris, and Solaris for x64</b>	
Bourne Shell	<pre>\$ MYSQL_LIBDIR=/usr/local/mysql/4.1.7/lib \$ export MYSQL_LIBDIR  \$ SASROOT=/usr/local/sas \$ export SASROOT  \$ MYSQL_CLIENT_DIR=/usr/local/sas_lib \$ export MYSQL_CLIENT_DIR</pre>
C Shell	<pre>\$ setenv MYSQL_LIBDIR /usr/local/mysql/4.1.7/lib \$ setenv SASROOT /usr/local/sas \$ setenv MYSQL_CLIENT_DIR /usr/local/sas_lib</pre>
<b>Linux for Intel Architecture and Linux for Itanium-based Systems</b>	
Bourne Shell	<pre>\$ MYSQL_LIBDIR=/usr/lib \$ export MYSQL_LIBDIR</pre>
C Shell	<pre>\$ setenv MYSQL_LIBDIR /usr/lib</pre>

2. Modify the shared library variable based on the host and shell you are using, according to the table below.

<b>AIX</b>	
Bourne Shell	<pre>\$ LIBPATH=\$MYSQL_CLIENT_DIR:\$LIBPATH \$ export LIBPATH</pre>
C Shell	<pre>\$ setenv LIBPATH \$MYSQL_CLIENT_DIR:\$LIBPATH</pre>
<b>HP-UX</b>	
Bourne Shell	<pre>\$ SHLIB_PATH=\$MYSQL_CLIENT_DIR:\$SHLIB_PATH \$ export SHLIB_PATH</pre>
C Shell	<pre>\$ setenv SHLIB_PATH \$MYSQL_CLIENT_DIR:\$SHLIB_PATH</pre>

<b>Solaris and Solaris for x64</b>	
Bourne Shell	\$ LD_LIBRARY_PATH=\$MYSQL_CLIENT_DIR:\$LD_LIBRARY_PATH \$ export LD_LIBRARY_PATH
C Shell	\$ setenv LD_LIBRARY_PATH \$MYSQL_CLIENT_DIR:\$LD_LIBRARY_PATH
<b>Linux for Intel Architecture and Linux for Itanium-based Systems</b>	
Bourne Shell	\$ LD_LIBRARY_PATH=\$MYSQL_LIBDIR:\$LD_LIBRARY_PATH \$ export LD_LIBRARY_PATH
C Shell	\$ setenv LD_LIBRARY_PATH \$MYSQL_LIBDIR:\$LD_LIBRARY_PATH

- Once you have set up the environment variables you need to run the link command, as necessary, based on your operating system. This command will produce the file name libmysqlclient\_<os> in the directory that was set as the MYSQL\_CLIENT\_DIR. You must have write permissions to this directory. You can confirm that the link ran successfully by bringing up SAS and assigning a libname to MySQL. If you get the following error message then you will need to double-check your link command.

```
ERROR: The SAS/ACCESS Interface to MySQL cannot be loaded. The
libmysqlclient
        code appendage could not be loaded.
ERROR: Error in the LIBNAME statement.
```

### AIX

```
ld -berok -b64 -bM:SRE -bexpall -e _nostart
-o $MYSQL_CLIENT_DIR/libmysqlclient_aix $SASROOT/misc/dbi/obj/r64myl.o
-lpthread -L$MYSQL_LIBDIR -lmysqlclient -lm -lc
```

### Linux for Itanium-based Systems

A link is not required for Linux for Itanium-based Systems because it supports the MySQL dynamic library.

### Linux for Intel Architecture

A link is not required for Linux for Intel Architecture because it supports the MySQL dynamic library.

### HP-UX

```
ld -b -o $MYSQL_CLIENT_DIR/libmysqlclient_hp
$SASROOT/misc/dbi/obj/h64myl.o
-L$MYSQL_LIBDIR -lmysqlclient -lc -lm
```

### Solaris and Solaris for x64

You must include the location of the linker in the LD\_LIBRARY\_PATH environment variable (this is usually found in the libraries listed in the example, below):

Bourne Shell	\$ LD_LIBRARY_PATH=/usr/lib/???:/usr/ucblib/???:\$LD_LIBRARY_PATH \$ export LD_LIBRARY_PATH
C Shell	\$ setenv LD_LIBRARY_PATH /usr/lib/???:/usr/ucblib/???:\$LD_LIBRARY_PATH

The variable ??? should be filled based on the hardware your Solaris system is running on. If you are using a SPARC system, use sparcv9. If you are using Solaris for x64 on an Intel system, use 64. If you are using Solaris on x64 on an AMD system, use amd64.

Then use the link command:

(for Solaris)

```
ld -64 -G -o $MYSQL_CLIENT_DIR/libmysqlclient_sun
$SASROOT/misc/dbi/obj/s64myl.o -L$MYSQL_LIBDIR -lmysqlclient
```

(for Solaris on x64)

```
ld -64 -G -o $MYSQL_CLIENT_DIR/libmysqlclient_sax
$SASROOT/misc/dbi/obj/saxmyl.o -L$MYSQL_LIBDIR -lmysqlclient
```

## SAS/ACCESS Interface to Netezza Software

The Netezza ODBC drivers are ODBC API-compliant shared libraries, referred to in UNIX as shared objects. You must include the full path to the shared libraries in the shared library path as shown below so that the ODBC drivers can be loaded dynamically at run time.

Linux for Intel Architecture and Solaris	
Bourne Shell	\$ LD_LIBRARY_PATH=\$ODBCHOME/lib:\$LD_LIBRARY_PATH \$ export LD_LIBRARY_PATH
C Shell	\$ setenv LD_LIBRARY_PATH \$ODBCHOME/lib:\${LD_LIBRARY_PATH}
AIX	
Bourne Shell	\$ LIBPATH=\$ODBCHOME/lib:\$LIBPATH \$ export LIBPATH
C Shell	\$ setenv LIBPATH \$ODBCHOME/lib:\${LIBPATH}
HP-UX and HP-UX for the Itanium Processor Family Architecture	
Bourne Shell	\$ SHLIB_PATH=\$ODBCHOME/lib:\$SHLIB_PATH \$ export SHLIB_PATH
C Shell	\$ setenv SHLIB_PATH \$ODBCHOME/lib:\${SHLIB_PATH}

## Registering SAS/ACCESS Interface to Netezza

The following SAS procedure must be run so that the Access to Netezza product is registered with the SAS system catalog:

```
PROC NICKNAME CAT=sashelp.core engine;
add nickname=netezza module=sasionza desc="SAS/ACCESS to Netezza"
preferred eng;
quit;
```

## SAS/ACCESS Interface to ODBC Software

You may have to edit the `.odbc.ini` file in your home directory with a text editor to configure data sources. Some ODBC driver vendors may allow system administrators to maintain a centralized copy by setting the environment variable `ODBCINI`. Please refer to your ODBC driver's vendor documentation to find more specific information.

The ODBC drivers are ODBC API-compliant shared libraries, referred to in UNIX as shared objects. You must add the location of the shared libraries to one of the system environment variables so that ODBC drivers can be loaded dynamically at run time. You must also set the

ODBCHOME environment variable to your ODBC home directory before setting the environment variables as shown in the examples.

<b>Tru64 UNIX and Linux for Intel Architecture</b>	
Bourne Shell	\$ LD_LIBRARY_PATH=\$ODBCHOME/lib:\$LD_LIBRARY_PATH \$ export LD_LIBRARY_PATH
C Shell	\$ setenv LD_LIBRARY_PATH \$ODBCHOME/lib:\$LD_LIBRARY_PATH
<b>Solaris and Solaris for x64</b>	
Bourne Shell	\$ LD_LIBRARY_PATH=\$ODBCHOME/lib:\$LD_LIBRARY_PATH \$ export LD_LIBRARY_PATH
C Shell	\$ setenv LD_LIBRARY_PATH \$ODBCHOME/lib:\${LD_LIBRARY_PATH}
<b>AIX</b>	
Bourne Shell	\$ LIBPATH=\$ODBCHOME/lib:\$LIBPATH \$ export LIBPATH
C Shell	\$ setenv LIBPATH \$ODBCHOME/lib:\${LIBPATH}
<b>HP-UX and HP-UX for the Itanium Processor Family Architecture</b>	
Bourne Shell	\$ SHLIB_PATH=\$ODBCHOME/lib:\$SHLIB_PATH \$ export SHLIB_PATH
C Shell	\$ setenv SHLIB_PATH \$ODBCHOME/lib:\${SHLIB_PATH}

### SAS/ACCESS Interface to Oracle Software

In order to use SAS/ACCESS Interface to Oracle software, you must set the ORACLE\_HOME environment variable. In addition, you must make sure that the shared library path variable (the name of this variable is operating system dependent) points to where the Oracle shared libraries are located. This is required since the SAS/ACCESS Interface to Oracle executable uses Oracle shared libraries and needs to know where they are located at your site.

The following are examples for the various operating systems:

<b>AIX</b>	
Bourne Shell	\$ LIBPATH=\$ORACLE_HOME/lib:\$LIBPATH \$ export LIBPATH
C Shell	\$ setenv LIBPATH=\$ORACLE_HOME/lib:\$LIBPATH
<b>HP-UX and HP-UX for the Itanium Processor Family Architecture</b>	
Bourne Shell	\$ SHLIB_PATH=\$ORACLE_HOME/lib:\$SHLIB_PATH \$ export SHLIB_PATH
C Shell	\$ setenv SHLIB_PATH \$ORACLE_HOME/lib:\$SHLIB_PATH
<b>Linux for Intel Architecture, Linux for Itanium-based Systems, Solaris, Solaris for x64, and Tru64 UNIX</b>	
Bourne Shell	\$ LD_LIBRARY_PATH=\$ORACLE_HOME/lib:\$LD_LIBRARY_PATH \$ export LD_LIBRARY_PATH
C Shell	\$ setenv LD_LIBRARY_PATH \$ORACLE_HOME/lib:\$LD_LIBRARY_PATH

## SAS/ACCESS Interface to PC Files Software

SAS/ACCESS Interface to PC Files requires that PC File Server be installed on a Windows client. PC File Server is available from the SAS Client-side Components media. The media contains installation instructions for the PC File Server client, as well as links to configuration information.

## SAS/ACCESS Interface to PeopleSoft Software

SAS/ACCESS Interface to PeopleSoft software requires that a `libname` statement be executed before running it. This `libname` statement produces a `libref` to the database where the PeopleSoft data resides.

Following is an example of the `libname` statement:

```
libname psdb oracle user=userid pass=pass
      path='dbpath' ;
```

## SAS/ACCESS Interface to R/3 Software

SAS/ACCESS Interface to R/3 software requires extensive installation setup before it can be used. Refer to the *Installation Instructions for SAS/ACCESS 4.2 Interface to R/3* included in your SAS software order for detailed installation instructions and configuration information.

## SAS/ACCESS Interface to SAP BW Software

SAS/ACCESS Interface to SAP BW software requires extensive installation setup before it can be used. Refer to the *Installation Instructions for SAS/ACCESS 9.1.3 Interface to SAP BW* included in your SAS software order for detailed installation instructions and configuration information.

## SAS/ACCESS Interface to Sybase Software

### Installing Sybase Procedure

In SAS 9.1.3, the administrator or user must install a Sybase-stored procedure on the target Sybase server. Two files have been included in the `!SASROOT/misc/dbi` directory to assist in the installation:

- `sas-spcp.txt` is a text file containing instructions on how to do the installation.
- `sas-spdf.txt` is the actual stored procedure script.

The process utilizes two Sybase facilities, `defncopy` and `isql`.

### Configuring SAS and the Sybase Open Client

AIX users must complete the following steps in order to configure SAS 9.1.3 to work with the Sybase Open Client 12.5.x on AIX 5.x.

**Note:** Ensure the `SYBASE` environment variable is defined. If it is not defined, the `makefile` will fail. For example,

```
export SYBASE=/usr/local/sybase/1252
```

**Note:** You should replace `!SASROOT` in these instructions with the actual directory path where SAS was installed.

1. Change to the directory `!SASROOT/sasexe` using the following command:

```
cd !SASROOT/sasexe
```

2. Use the following command to change permissions of the executable "syr64125"

```
chmod +w syr64125
```

3. Use the following command to remove the symbolic link "sassyb"

```
rm sassyb
```

4. Change to the directory `!SASROOT/misc/dbi/` using the following command:

```
cd !SASROOT/misc/dbi/
```

5. Restore the `!SASROOT/misc/dbi/sassyb.tar` file:

```
tar -xvf sassyb.tar
```

After the files have been extracted, the `!SASROOT/misc/dbi/sassyb_obj/` directory structure containing libraries and object files for linking will be created

6. Run the makefile to build the image "syr64125" in `!SASROOT/sasexe`:

```
make -f sassyb.mak
```

This will create "syr64125" image in `!SASROOT/sasexe` as well as a copy named "sassyb" which points to the "syr64125" image.

7. After executing the makefile link, you may encounter the following error:

```
ld: 0706-006 Cannot find or open library file: -l m_r Ld: open(): A
file or directory in the path name does not exist. Make: 1254-004
The errorcode from the last command is 255.
```

To resolve this problem, have your System Administrator install the "Application Development Toolkit" and then perform the SAS/ACCESS link again.

## Adding Shared Libraries

Finally, the SAS/ACCESS Interface to Sybase executable uses shared libraries, referred to in UNIX as shared objects. You must add the location of the shared libraries to one of the system environment variables and, if necessary, indicate the Sybase version that you have installed at your site. You must also set the `Sybase` environment variable to your Sybase home directory before setting the environment variables as shown in the examples.

AIX	
Bourne Shell	<code>\$ LIBPATH=\$SYBASE/lib:\$LIBPATH</code> <code>\$ export LIBPATH</code>
C Shell	<code>\$ setenv LIBPATH \$SYBASE/lib:\$LIBPATH</code>
HP-UX and HP-UX for the Itanium Processor Family	
Bourne Shell	<code>\$ SHLIB_PATH=\$SYBASE/lib:/lib:\$SHLIB_PATH</code> <code>\$ export SHLIB_PATH</code>
C Shell	<code>\$ setenv SHLIB_PATH \$SYBASE/lib:/lib:\$SHLIB_PATH</code>

<b>Tru64 UNIX, Linux for Intel Architecture, Linux for Itanium-based Systems, Solaris, and Solaris for x64</b>	
Bourne Shell	\$ LD_LIBRARY_PATH=\$SYBASE/lib:/lib:\$LD_LIBRARY_PATH \$ export LD_LIBRARY_PATH
C Shell	\$ setenv LD_LIBRARY_PATH \$SYBASE/lib:/lib:\$LD_LIBRARY_PATH

## SAS/ACCESS Interface to Teradata Software

### Access to Shared Libraries

The SAS/ACCESS Interface to Teradata executable uses shared libraries, referred to in UNIX as shared objects. These shared objects typically reside in /usr/lib. You must add the location of the shared libraries to one of the system environment variables.

<b>AIX</b>	
Bourne Shell	\$ LIBPATH=TERADATA-CLIENT-LOCATION:\$LIBPATH \$ export LIBPATH
C Shell	\$ setenv LIBPATH TERADATA-CLIENT-LOCATION:\$LIBPATH
<b>HP-UX</b>	
Bourne Shell	\$ SHLIB_PATH=TERADATA-CLIENT-LOCATION:\$SHLIB_PATH \$ export SHLIB_PATH
C Shell	\$ setenv SHLIB_PATH TERADATA-CLIENT-LOCATION:\$SHLIB_PATH
<b>HP-UX for the Itanium Processor Family</b>	
Bourne Shell	\$ SHLIB_PATH=TERADATA-CLIENT-LOCATION:\$SHLIB_PATH \$ export SHLIB_PATH \$ LD_PRELOAD=/usr/lib/hpux64/libpthread.so.1 \$ export LD_PRELOAD
C Shell	\$ setenv SHLIB_PATH TERADATA-CLIENT-LOCATION:\$SHLIB_PATH \$ setenv LD_PRELOAD /usr/lib/hpux64/libpthread.so.1
<b>Linux for Intel Architecture, Solaris, Solaris for x64</b>	
Bourne Shell	\$ LD_LIBRARY_PATH=TERADATA-CLIENT-LOCATION:\$LD_LIBRARY_PATH \$ export LD_LIBRARY_PATH
C Shell	\$ setenv LD_LIBRARY_PATH TERADATA-CLIENT-LOCATION:\$LD_LIBRARY_PATH

### Linking Teradata Libraries on AIX

AIX users must run a makefile script to complete the installation of SAS/ACCESS Interface to Teradata. This makefile statically links in the Teradata CLI client libraries, and creates the "sastra" image, which is also part of SAS/ACCESS Interface to Teradata. To link the Teradata CLI client libraries, use the following steps.

1. Make the !SASROOT/misc/dbi directory the current directory.
2. Execute make -f sastra.mak. This creates the "sastra" image in the !SASROOT/sasexe directory.

3. After executing the makefile link, you may encounter the following error:

```
ld: 0706-006 Cannot find or open library file: -l m_r Ld: open(): A
file or directory in the path name does not exist. Make: 1254-004
The errorcode from the last command is 255.
```

To resolve this problem, have your Systems Administrator install the "Application Development Toolkit" and then perform the SAS/ACCESS link again.

## Registering SAS/ACCESS Interface to Teradata on Solaris for x64 and Linux for Intel Architecture

The following SAS procedure must be run so that the Access to Teradata product is registered with the SAS system catalog:

```
PROC NICKNAME CAT=sashelp.core engine;
add nickname=teradata module=sasiotra desc="SAS/ACCESS to Teradata"
preferred eng;
quit;
```

## FastExporting

For optimal reads of large tables, SAS/ACCESS can perform FastExporting. To perform FastExporting, the Teradata FastExport Utility must be present on the system where you install SAS.

As needed, modify your library path environment variable to include the directory containing `sasaxsm.sl` (HP-UX) or `sasaxsm.so` (Linux, Solaris, and AIX). These shared objects are delivered in the `$SASROOT/sasexe` directory. You may copy these modules where you wish, but ensure that the directory you copy them into is in the appropriate shared library path environment variable.

On Solaris, Solaris for x64, and Linux, the library path variable is `LD_LIBRARY_PATH`. On HP-UX, it is `SHLIB_PATH`. On AIX, it is `LIBPATH`. Also, make sure that the Teradata FastExport utility, `fexp`, has its directory included in the `PATH` environment variable. This utility is usually installed in the `/usr/bin` directory.

The FastExport Utility is not required; SAS/ACCESS reads large tables quite efficiently without it. For further information, see the `DBSLICEPARM` option in your SAS/ACCESS to Teradata documentation. Contact NCR if you want to obtain the Teradata FastExport Utility.

## MultiLoad

SAS/ACCESS can interface with MultiLoad for loading large volumes of data. To perform MultiLoading, the Teradata MultiLoad Utility must be present on the system where you install SAS.

As needed, modify your library path environment variable to include the directory containing the shared objects `sasmlam.sl` and `sasmlne.sl` (HP-UX) or `sasmlam.so` and `sasmlne.so` (Linux, Solaris, HP-UX for the Itanium Processor Family and AIX). These shared objects are delivered in the `$SASROOT/sasexe` directory. You may copy these modules where you wish, but ensure that the directory you copy them into is in the appropriate shared library path environment variable. On Solaris and Linux, the library path variable is `LD_LIBRARY_PATH`. On HP-UX and HP-UX for the Itanium Processor Family, it is `SHLIB_PATH`. On AIX, it is `LIBPATH`. Also, make sure that the Teradata MultiLoad utility, `mload`, has its directory included in the `PATH` environment variable. This utility is usually installed in the `/usr/bin` directory.

The MultiLoad Utility is not required; SAS/ACCESS provides other options for loading tables. For further information, see the `MULTISTMT` option in your SAS/ACCESS Interface to Teradata documentation. Contact NCR if you want to obtain the Teradata MultiLoad Utility.



## Chapter 4 – Post-Installation Configuration for SAS/ASSIST Software

This chapter describes how to add a master profile to SAS/ASSIST software. You can use a master profile to override the default SAS settings. 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 the *SAS/ASSIST Software System 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 to which all users of SAS/ASSIST software will have read access.

All users with write access to this directory will automatically have write access to the master profile in SAS/ASSIST software. Select a name that conforms to the naming conventions of 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 pathname in the SASHELP.QASSIST catalog. Save it as SASHELP.QASSIST.PARMS.SOURCE. The location of the master profile will now be 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, then  
Profiles, and then  
Master/group ...
```

If you have write access to the SAS library containing the master profile, you can specify default values. New users will use these default values when 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 Block Menu 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 the *SAS/ASSIST Software System 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 status.

Select Setup...Master/Group

then Tools...Create Group Profile.

To add users to a group profile, select Tools...Update User Group.

By default, the userid is found in the macro variable &SYSJOBID. This value is set in the option Userid in the master profile (option type System Administration). Change the value if your site uses another variable to keep the userid. If the value name starts with &, it is a macro variable; otherwise, it is an environment variable, which is set before the start of SAS 9.1.3.

## Chapter 5 – Post-Installation Configuration for SAS/CONNECT Software

TCP/IP is the access method supported for UNIX environments and their derivatives. Refer to the publication *Communications Access Methods for SAS/CONNECT and SAS/SHARE Software* for information on the access methods supported by other systems. This document can be found at <http://support.sas.com/documentation/onlinedoc>.

### **Storing and Locating SAS/CONNECT Script Files**

SAS/CONNECT software ships several sample script files that are used 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.

The script files are installed into the `!SASROOT/misc/connect` directory by default. The following line has been included in the `sasv9.cfg` file in order to define the default script file location:

```
-SASSCRIPT !SASROOT/misc/connect
```

If you want to move the script files to another directory, you must edit the `sasv9.cfg` file and update the `SASSCRIPT` option with the new directory location.



## Chapter 6 – Post-Installation Configuration for Enterprise Miner Software

These instructions cover post-installation steps for Enterprise Miner 4.3. For post-installation setup of Enterprise Miner 5.1 or Enterprise Miner 5.2, refer to the “Preparing Enterprise Miner for Use” chapter of the *SAS Intelligence Platform: Administration Guide*.

### **Installing Enterprise Miner Server software**

If you licensed Enterprise Miner software and have completed the installation, you have installed the server components of Enterprise Miner software (referred to as the *Enterprise Miner server*).

The SAS Enterprise Miner Server software is invoked from the Enterprise Miner Client via SAS/CONNECT. For more information about running Enterprise Miner, refer to *Getting Started with the Enterprise Miner Software, Release 4.3*, and *Enterprise Miner Software: Changes and Enhancements, Release 4.3*.

**Note:** Enterprise Miner requires that you configure SAS 9.1.3 Foundation for SAS/CONNECT. For this reason, please ensure that you have reviewed and completed the steps in the chapter “**Error! Reference source not found.**” on page **Error! Bookmark not defined.**

### **Configuring Enterprise Miner Server Software**

#### **Setup Default Data Library**

Create a data library on the server to which Enterprise Miner Client Software users have read/write access. This library should be a different folder than the SASROOT location, and ideally, on a different disk. To create the data library, make or designate a folder on an available disk and set appropriate permissions and ownership to allow remote users read and write access.

#### **Provide Information to Configure Enterprise Miner Client Software**

Provide the following information to users of Enterprise Miner Client Software to complete the configuration steps necessary for Enterprise Miner Client Software.

- machine name and IP address of the server
- how to invoke SAS 9.1.3 Foundation with SAS/CONNECT
- how to access the default remote data library

**Note:** Do not specify a UNC pathname.

### **Invoking Enterprise Miner 4.3 Client software**

After it is properly installed, Enterprise Miner Client software is invoked from SAS 9.1.3 under Windows. Once SAS 9.1.3 under Windows has been launched, you can invoke Enterprise Miner in the following ways:

- Pull down the **Solutions** menu from the menu bar, then select the **Analysis** item, and then select **Enterprise Miner**.
- Type *miner* in the SAS command bar.

## Configuring Enterprise Miner Client Software for Client-Server Projects

To configure Enterprise Miner Client software for client-server projects, please refer to the section “Creating a Client-Server Project” in *Getting Started with Enterprise Miner 4.3*.

For more information about running Enterprise Miner, please refer to *Getting Started with Enterprise Miner 4.3*, and *Enterprise Miner 4.3: Changes and Enhancements*.

## SAS Standalone Formats for Enterprise Miner C\*Score

Enterprise Miner C\*Score software requires Standalone formats that are found on the **SAS Client-Side Components** CD, which is included with your SAS Software distribution. When modeling data that contains SAS System formats, the data step score code uses those formats in the process of normalizing data for comparisons. As a result, the scoring code produced from such data step code will contain calls to these formats.

The SAS System formats are supported in the Enterprise Miner C\*Score generated ‘C’ code by use of the SAS Standalone Formats libraries. Follow these instructions to install the SAS Standalone Formats on the platform where you will be running your ‘C’ scoring code:

1. Locate the **SAS Client-Side Components** CD that is included in your SAS Software package. Mount the CD according to the platform-specific instructions that are provided on the inside cover.
2. In a browser, view the `index.html` page that is located in the root directory of your CD.
3. From the `index.html` page, select the link **SAS Standalone Formats for Enterprise Miner C\*Score**.
4. Select the platform where you are running your ‘C’ scoring code; follow the associated instructions to install the SAS Standalone Formats on that platform.

## Chapter 7 – Post-Installation Configuration for SAS Integration Technologies Software

If you received SAS Integration Technologies software and have completed the installation of SAS 9.1.3, you have successfully installed the SAS server components of SAS Integration Technologies software. The **SAS Client-Side Components** CDs that are included in your SAS software order contain SAS Integration Technologies client components and documentation for SAS Integration Technologies software.

### ***User Authentication***

You are required to complete the steps from the section “Configuring User Authentication” in the *Installation Instructions*. This allows SAS Integration Technologies software to authenticate a client’s identity and check a client’s authority to access resources.



## Chapter 8 – Post-Installation Configuration for SAS/IntrNet Software

### *Installing SAS/IntrNet Web Server or Client Components*

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

1. Locate the **SAS Client-Side Components** CDs that are included in your SAS software order and mount the appropriate CD according to the platform-specific instructions that are provided on the cover letter.
2. In a Web browser, view the `index.html` page that is located in the root directory of your CD.
3. From the index page, select the `SAS/IntrNet Software` link to go to the SAS/IntrNet home page.
4. From the SAS/IntrNet home page, select the `Install` icon and follow the instructions that are provided.



## Chapter 9 – Installing SAS IT Resource Management

Please note that SAS IT Resource Management now ships with both the 2.7 and 3.1.1 versions for some UNIX platforms. If you are installing on Linux for Intel Architecture or Tru64 UNIX **or** if you are installing SAS IT Resource Management 2.7 on AIX, Solaris, HP-UX, or HP-UX for the Itanium Processor Family, you should follow the procedures in the “Installing SAS IT Resource Management 2.7” section below to complete your installation. If you are installing SAS IT Resource Management 3.1.1 on AIX, Solaris, HP-UX, or HP-UX for the Itanium Processor Family, you should follow the procedures in the “Configuring SAS IT Resource Management 3.1.1” section on page 32 to complete your installation.

### **SAS IT Resource Management Functionality**

SAS IT Resource Management is a data management and presentation software package used to access, manage, integrate, aggregate, and analyze large quantities of performance data about many IT resources, such as hardware, operating system software, networks, Web servers, databases, and applications. This IT performance data is generated by the logging mechanisms that are inherent to IT resources or that are created by the Enterprise Systems Management tools that are employed to manage the IT infrastructure.

SAS IT Resource Management 2.7 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. SAS IT Resource Management 3.1.1 has server components and uses IT Resource Management enhanced SAS 9 client components as the user interface to the solution.

SAS IT Resource Management Server runs on Microsoft Windows NT Server, z/OS, and selected UNIX operating systems.

SAS IT Resource Management Client runs on Microsoft Windows platforms supported by SAS 9.1.3.

**Note:** *SAS IT Resource Management was formerly known as IT Service Vision. Some documentation and references may still use the former name.*

### **Installing SAS IT Resource Management 2.7**

#### **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 30.

If you have an existing SAS IT Resource Management installation and want to migrate from SAS 8 to SAS 9, refer to the conversion information in the directory `!SASROOT/saspgm/cpe/itsvdocs/convert89.htm` and at [www.sas.com/itsvconv](http://www.sas.com/itsvconv).

## Installation Customizations

SAS IT Resource Management Solution will be installed in the !SASROOT folder. If you wish to see any additional SAS System components present on your media, select Load Selected Software from Media.

## Configuring the SAS System for SAS IT Resource Management

Verify that X resource SAS.dmsContrastCheck is set to True to assure that SAS IT Resource Management message windows have the appropriate contrast between text and background, regardless of your personal settings for background and foreground colors.

## Starting SAS IT Resource Management

To start SAS IT Resource Management from the UNIX command line, issue the command `sasitrm`, which is located in the !SASROOT directory. If SAS was installed in `/usr/local/SAS_9.1`, then the command to issue would be `/usr/local/SAS_9.1/bin/sasitrm`.

To start SAS IT Resource Management from within the SAS System, issue the `itrm` command. You can enter the `itrm` 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 SAS IT Resource Management from within SAS by submitting this statement via the Program Editor:

```
%CPSTART( );
```

## SAS IT Resource Management Documentation

For the latest documentation information about SAS IT Resource Management 2.7, please look at the SAS IT Resource Management Documentation page, <http://support.sas.com/itrm>.

For more information on running and configuring SAS IT Resource Management, *Getting Started with SAS IT Resource Management 2* linked to from the above Web page.

Online documentation is also available from within SAS and SAS IT Resource Management. From SAS, select **Help**→**SAS System Help**→**Help on SAS software Products**→**SAS IT Resource Management**.

From the SAS IT Resource Management user interface, select **OnlineHelp**→**SAS IT Resource Management Help**.

Select **OnlineHelp**→**Other ITRM Documentation** for the following documents:

- Collector Updates
- Link to SAS IT Resource Management on the Web
- Server Setup Guide
- QuickStart
- Migration - Also directly available with a Web browser from `!SASROOT/saspgm/cpe/itsvdocs/convert89.htm` and at <http://www.sas.com/itsvconv>

## Site Library Considerations

### ***First Time Installations***

If you are installing SAS IT Resource Management 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/saspgm/cpe/sitelib` during the default production installation of SAS IT Resource Management.

Wherever you choose to locate `SITELIB`, you must have write access to it, and all other SAS IT Resource Management software users must have read access. If you choose to re-locate `SITELIB`, follow the instructions in the section "Modifying the default pointer to `SITELIB` library" below.

### ***Upgrading Existing Installations***

If this is not your first installation of SAS IT Resource Management, 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 SAS IT Resource Management previously, a directory containing default values was created in `!SASROOT/saspgm/cpe/sitelib`. Since then, you may have created another `SITELIB` library and re-programmed SAS IT Resource Management 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 SAS IT Resource Management 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 SAS IT Resource Management 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 SAS IT Resource Management, you now need to consider the maintenance of the `SITELIB` library. In the `MISC` 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 SAS IT Resource Management Installations***

**Note:** *The following section is relevant when this is not a first installation of SAS IT Resource Management.*

When a new version or release of SAS IT Resource Management 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/misc/cpe` 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 SAS IT Resource Management, 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 SAS IT Resource Management.

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 SAS IT Resource Management. 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 default pointer to 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 SAS IT Resource Management Macro Reference.

### **Modifying the Default Pointer to SITELIB Library**

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

When SAS IT Resource Management 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/saspgm/cpe/pgmlib';
DATA PGMLIB.CPSITE;
CPSITE="name.of.new-or-updated.SITELIB";
RUN;
```

## **Configuring SAS IT Resource Management 3.1.1**

**Important:** With the availability of the 311IS04 hotfix, it is important to read that hotfix's installation instructions in combination with these instructions. The method by which SAS IT Resource Management metadata is deployed to the SAS Metadata Server has changed. In summary, if you have an empty ITMS repository and have not deployed any metadata, you will be instructed to execute the `deployITRM_zos.sh` script with `DACTION=initialize`. If you happen to have deployed at least some metadata or you have an existing ITMS repository, you will be instructed to execute the same script with `DACTION=hotfix` to migrate it.

In order for the newly installed IT Resource Management 3.1.1 software to function properly there are manual, post-install configuration steps that must be completed. This document addresses required modifications for server-, client- and mid-tier installations. If you are planning on using SAS IT Resource Management 2.7, you should NOT perform these modifications.

## Integration with Other SAS IT Management Solutions

SAS IT Resource Management 2.7 is the pre-requisite release for SAS IT Service Level Management and SAS IT Charge Management. Future releases of IT Service Level Management and SAS IT Charge Management will include enhancements necessary for compatibility with SAS IT Resource Management 3.1.1. SAS IT Resource Management Documentation

For the latest documentation information about SAS IT Resource Management 3.1.1, please look at the SAS IT Resource Management Documentation page, <http://support.sas.com/itrm>, specifically the *Introduction to SAS IT Resource Management 3.1.1* that introduces the concepts and facilities of release 3.1.1.

## Server Tier Modifications

*Please note that the following modifications are being made to existing files in your installation. We recommend that you make a backup copy of any file referenced prior to editing its content.*

### Migration Considerations

To migrate your SAS IT Resource Management 2.7 PDB to a SAS IT Resource Management 3.1.1 IT data mart, follow the instructions provided in *SAS IT Resource Management 3.1.1: Migration Documentation* available from <http://support.sas.com/itrm>. If you have not already done so, it is recommended that you apply the latest hot fix available for SAS IT Resource Management 2.7.

### SAS Configuration File

SAS recommends that the following changes be made to the local SAS configuration file (`sasv9_local.cfg`, typically located in `!SASROOT`). In order for these modifications to continue to be available after future Service Packs are applied it is recommend that you modify this local SAS configuration file instead of the main SAS configuration file (`sasv9.cfg`). If the specified option does not already exist in your `sasv9_local.cfg` file you will need to add it, otherwise you should just modify it to contain the following.

- `jreoptions`  
At the beginning of the list of options (immediately *after* the opening parenthesis), add the following: `-Xmx256m -Xms256m -DentityExpansionLimit=10000000` (Note that the preceding number is 10 million, 1 followed by 7 zeros)

Insert the following at the start of the `sas.app.class.dirs` directive:  
`"!SASROOT\itmsmvadata\sasmisc;"`

To the end, add the following directive *before* the closing parenthesis:  
`-Dsas.javaobj.experimental=no`

When you have completed the updates to your `jreoptions` option, it should appear similar to:

```
-jreoptions (-Xms256m -Xmx256m -DentityExpansionLimit=10000000
             -Dsas.app.class.dirs=!SASROOT/misc/itmsmvadata:
             !SASROOT/misc/base:!SASROOT/misc/applets
             -Dsas.javaobj.experimental=no)
```

- **Format catalog search order**  
To the end of the config file, and on a line of its own, add the following option:  
`-FMTSEARCH=(ADMIN.ITMS SASHELP.ITMS_FORMATS WORK LIBRARY)`

If you have Merrill's Expanded Guide to CPE (MXG) installed, you must also make the following changes to the MXG environment variables:

- Add the following two lines to your configuration file *after* the FMTSEARCH option:

```
-SET MXGSRC '<custom> <sourclib>'
-SET MXGFMT '<formatlib>'
```

Where *<custom>* is the path to your MXG custom source library, sometimes referred to as MXG.USERID.SOURCLIB, without quotes; *<sourclib>* is the path to your MXG source library, sometimes referred to as MXG.MXG.SOURCLIB, without quotes; and *<formatlib>* is the path to your MXG format library, sometimes referred to as MXG.MXG.FORMATS, without quotes. For example:

```
-SET MXGSRC '/users/myid/custom/sourclib /usr/mxg/sourclib'
-SET MXGFMT '/usr/mxg/formats'
```

- You must also complete the MXG modification to the `autoexec.sas` file used by your Workspace Server. This modification is specified in the next section.

### SAS Autoexec File

If your installation requires interaction with MXG, then you must also modify the `autoexec.sas` file used by your Workspace Server. This file is called `appserver_autoexec.sas` and is typically located in `<SAS Install Directory>/SAS/<project-directory>/Levl/SASMain`.

Add the following line to the end of the file:

```
%RMMXGINI ;
```

You should have also completed the associated MXG modification to the SAS configuration file specified in the previous section.

### Update Default Authorizations

During job execution, SAS IT Resource Management 3.1.1 creates information maps. In order to successfully accomplish this task, you should modify the Default Access Template for the SAS Metadata Repository (SMR) user(s) or group(s) that will be creating and submitting jobs for SAS IT Resource Management 3.1.1. The following steps describe how to make this change.

#### Create IT Resource Management User(s) or Group(s)

**Note:** *User(s) or group(s) should ONLY be created in the Foundation repository. Do NOT create user(s) or group(s) in the ITMS repository.*

1. Launch the SAS Management Console and ensure that you are connected to the Foundation repository of your metadata server.
2. The instructions in this step refer to an "ITRM Users" group. This is a group defined in the Foundation SMR that simplifies the management of authorizations for many users and/or groups. Modifications to the Default Authorizations are applied to all of the users and groups that are members of "ITRM Users". If you would prefer to have your SMR Users organized in a group like this, so that permissions can be managed and modified for a single entity, you can create a group as follows:
  - a. Select **User Manager**.
  - b. Right-click and select **New**→**Group** from the pop-up dialog.
  - c. On the **General** tab, supply a unique name such as `ITRM Users`.

- d. On the **Members** tab, select the users who will be part of this group, and use the right arrow widget between the two panes to add them to the group.
- e. Click **OK** to save the group.

### Update Default Authorizations for User(s) and Group(s)

**Note:** Ensure that the following steps have been performed in *BOTH* the Foundation and the ITMS repositories.

1. If the SAS Management Console is not still available from the previous step, start it and ensure that you are connected to the Foundation repository of your metadata server.
2. Select the Authorization Manager and expand the Access Control Templates item.
3. Select **Default ACT**.
4. Right-click and select **Properties** from the resulting pop-up dialog.
5. Select the **Users and Permissions** tab.
6. If the list of available names does not include the user or group whose Default ACT is to be modified, follow these steps to add it:
  - a. Click **Add...**
  - b. For each user or group that you want to add to the Selected Identities, select the item in the list of Available Identities and then use the right arrow between the panes to add the item to the Selected Identities. It is here that you should select the "ITRM Users" group if it was created in the previous section.
  - c. Click **OK**.
7. Set the following permissions for each Identity that you wish to update (and also ensure that none have **Deny** selected on the Authorization tab): ReadMetadata, WriteMetadata, Read, and Delete.
8. After all necessary items have been modified, click **OK**.
9. Using the SAS Management Console, connect to the ITMS repository of your metadata server and repeat steps 2-8.

### Server Tier Hot Fixes

Refer to SAS Note 30753 (located at <http://support.sas.com/kb/30/753.html>) which lists a series of Server-Tier hot fixes and installation actions required for SAS IT Resource Management to function properly.

### Client-Tier Modifications

#### *Tuning the SAS Data Integration Studio Invocation*

In order for the SAS IT Resource Management 3.1.1 client software to function properly, you need to modify the options that are passed to the Java Virtual Machine (JVM) when SAS Data Integration Studio is started.

The file to modify is `<SAS Home Directory>\SASETLStudio\9.1\etlstudio.ini`. Before you continue, please create **a backup copy** of this file. Edit the original file by adding the following options to the beginning of the list immediately following `CommandLineArgs= :`

```
-Xmx1024m -Xms128m -Xss1m
```

After you complete the updates, your `etlstudio.ini` `CommandLineArgs=` line should appear similar to the following:

```
CommandLineArgs=-Xmx1024m -Xms128m -Xss1m
-Djava.system.class.loader=com.sas.app.AppClassLoader
-Djava.security.auth.login.config=security/login.config
-Djava.security.policy=security/auth.policy
-Dsas.app.class.dirs="C:\Program Files\SAS\SASETLStudio\9.1"
-Dsas.app.class.path=sas.dbuilder.app.jar;.
-Dsas.ext.config=sas.java.ext.config -cp sas.launcher.jar
com.sas.wadmin.application.TheAppWA
```

### **Client-Tier Hot Fixes**

You should apply all the SAS Data Integration Studio, SAS Enterprise Guide, and SAS Information Map Studio hot fixes currently available from SAS Technical Support. The hot fixes and the instructions for applying them can be found at the Technical Support Hot Fixes Web page, located at [http://ftp.sas.com/techsup/download/hotfix/op\\_home.html](http://ftp.sas.com/techsup/download/hotfix/op_home.html).

## **Mid-Tier Modifications**

### **Configure SAS Web Report Studio for use with SAS IT Resource Management 3.1.1**

A unique instance of SAS Web Report Studio configured for use with the ITMS dependent repository is required for use with SAS IT Resource Management 3.1.1. The configuration changes that are required for SAS IT Resource Management should be made after SAS Web Report Studio has been installed and a default configuration has been completed. If you have not already installed and configured SAS Web Report Studio, please stop and return to this document after completing that task. In addition, before you continue, please ensure that your SAS Metadata Server is running.

#### **Create a new subdirectory off the top-level in WebDAV**

1. Access the xythosadmin GUI (`http://<nodename.domain.com>:<port>/xythosadmin`) using the Administrator userid and password.
2. Select **File System** then click **Find Top-Level Directory**.
3. Select **sasdav** and then click **Add New Sub-Directory**.
4. For the name, specify *ITMS* and change the Quota to *Unlimited*.
5. Click **Create Directory**. You should now see *ITMS* as a subdirectory of *sasdav*.
6. Click on the **Permissions** icon to set user permissions.
7. Click **Search for Users and Groups**, type *administrator* in the Contains field, and select **OK**.
8. Select **SAS Web Administrator** and then **OK**.
9. For the row corresponding to SAS Web Administrator, set all permissions to *Yes*.
10. Save your changes.

The following three steps require interaction with the SAS Metadata Server. To facilitate this, launch the SAS Management Console on your Mid-Tier Server.

#### **Add /sasdav/ITMS as an available base path**

1. Confirm that the Foundation repository is the current, active repository.
2. Expand Server Manager.

3. Select **HTTP DAV Server**.
4. Right-click and then select **Properties** from the resulting popup dialog.
5. Select the **Options** tab and then click the **New...** button. Supply `/sasdav/ITMS` as the Base Path. Be sure to select the **Supports WebDAV** checkbox. Click **OK**.
6. Click **OK**.

### ***Add the ITMS Repository to Information Services for SAS Web Report Studio***

In order for SAS Web Report Studio to find content in a repository other than Foundation, you must add the ITMS repository, which is a dependent repository, to the Platform Information Service within Query and Reporting services.

1. On the mid-tier server, launch the SAS Management Console and connect to the Foundation repository on the Data Server as the administrative unrestricted user (`sasadm`, for example).
2. Expand the Foundation Services Manager.
3. Expand Query and Reporting.
4. Expand BIP Core Services.
5. Select **Platform Information Service** to highlight it and then select **File > Properties** from the pull down menu.
6. Select the **Service Configuration** tab.
7. Select the **Edit Configuration...** button.
8. Select the **Repositories** tab.
9. Select **New...** to add the ITMS repository.
10. Supply the following information:
  - Protocol: `omi`
  - Name: `ITMS`
  - Description: <optional, enter your description here>
  - Host: Fully qualified nodename hosting the SAS Metadata Server containing the ITMS repository (ex. `nodename.domain.company.com`)
  - Port: The port the SAS Metadata Server is listening on (default: `8561`)
  - Domain: The authentication domain for the SAS Metadata Server connection (default: `DefaultAuth`)
  - Base: `ITMS`
  - Proxy: No value needed by default
  - **Auto-Connect** checkbox: Selected
  - **Secure** checkbox: By default not selected, only select if encryption is supported and the connection to the repository will be made using a secure protocol.
 Select **OK**.
11. Select **OK** twice to save changes.

### ***Add the ITMS Repository to Information Services for the SAS Information Delivery Portal***

In order for the SAS Information Delivery Portal to find content in a repository other than Foundation, you must add the ITMS repository, which is a dependent repository, to the BIP Information Service. This must be done for both the BIP Local Service OMR service in the ID Portal Local Services item and the BIP Remote Services OMR service in the Remote Services item.

1. On the mid-tier server, launch the SAS Management Console and connect to the Foundation repository on the data server as the administrative unrestricted user (`sasadm`, for example).
2. Expand the Foundation Services Manager.
3. Expand ID Portal Local Services.

4. Expand BIP Local Services OMR.
5. Select **BIP Information Service** to highlight it and then select **File**→**Properties** from the pull down menu.
6. Select the **Service Configuration** tab.
7. Select the **Edit Configuration** button.
8. Select the **Repositories** tab.
9. Select **New** to add the ITMS repository.
10. Supply the following information:
  - Protocol: omi
  - Name: ITMS
  - Description: <optional, enter your description here>
  - Host: Fully qualified nodename hosting the SAS Metadata Server containing the ITMS repository (ex. nodename.domain.company.com)
  - Port: The port the SAS Metadata Server is listening on (default: 8561)
  - Domain: The authentication domain for the SAS Metadata Server connection (default: DefaultAuth)
  - Base: ITMS
  - Proxy: No value needed by default
  - **Auto-Connect** checkbox: Selected
  - **Secure** checkbox: By default not selected, only select if encryption is supported and the connection to the repository will be made using a secure protocol.

Select **OK**.

11. Select **OK** twice to save changes.

Repeat steps 3 through 11 above, expanding Remote Services for step 3 and BIP Remote Services OMR for step 4.

### ***Update the Repository Root Folder Properties***

The repository root folder, as specified during the installation of SAS Web Report Studio (and output to the file `<SAS Web Report Studio Install Folder>\wrs.config`), must be configured in order for SAS Web Report Studio to function properly. The default repository root folder is `BIP Tree`. For SAS IT Resource Management 3.1.1 this should be changed so that `ITRMSoftwareTree` is configured as the root instead. To make this change, perform the following steps:

1. On the mid-tier server, launch the SAS Management Console and connect to the ITMS repository. Note that you can connect to Foundation and then use the **Repository:** dropdown to switch to the ITMS repository. You should log in as the administrative super user (`sasadm`, for example).
2. Expand the BI Manager.
3. Select the **ITRMSoftwareTree** folder to highlight it and then select **File**→**Properties** from the pull-down menu.
4. Select the **Content Mapping** tab.

There should already be a WebDAV content server defined with a format of `http://<dataserver.domain:port>`, for example, `http://dataserver.sas.com:80` ). You can use this for SAS Web Report Studio content as well. Just select it from the **Server** drop-down. If you need to add additional content servers, use Server Manager in SAS Management Console while connected to the Foundation repository.

5. **Select the Content Base Path.**

Base paths specify the URLs that are available on the content server. Earlier in these instructions you defined a new subdirectory off the top-level in WebDAV (`/sasdav/ITMS`). You should now use that as the base path. You can use this base path by selecting it from the **Base Path** drop-down.

If you deploy more than one instance of SAS Web Report Studio (for example, one deployment for each dependent repository), you should define a different base path for each instance so the data for each deployment is maintained separately. To add additional base paths for a server, use Server Manager in the SAS Management Console. After they have been added, they will be available for selection in the **Base Path** drop-down.

6. **If you are using Xythos to manage your WebDAV server, you will need to specify the SAS Web Administrator userid and password. This information can be found in your Pre-installation Checklists.**

7. **Select OK to save changes.**

You will receive a dialog box that states, "Content Server, Base Path, and User ID must be specified for the root folder to be functional. Continue Anyway?" Select **Yes**.

### **Update Your Web Application Server Policy File**

If applicable, ensure that the appropriate `sas.wrs.*.policy` file has been included in your Web application server's policy file.

### **Edit the WebReportStudioProperties.xml File**

The `WebReportStudioProperties.xml` file can be located as follows, depending on the host on which your mid-tier resides.

#### **UNIX**

The `WebReportStudioProperties.xml` file that must be modified in this step can be found in the `SASWebReportStudio/WEB-INF` directory in your Web application server's deployment directory. For example, if you are using Jakarta Tomcat as your Web application server and have installed it to `<install-location>/jakarta-tomcat-4.1.18` then you should find the file in `<install-location>/jakarta-tomcat-4.1.18/webapps/SASWebReportStudio/WEB-INF`.

#### **Windows**

The `WebReportStudioProperties.xml` file that must be modified in this step can be found in the `SASWebReportStudio\WEB-INF` directory in your Web application server's deployment directory. For example, if you are using Jakarta Tomcat as your Web application server and have installed it to `<install-drive>/Tomcat4.1` then you should find the file in `<install-drive>\Tomcat4.1\webapps\SASWebReportStudio\WEB-INF`.

**Note:** *Element content that is underlined should be modified to the value shown below in bold.*

Change

```
<repository>Foundation</repository> to
<repository>ITMS</repository>
```

Change the content of the `citation.model.repository` element so that it appears as follows:

```
<citation.model.repository>
  <path>
    <!-- default value: / -->
  </root></root>
```

```

    <!-- Note, these are appended to <root> -->
    <!-- default value: ReportStudio -->
    <citationweb>ITReportStudio</citationweb>
    <!-- default value: ReportStudio/BannerImages -->
    <bannerImages>ITReportStudio/BannerImages</bannerImages>
    <!-- Info maps are searched from this location down -->
    <!-- default value: ReportStudio/Maps -->
    <maps>ITDataMartTree</maps>
    <!-- the "root" for shared files (reports subdir goes here). -->
    <!-- default value: ReportStudio/Shared -->
    <shared>ITReportStudio/Shared</shared>
    <!-- the "root" for a user's files; -->
    <!-- username as a subdirectory is created here, -->
    <!-- (reports subdir goes under that). -->
    <!-- default value: ReportStudio/Users -->
    <users>ITReportStudio/Users</users>
    <!-- the subdir created in the shared/user area for reports -->
    <subdirReports>Reports</subdirReports>
    <!-- the subdir created in the shared/user area for queries -->
    <subdirQueries>Queries</subdirQueries>
</path>
<!-- Repositories often have more than 1 "root folder", -->
<!-- this parameter indicates which should be used if -->
<!-- there are more than one. -->
<rootFolderName> ITRMSoftwareTree </rootFolderName>
</citation.model.repository>

```

Save these configuration changes.

**Note:** *If SAS Web Report Studio is reconfigured and redeployed, you must repeat the steps in this section to reapply the changes to the `WebReportStudioProperties.xml`. More information about the administrative files for SAS Web Report Studio can be found in the SAS 9.1.3 Intelligence Platform Web Application Administration Guide.*

### **Restart the SAS Services Application and Your Web Application Server**

Your configuration changes to the mid-tier are now complete. In order for these modifications to become effective, you should restart the SAS Services Application and your Web application server. To do this correctly, you should first stop the Web application server and then the SAS Services Application. When ready to restart you should start the SAS Services Application first, followed by the Web application server.

### **Mid-Tier Hot Fixes**

You should apply the SAS Web Report Studio hot fix currently available from SAS Technical Support. The hot fix and the instructions for applying it can be found at the Technical Support Hot Fixes Web page, located at

[http://ftp.sas.com/techsup/download/hotfix/op\\_home.html](http://ftp.sas.com/techsup/download/hotfix/op_home.html).

## Updating SAS IT Resource Management 3.1 to 3.1.1

### Overview

The SAS IT Resource Management 3.1.1 Update Install process is designed to update an existing installation of SAS IT Resource Management 3.1 to SAS IT Resource Management 3.1.1.

This process requires that a SAS IT Resource Management 3.1 installation is present.

All currently active SAS sessions, servers, processes, daemons, and spawners must be terminated before proceeding. You should back up all directories that may be updated. To accomplish this you may use an operating system directory copy or any number of archive copy utilities (such as WinZip, tar, jar, etc.). By backing up your existing software, configuration, and metadata associated with your IT data marts, you will be able to return to your existing installed state should you need to rerun this process.

The following list is the recommended minimum set of folders to back up:

#### Server Tier

- <SAS-Home-Directory>/SAS 9.1
- <SAS-Home-Directory>/SASITMSCoreComponents
- <SAS-Configuration-Root-Directory>/<SAS-Configuration-Directory>

#### Client Tier (Windows Only)

- <SAS-Home-Directory>\SASETLStudio

For example, assuming default installation and configuration locations, these paths would be:

#### Server Tier

- /usr/local/SAS/SAS\_9.1
- /usr/local/SAS/SASITMSCoreComponents
- /usr/local/SAS/ITRM

#### Client Tier (Windows Only)

- C:\Program Files\SAS\SASETLStudio

Because the installation of new software will overwrite existing configuration files and there may be new hot fixes to apply, there will be manual post-installation configuration steps that must be performed.

A full Java Development Kit (JDK) is required by the scripts that deploy and configure the SAS IT Management Solutions Core Components Data Tier software on the Server Tier. The following table lists the recommended JDK version for the UNIX platforms that support this SAS software:

Platform	Version
AIX	1.4.2.0 32-bit (a.k.a. 1.4.2 GA)
HP-UX Itanium	1.4.2.03
HP-UX PA-RISC	1.4.2.10
Solaris on SPARC	1.4.2_05

### Install the Software

Although this is not a planned install, we still use “tier” terminology to determine the target location for the updated software.

## Updating the Server Tier

For this step you will update the software that has been installed and configured on your server tier. The components affected by this are the SAS 9.1 Foundation and SAS IT Management Solutions Core Components Data Tier.

Complete the following steps:

1. Launch the SAS Software Navigator.
2. For the type of deployment to perform, choose **Software Index**.
3. Supply the SAS Installation Data that you received with your SAS IT Resource Management 3.1.1 package.
4. Verify the SAS Installation Data that you received with your SAS IT Resource Management 3.1.1 package.
5. Expand the **CD Index** folder and select the appropriate folder to install (update) the following components:

- **Install SAS 9.1 Foundation**

The recommended file to make post-installation configuration changes in the UNIX environment is the `sasv9_local.cfg` configuration file. Although this file should not be overwritten with an Update Install, you should make a backup of it so that you can use it as a guide after completing the SAS 9.1 Foundation install. This installation will overwrite the configuration file, so you will need to reapply the server tier modifications that apply to the SAS configuration file after completing the following instructions.

- Expand the folder for **SAS Setup Disk**.
- Select the **SAS Foundation** item.
- In the right pane, select step 4 in the list of End User Steps.
- Step through the dialog windows taking the defaults (unless otherwise necessary). When presented with the dialog that indicates "Existing SAS Installation Found", choose to "Add Components to SAS".
- Continue through with the install of this component to the end.

- **Install SAS IT Management Solutions Core Components Data Tier**

- Expand the second folder for SAS IT Resource Management and SAS IT Management Solutions.
- Select the SAS IT Management Solutions Core Components Data Tier item.
- In the right pane, scroll down and select the **Install** link for your platform.
- Proceed through the install. If prompted, respond **Yes or Yes to All** to overwrite existing content.
- Select **Finish** on the last dialog window.
- 

- **Reapply Configuration Updates to the Server Tier**

- The preceding installation will have overwritten the configuration file.
- You will need to reapply the server tier modifications that apply to the SAS configuration file, as described in the "Server Tier Modifications" section on page 33.

## Updating the Client Tier

For this step you will update the software that has been installed and configured on your client tier. The components affected by this are the SAS IT Management Solutions Core Components Client and the SAS IT Resource Management Client. This update should only be performed on Windows platforms that contain the original 3.1 release of these client components.

Complete the following steps:

1. Launch the SAS Software Navigator.
2. For the type of deployment to perform, choose **Software Index**.
3. Supply the SAS Installation Data that you received with your SAS IT Resource Management 3.1.1 package.

4. Verify the SAS Installation Data that you received with your SAS IT Resource Management 3.1.1 package.
5. Expand the “CD Index” folder.
6. Expand the first folder for **SAS IT Resource Management and SAS IT Management Solutions** and then select the appropriate link to install (update) the following components:
  - **Install SAS IT Management Solutions Core Components Client**
    - Select the SAS IT Management Solutions Core Components Client item.
    - In the right pane, scroll down and select the **Install** link.
    - Proceed through the install. If prompted, respond **Yes** or **Yes to All** to overwrite existing content.
    - Select **Finish** on the last dialog window.
  - **Install SAS IT Resource Management Client**
    - Select the SAS IT Resource Management Client item.
    - In the right pane, scroll down and select the **Install** link.
    - Proceed through the install. If prompted, respond **Yes** or **Yes to All** to overwrite existing content.
    - Select **Finish** on the last dialog window.

### ***Deploy and Configure the SAS IT Management Solutions Core Components Data Tier Software***

You must now deploy and configure the software that was installed with the SAS IT Management Solutions Core Components Data Tier. *Reminder: A full version of the Java Development Kit (JDK) is required for this step. Please refer to the table in the Overview section regarding which JDK version should be installed on your Server Tier platform.*

From a command prompt, change directory to the Upgrade subdirectory in the SAS ITMS Core Components Data Tier installation directory. This should be similar to the default location given below:

```
/usr/local/SAS/SASITMSCoreComponents/3.1/DataTier/Upgrade
```

This subdirectory contains a shell script file called `DeployConfig_Ant.sh`. This will deploy and configure the newly installed software to the SAS Configuration directory. Invoke the script and pass it two parameters – the first is the root configuration path and the second is the configuration name. For example, given a configuration directory that is `/usr/local/SAS/ITRM`, the parameters would be `/usr/local/SAS` for the root configuration path and `ITRM` for the configuration name. The resulting example command is shown below:

```
./DeployConfig_Ant.sh /usr/local/SAS ITRM
```

This should run for about 15 seconds.

To verify that this step has completed properly, you can change directory to your configuration location (for example, `/usr/local/SAS/ITRM/Lev1/SASMain/SASITMSCoreComponents/OMR`) and verify that there is new content for the supplied metadata.xml. You can also view the contents of `/usr/local/SAS/ITRM/Lev1/Utilities/SASITMSCoreComponents/Upgrade`. You should verify that a shell script file called `runUpgrade.sh` exists. This is what you will use in the next section to upgrade the existing repository.

### ***Upgrade the Existing 3.1 Repository***

This section will upgrade the contents of an existing SAS IT Resource Management 3.1 repository so that it is compliant with SAS IT Resource Management 3.1.1 software. The upgrade process

connects to the SAS Metadata Server to update the ITMS repository. Because the SAS Metadata Server was stopped to install new software it is necessary to start it before proceeding.

From a command prompt, change directory the Upgrade subdirectory in your configuration utilities location. This should be similar to the default location given below:

```
/usr/local/SAS/ITRM/Lev1/Utilities/SASITMSCoreComponents/Upgrade
```

This subdirectory contains a shell script file called `runUpgrade.sh`. Invoke this script by submitting `./runUpgrade.sh` from the command line. The SAS log generated by the SAS job called by this script is located in

```
/usr/local/SAS/ITRM/Lev1/Utilities/SASITMSCoreComponents  
/logs (assuming the default Upgrade subdirectory location specified above). View this log to  
verify that the upgrade process completed without errors.
```

**Please note that this process may take a long time.**

Although typical times to upgrade an ITMS repository have been 30 minutes or less, depending on the size of the existing repository the upgrade process may take 2 hours or more to complete. The key factors that should be considered are which Adapters were originally deployed and how many populated IT data marts the ITMS repository contains. Because of the volume of metadata associated with it, the SMF Adapter has the highest overhead associated with it. This is the case for deployments of only the required tables as well as both required and extended tables.

When this task completes and you have verified that there are no errors in the SAS log, you will have a viable SAS IT Resource Management 3.1.1 ITMS repository.

## Chapter 10 – Installing SAS IT Service Level Management 2.1

Instructions for the installation and configuration of your SAS IT Service Level Management Server are included as part of the SAS IT Service Level Management Client located on the **SAS IT Management Client Components** CD, which can be found in your Installation Kit.



## Chapter 11 – Post-Installation Configuration for SAS Metadata Server

After you apply SAS 9.1.3 Service Pack 4, add a nickname for the SAS Information Maps LIBNAME Engine. The engine nickname (INFOMAPS) is not defined by default in SAS 9.1.3 Service Pack 4. This needs to be done only for the operating systems supported by the Information Maps engine: AIX, Solaris, and HP-UX for the Itanium Processor Family Architecture.

You can add the engine nickname to your SAS catalog using the following SAS code:

```
proc nickname cat=sashelp.core;
  add nickname=infomaps
  module=sasioime
  release="9"
  desc="SAS Information Maps LIBNAME Engine"
  preferred
  engine;
run;
```



## Chapter 12 – Post-Installation Configuration for National Language Support (NLS)

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

**Important:** Before invoking a localized SAS 9.1.3 Foundation image from a UNIX shell, you must ensure that the UNIX locale environment variable LANG is set appropriately for the language of the SAS version you want to run. The exact values to set will vary depending on your operating system support. To list the locales supported on your operating system, enter the following command:

```
$ locale -a
```

For example, to invoke a Japanese version of SAS 9.1.3 Foundation in the HP-UX Korn shell environment, enter the following command:

```
$ LANG=ja_JP.SJIS; export LANG
```

For more information on setting locale environment variables, consult the documentation for your operating system.

### **Chinese, Japanese, and Korean DBCS Support**

This section explains how to

- change the default settings for the DBCSLANG and DBCSTYPE system options
- specify Asian font catalogs.

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

Also, be aware that full-screen products are NOT supported in 9.1.3 SAS for the following UNIX platforms and languages:

- Tru64 UNIX: Korean, Simplified Chinese and Traditional Chinese
- HP-UX IPF: Japanese, Korean, Simplified Chinese, and Traditional Chinese
- AIX: Korean, Simplified Chinese, and Traditional Chinese
- Linux for Itanium-Based Systems: Japanese, Korean, Simplified Chinese, and Traditional Chinese

### **Changing the Default DBCSLANG and DBCSTYPE Option Settings**

When you install SAS 9.1.3 Foundation and choose to load NLS language translations, the installation automatically sets default values for the DBCSLANG and DBCSTYPE system options based on the language selection and platform. For example, if you install Primary Japanese on the Solaris operating system, the configuration file (!SASROOT/nls/ja/sasv9.cfg) sets DBCSLANG to JAPANESE and DBCSTYPE to EUC.

If you need to change the default settings, edit the configuration file. For example, edit the configuration file to change the DBCSTYPE value to SJIS.

## Changing the Configuration File for Unicode Server

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

1. Remove the DBCSLANG and the DBCSTYPE options from the configuration file.
2. Add the ENCODING option and set the value to UTF8 (ENCODING=UTF8).
3. To define a default locale other than English, add the LOCALE option and set the value to your desired locale setting (LOCALE=*default-locale*).

## Setting System Fonts with X Resource Files

SAS 9.1.3 Foundation may not have the correct font settings for your locale by default. To ensure that the correct fonts are defined for the SAS System, you must add them to your X Resource files.

Japanese X Resource template files containing DBCS font settings are located in !SASROOT/X11/resource\_files, as follows:

- ./Resource\_CDE.ja - for the CDE environment
- ./Resource\_LNX.ja - for Linux
- ./Resource\_Sun.ja - for Solaris
- ./Resource\_DEC.ja - for Tru64 UNIX
- ./Resource\_HP.ja - for HP-UX
- ./Resource\_IBM.ja - for AIX
- ./Resource\_ReflX.ja - for ReflectionX users

Simplified Chinese X Resource template files containing DBCS font settings are located in !SASROOT/X11/resource\_files, as follows:

- ./Resource\_HP.zh - for HP-UX
- ./Resource\_LNX.zh - for Linux
- ./Resource\_Sun.zh - for Solaris

Traditional Chinese X Resource template files containing DBCS font settings are located in !SASROOT/X11/resource\_files, as follows:

- ./Resource\_HP.zt - for HP-UX
- ./Resource\_HP.zt.euc - for HP-UX
- ./Resource\_LNX.zt - for Linux
- ./Resource\_Sun.zt - for Solaris
- ./Resource\_Sun.zt.big5 - for Solaris

Korean X Resource template files containing DBCS font settings are located in `!SASROOT/X11/resource_files`, as follows:

- `./Resource_HP.ko` - for HP-UX
- `./Resource_LNX.ko` - for Linux
- `./Resource_Sun.ko` - for Solaris

To apply the X Resources in these template files, copy the appropriate template to one of the following locations, renaming it to `SAS` (in all uppercase):

- `/usr/lib/X11/app-defaults` (on most UNIX systems)
- `/usr/openwin/lib/X11/app-defaults` (on Solaris)
- `$HOME` (your home directory)

For example, on a Solaris system, you would use the following `COPY` command:

```
$ cp !SASROOT/X11/resource_files/Resource_CDE.ja /usr/openwin/lib/X11/app-defaults/SAS
```

In the example, `!SASROOT` refers to the root directory of your SAS 9.1.3 Foundation installation. For more details, refer to the SAS 9.1 National Language Support (NLS) User's Guide.

## Asian Font Catalogs

With the exception of Traditional Chinese fonts, Asian fonts reside in the `SASHELP.FONTS` catalog. To use Traditional Chinese fonts, you can specify them either in the configuration file or in your SAS session.

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

When you run a Traditional Chinese localization, the configuration file contains the `GFONT` definition for the location of the ZT font catalog in the UNIX DBCS directory. However, when you run the English version with `DBCSLANG=TAIWANESE`, you must either set `GFONT` in your SAS session or you must modify the DBCS configuration file to define the `GFONT` definition for the ZT catalog, as follows

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

In this statement

`x` represents a value from 0-9

`font-name` represents the name of the font catalog you want to use.

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

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

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

In this statement

`x` represents a value from 0-9

`font-name` represents the name of the font catalog you want to use.

## European Language Support

The following sections explain different methods for configuring your system for locale, describe how to set up your local session to transfer data to a remote session, and provide a list of `devmap` and `keymap` values that match the locales on your operating system. (As mentioned earlier in this chapter, the `LOCALE` and `ENCODING` system options are used to set locale for European languages. These system options are documented in the SAS Help System.)

### Configuring Your System for Locale

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

#### Changing the Default LOCALE Option Setting

When you install SAS 9.1.3 Foundation 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` system option is set in the system configuration file for each language installed.

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

**Note:** *The English version does not set the locale in the configuration file by default.*

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

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

#### Running SAS in a Different Locale

To set the locale for SAS 9.1.3 at your site, add the `LOCALE` system option to your configuration file. You can find a list of locale values in the *SAS 9.1 National Language Support (NLS) User's Guide*.

When you read or write a file, SAS expects the data in the external files to be in the session encoding. To specify a different encoding, refer to the documentation for the `ENCODING` system option in the `FILENAME`, `INFILE`, or `FILE` statements in the *SAS 9.1 National Language Support (NLS) User's Guide*.

When the `LOCALE` system option is set, the `ENCODING` system option will be set to an encoding that supports the language for the locale. SAS 9.1.3 Foundation expects user data to be in the encoding that matches the `ENCODING` option. If you prefer an encoding other than the most common encoding for the locale, you can also set the `ENCODING` system option in the configuration file.

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

The Output Delivery System (ODS) 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, refer to the *Base SAS 9.1 Procedures Guide* for documentation about `PROC CPORT` and `PROC CIMPORT`. Refer to the *SAS/CONNECT 9.1 User's Guide* for documentation on `PROC UPLOAD` and `PROC DOWNLOAD`.

## Additional Information

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

### *Locale Setup on the Remote Server*

**Note:** The %LS( ) macro is new in Release 9.1.3. This macro replaces the functionality of the Locale Setup Window that was used in previous releases. References to "SAS System 9" in the following section refer to all releases of SAS software from SAS System 9 forward.

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

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

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

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

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

```
sas -locale Danish_Denmark
```
- **Connecting SAS System 9 and a previous release of SAS:**
  - SAS System 9 receives the data: Use the LOCALE option on the SAS System 9 side at start up.
 

**Example:**

```
sas -locale Spanish_Spain
```
  - Previous release receives the data: Start SAS System 9 with the LOCALE option at start up.

**Example:**

```
sas -locale Spanish_Spain
```

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

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

### *Devmaps and Keymaps for SAS/GRAPH Software*

If you are running SAS/GRAPH software and you want to display non-ASCII characters, you will need to set the appropriate devmaps and keymaps to match your current encoding. The devmap and keymap entries are located in the SASHELP.FONTSD catalog. To get the correct devmaps and

keymaps for your encoding, you should use the %LSGRAPH macro. %LSGRAPH automatically sets up your environment for you by

- copying the devmap and keymap entries that match your encoding to the GFONT0.FONTS catalog
- changing the name of the entry to the name DEFAULT so the devmaps and keymaps will be loaded for you.

The following example uses %LSGRAPH to set the correct devmap and keymap (LAT2) for a Polish user on a UNIX platform:

```
libname gfont0 'your-font-library';
%lsgraph(LAT2);
```

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

Locale	Devmap and Keymap Name	Locale	Devmap and Keymap Name
Arabic_Algeria	arab	German_Switzerland	lat9
Arabic_Bahrain	arab	Greek_Greece	grek
Arabic_Egypt	arab	Hebrew_Israel	hebr
Arabic_Jordan	arab	Hungarian_Hungary	lat2
Arabic_Kuwait	arab	Icelandic_Iceland	lat1
Arabic_Lebanon	arab	Italian_Italy	lat9
Arabic_Morocco	arab	Italian_Switzerland	lat9
Arabic_Oman	arab	Latvian_Latvia	lat6
Arabic_Qatar	arab	Lithuanian_Lithuania	lat6
Arabic_SaudiArabia	arab	Norwegian_Norway	lat9
Arabic_Tunisia	arab	Polish_Poland	lat2
Arabic_UnitedArabEmirates	arab	Portuguese_Brazil	lat1
Bulgarian_Bulgaria	cyr1	Portuguese_Portugal	lat1
Byelorussian_Belarus	cyr1	Romanian_Romania	lat2
Croatian_Croatia	lat2	Russian_Russia	cyr1
Czech_CzechRepublic	lat2	Serbian_Yugoslavia	cyr1
Danish_Denmark	lat9	Slovak_Slovakia	lat2
Dutch_Belgium	lat1	Slovenian_Slovenia	lat2
Dutch_Netherlands	lat1	Spanish_Argentina	lat1
English_Australia	lat1	Spanish_Bolivia	lat1
English_Canada	lat1	Spanish_Chile	lat1
English_HongKong	lat9	Spanish_Colombia	lat1
English_India	lat9	Spanish_CostaRica	lat1

English_Ireland	lat9	Spanish_DominicanRepublic	lat1
English_Jamaica	lat1	Spanish_Ecuador	lat1
English_NewZealand	lat1	Spanish_ElSalvador	lat1
English_Singapore	lat9	Spanish_Guatemala	lat1
English_SouthAfrica	lat1	Spanish_Honduras	lat1
English_UnitedKingdom	lat9	Spanish_Mexico	lat1
English_UnitedStates	lat1	Spanish_Nicaragua	lat1
Estonian_Estonia	lat6	Spanish_Panama	lat1
Finnish_Finland	lat9	Spanish_Paraguay	lat1
French_Belgium	lat9	Spanish_Peru	lat1
French_Canada	lat1	Spanish_PuertoRico	lat1
French_France	lat9	Spanish_Spain	lat9
French_Luxembourg	lat9	Spanish_UnitedStates	lat1
French_Switzerland	lat9	Spanish_Urugay	lat1
German_Austria	lat9	Spanish_Venezuela	lat1
German_Germany	lat9	Swedish_Sweden	lat9
German_Liechtenstein	lat9	Turkish_Turkey	lat5
German_Luxembourg	lat9	Ukrainian_Ukraine	cyr1



## Chapter 13 – Post-Installation Configuration for SAS OLAP Server Software

SAS OLAP Server includes client components that are used outside of your SAS installation. These components are available on the **SAS Client-Side Components** CD, Volume 1, and are described below. For more information on using SAS OLAP Cube Studio and SAS OLAP Server Monitor, see the *SAS OLAP Server Administrators Guide* in the SAS 9.1.3 Help and Documentation. For more information on the Open OLAP Client, see the online help for SAS OLAP Server. The online help also contains more information on the post-installation configuration for V8 SAS OLAP Server.

### ***Open OLAP Client for SAS/MDDB Server 3.0***

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

If you will be using the Open OLAP Server to access SAS MDDBs, you only need to install the Open OLAP Client. The component should be installed on the Windows platform where your OLE DB-compliant applications will run.

### ***SAS OLAP Cube Studio***

SAS OLAP Cube Studio, a component of SAS OLAP Server, is designed for the IT professional responsible for building and maintaining OLAP cubes in a corporate environment. SAS OLAP Cube Studio integrates with SAS Management Console and SAS Data Integration Studio to provide the tools needed to maintain the OLAP environment.

If you will be creating and maintaining SAS OLAP cubes, you need to install SAS OLAP Cube Studio. The component should be installed on the Windows platform you will use to create your cubes.

### ***SAS OLAP Server Monitor for SAS Management Console***

SAS OLAP Server Monitor is a plug-in component for SAS Management Console. You use SAS OLAP Server Monitor to monitor the status of your running SAS OLAP Servers.

If you need to monitor the status of your SAS OLAP Servers, you need to install SAS OLAP Server Monitor. The component should be installed on the same Windows platform as SAS Management Console.



# Chapter 14 – Post-Installation Configuration for SAS OpRisk VaR Software

Follow the steps below to configure SAS OpRisk VaR on your UNIX system.

## *Installation on UNIX*

The following steps need to occur:

1. Create a VaR 3.2 Group on the UNIX box.
2. Create a VaR 3.2 Administrator user account on the UNIX box, with the primary group for the user being the VaR 3.2 Group created in step 1, and the umask value for the account being 007, so resulting files are `rwxxrwx---`.
3. Users of SAS OpRisk VaR need to be added to the VaR 3.2 Group created in step 1.
4. The username and password typed in when creating the data store in the Configuration Editor must be the VaR Administrator account credentials. If the data store creation scripts are going to be run manually, then the user logged in to the UNIX box must be the VaR Administrator user.
5. The VaR Administrator user credentials need to be entered on the **Application Properties** tab of the Configuration Editor for the OpRisk VaR Administrator username and password text fields, and saved into the data store.

## *Initialize a SAS Data Store for SAS OpRisk VaR 3.2*

You can create a data store using the Configuration Editor. If you want to run the macros by hand to create a data store, follow these steps:

1. Skip this section if you have SAS OpRisk VaR version 2.5 and would like to migrate it to SAS OpRisk VaR version 3.2, and go to “Migrate SAS OpRisk VaR 2.5 to a SAS Data Store for SAS OpRisk VaR 3.2.”
2. Run the 'orvsetup' macro in sas:  
`orvsetup();`
3. Run the 'orvdb\_create' macro in sas:

```
orvdb_create(DATA_ROOT=C:\VarTablesNew,  
APPLY_CONSTRAINTS=true);
```

The `DATA_ROOT` parameter represents a new directory you have created for the SAS OpRisk VaR data tables. You really don't need to modify any other parameters.

4. If there are no other errors in the log, your data store is now initialized. Skip the next section and go to “Install/Start the SAS Share Server for SAS OpRisk VaR 3.2.”

## Migrate SAS OpRisk VaR 2.5 to a SAS Data Store for SAS OpRisk VaR 3.2

In order to perform the steps listed below, you must have a computer that has the following software installed:

- Base SAS with SAS/ACCESS
  - SAS OpRisk VaR 3.2
  - Software required by SAS/ACCESS to connect to the database being used by SAS OpRisk VaR 2.5 (such as Oracle client if connecting to an Oracle database)
1. Skip this section if you already performed the steps in the section entitled “Initialize a SAS Data Store for SAS OpRisk VaR 3.2.”
  2. Perform one of the following steps:
    - If your old database is Oracle, run the `OpRiskVaRSeqOracle.ddl` script from within your Oracle database. It will fill in the `VAR_SEQUENCES` table appropriately.
    - If your old database is DB2, run the `OpRiskVaRSeqDB2.ddl` script from within your DB2 database. It will fill in the `VAR_SEQUENCES` table appropriately.
  3. Create a libref that points to your SAS OpRisk VaR 2.5 database. Here is an example:

```
libname VARDAT25 oracle user=sasuser  
password=sasuser1 path='alien' schema=sasuser;
```

See SAS/ACCESS for details about creating a libref to other external databases.

**Note:** *The machine from which you are running this \*must\* have the specific database software on it that allows the connection to be satisfied. In the example above, the machine must have at least Oracle client software on it, with the service name 'alien' defined.*

4. Run the 'orvsetup' macro in sas:

```
%orvsetup();
```

5. Run the 'orvdb\_migrate' macro in sas:

```
%orvdb_migrate(DATA_ROOT=C:\VarTables,  
OLDDATA_LIBREF=VARDAT25);
```

The `DATA_ROOT` parameter represents a new directory you have created for SAS OpRiskVaR data tables. The `OLDDATA_LIBREF` parameter represents the libref set up in step 2 above.

6. If there are no other errors in the log, your database is now migrated to the SAS OpRisk VaR 3.2 data store. Proceed to the next section. There is also no need to use the **Data Store Creation** tab of the Configuration Editor.

## Install/Start the SAS Share Server for SAS OpRisk VaR 3.2

1. Skip this section if you are setting up a single-user configuration.
2. The complete instructions for this step (for the Windows platform) may be found in the file "Configuring a SAS Share Server Service.pdf". For the UNIX platform, please consult the SAS/SHARE documentation.

## **SAS OpRisk VaR 3.2 Client Configuration**

When you have performed an Administrator install of SAS OpRisk VaR Java Client 3.2, you must run the Configuration Editor to set up an opriskvar.ini file. The generated file will be "asked for" during the client (non-administrator) installs of SAS OpRisk VaR Java Client 3.2.

### **Post Migration information**

1. If you did not migrate a SAS OpRisk VaR 2.5 data store, ignore this section.
2. After migration, you are required to re-validate the previously loaded SAS OpRisk VaR 2.5 data versions using the SAS OpRisk VaR 3.2 application before the versions can be used successfully in the SAS OpRisk VaR 3.2 application.
3. No VaR results are migrated. You must re-run VaR calculations on the final tab for each project. This is due to the fact that VaR is calculated differently in version 3.2 than in version 2.5. If you prefer the VaR calculation method in SAS OpRisk VaR 2.5, you must keep using that version of the application.



## Chapter 15 – Post-Installation Configuration for Risk Dimensions Software

### ***Starting the Risk Dimensions Application***

A UNIX script file called `sasrisk` is located in your `SASROOT/bin` directory. Append your `SASROOT/bin` directory name to your system `PATH` environment variable, and use `sasrisk` to start up the Risk Dimensions software.



## Chapter 16 – Post-Installation Configuration for SAS/SECURE Software

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

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

### **SAS/SECURE Client for Windows**

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

### **SAS/SECURE Client for Java**

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

- SAS/SHARE driver for JDBC,
- SAS/CONNECT driver for Java, and
- IOM Bridge for Java.

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

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



# Chapter 17 – Post-Installation Configuration for SAS/SHARE Software

## **User Authentication**

You are required to complete the steps from the section “Configuring User Authentication” in the *Installation Instructions for the SAS 9.1.3 Foundation for UNIX Environments*. This allows SAS/SHARE software to authenticate a client’s identity and check a client’s authority to access resources.

## **System Configuration for the TCP/IP Communications Method**

We suggest each SAS/SHARE server that runs on a network node be defined as a service in the file `/etc/services` or `/etc/inet/services` on that node. 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 following form:

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

The server name must be one to eight 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 the following:

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

The server name is specified with the `SERVER=` option in the `LIBNAME` statement, in the `OPERATE`, and in the `SERVER` procedure. If a server name is not defined in the services file, you must specify “\_\_<port#>”, two consecutive underscores followed by the port number (e.g., `server=__5012`).

## **Client Components**

SAS/SHARE software includes client components that are used outside of your SAS 9.1.3 Foundation installation. SAS/SHARE client components are available on the **SAS Client-Side Components** CDs included in your SAS software order. The SAS/SHARE client 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/SHARE SQL Library for C provides an application programming interface (API) that enables your applications to send SQL queries and statements through a SAS/SHARE server to data on remote hosts.

## ***NLS Information***

Sites that develop or support international applications that use SAS/SHARE software should refer to Chapter 9, “Post-Installation Configuration for National Language Support (NLS).”

## **Chapter 18 – Post-Installation Configuration of SAS Solution Adapters for SAP**

### ***Configuring SAS IT Management Adapter 2.7 for SAP***

SAS IT Management Adapter 2.7 for SAP requires extensive installation setup before it can be used. Refer to the *Configuration Guide for SAS IT Management Adapter 2.7 for SAP*, available from <http://support.sas.com/sapadapters>, for detailed instructions and configuration information.



## Chapter 19 – Post-Installation Setup for SAS/STAT Software

The Web application *SAS/STAT Power and Sample Size* is provided with SAS/STAT software, but it is installed separately. The application is available on the **SAS Mid-tier Components CD**. Detailed installation instructions and a list of required SAS products can also be found there.

### Overview

SAS/STAT Power and Sample Size is a user interface that provides power and sample size computations. The application includes tasks for determining sample size and power for a variety of statistical analyses, including the following:

- *t* tests
- confidence intervals of means
- proportions
- equivalence testing
- ANOVA
- linear models
- survival analysis

The application provides multiple input parameter options, stores results in a project format, displays power curves, and produces appropriate narratives for the results.

Because SAS/STAT Power and Sample Size is a Web application, it requires Web server software. To run a Java virtual machine, the Web server must contain a servlet container. Specifications for the servlet container are in the *SAS/STAT Power and Sample Size Installation Instructions*.

### Configuration

SAS/STAT Power and Sample Size can be installed in either of two configurations: local or remote. The configurations differ in terms of where the necessary components are expected to run. The application requires these three components: the Web server, the SAS software, and the Microsoft Internet Explorer Web browser.

#### Local (Standalone) Configuration

In the local configuration, SAS/STAT Power and Sample Size can run in a standalone manner, that is, without access to the Internet. The Web server, the SAS software, and Microsoft Internet Explorer must all be installed on the same machine. Because Internet Explorer is required, this configuration is only available on PCs running Windows operating systems. The Apache Tomcat servlet container is available as an optional part of the SAS/STAT Power and Sample Size installation. It can be used as a Web server in this standalone environment. You may also choose to install the Web server and servlet container from a third-party source.

## Remote Configuration

In a remote configuration, the application, Web server, and Web browser are not on the same machine. The Web server and servlet container must be installed from a third-party source.

Additional SAS software products are required—specifically, SAS/CONNECT and a license for either SAS Integration Technologies or SAS/IntrNet. The SAS server administrator installs and runs the SAS/CONNECT spawner program. The administrator also provides information to the person installing SAS/STAT Power and Sample Size, who needs to know the machine name of the SAS server, the port for which the spawner is configured, and whether a user name and password are required by the SAS server. If the SAS server is running on a UNIX system, the person who installs SAS/STAT Power and Sample Size will also need the SAS command that the spawner uses to submit the job to SAS.

## Installation

SAS Foundation software should be installed before the SAS/STAT Power and Sample Size application is installed. Full installation instructions are provided on the **Mid-tier Components** CD. The installation process copies the application WAR (Web archive) file to a directory on the Web server. It does not deploy the application to the Web server itself. The person who installs the application must do that as a separate step.

## Deployment in the Web Server

After installation, the application's WAR file must be deployed to the Web server. The deployment procedure varies depending on the Web server. For more information, please see the documentation for your specific Web server. If you are using an Apache Tomcat server that was installed as part of the application, please see your *SAS/STAT Power and Sample Size Installation Instructions* for more details.

## Making the Application Available to Users

When installation and deployment of the application is completed, the Web address (URL) of the SAS/STAT Power and Sample Size application must be provided to users. The syntax of the URL varies among Web servers. The URL for the local (standalone) configuration is described in the *SAS/STAT Power and Sample Size Installation Instructions*.

## Chapter 20 – Usage of Host Sort Routines

This chapter provides instructions for making host sort routines available to SAS 9.1.3. The only supported host sort routine is SyncSort. To use host sort routines with SAS 9.1.3, complete the following steps:

1. Install the host sort library on your system by following the instructions provided by the vendor. Ensure that the host sort routine works outside of SAS 9.1.3.
2. Make the host sort library available to SAS 9.1.3 by following the instructions in the following section, “Making Host Sort Routines Available.”
3. Submit an options statement in a SAS session to specify the host sort routine by following the instructions in the section “Using Host Sort Routines in a SAS Session.”

**Note:** For information on using host sort routines in a SAS session once they are available, please refer to the SAS 9.1 Companion for UNIX Environments.

### Making Host Sort Routines Available

This section describes the system-specific instructions for making host sort routines available to SAS 9.1.3.

#### For AIX

Use either of the following two methods.

Create symbolic links to the host sort libraries from one of the directories searched by default, such as `/usr/lib`, as shown in the following example for SyncSort:

```
$ ln -s /usr/local/syncsort/lib/libsyncsort.a /usr/lib
```

or:

Set the environment variable `LIBPATH` to the directory containing the host sort library, as shown in the following example:

**Note:** If you are running SAS programs through a batch facility, make sure the environment variables described below are set correctly.

#### Using Bourne Shell

```
$ LIBPATH=/usr/local/syncsort/lib:$LIBPATH  
$ export LIBPATH
```

#### Using C Shell

```
$ setenv LIBPATH /usr/local/syncsort/lib:$LIBPATH
```

#### For Tru64 UNIX and Solaris

Use either of the following two methods:

Create symbolic links to the host sort libraries from one of the directories searched by default, such as `/usr/lib` as shown in the following example:

```
$ ln -s /usr/local/cosort/lib/libsyncsort.so /usr/lib
```

or:

Set the environment variable `LD_LIBRARY_PATH` to the directory containing the host sort library as shown in the following example:

**Note:** *If you are running SAS programs through a batch facility, make sure the environment variables described below are set correctly.*

#### Using Bourne Shell

```
$ LD_LIBRARY_PATH=/usr/local/syncsort/lib:$LD_LIBRARY_PATH
$ export LD_LIBRARY_PATH
```

#### Using C Shell

```
$ setenv LD_LIBRARY_PATH /usr/local/syncsort/lib:$LD_LIBRARY_PATH
```

### For HP-UX

Use either of the following two methods:

Create symbolic links to the host sort libraries from one of the directories searched by default, such as `/usr/lib`, as shown in the following example:

```
$ ln -s /usr/local/syncsort/lib/libsyncsort.sl /usr/lib
$ ln -s /usr/local/syncsort/lib/libmfsyncsort.sl /usr/lib
```

or:

Set the environment variable `SHLIB_PATH` to the directory containing the host sort library as shown in the following example:

**Note:** *If you are running SAS programs through a batch facility, make sure the environment variables described below are set correctly.*

#### Using Bourne Shell

```
$ SHLIB_PATH=/usr/local/syncsort/lib:$SHLIB_PATH
$ export SHLIB_PATH
```

#### Using C Shell

```
$ setenv SHLIB_PATH /usr/local/syncsort/lib:$SHLIB_PATH
```

## Using Host Sort Routines in a SAS Session

**Note:** *The options statements throughout this section specify the syntax to submit to the SAS System. You can also specify these options as command line options and options in the `sasv8.cfg` file. Refer to the SAS Companion for UNIX Environments for more information on setting options.*

Use the `SORTNAME` option to tell the SAS System which host sort routine should be used. Submit one of the following options statements in a SAS session:

- To use SyncSort (the default):  
`OPTIONS SORTNAME=SYNCSORT;`
- To use CoSORT:  
`OPTIONS SORTNAME=COSORT;`

Once the host sort routine is available, use the `SORTPGM=HOST` or `SORTPGM=BEST` options statements to tell the SAS System when to use the host sort routine.

Submit one of the following options statements in a SAS session:

- `OPTIONS SORTPGM=HOST;`

tells the SAS System to always use the host sort routine made available.

- `OPTIONS SORTPGM=BEST;`

tells the SAS System to choose the best sorting method in a given situation, the SAS System sort or the host sort.

There are two options that define how the SAS System chooses the “best” sort algorithm. The following examples use the syntax of an options statement that needs to be submitted to the SAS System:

- `-sortcut <n>` , where `n` specifies a number of observations.

```
OPTIONS SORTPGM=BEST SORTCUT=500;
```

`-sortcut` tells the SAS System to choose the host sort routine if the number of observations is greater than the number you specify, and to use the SAS System sort if the number of observations is equal to or less than the number specified.

- `-sortcutp <size>[kKmM]` , where `<size>` specifies a file size in either kilobytes or megabytes.

```
OPTIONS SORTPGM=BEST SORTCUTP=40M;
```

`-sortcutp` tells the SAS System to choose the host sort routine if the size of the data being sorted exceeds the size you specify, and to use the SAS System sort if the size of the data is equal to or smaller than the size you specify.

If these options are not defined or these options are set to zero, the SAS System chooses the SAS System sort routine. If you specify both options and either condition is met, the SAS System chooses the host sort routine.

You can change the work directory used for temporary sort files by using the option `sortdev <dir>`, where `<dir>` is the directory in which you want the temporary files to be created. For example, submit the following statement if you want the temporary files to be created in `/tmp`:

```
OPTIONS SORTPGM=BEST SORTCUT=500 sortdev="/tmp";
```

You can specify the host sort option `sortanom t` to print timing and resource information to the SAS log after each phase of a sort. The following is an example of this option:

```
OPTIONS SORTPGM=HOST SORTANOM=t;
```

You can specify the host sort option `sortanom v` to print to the SAS log the arguments passed to the sort, which may be useful for tuning or debugging:

```
OPTIONS SORTPGM=HOST SORTANOM=v;
```

**You can attempt to increase your sort performance by increasing the values of the `sortsize` and `memsize` SAS options. However, make sure that `sortsize` is at least 4M less than `memsize`.**

**You can see other SAS performance statistics in the SAS log using the `FULLSTIMER` option:**

```
OPTIONS FULLSTIMER;
```





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