

CHAPTER

2

Defining Your Data Sources

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Introduction

After you install the SAS ODBC driver,* you must provide information about the data source(s) that you want to access. This chapter explains how to use the SAS ODBC driver dialog boxes to provide the necessary information.

From the SAS ODBC dialogs, you can select **Help** at any time to obtain information about the active dialog.

Accessing the SAS ODBC Driver Dialogs

To access the SAS ODBC dialogs, do the following:

- 1 Access the Microsoft Windows Control Panel window by selecting

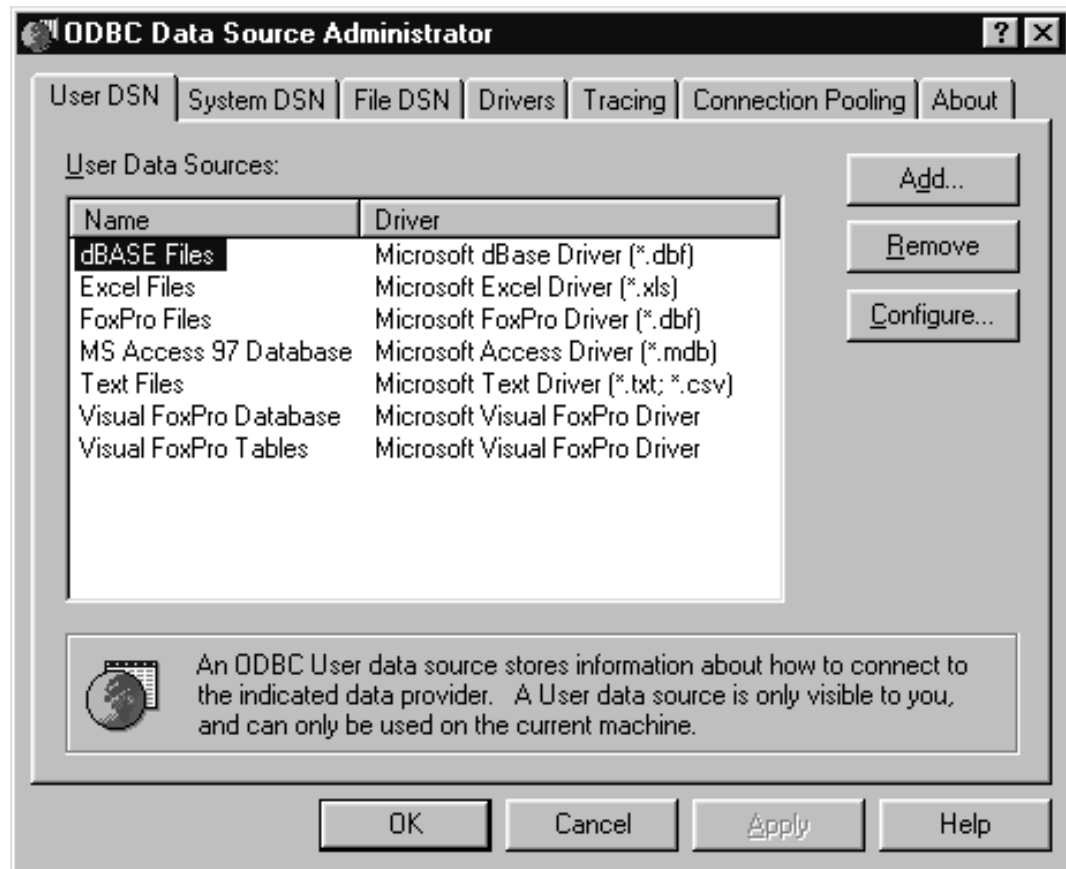


Find the ODBC or ODBC Administrator icon. This icon may be located in the Control Panel group, in an ODBC group, or, if you have installed a package of other ODBC drivers, it may be in a group that is associated with that package.

- 2 Double-click on the icon. Depending upon the version of ODBC Administrator that you have installed (Windows NT version 3.510 is shown below), you may see a slight variation in the following dialog:

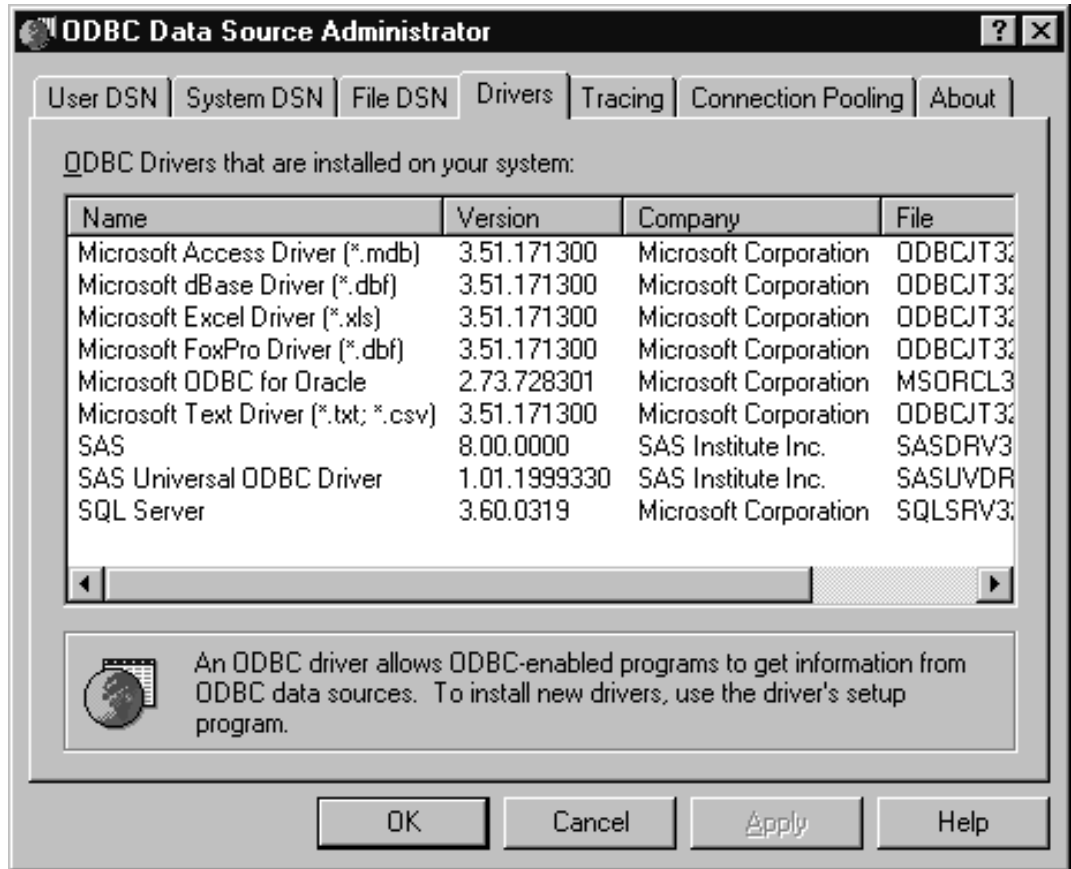
* See the installation instructions that are shipped with the driver diskette.

Display 2.1 ODBC Data Source Administrator



- 3 To add a new data source, select either the User DSN tab or the System DSN tab and select **Add**. The Drivers page appears.

Display 2.2 ODBC Data Source Administrator Drivers Page

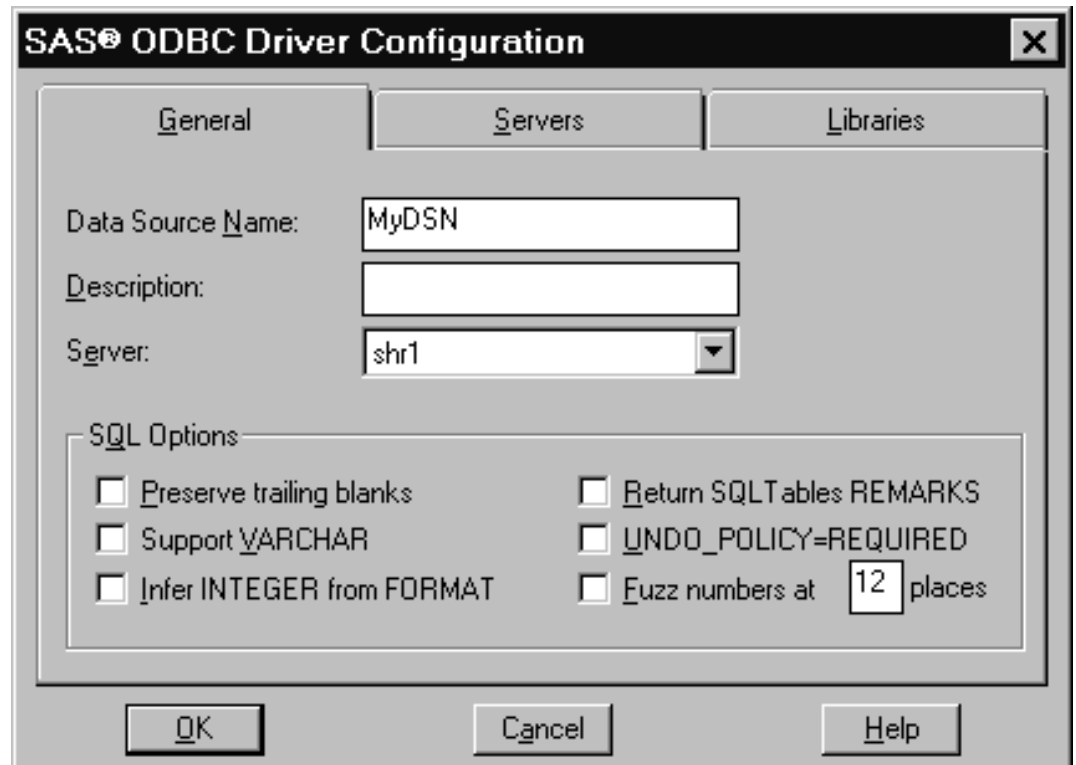


- 4 To select the SAS ODBC Driver, scroll down in the list of Installed ODBC Drivers (if necessary) and select **SAS**. Click **Apply**.

Note: Select **SAS** even if you are going to use a SAS data view to access non-SAS data. See “SAS Data Sets” on page 5 for information about SAS data views. △

- The SAS ODBC Driver Configuration dialog appears (Display 2.3 on page 14).

Display 2.3 SAS ODBC Driver Configuration Dialog



At the top of this dialog are three tabs—General, Servers, and Libraries. Select these tabs to move from one dialog page to the next. In each page, supply information about the data source that you want to be able to access.

After you have supplied all the necessary information, select **OK** from any page to save your data source definition. Selecting **Cancel** discards any new or changed information that you have supplied and returns you to the Data Source Administrator dialog (Display 2.1 on page 12).

Naming Your Data Source and Specifying SQL Options

When you first access the SAS ODBC Driver Configuration dialog, the General page is at the foreground, as shown in Display 2.3 on page 14.

- 1 In the **Data Source Name** field, enter a name for the data source that you want to access. The name must begin with a letter, and it cannot contain commas, semicolons, or any of the following special characters: [] { } () ? * = ! @. For example, if you are defining SAS data that is stored on a machine named **CICERO**, you might call your data source **SAS_CICERO**. If you or other users are concerned only with the type of data (or with the type of application that uses that data), and not with where the data is stored, then you might have data sources with names like **Finance** or **Payroll**.
- 2 (Optional) In the **Description** field, you can supply a description of the data source.
- 3 The **Server** field includes a drop-list that you select in order to expand the list of defined servers. The first time you define a data source, the list is empty. Define

one or more servers (as described in the next section), and then come back to the General page to make a selection from the Server list. You must specify a server for every data source.

SQL options on this page affect the interaction between the SAS ODBC driver, SAS, and ODBC-compliant applications. The default settings for the options are those that most ODBC-compliant applications will expect and will work best with. However, you can override the defaults by selecting any of the SQL Options listed. Select the box next to the desired option.

Preserve trailing blanks

preserves trailing blanks at the end of character fields. The default action is that trailing blanks are removed, so that each field ends in a null.

Support VARCHAR

causes character fields that are longer than 80 characters to be reported as variable-length fields, and causes the trailing blanks to be removed. See “Support VARCHAR Option” on page 36 for more information.

Infer INTEGER from FORMAT

causes SAS numeric data types (typically reported as SQL_DOUBLE) to be reported as SQL_INTEGER. See “Infer INTEGER from FORMAT Option” on page 36 for more information.

Return SQLTables REMARKS

causes the SAS ODBC driver to read and return the SAS data set label for each data set in the library you are accessing. (SQLTables is the name of an ODBC function that can be used for this purpose.) For SAS data sets, this can have a negative impact on performance, because each data set must be opened in order to read the label. Therefore, you should not select this option unless there is information in the label that you really need to see.

UNDO_POLICY=REQUIRED

implements the UNDO_POLICY option of the SAS System’s SQL procedure with a setting of REQUIRED. With this setting, INSERT or UPDATE operations that fail are undone. However, this action is performed only for operations that affect multiple records; a statement that affects a single record behaves the same regardless of the UNDO_POLICY setting. When UNDO_POLICY=REQUIRED, the associated statement handle (**hstmt**) of an UPDATE or INSERT statement must be the only active **hstmt** against the table. If another user, or an **hstmt** within the same user’s application, has an active SELECT statement, the UPDATE or INSERT statement fails.

Fuzz Numbers at N Places

specifies the degree of precision to use when comparing numbers. See “Fuzz Numbers at N Places Option” on page 36 for more information. By default, this option is selected. You can change the default value, 12, by typing over it.

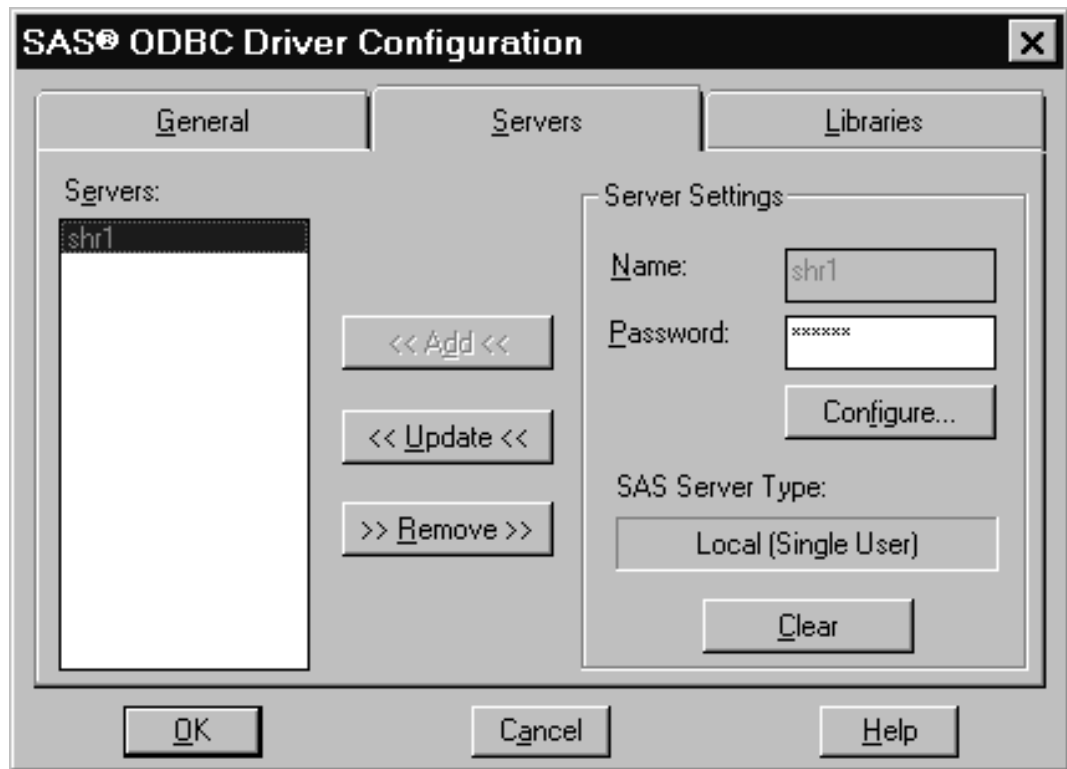
Defining Servers

The SAS ODBC driver uses a SAS server to access your data sources. To access local data, the driver uses a SAS ODBC server. To access remote data, it uses a SAS/SHARE server. (See “SAS Servers” on page 7 for more information.)

This section explains how to provide the SAS ODBC driver with necessary information about the server(s) you will be using.

- 1 Select the **Servers** tab in the SAS ODBC Driver Configuration dialog to go to the Servers page. Supply the information described in the following steps. If at any time you want to clear all of the fields on the right side of the dialog and start again, select **Clear**.

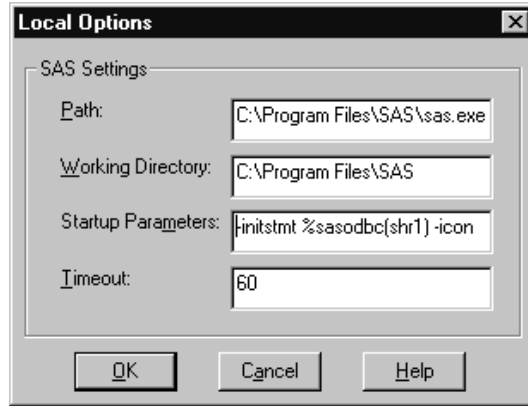
Display 2.4 Servers Page



- 2 In the **Name** field, enter a name for the SAS server that you are defining. If you supply a one-part name such as **shr1**, the SAS ODBC driver infers that the server is local. If you supply a two-part name such as **machine.shr2**, the driver infers that the server is remote.
 - The driver interprets the first part of the name as a node name and the second part as the server name. The server name must match both the **ID=** field in PROC SERVER (the SAS/SHARE server that is running on the remote host), and the *server-name* that you (or your server administrator) specified when you defined the server as a service in the TCP/IP SERVICES file. See “The TCP/IP Services File” on page 28 for more information.
- 3 If user access to the server is password protected, then enter the password in the **Password** field. This should be the same password that was specified for the **UAPW=** option in PROC SERVER (for a SAS/SHARE server), or in PROC ODBCSEV (for a local access server).
- 4 If the server is a SAS ODBC server (used to access local data sources), then **Local (Single User)** is displayed in the **SAS Server Type** field. If the server is a SAS/SHARE server (used by multiple users), **SAS/SHARE (Multi-User)** is displayed.

- 5 Select **Configure**. A configuration dialog appears.
- If you specified a one-part server name in the **Name** field of the Servers page (Display 2.4 on page 16), then the SAS ODBC driver infers that you are using a local SAS server. The Local Options dialog appears.

Display 2.5 Local Options Dialog



When you access a local SAS data source from an ODBC-compliant application, the SAS ODBC driver uses the information in this dialog to invoke a SAS ODBC server, provided there isn't one already running. (If a SAS ODBC server is already running, the driver finds it and connects to it.) Each field contains default values that you can change by typing over them.

Path:

This field specifies the fully qualified path name for the SAS executable file (SAS.EXE) that you use to start a SAS session. The default is **c:\sas\sas.exe**. If this field is empty, then no attempt is made to start a SAS ODBC server when you connect to your data source.

Working Directory:

This field specifies the fully qualified path name for the directory that you want to use as the SAS working directory. This directory is usually where your SAS program files and documents are located. The default is **c:\sas**.

Startup Parameters:

This field specifies the parameters that are used to invoke the SAS System. The default values are as follows: The initialization statement (**-initstmt**) executes a SAS macro (**%sasodbc**), which in turn invokes the ODBC server. The **shr1** value is only an example. It is a SAS macro parameter whose value is taken from the name that you specified in the **Name** field of the Servers page (Display 2.4 on page 16). The **-icon** option specifies that the server session should be invoked in iconified mode, because no interaction with the server is required. The **-nologo**

option (not shown) specifies that the SAS session will be invoked without displaying the SAS System logo and copyright information.

The %sasodbc macro is shipped with the SAS System and is found in !SASROOT\CORE\SASMACRO\SASODBC.SAS.* The SASODBC.SAS file executes the SAS procedure PROC ODBCSEV.

The SASODBC.SAS file can be modified to add additional SAS system options or SAS statements such as the LIBNAME statements mentioned in “Defining Libraries at Server Startup Time” on page 21. You can also specify options for PROC ODBCSEV. The available options are the same as those for PROC SERVER. See the *SAS/SHARE User’s Guide* for details.

An additional option, LOG=QUERY, is particularly relevant for servers that are used by the SAS ODBC driver. This option causes the server to log SQL queries. (By default, the server logs update and output operations, but not queries.) Hence, this option is useful when you need to see the queries that the server receives from an ODBC client application.

If your SAS session is installed on a network drive and is shared by multiple users, then you probably don’t want individual users to modify the SASODBC.SAS file. Instead, users can make their own copies of the file and can store them in their personal libraries. In this case, they must also add the **-sasautos** option either to the **Startup Parameters** field or to their local CONFIG.SAS file to indicate the pathname for the library, as in the following example:

```
-sasautos c:\programs\sas
```

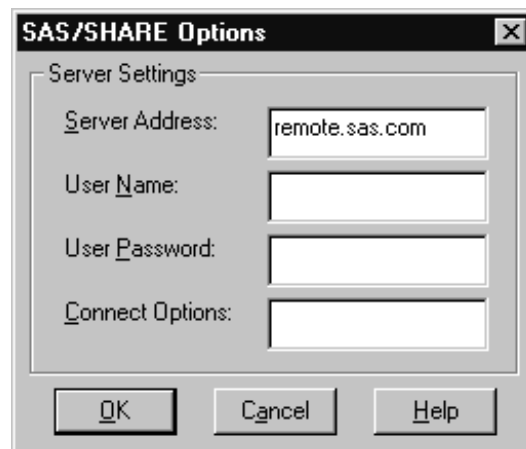
For more information about SAS system options and SAS statements, see the SAS documentation for the Microsoft Windows or Microsoft Windows NT operating environment.

Timeout:

This field specifies in seconds how long to wait for the local SAS ODBC server to start and to register itself. The default is 60 seconds.

- If you specified a two-part server name before selecting **Configure**, the SAS/SHARE Options dialog appears.

Display 2.6 SAS/SHARE Options Dialog



* !SASROOT is a logical name for the directory in which you install the SAS System. For more information, see the SAS documentation for the Microsoft Windows or Microsoft Windows NT operating environment.

Supply the requested information in the dialog as follows:

Server Address:

This field is automatically filled with the node name that you specified in the **Name** field of the Servers page (Display 2.4 on page 16). In a complex networking environment, you may need to supply a fully qualified domain address for the server (for example, **machine.sas.com**).

User Name:

This field is for your userid on the system where the server is running. It is required if the server is running in secured mode; otherwise, it is ignored.

User Password:

This field is for your password on the system where the server is running. If you supply a **Server User Name** without a **Server User Password**, then you will be prompted for a password at connection time.

Connect Options:

This field is for providing additional connection options that are used when you are connecting to an SPDS server through the ODBC client. The connection options are name value pairs delimited by white space. Each of the values must be in single quotes. For example:

```
DBQ='tmp' HOST='bigone.unx.sas.com' SERV='5129'
```

where:

DBQ is the SPDS server libname domain.

HOST is the location of the host computer on your network where the SPDS nameserver is running.

SERV is the port number of the SPDS name server running on the HOST.

See the documentation shipped with the SPDS server for more details.

- 6 When you have finished making any necessary changes to the Local Options or SAS/SHARE Options dialogs, select to return to the Servers page (Display 2.4 on page 16).
- 7 *Important!* Select to save your server definition. The server name now appears in the list of defined servers at the left.
- 8 To define another server, select and then repeat steps 2-8.

Deleting a Server Definition

To delete a previously defined server, do the following:

- 1 Select the server name from the **Servers** list at the left of the Servers page.
- 2 Select .

CAUTION:

If you delete a server, then any data sources that use that server will no longer be accessible until you redefine that server. △

Modifying a Server Definition

To change the information for a previously defined server, do the following:

- 1 Select the server name from the **Servers** list at the left of the Servers page.

- 2 Make the desired changes to the **Password** field. Select **Configure** to make changes in the Local Options or SAS/SHARE Options dialogs (Display 2.5 on page 17 and Display 2.6 on page 18).

The **Name** field is greyed out to indicate that you cannot change the name of the server. The reason for this is that you may have already defined data sources that use that server; if you changed the server name, then you would no longer be able to access those data sources.

- 3 Select **<<Update<<** to save your changes.

For instructions on how to specify a different server for a data source that you have already defined, see “Specifying a Different Server for a Defined Data Source” on page 23.

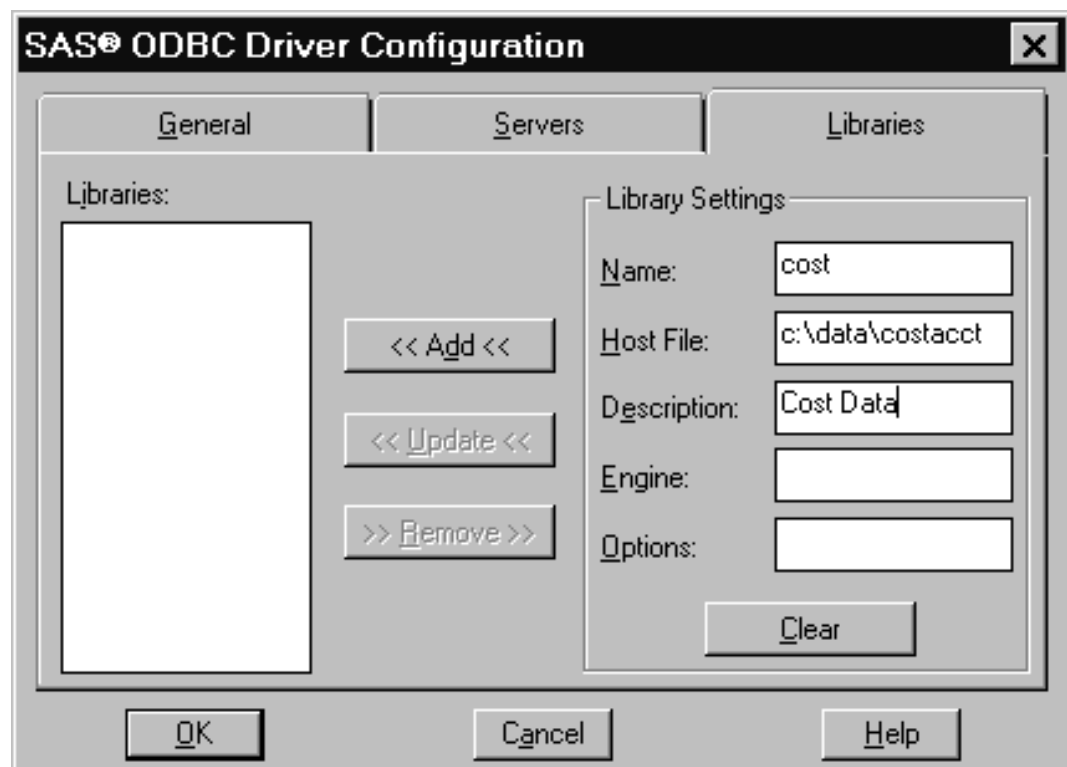
Defining Data Libraries

Each data source can include multiple data libraries. (See “SAS Data Libraries” on page 6 for information.) Therefore, you provide information about each library that you want to access.

This section describes how to use the Libraries page to define your data libraries. See “Defining Libraries at Server Startup Time” on page 21 for information about an alternate way of defining data libraries.

- 1 Select the **Libraries** tab in the SAS ODBC Driver Configuration dialog to go to the Libraries page (Display 2.7 on page 20). Supply the information described in the following steps. If at any point you want to clear all of the fields on the right side of the dialog and start again, select **Clear**.

Display 2.7 Libraries Page



- 2 In the **Name** field, enter a name for an existing physical SAS data library that you want to access. (For those who are familiar with SAS, this field corresponds to the *libref* in the SAS LIBNAME statement.) The name can be up to eight characters long. The first character must be a letter or an underscore. Subsequent characters can be letters, numeric digits, or underscores. Blanks and special characters are not allowed. For example, you might use the name **cost** to designate a library of cost-accounting data.

The SAS data library can include SAS data files, SAS data views, or both. See “SAS Data Sets” on page 5 for more information.

Note: If you use an ODBC application that exports databases using one-level names, you will need to define a library called **user**. △

- 3 In the **Host File** field, enter the physical name of the library. This must be a valid pathname for the operating system that your data library is stored on. For example, for a library that is stored on a PC in the Windows environment, **c:\data\costacct** would be a valid pathname.
- 4 (Optional) In the **Description** field, supply a description of the library, to remind yourself or other users of what the library contains.
- 5 (Optional) In the **Engine** field, enter the name of the SAS engine that is required for writing to and reading from this library. This is necessary only if you do not want the SAS server to use the default engine for the version and release number of the SAS System that you are running. (For Version 8 of the SAS System, the default engine would be **v8**.) For information about other engines that may be available, see the description of the LIBNAME statement in the SAS Companion for the operating system under which your data library is stored.
- 6 (Optional) In the **Options** field, you may enter the following option for the library that you are defining:

ACCESS=READONLY

This option limits users to "read only" access to the SAS data sets in the library.

Note: In order to honor this option, the SAS server through which the library is accessed must be running under one of the following releases of the SAS system:* △

- For Release 6.08, maintenance level TS415 or later
- For Release 6.09, the second maintenance level or later
- Release 6.10 or later.

- 7 Select

8 To include another data library with your data source, repeat steps 2-7.

Defining Libraries at Server Startup Time

Server administrators may prefer to define SAS data libraries at server startup time rather than defining them through the SAS ODBC driver dialogs. Defining libraries at server startup time can make opening the data source faster. It also enables you to avoid hard-coding the physical names of your libraries in your SAS ODBC data-source definitions.

* This option was available with earlier releases, but in the interface that is used by the SAS ODBC driver, this option has been supported only since the stated releases and maintenance levels.

As explained in “SAS Servers” on page 7, the SAS ODBC driver uses a SAS/SHARE server (invoked by PROC SERVER) to access remote data sources. It uses a SAS ODBC server (invoked by PROC ODBCSEVER) to access local data sources. To define a data library at server startup time, you precede the PROC SERVER or PROC ODBCSEVER statement with a SAS LIBNAME statement. For example, you could define a library of cost-accounting data to a SAS/SHARE server as follows:

```
libname cost 'e:\fin\acct';
proc server id=acctserv authenticate=optional;
run;
```

Note: Depending on the version of the SAS server, the **authenticate=optional** option may not be needed. Δ

To define this library to a SAS ODBC server, you would add only the above LIBNAME statement to the !SASROOT\CORE\SASMACRO\SASODBC.SAS file. See Startup Parameters on page 17 for more information.

When a user requests access to the particular SAS ODBC data source from an ODBC client application, the server would automatically make this library available, along with any libraries that were defined via the SAS ODBC Libraries page.

For more information about the SAS LIBNAME statement, see the SAS Companion for the operating system under which your data library is stored.

Deleting a Data Library Definition

To delete a previously defined data library, do the following:

- 1 Select the library name from the **Libraries** list at the left of the Libraries page (Display 2.7 on page 20).
- 2 Select .

Modifying a Data Library Definition

To change the information for a previously defined library, do the following:

- 1 Select the library name from the **Libraries** list on the Libraries page.
- 2 Make the desired changes to the **Host File, Description, Engine, and Options** fields.
- 3 Select to save your changes.

Saving Your Data Source Definition

When you have finished defining your data source, select to save your data source definition and return to the Data Sources dialog (Display 2.1 on page 12). Your newly defined data source now appears in the list of Data Sources on the left.

You can either add additional data sources, or select to return to the Microsoft Windows Control Panel (or to the location from which you entered the Data Sources dialog).

Modifying a Data Source Definition

To modify a previously defined data source, do the following:

- 1 Select the name of the data source from the Data Sources dialog (Display 2.1 on page 12).
- 2 Select **Configure**. The SAS ODBC Driver Configuration dialog (Display 2.3 on page 14) appears.
- 3 Use the tabs in this dialog to access other SAS ODBC pages. Use the other pages as described in previous sections to modify server definitions, library definitions, or SQL options.
- 4 When you are finished, select **OK** to save your changes.

Specifying a Different Server for a Defined Data Source

Suppose that a data source named **Payroll** has been moved from a server named **CICERO** to one named **DAVINCI**. In this case, you need to change the server that you specified for the **Payroll** data source by doing the following:

- 1 Select the **Payroll** data source from the Data Sources dialog (Display 2.1 on page 12).
- 2 Select **Configure**. The SAS ODBC Driver Configuration dialog (Display 2.3 on page 14) appears, with **CICERO** listed in the Servers field.
- 3 Use the Servers page to define the **DAVINCI** server, if it is not already defined.
- 4 From the General page, if **DAVINCI** is not already visible in the **Servers** field, select the drop-list icon next to that field, and then select **DAVINCI** from the list.
- 5 Select **OK** to save your changes.

Note: The server name specified must be defined in the TCP/IP Services file. For more information, see “The TCP/IP Services File” on page 28. △

Deleting a Data Source Definition

To delete a previously defined data source, do the following:

- 1 Select the name of the data source from the Data Sources dialog (Display 2.1 on page 12).
- 2 Select **Remove**.

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