Tivoli Storage Management Decision Support Loader Release Notes Version 4.2.0

May 2001

Tivoli Storage Management Decision Support Loader (May, 2001)

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Notices

Contents

Release Notes

This document describes the Tivoli® Storage Management Decision Support Loader, a prerequisite, companion product for the Tivoli Decision Support for Storage Management Analysis Version 4.2.0 product. This document is the most current information for the Tivoli Storage Management Decision Support Loader and takes precedence over all other documentation. It is intended for systems administrators who are responsible for Tivoli Storage Manager installations.

See the *Tivoli Decision Support for Storage Management Analysis Release Notes* for more information about that product.

Please review these notes thoroughly before installing or using this product.

These release notes include the following topics:

Product Overview

The Tivoli Storage Management Decision Support Loader (Decision Support Loader) is used to manage the data collection required by the Tivoli Decision Support for Storage Management Analysis (Storage Management Analysis) product.

The Decision Support Loader is packaged with the Storage Management Analysis product. Package installation and usage instructions are provided in separate sections later in this document.

The Decision Support Loader transfers data from a Tivoli Storage Manager (TSM) server database to a Relational Database Management System (RDBMS) reporting database. The reporting database can then be queried to generate multidimensional views and detailed reports.

Forecasting is a feature of the Decision Support Loader, Version 4.2.0. It is a way to gauge the future demands of your TSM servers and project your system overall health. Should you choose not to engage the forecasting option, Storage Management Analysis will still display; however, the reports based on forecasting will not be enabled in the Discovery Interface. See the *Tivoli Decision Support for Storage Management Analysis Release Notes* for more information about the Discovery Interface. These views and reports provide

information that can guide you in making decisions about the health and performance of a TSM environment.

The Decision Support Loader can produce forecasts if there are at least five days of historical data.

The Decision Support Loader performs the following tasks:

- Extracts data from a TSM server using the TSM ODBC driver
- Formats the extracted data as required by the RDBMS (reporting database), and provides a unique key for each piece of extracted data
- Writes data to the reporting database using the OEM ODBC driver
- Prunes expired records from the reporting database
- Analyzes data for trends and provides forecasts based on these trends
- Generates a dynamic HTML log file to record processing results

You can use the Decision Support Loader to transfer data from multiple TSM servers to a shared RDBMS database server. See "Installing and Configuring the Decision Support Loader" on page 3 for more information.

You can run the Decision Support Loader manually, using the graphical user interface or configuration file, or you can use a scheduler to run it automatically. See “Configuring the Decision Support Loader” on page 25 for more information about scheduling.

RDBMS database schemas required for the TSM Decision Support Loader database tables are delivered with the Decision Support Loader. These database schemas must be set up by your database administrator before running the Decision Support Loader for the first time.

System Requirements

This section describes the system requirements, including software and hardware, necessary to install and use the Decision Support Loader.

Software Requirements

The following prerequisite software must be installed on the Decision Support Loader workstation:

- Microsoft® Windows NT® 4.0 with Service Pack 5 or Windows 95 with OSR2 or Windows 98
- Microsoft ActiveX Control Pad (or Microsoft Office 97)
- The following client software, including the latest 32-bit ODBC drivers:
  - Tivoli Storage Manager backup-archive client, version 3.7 PTF 2 or higher
  - Relational Database Management System (RDBMS) database clients
  - Microsoft Data Access Components (MDAC) version 2.1 or higher

Note: You should check which version of MDAC is running on your system. To help you determine which installed version of MDAC is installed on your system, you can use a tool called Component Check. This tool is available from http://www.microsoft.com/Data. We recommend that you upgrade the correct version to prevent operating system errors.

You should also check the ODBC version information running on your system. To do this, from the Windows NT desktop, select **Start > Settings > Control Panel > ODBC > ODBC Data Source Administrator> About.** All items listed should be at the same version (3.520.4403.2).

Server and Databases Supported

The Decision Support Loader supports the Tivoli Storage Manager server, version 4.1or higher.

Supported RDBMS databases include:

- IBM® Database 2 (DB2®) versions 5.2 and 6.1
- Microsoft SQL version 7.0 with Service Pack 2
- Oracle versions 8.1.5 and 8.1.6

Hardware Requirements

The Tivoli Storage Management Decision Support Loader must be installed on an IBM PC AT-compatible machine. Tivoli does not support platforms (such as the NEC PC 98xx series) that are not compatible with the IBM PC AT.

Each installation of the Decision Support Loader requires a workstation that has:

- At least 8MB of free disk storage
- At least 128MB of memory
- A CD-ROM device

Installing and Configuring the Decision Support Loader

The section includes information about installing the Decision Support Loader and configuring your Tivoli Decision Support environment.

For Windows 2000 users, we have created a separate install package. Please install the TSMDSL 4.2.0 for Windows 2000 if you are going to be running the loader on a Windows 2000 platform. Use the installations instructions found in the next section. “Installing the Decision Support Loader.

Installing the Decision Support Loader

Before you install the Decision Support Loader, see "System Requirements" on page 2 to determine the prerequisite and dependent software needed. Make sure all the preliminary requirements are met.

Note: We recommend that you install the Decision Support Loader on a dedicated Windows NT workstation. Running the Decision Support Loader and the Storage Management Analysis product on the same machine can impact performance.

Perform the following steps to install the Decision Support Loader:

1. Insert the Tivoli Decision Support for Storage Management Analysis CD-ROM into your CD-ROM drive.
   - The setup program automatically starts (autorun) as soon as you load the CD-ROM. If autorun is disabled, double-click on *setup.exe* in the CD root directory to start the setup program.
2. Select **Tivoli Storage Management Decision Support Loader**.
3. The Read-me file will appear. Click **Accept** to continue.
4. Read the Welcome message and close any open applications. Click **OK** to continue.
5. Click the installation button to install the Decision Support Loader in the default directory *(\program files\tivoli\tsm\decision)*. Click **Change Directory** to select a different installation directory, and then click the installation button.
6. A dialog box prompting you to select a Program Group appears. Click **Continue** to accept the default or select one of the **Existing Groups** and then click **Continue**. Data access components will be installed, and a progress indicator will appear showing the program files installation process. When the process completes, a Setup Complete message appears. Click **OK** to exit the installation.

Configuring Your Tivoli Decision Support Environment

You can transfer data from multiple TSM servers to a shared RDBMS database server by installing the Decision Support Loader on multiple workstations. To use this configuration, you must set up each TSM server as an ODBC data source, and configure each Decision Support Loader installation to access the appropriate TSM server and shared RDBMS database server. See "Tivoli Storage Manager ODBC setup" on page 9 and for more information.

You can also transfer data from multiple TSM servers by installing the Decision Support Loader on a single Windows NT workstation. From the Tivoli Storage Management Decision Support Loader graphical user interface, add each TSM server to the **Server List** on the same workstation. The Decision Support Loader will query each server in the order listed and will compile the results to a single RDBMS database.

RDBMS Database Schemas

During the Decision Support Loader installation, required RDBMS database schemas are located in the same directory as the Decision Support Loader. The default installation path for the database schemas is: ***\program files\tivoli\tsm\decision\schemas.***

A schema contains the definitions of the tables used in the RDBMS for the three databases listed in “Server and Databases Supported” on page 3. For more information about the RDBMS, see “Setting Up the RDBMS” on page 5

Setting Up the RDBMS

The information provided in this section is a high-level overview for setting up the RDBMS. The intent is to give you some information for setting up or adding definitions for the specific database you have. However, it is recommended that the tasks associated with setting up the RDBMS be performed by a database administrator.

Note: It is assumed that your database server software is installed and running on a network. In addition, a database shell is created by a database administrator and a user ID is available with permissions to create database definitions using the database specific schema.

Database schema files, contained in the default installation path (***\program files\tivoli\tsm\decision\schemas***), define the specific database structure for the Decision Support Loader to rollup data from the Tivoli Storage Manager server.

There will be corresponding folders in the directory path (***\program files\tivoli\tsm\decision\schemas***) for each database you are using: Oracle, IBM DB2, or Microsoft SQL. Each folder contains two files:

- File <*db*>schema.sql contains the initial database definitions
- File <*db*>migration.sql contains database definitions added to an existing database when migrating from the previous release of Tivoli Decision Support for Storage Management Analysis.

Note: The bottom of each schema file (**.sql*) contains additional permissions for a TDS user ID. These permissions can be omitted when a new user ID has been created to connect to the database.

Adding Database Definitions

While other utilities are available, the following list includes those that can be used to connect to the associated database and load the schema:

- **SQL Plus:** The SQL Plus utility can be used to connect to the Oracle 8.1.5 or 8.1.6 database. After connecting to the database, the respective schema file (*ora8schema.sql* or *ora8migrate.sql*) can be opened and loaded.
- **Command Center**: The Command Center utility can be used to connect to the IBM DB2 5.2 or 6.1 database. After connecting to the database, the respective schema file *(db2schema.sql* or *db2migrate.sql*) can be opened and loaded.

- **Query Analyzer:** The Query Analyzer utility can be used to connect to the Microsoft SQL Server 7.0 database. After connecting to the database, the respective schema file (*sql7schema.sql* or *sql7migrate.sql*) can be opened and loaded.

After the schema is loaded into a database, the database structure for the Decision Support Loader is created. After the database structure has been created, an SQL query can be generated against that database.

You can verify that the definitions were loaded (added or created) successfully by issuing a simple SQL to one of the new tables added in the database.

Uninstalling the Decision Support Loader

To uninstall the Decision Support Loader, make sure the product is not running. Using the Task Manager, be certain that neither process: *mtsmdsl.exe* or *tsmdsl.exe* is running. Then, do the following:

1. From the Windows NT desktop, select **Start > Settings > Control Panel**.
2. Double-click **Add/Remove Program**s to open the **Add/Remove Programs Properties** dialog box.
3. Select the **Install/Uninstall** tab, then select **Tivoli Storage Management Decision Support Loader** from the scroll box, and click **Add/Remove** to uninstall the program.

Warning: During the uninstall process, a **Shared Component** dialog box might prompt you to retain or uninstall shared system resources. We recommend that you click **Remove None** to retain all shared system resources, unless you are certain a specific component is not used by another program.

Reinstalling the Decision Support Loader

To reinstall the Decision Support Loader, you must first remove any currently installed version of the product, and then follow the installation instructions. When you reinstall the Decision Support Loader, you will not have to rebuild the databases.

Setting up ODBC Data Source Connections

Before you configure the Decision Support Loader, you need to set up your TSM servers and RDBMS reporting database servers as Open Database Connectivity data sources. ODBC is an interface that lets many different programs access data in databases. The OEM OBDCs are vital for communicating to the RDBMS databases. Without this connection, there will not be any communication between the TSM servers, the Decision Support Loaders and the RDBMS database.

The information required for ODBC setup will vary, depending on your database types and system configuration. Before you begin setting up your data source connections, see your database administrator for specific connection information.

Note: See "Software Requirements" on page 2 for information about supported ODBC drivers.

This section describes the procedure used for configuring your ODBC setup. See "Starting your ODBC Setup" on page 7. You can use the **Create New Data Source** dialog box to start the appropriate setup wizard for the database drivers supported by the Decision Support Loader.

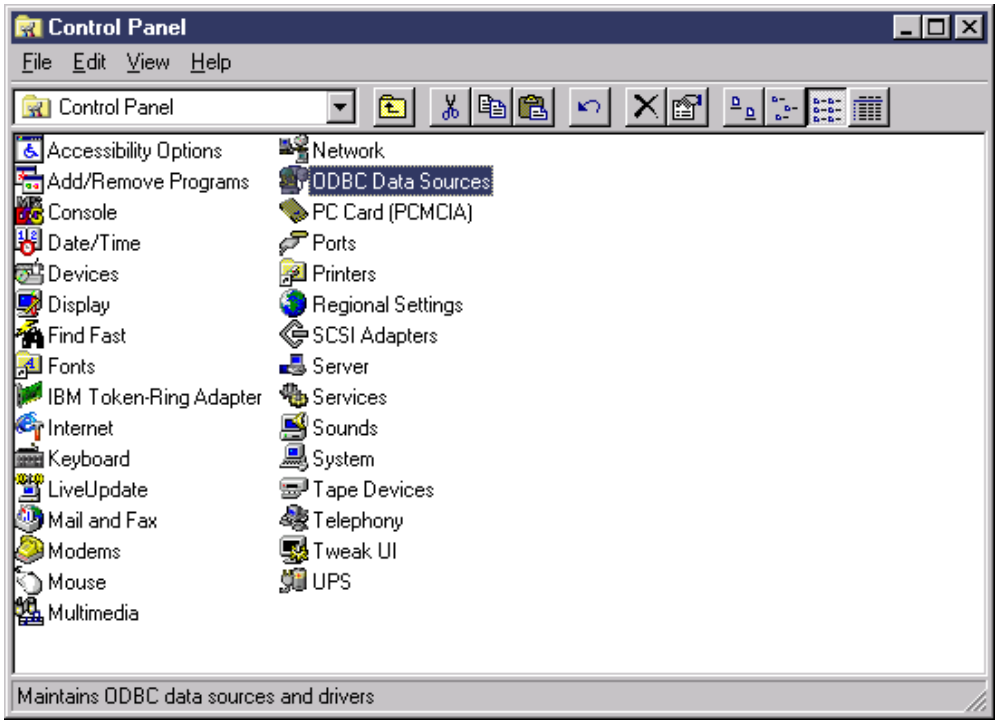
After you have completed the initial procedure, see the following sections for specific ODBC configuration examples:

- “Tivoli Storage Manager ODBC setup” on page 9
- “IBM DB2 6.1 ODBC Setup” on page 11
- “Microsoft SQL ODBC Setup” on page 18
- “Oracle ODBC Setup” on page 24

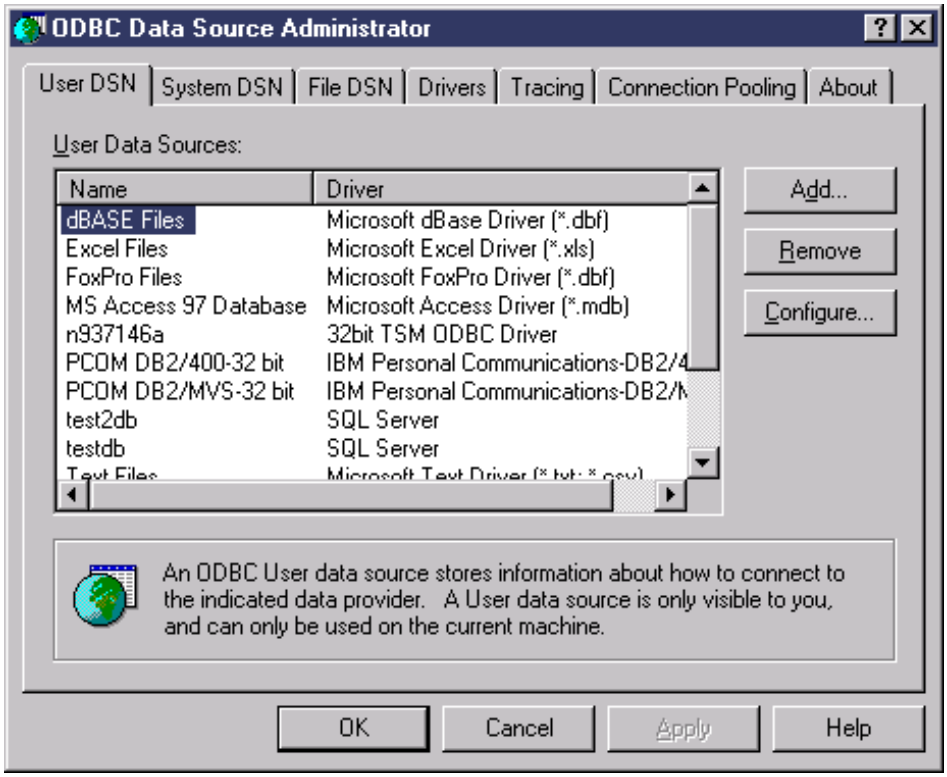
Starting your ODBC Setup

Follow these steps to open the **Create New Data Source** dialog box. From the dialog box, you can select the data source connection.

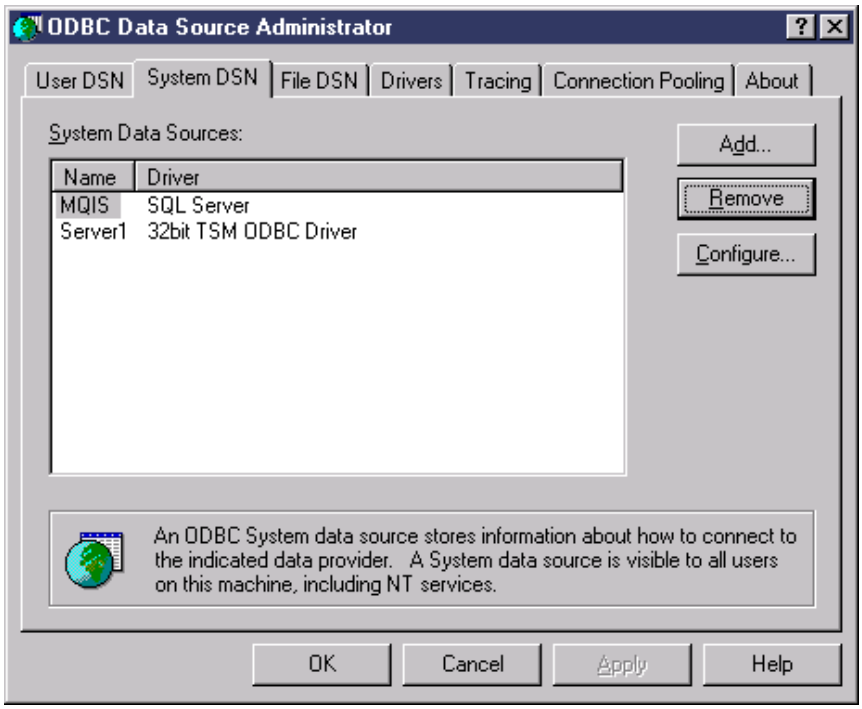
1. From the Windows NT desktop, select **Start > Settings > Control Panel** to open the **Control Panel**. Double-click **ODBC Data Sources.**



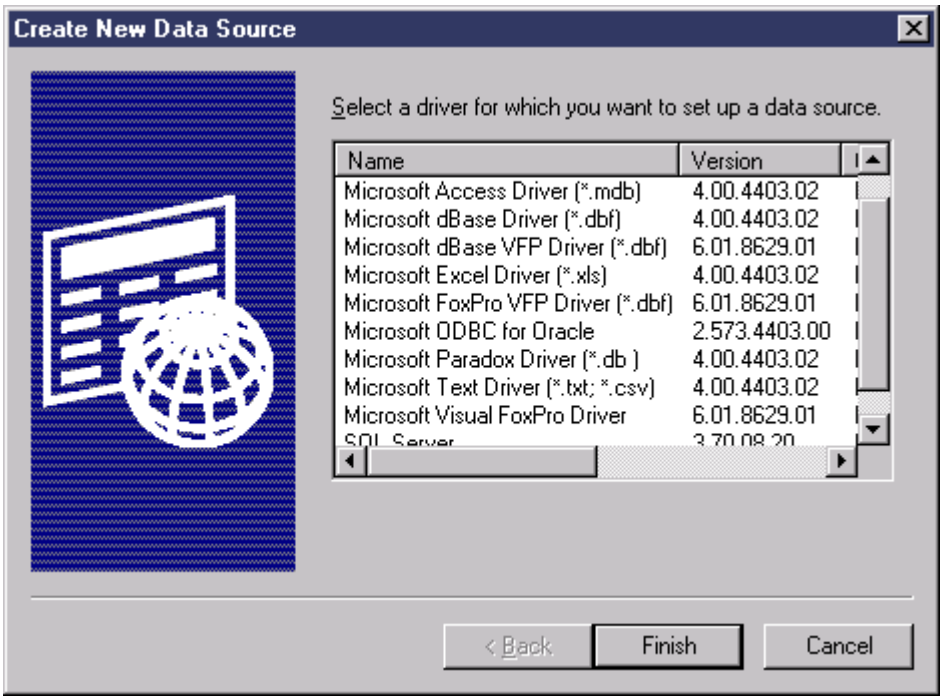
2. The following **ODBC Data Source Administrator** dialog box appears.



3. Select the **System DSN** tab to open the **System Data Sources** dialog box. Click **Add** to open the **Create New Data Source** dialog box.



4. The following **Create New Data Source** dialog box appears.



Tivoli Storage Manager ODBC setup

1. From the **Create New Data Source** dialog box, select **32bit TSM ODBC Drive**r. Click **Finish** to open the **TSM ODBC Setup** dialog box.

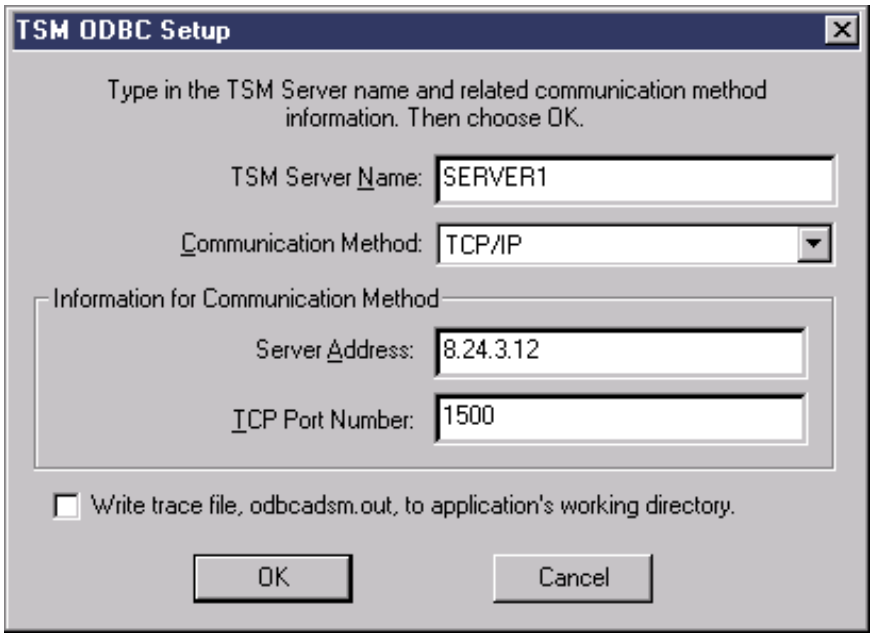
   (See "Starting your ODBC Setup" on page 7 for instructions on opening the **Create New Data Source** dialog box.)

2. The following **TSM ODBC Setup** dialog box appears. Enter a symbolic name for the TSM server, the server address, and the port number. Change the default communication method if required by your system administrator. The values shown for each field are for example only.

Note: If you are installing the Decision Support Loader on multiple workstations to concurrently transfer data from multiple TSM servers to a shared RDBMS database server, be sure to specify a unique server name for each TSM server.

3. Click **OK** to complete the setup wizard and return to the **Data Source Administrator** dialog box. From the dialog box, you can set up more ODBC data source connections or exit the ODBC data source setup.

Note: The Data Source Administrator box may offer different options than the one shown below depending on the version of loader you are using.

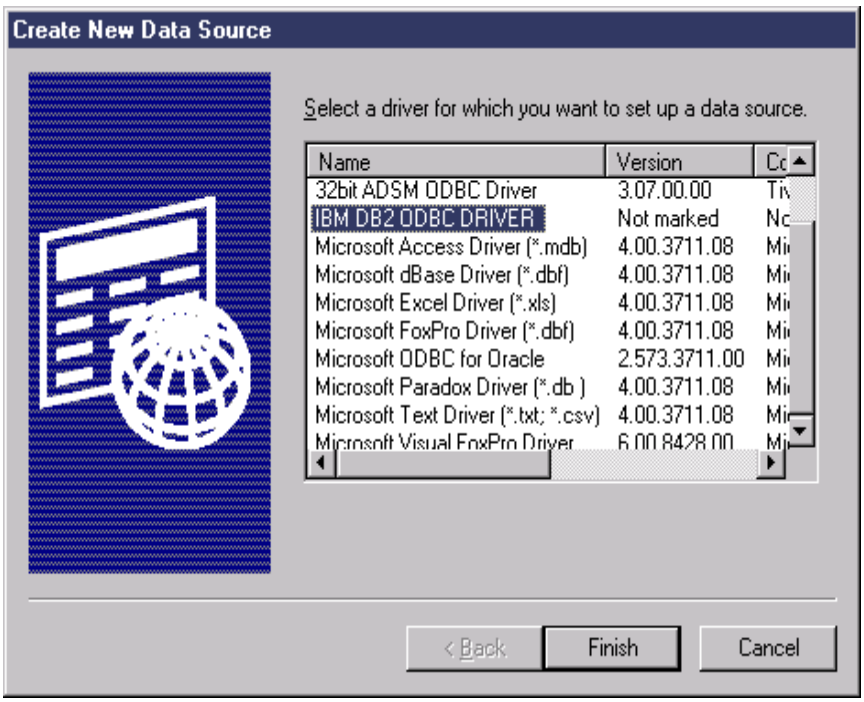


IBM DB2 6.1 ODBC Setup

1. From the **Create New Data Source** dialog box, select **IBM DB2 ODBC DRIVER** and click **Finish** to open the **ODBC IBM DB2 Driver** dialog box.

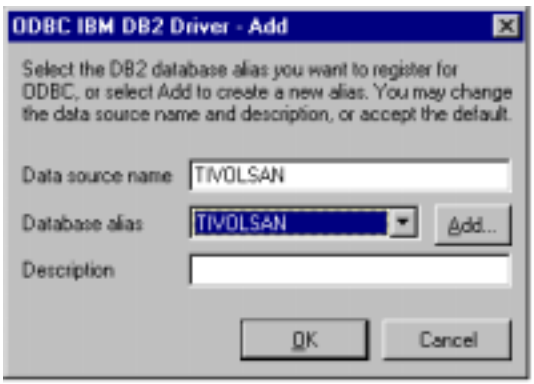
(See "Starting your ODBC Setup" on page 7 for instructions on opening the **Create New Data Source** dialog box.)

Note: If the user interface you are using is at the DB2 5.2 version, some screens will look slightly different from the ones shown.

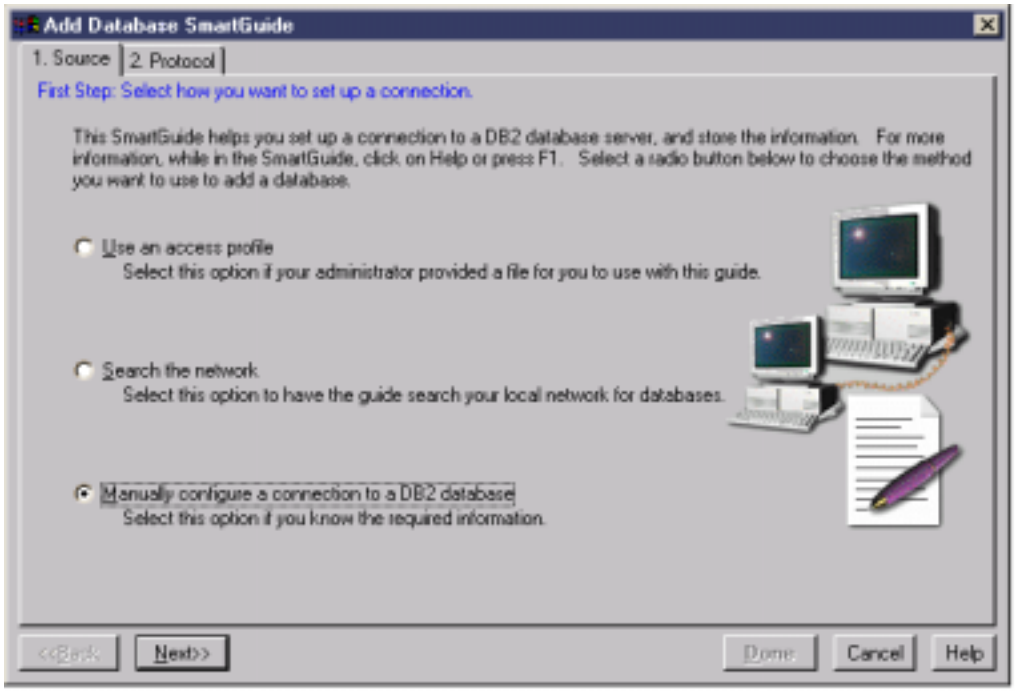


2. The **ODBC IBM DB2 Driver - Add** dialog box appears.

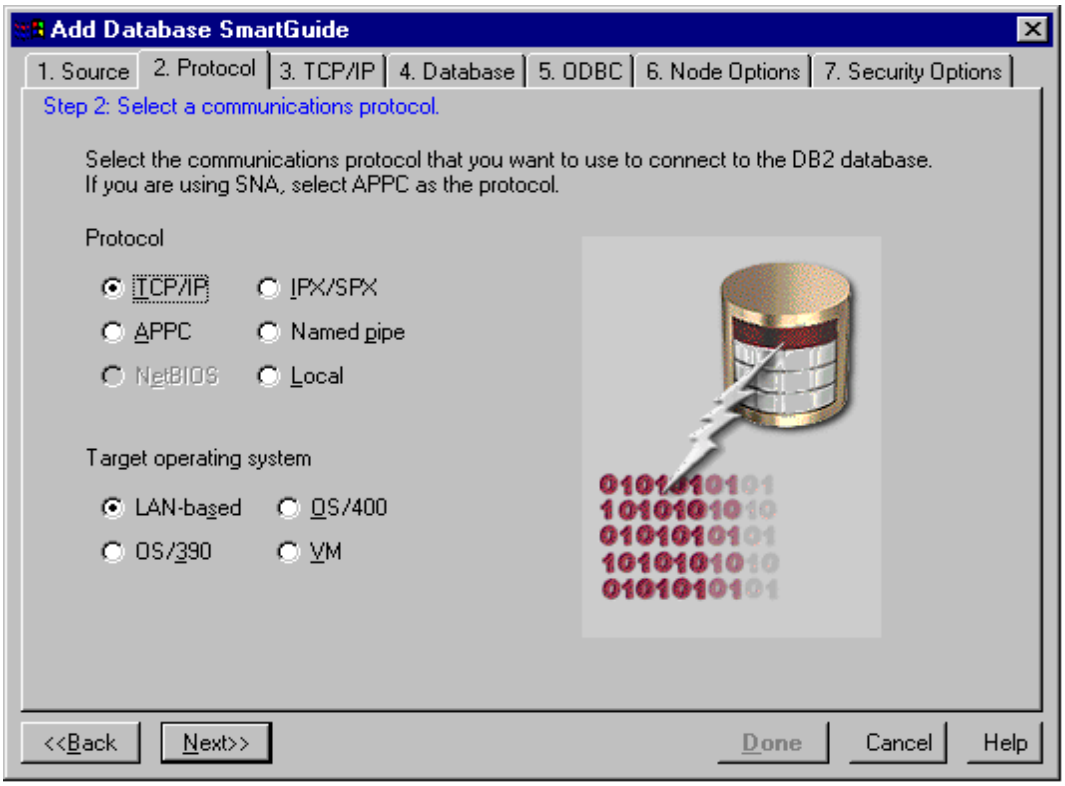
Note: During your initial DB2 product installation, you may have already set up an ODBC data source connection. If you have not, select **Add Database** to add a *new*database configuration, and follow the steps to complete the configuration. Your new setting will also appear in the DB2 Client Configuration database list.



3. The following **Add Database SmartGuide** dialog box appears**.** Select the third radio button to manually configure your ODBC setup. Click **Next** to access the **Protocol** page. You can also use a predefined access profile to automate the setup process. Click **Help** for more information about the automated setup.

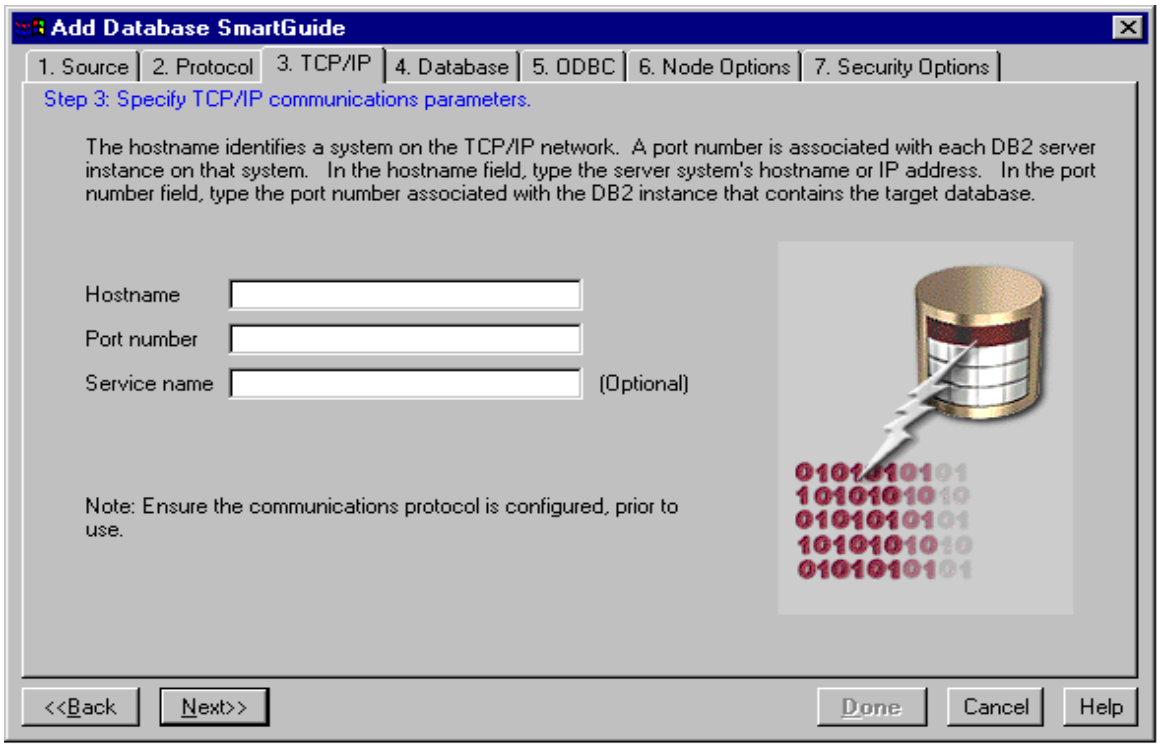


4. Select the communications protocol required by your system configuration. Click **Next** to open the parameters dialog box for the protocol you have selected.

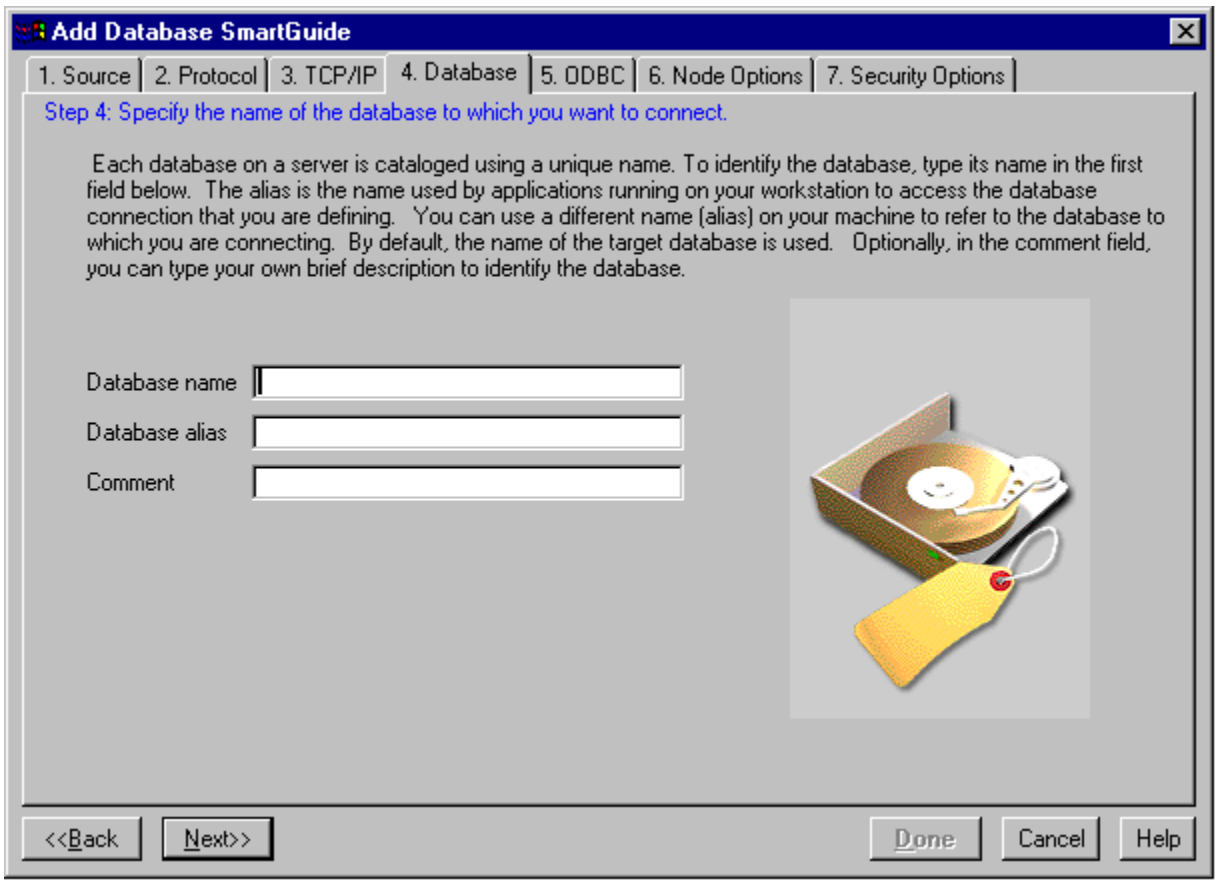


5. Enter the DB2 server hostname (IP address or system name) and port number. Click **Next** to open the **Database** page.

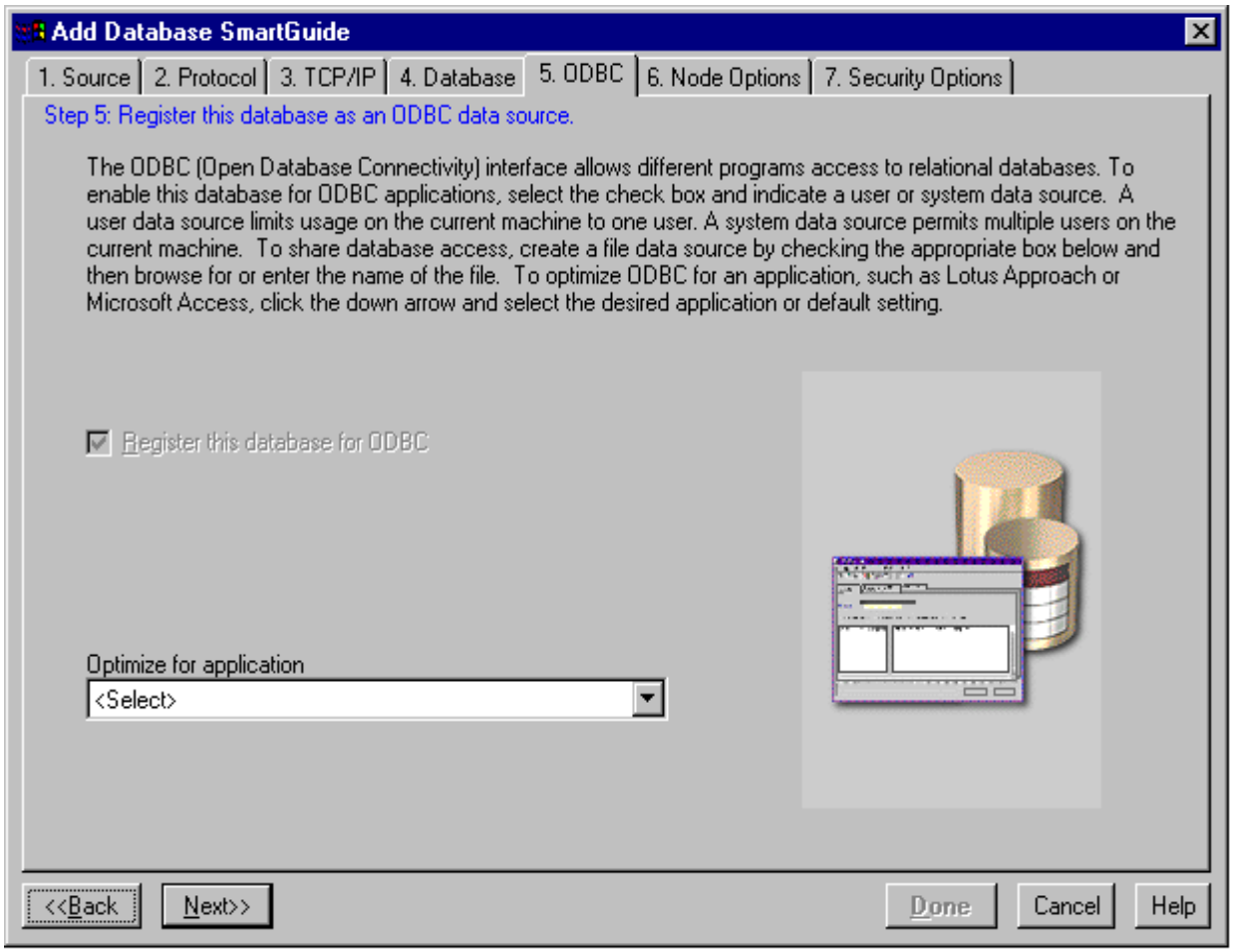
Note: The service name is optional. However, you must identify the port and protocol in the Services file on the system running the DB client. Use the find option in the Windows Explorer tool to locate the file and verify that your port number is included. If the number is not there, and you must add it, contact your Database Administrator for the correct DB2 database service name. You can also use Notepad to update the file. Remember to save the current file before making any changes, so that it is still available for your use if necessary.



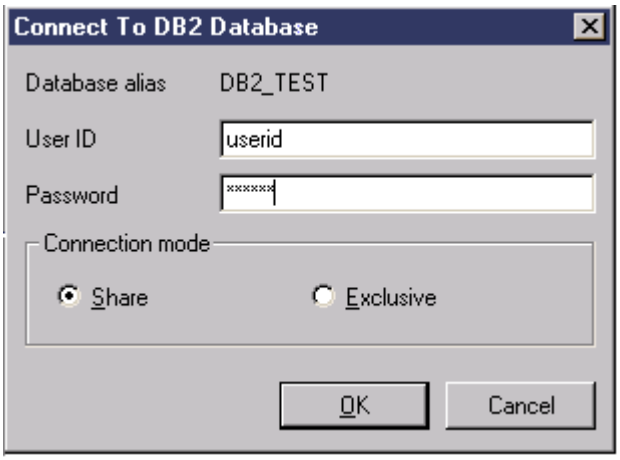
6. Enter the name of the database you want to set up as an ODBC data source. You must enter the unique name specified for the database when it was created. If you do not specify an alias, the unique name specified for the database when it was created will be used as the default local alias. Click **Next** to open the **ODBC** dialog box.



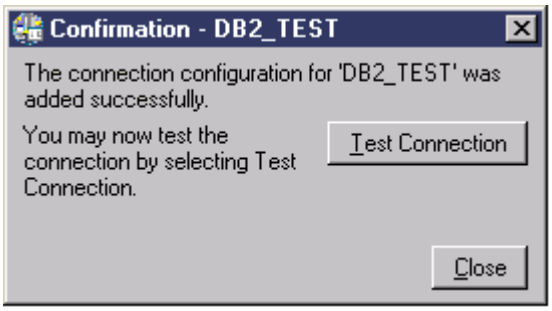
7. Ensure that the check box next to **Register this database for ODBC** is checked. Select **Microsoft Visual Basic** from the **Optimize for Application** dropdown list. Click **Done** to open the **Connect to DB2 Database** dialog box.



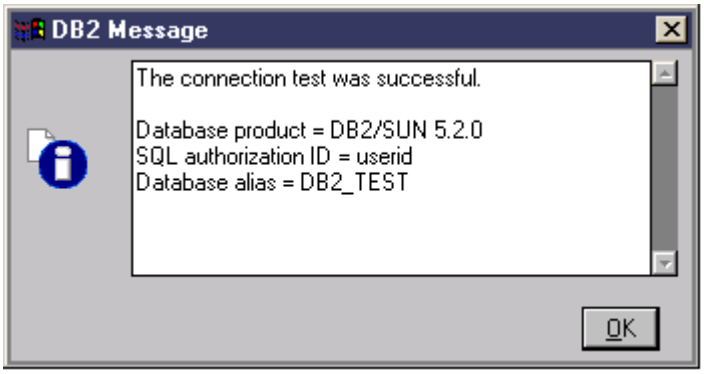
8. Enter the User ID and password required to access the DB2 database. Click **OK** to open the **Confirmation** dialog box.



9. Click **Test Connection** to test the database connection.



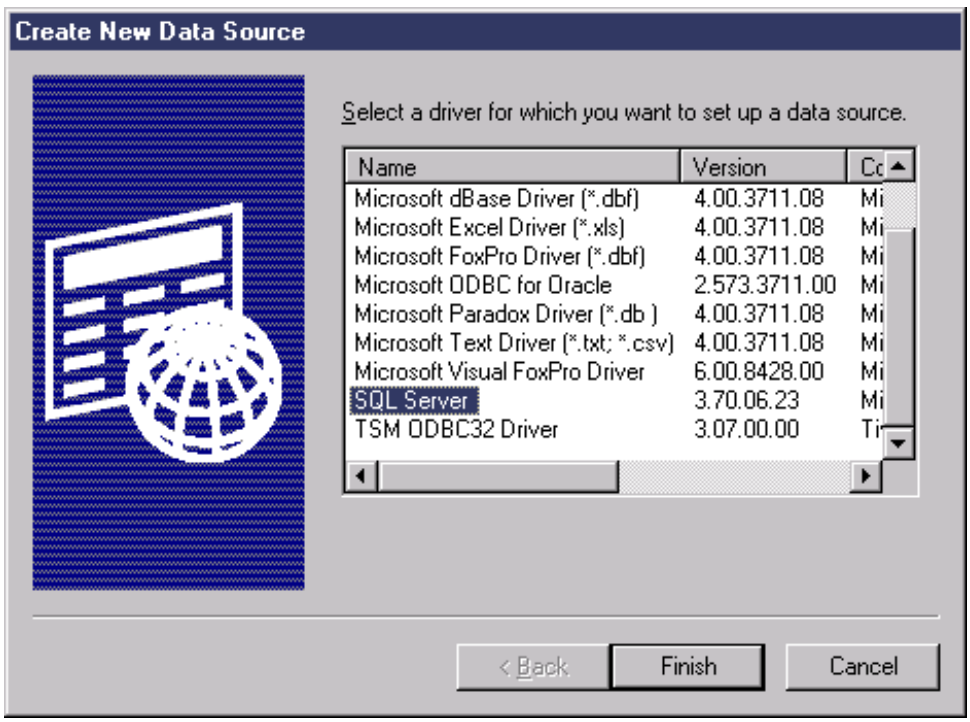
10. The following message appears if the configuration was successful. Click **OK** to complete the setup wizard and return to the **Data Source Administrator**. From the **Data Source Administrator**, you can set up more ODBC data source connections or exit the ODBC data source setup. If the data source test failed, repeat the DB2 ODBC Setup procedure to adjust option settings.



Microsoft SQL ODBC Setup

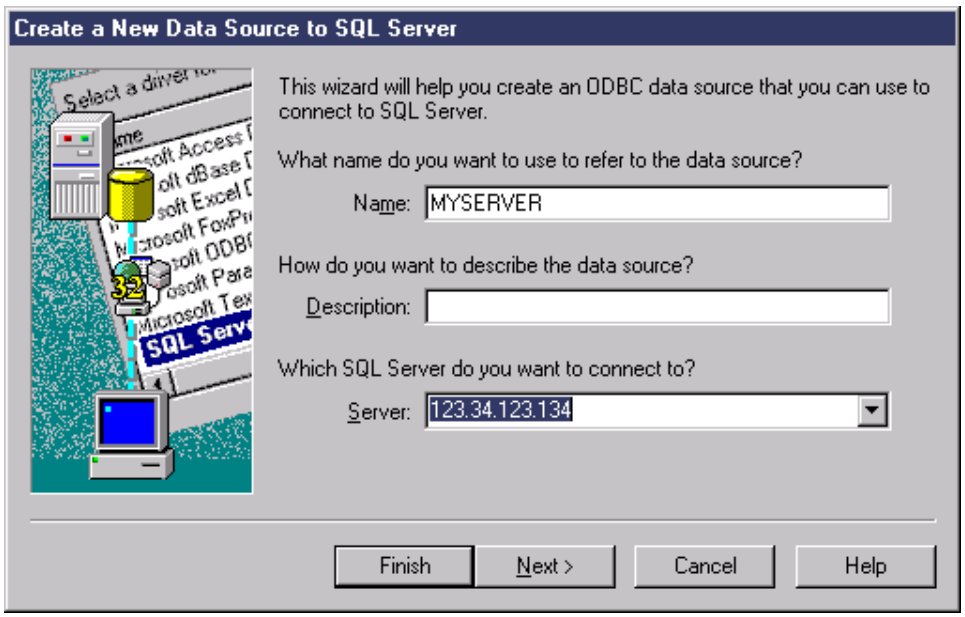
1. From the **Create New Data Source** dialog box, select **SQL Server** and click **Finish.**

(See "Starting your ODBC Setup" on page 7 for instructions on opening the Create New Data Source dialog box.)

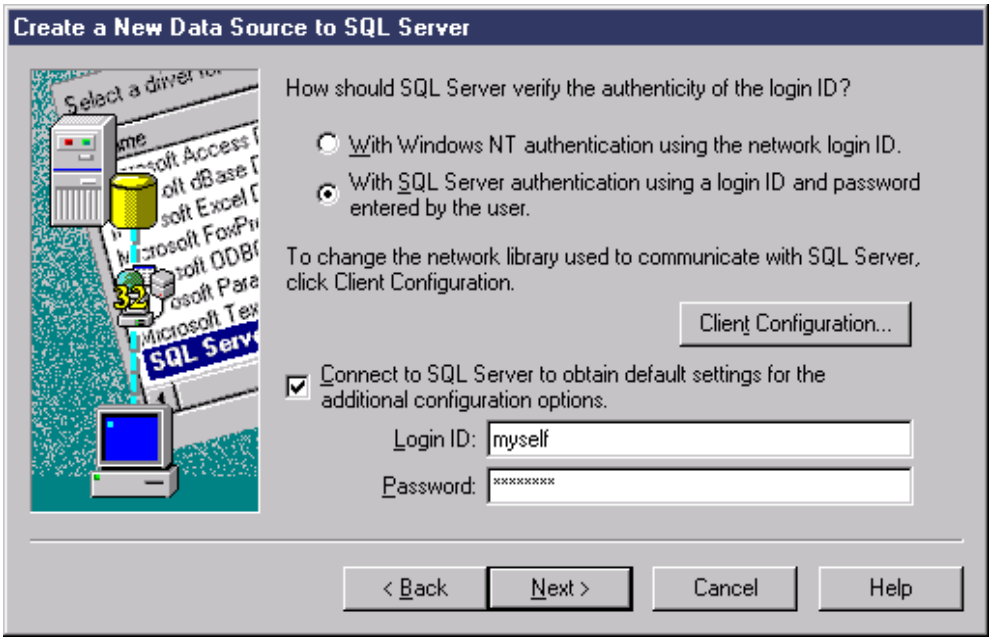


2. The **Create a New Data Source** to **SQL Server** setup wizard appears. Enter a symbolic name for the data source and any descriptive text, and specify the IP address or system name of the server. Click **Next**.

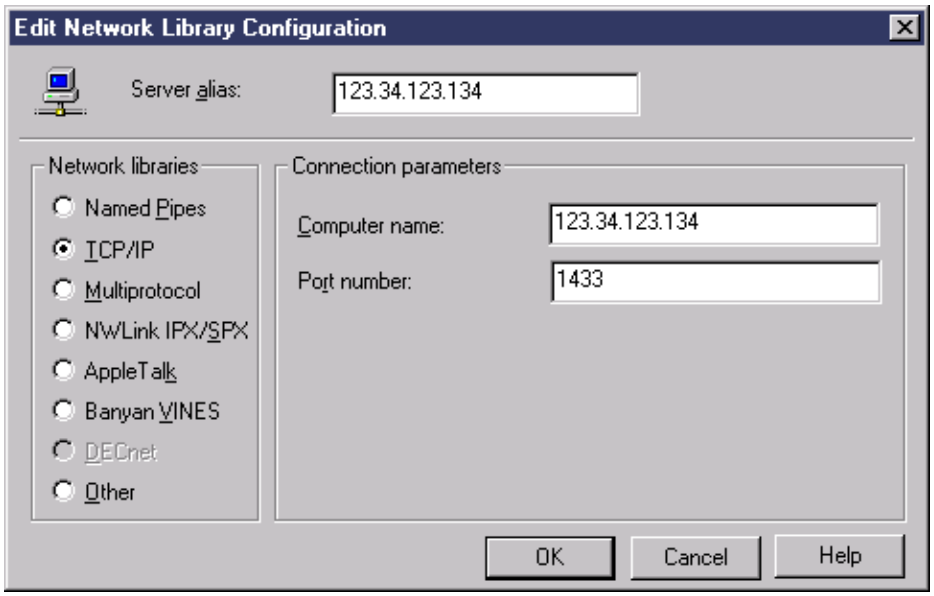
Note: You must define the server using the Client Network Utility for the server to appear in the drop down list and make a successful connection.



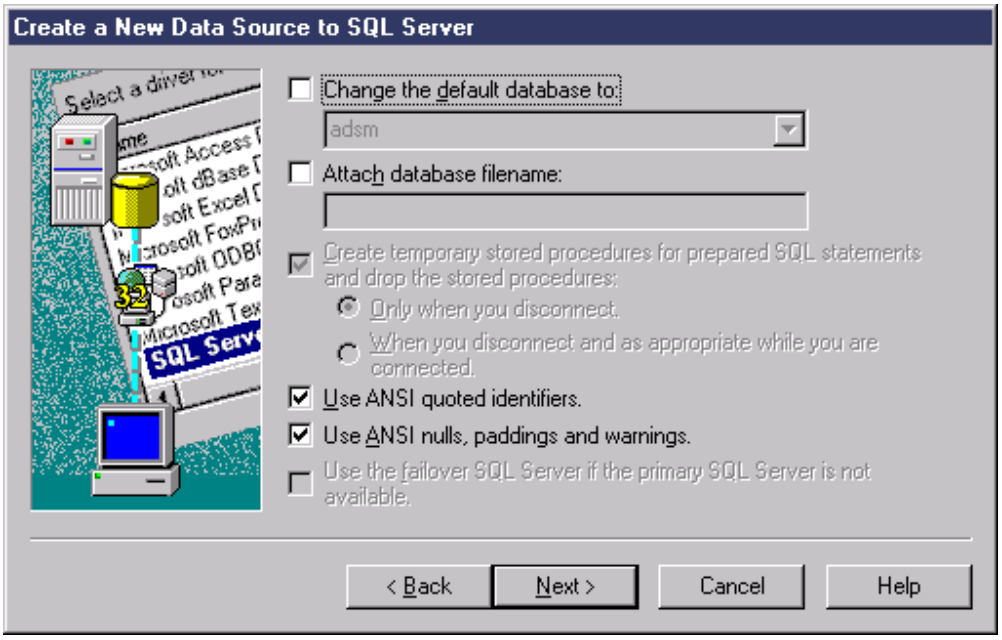
3. Select the second radio button to use SQL Server login authentication. Enter a login ID and password for the Microsoft SQL Server authentication. Click **Client Configuration** to open the **Edit Network Library Configuration** dialog box.



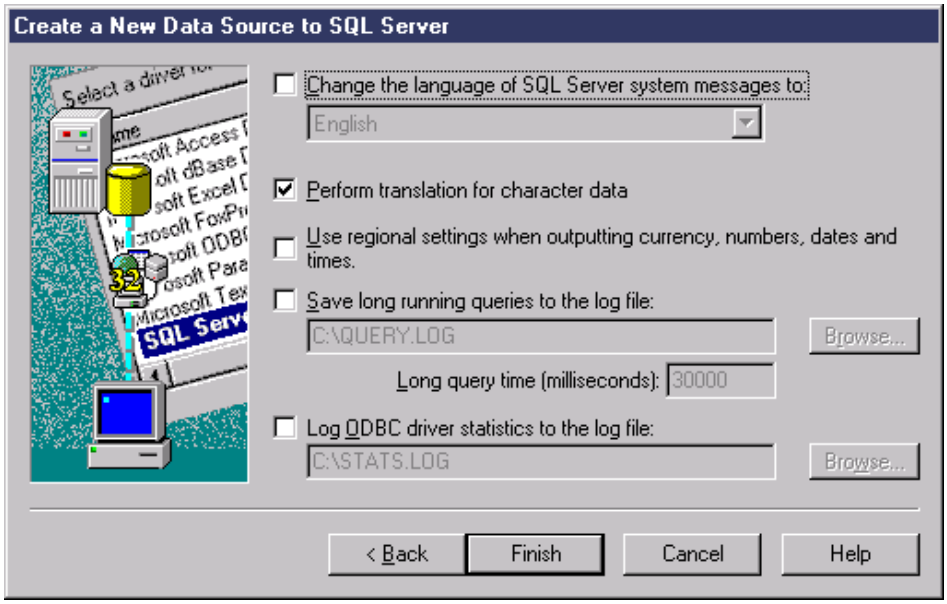
4. Change the Network libraries communication protocol or connection parameters as required by your system configuration and click **OK**. The values displayed below are for example only.



5. Select any processing options you want to apply, or use the default settings. You must specify the reporting database you plan to use for Storage Management Analysis as the default database. Click **Next**.

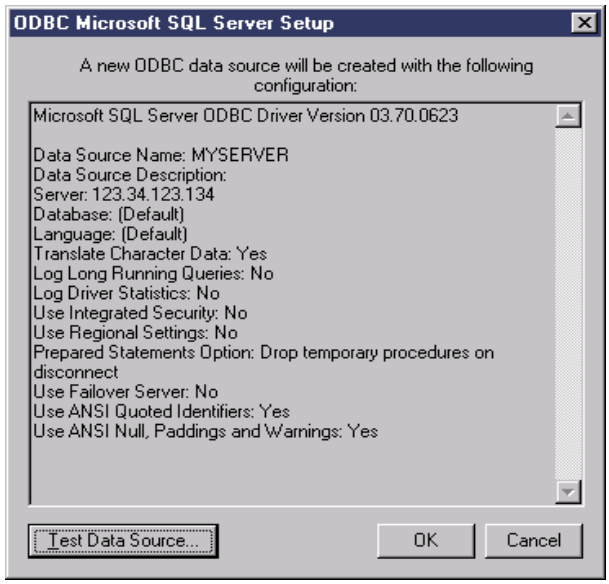


6. Select any processing options you want to apply, or use the default settings. Click **Finish** to open the **ODBC Microsoft SQL Server Setup** dialog box.

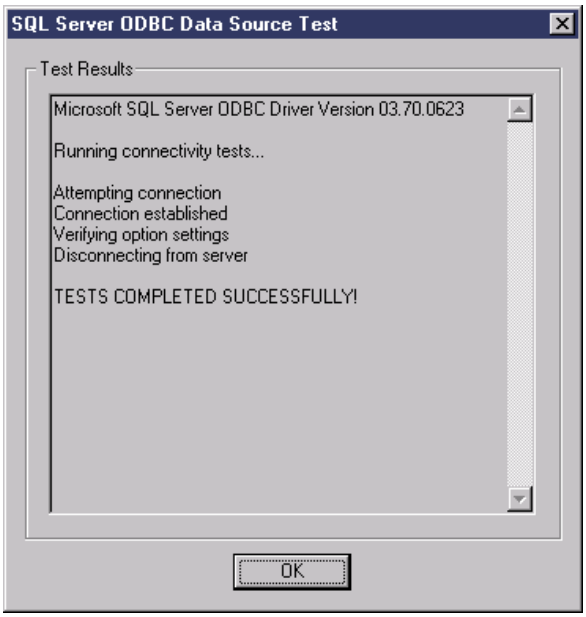


7. On the **ODBC Microsoft SQL Server Setup** dialog box, check the configuration summary to make sure the settings match the ones you entered in the setup wizard. If the settings do not match, click **OK** to return to the **Data Source Administrator** and repeat the SQL ODBC Setup procedure to adjust option settings.

8. If the settings are correct, click **Test Data Source** to establish a connection to the specified SQL server and verify option settings



9. Click **OK** to complete the setup wizard and return to the **Data Source Administrator**. From the **Data Source Administrator**, you can set up more ODBC data source connections or exit the ODBC data source setup. If the data source test failed, you can repeat the SQL ODBC Setup procedure to adjust option settings.



Oracle ODBC Setup

1. In the **Create New Data Source** dialog box, select **Oracle ODBC Driver**. Click **Finish**. The **Oracle8 ODBC Driver Setup** dialog box opens.

   (See "Starting your ODBC Setup" on page 7 for instructions on opening the Create New Data Source dialog box.)

Note: The ODBC driver shipped with the Oracle 8.1.5 client has known problems. To install the Oracle 8.01.55.00 patch, go to http://www.oracle.com and click on the downloads link.

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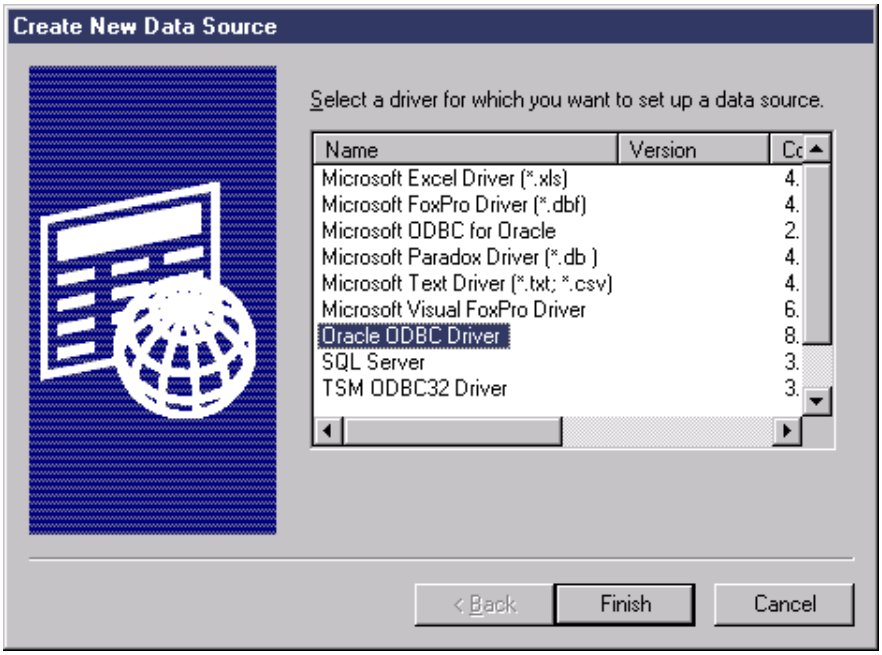

2. In the **Oracle8 ODBC Driver Setup** dialog box, enter a symbolic data source name and any descriptive text. Enter the service name and user ID specified when you configured the Oracle client via the Oracle Net Configuration Assistant. Select any processing options you want to apply, or use the default settings.

Note: If the user interface you are using is at the Oracle 8.1.5 version, your screen will look slightly different from the Oracle8 ODBC Driver setup screen shown. However, please be aware that the Oracle8 ODBC Driver setup is the same for Oracle 8.1.5 and Oracle 8.1.6

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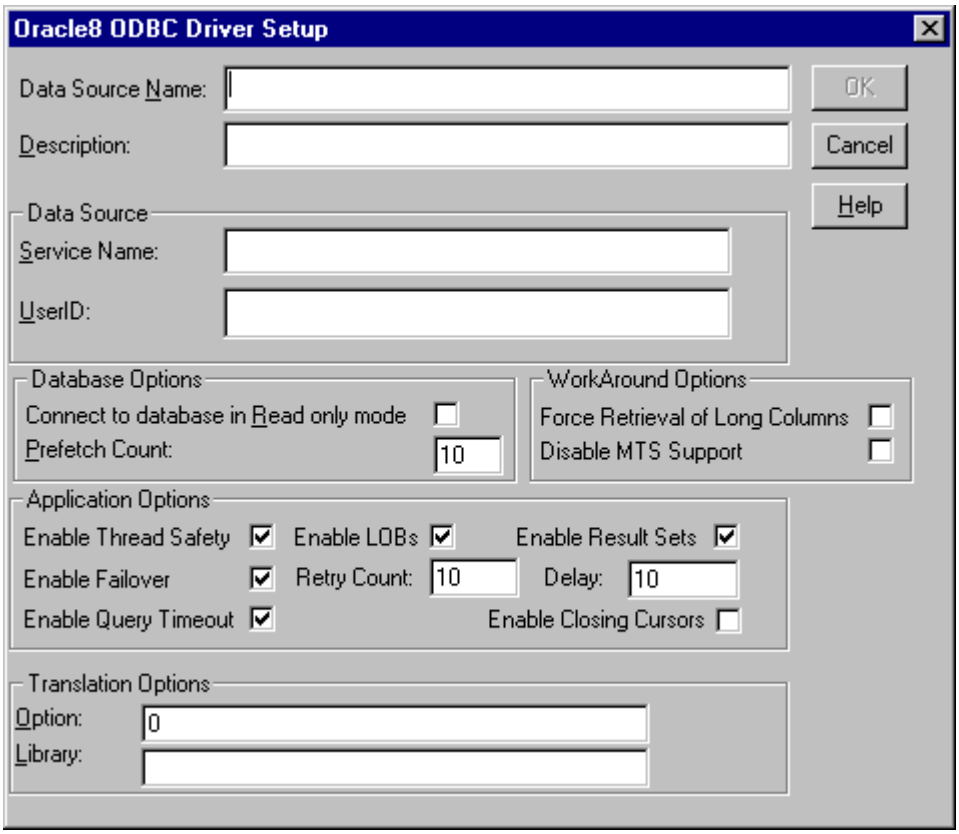


3. Click **OK** to complete the setup wizard and return to the **Data Source Administrator**. From the **Data Source Administrator,** you can set up more ODBC data source connections or exit the ODBC data source setup. If the new data source does not appear in the list on the **System Data Sources** page, a connection could not be established to the data source. You can repeat the Oracle ODBC Setup procedure to adjust option settings

Configuring the Decision Support Loader

You need to configure the Decision Support Loader to extract data from at least one TSM server and to write data to one RDBMS database. Decision Support Loader configuration settings include the names, administrative logon IDs and passwords for each of these servers, as well as database table information and parameters for data retrieval and database maintenance. The default file used to store these configuration settings is named *TSMDSL.ini*, but you can specify any filename with an **.ini* extension. If you plan to run concurrent TSMDSL servers doing backups to the same RDBMS, you must assign unique names across all servers for each entry in the server list.

You can configure the Decision Support Loader using either of the following methods:

1. You can open the Decision Support Loader and use the setup options provided by the product interface. You can save these settings in the *TSMDSL.ini* file, or specify another **.ini* file.

2. You can edit the configuration file, *TSMDSL.ini* directly, or create an **.ini* file from scratch.

   See "Configuring the Decision Support Loader Using a Configuration File" on page 35 for information about configuring the Decision Support Loader by working directly with an **.ini* file.

Note: If you are unfamiliar with the Storage Management Analysis product, it is highly recommended that you configure using the setup options provided by the Decision Support Loader interface.

Configuring the Decision Support Loader Using the Interface Setup Options

After you have set up your ODBC data sources, you can configure the Decision Support Loader program. This section describes the procedure used for configuring the Decision Support Loader using the interface setup options. The procedure involves:

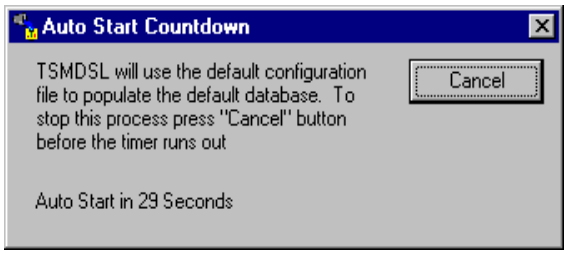
- Opening the Decision Support Loader

- Performing the initial configuration on the Decision Support Loader. You can also perform the procedure for the advanced configuration on the Decision Support Loader.

Opening the Decision Support Loader

To open the Decision Support Loader program from the default installation directory, select **Start > Programs > Tivoli Storage Manager > Decision Support Loader.**

An **Auto Start Countdown** dialog box appears. Click **Cancel** within 30 seconds to stop the autostart process, define new configuration parameters, and then run the Decision Support Loader.



Note: A timer is set internally by the Decision Support Loader to control whether the tool will continue processing using information saved in the default configuration file

TSMDSL.ini. After you have configured the Decision Support Loader, you can use the **Auto Start Countdown** to run the product automatically.

To do this, open the Decision Support Loader and let the timer run out. See "Running the Decision Support Loader" on page 41 for more information.

The main window provides the interface used to configure the Decision Support Loader and start the rollup operation.

Options

Server List	Displays the Server List configuration window.
Table List	Displays the Table List configuration window.
RDBMS	Displays the Data Source configuration window.
Post Processing	Displays the Post Processing configuration window.
Save	Saves the current definition of servers, tables, and RDBMS values to a configuration file and location you specify (either *TSMDSL.ini* or any *.ini* file).
Load	Loads values from the configuration file selected from the menu.
Help	Displays the TSMDSL Release Notes (tsmdsl_relnotes.pdf) in Acrobat Reader.
Go	Starts the Decision Support Loader operation.

Exit Exits the Decision Support Loader. (The Exit button is operational after the rollup process completes.)

Note: You cannot exit while Decision Support Loader is running.

Performing Initial Configuration for the Decision Support Loader

To perform the initial configuration of the Decision Support Loader, you need to provide information for the following options:

- Server List
- Table List
- RDBMS
- Post Processing

Server List

Use the Server List setup option to define the TSM servers from which the Decision Support Loader will extract data to populate the RDBMS reporting database. The Decision Support Loader will extract and process data from one TSM server at a time in the order in which they appear in the server list. To concurrently load data from multiple TSM servers, add each TSM server that you want to the list.

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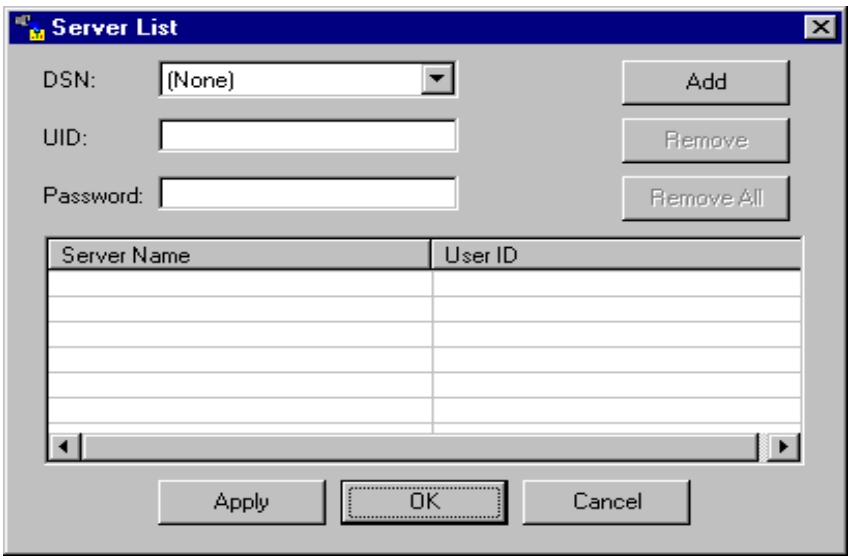


Warning: If you define enough TSM servers to require a Decision Support Loader processing time of over 24 hours, and you schedule the Decision Support Loader to run automatically, scheduling conflicts can occur.

To modify the server list, you can:

- Remove one or more servers from the list. To remove a server from the list, double-click it, or select it and click **Remove** and then click **Apply**. To remove all listed servers, click **Remove All,** and then click **Apply.**

- Add a TSM server to the list:

  •Select its Data Source Name from the **DSN** dropdown list

  •Enter the user ID (UID) and password.

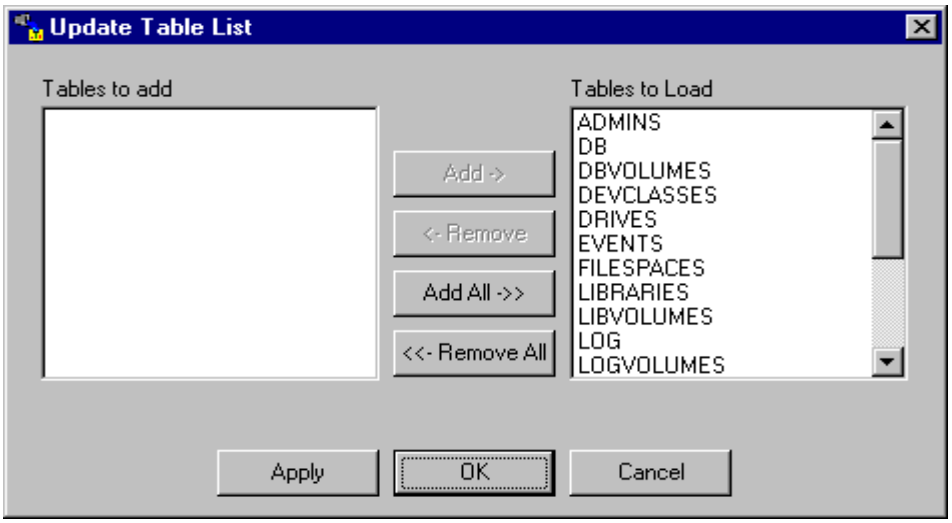
  •Click **Add** and then click **Apply**.

Note: The UID is the valid user ID for the TSM server. The password is the valid password of the user ID on the TSM server.

Only servers you have defined as ODBC data sources will appear in the DSN dropdown list. See "Setting up ODBC Data Source Connections" on page 6 for more information.

Table List

You can use the Table List setup option to specify the TSM database tables from which the Decision Support Loader will extract data. The Decision Support Loader automatically excludes any tables that are not used by a particular type of RDBMS database, so you do not need to manually adjust the Table List to match a specific database.



Warning: If you are unfamiliar with the Storage Management Analysis product, we recommend that you do not make any changes to the default table list. Changing the table list can affect the quality of the reports produced by Storage Management Analysis.

The **Table List** setup option consists of two panes:

- **Tables to load**:

  This pane lists the tables from which the Decision Support Loader will extract data.

- **Tables to add:**

This pane lists any tables that have not been added to the **Tables to load** list. These are the *elements* that will be shown from the Tivoli Discovery Interface.

To modify the table list:

- To remove a table from the **Tables to load** list select the table from the **Tables to load** list, and click **<- Remove.** This adds the table to the **Tables to add** list.

- To add a table to the **Tables to load** list select the table from the **Tables to add** list and click **Add ->**.

- Double-click on any table name to either remove or add that table.

After making the changes to the table, you can select one of the following options:

1 Click **Apply** to apply new changes.

2 Click **OK** to apply new changes, exit the **Update Table List** dialog box, and continue to the **Reporting Database Setup** dialog box.

3 Click **Cancel** to exit the **Update Table List** dialog box without applying any new changes.

RDBMS

Use the **RDBMS setup** option to define a reporting database server. The Decision Support Loader will write data extracted from TSM servers to the RDBMS server specified in this option.

To define an RDBMS server:

1. Select the server name from the list of Data Source Names **(**DSNs) available from the **DSN** dropdown list.

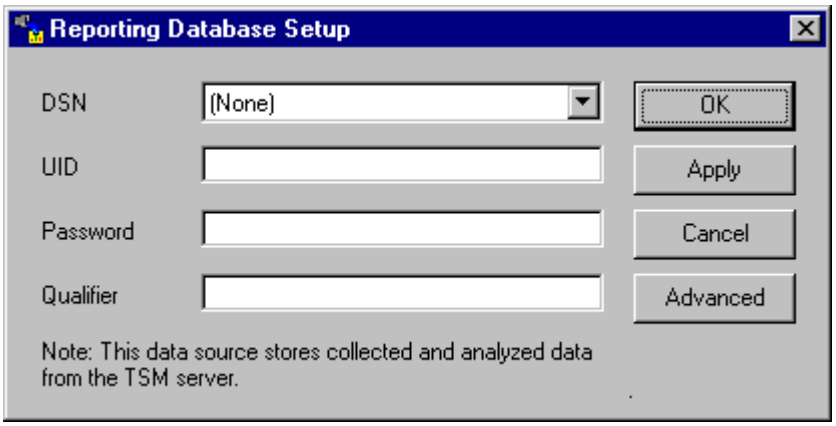
Note: Only RDBMS servers you have defined as ODBC data sources will appear in the **DSN** dropdown list. See "Setting up ODBC Data Source Connections" on page 6 for more information.

2. Enter the user ID (UID) and password for the selected server.
3. Enter a qualifier, if one is required, to access the selected server.
4. Click **Advanced** to open the **Advanced Setup Options** dialog box, and select the appropriate **RDBMS server type** from the dropdown list. Click **OK** to return to the

Data Source Setup dialog box. (See "Modifying RDBMS Advanced Settings" on page 31 for more information about **Advanced** settings.)

Note: If you set the incorrect server type, you will get a server error when you try to write to the RDBMS.

5. Click **Apply** to apply new changes.



Performing Advanced Configuration for the Decision Support Loader

The following section describes the options you can use to perform an advanced configuration of the Decision Support Loader.

Modifying RDBMS Advanced Settings

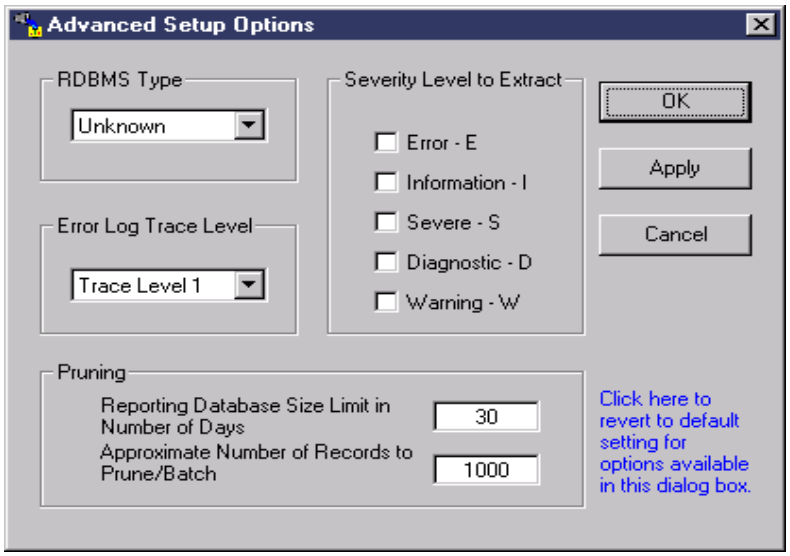
The following is an advanced configuration task which requires some familiarity with the Decision Support Loader and the Storage Management Analysis product.

To open the advanced settings:

- Click **Advanced** in the **RDBMS** setup dialog box. The **Advanced Setup Options** dialog box appears.

Note: The default RDBMS advanced settings are designed to maximize the performance of your reporting database. If you change the settings and want to return to the default settings, click the blue text in the lower right corner of the dialog box.

.



You can use the Advanced settings to modify the following reporting database parameters:

RDBMS Type

Use this setting to specify the type of RDBMS database used for a Decision Support Loader run.

Note: This setting must be specified during Decision Support Loader configuration.

Error Log Trace Level

Use this setting to specify the level of detail you want recorded in the log file generated by the Decision Support Loader. Each time you run the Decision Support Loader, a log file is generated as a dynamic HTML file named *tsmlog.htm*. The *Tsmlog.htm* file is located in the Decision Support Loader installation directory.

The following **Trace Level** options are available:

- **Trace Level 1** provides minimal log file information. Only error message texts are recorded.
- **Trace Level 2** provides additional log file information. Error message text and some informational messages are recorded.
- **Trace Level 3** provides the most detailed log file information. You should only select this option if you are trying to debug a system. It can generate a large log file, depending on the amount of data being extracted from the TSM servers and can degrade the performance of your system.

Pruning

Use this setting to specify the length of time data will be retained in a reporting database for a specific server in the server list. When the Decision Support Loader is run after the number of days specified in this setting, expired data from each TSM server in the **Server**

List setup option will automatically be deleted from its associated reporting database table.

The Decision Support Loader is set to prune approximately one thousand records at a time after thirty days in the reporting database. You can change this default setting, but if you have a large number of records to prune, specifying a small number of records can slow Decision Support Loader processing time.

Note: The number of records that your system can process depends on the size of the transaction log defined during the database configuration. See your database administrator for information about the size of your transaction log.

Severity Levels to Extract

Use this setting to specify the level of error message detail you want recorded in the CLIENTERRORS and SERVERERRORS reporting database tables. The levels are:

- Error (E)
- Information (I)
- Severe (S)
- Diagnostic (D)
- Warning (W)

The Error, Severe, Diagnostic and Warning levels are selected by default if you click the blue text in the lower right corner of the dialog box.

You can also select Information level detail. However, we recommend that you do not record Information level detail on a regular basis, since it includes long text messages that can slow down Decision Support Loader processing.

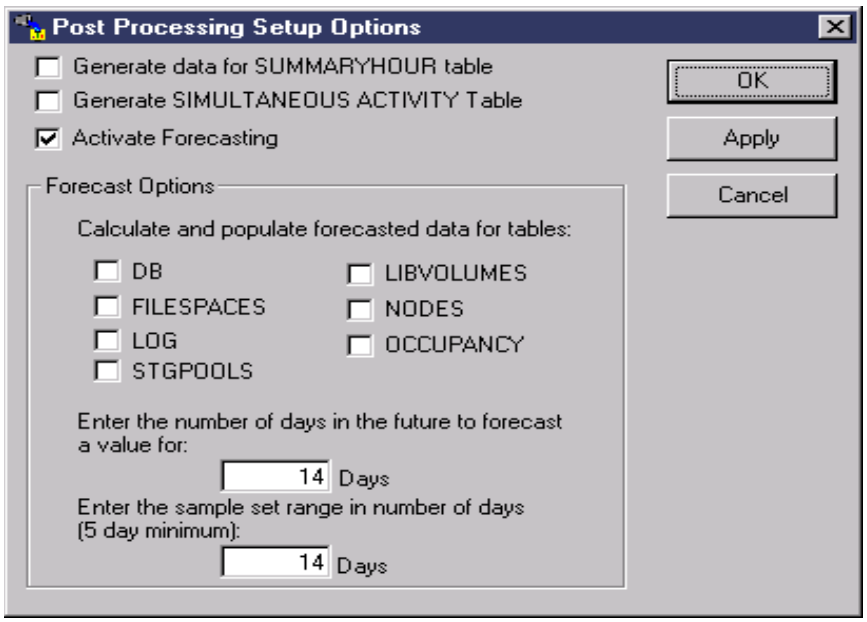
Post Processing

Post Processing is an optional feature of the Decision Support Loader. You can configure the Decision Support Loader to populate up to nine additional tables in the RDBMS database each time the program runs. These tables store data that can be used to forecast future TSM system health and performance based on historical trends

Warning: Enabling forecasting functions causes the time required to complete a program run to dramatically increase. The **FILESPACES** and **OCCUPANCY** tables take the longest amount of time.

To store summarized processing data from the TSM database SUMMARY table, click **Generate data for SUMMARYHOUR table.**

To track the number of simultaneous sessions and simultaneous tape mounts over time, click **Generate SIMULTANEOUS ACTIVITY Table**.



If you decide to use the the forecasting functions, please be aware that linear regression calculations are made based on historical data available in a specific table. The results can provide input on the future activity and performance of your TSM system.

You can specify how far into the future to forecast. For best results, we recommend you not forecast farther into the future than you have historical data on which to base the forecast. For example, if you have seven days of historical data, we suggest you forecast seven days into the future.

Note: The Decision Support Loader will not produce a forecast unless it has at least five days of historical data.

To activate forecasting, click **Activate Forecasting**, then click the box beside any of the tables you would like to select.

See the *Tivoli Decision Support for Storage Management Analysis Release Notes* for more information about forecasting.

Completing the Decision Support Loader Configuration

When you have finished configuring the Decision Support Loader, you can either:

- Click **Save** to save your configuration settings in *TSMDSL.ini* or any other **.ini* file. Then click **Exit** to close the Decision Support Loader. You cannot exit while the Decision Support Loader is running.

Note: If you schedule the Decision Support Loader to run unattended, *TSMDSL.ini* will use the *TSMDSL.ini* file as as the default, unless you specify another file to use instead. See “Scheduling a Decision Support Loader Run” on page 42.

- Click **Go** to manually run the Decision Support Loader (See “Running the Decision Support Loader” on page 41 for more information.)

Configuring the Decision Support Loader Using a Configuration File

The following is an advanced configuration task which requires some familiarity with the Decision Support Loader and Storage Management Analysis product.

Configuration information for the Decision Support Loader is stored in a file named *TSMDSL.ini*, which is located in the Decision Support Loader installation directory. You can configure the Decision Support Loader by directly editing this text file, or by creating another text file and saving it with an **.ini* extension.

Note: We recommend you use a text editor such as Notepad, Unix VI, or Emax’s when configuring in the text file.

The following is a sample Decision Support Loader configuration file that you can use as a template to create a custom configuration file: (The configuration file is described in detail in the next section.)

```
[SERVER]
TotalNoServers:=0

[TABLE LIST]
TotalNoTables:=19

TableArray:="ADMINS","DB","DBVOLUMES","DEVCLASSES","DRIVES","EVENTS","FILESPACES",
"LIBRARIES","LIBVOLUMES","LOG","LOGVOLUMES","NODES","OCCUPANCY","OPTIONS","STG
POOLS","SUMMARY","VOLHISTORY","VOLUMES","VOLUMEUSAGE"

[DATA SOURCE]

DSN:=(None)
UID:=
Password:=
Qualifier:=


[ADVANCED SETUP OPTIONS]

Severity_E:=False
Severity_I:=False
Severity_D:=False
Severity_S:=False
Severity_W:=False
PruneDataBeyondDays:=30
DatabaseMaxSizeLimitInNoOfDays:=9999
ApproxRecordsToPrunePerBatch:=1000
```

DatabaseType:=Unknown

TraceLevel:=1

[POST PROCESSING SETUP OPTIONS]

GenerateSUMMARYHOURTableData:=False

GenerateSIMULACTIVITYTable:=False

ActivateForecasting:=True

ForecastTable_DB:=False

ForecastTable_FILESPACES:=False

ForecastTable_LOG:=False

ForecastTable_STGPOOLS:=False

ForecastTable_LIBVOLUMES:=False

ForecastTable_NODES:=False

ForecastTable_OCCUPANCY:=False

ForecastNumberOfDays:=14

ForecastSizeOfSampleSet:=14

Explanation of TSMDSL.ini File Parameters

The following table explains the TSMDSL.ini parameters contained in the sample configuration file. (See the previous section for an example of the configuration file.)

Note: TSMDSL is the “Tivoli Storage Management Decision Support Loader”.

TSMDSL.ini File Parameters	Value	Notes
[SERVER]	None	Required. This is a section identifier.
TotalNoServers:=0	Number	The number of servers to be rolled up.
[DATA SOURCE]	None	Required. This is a section identifier.
DSN:=(none) UID:=<login id>; PWD:=<login password> Qualifier:=<Datasource Qualifier>	DSN=<ODBC id for TSM server> UID=<user login> PWD=<login password>	The server line identifies the TSM server that will be rolled up to the TSMDSL relational database. An entry is required for each TSM server to be rolled up. The number of these records must match the count entered for TotalNoServers.

TSMDSL.ini File Parameters	Value	Notes
[TABLE LIST]	None	Required. This is a section identifier.
TotalNoTables:=19	Number	The number of tables listed in parameter Table-Array:=
TableArray:=”ADMINS”,”DB”, ”DBVOLUMES”, ”DEV CLASSES”,”DRIVES”, ”EVENTS”,”FILESPACES”, ”LIBRARIES”, ”LIBVOLUMES”,”LOG”, ”LOGVOLUMES”,”NODES”, ”OCCUPANCY”, “OPTIONS”,”STGPOOLS”, ”SUMMARY”, ”VOLHISTORY”, ”VOLUMES”,”VOLUSAGE”	The default values are listed to the left with the parameter id, TableArray:=	The default list of tables TSMDSL can access for rollup from TSM servers. While you can delete entries from this list, adding a table not in the default will not initiate its inclusion in the rollup.

TSMDSL.ini File Parameters	Value	Notes
[DATA SOURCE]	None	Required. This is a section identifier.
DSN:=<ODBC name for RDBMS>	Valid ODBC DSN for the TSMDSL RDBMS	The connection to be used to access the TSMDSL relational database, which is the rollup operation destination. Rollup is only performed to one destination.
UID:=<DB login ID>	Valid DB login	
Password:=<DB login password>	Valid password	
Qualifier:=<Database Qualifier>	MS SQL 7.0 use owner DB2 Oracle	The value entered here depends on the database platform and how it is configured in your environment.

TSMDSL.ini File Parameters	Value	Notes
[ADVANCED SETUP OPTIONS]	None	Required. This is a section identifier.
Severity_E:=True	True or False	The severity level of client error and server error table messages to rollup. True includes Error messages.
Severity_I:=False	True or False	The severity level of client error and server error table messages to rollup. True includes Information messages.
Severity_D:=True	True or False	The severity level of client error and server error table messages to rollup. True includes Diagnostic messages.
Severity_S:=True	True or False	The severity level of client error and server error table messages to rollup. True includes Severe messages.
Severity_W:=True	True or False	Indicates the severity level of client error and server error table messages to rollup. True includes Warning messages.
PruneDataBeyondDays:=30	Number	Removes records in the TSMDSL tables with extract dates older than the current date - <Number>
DatabaseMaxSizeLimitInNoOf-Days:=9999	0-9999	
ApproxRecordsToPrunePer-Batch:=1000	Number	The optimum number of records to set for system performance.

TSMDSL.ini File Parameters	Value	Notes
[ADVANCED SETUP OPTIONS]	None	Required. This is a section identifier.
DatabaseType:=unknown	unknown ORACLE DB2	The TSMDSL RDBMS platform type.
TraceLevel:=1	1,2, or 3	The level of debug messages written to the logfile ...\TSMDSL\TSMlog.htm

TSMDSL.ini File Parameters	Value	Notes
[POST PROCESSING SETUP OPTIONS]	None	Required. This is a section identifier.
GenerateSUMMARYHOURTable-Data:=True	True or False	The SummaryHour table is a table created in the RDBMS from data in the current extract. The entries in this table summarize activity hourly. This table is required for the TSM Concurrent, TSM Client Bytes Processed and TSM Server Bytes Processed cubes.
GenerateSIMULACTIVITYTable:=True	True or False	The SIMULACTIVITY table is a created in the RDBMS database from data in the current extract. The entries in this table summarizes activity about concurrent tape and session activity. This table is required for the TSM Concurrent cube.
ActivateForecasting:=True	True or False	The forecasting feature uses historical information to predict resource needs for the period to time specified in the parameter Forecast-NumberOfDays: =

TSMDSL.ini File Parameters	Value	Notes
[POST PROCESSING SETUP OPTIONS]	None	Required. This is a section identifier.
ForecastTable_DB:=True	True or False	True specifies forecasting should be done related to the DATABASE table.
ForecastTable_FILESPACES:=True	True or False	True specifies forecasting should be done related to the FILESPACES table.
ForecastTable_LOG:=True	True or False	True specifies forecasting should be done related to the RECOVERY LOG table.
ForecastTable_STGPOOLS:=True	True or False	True specifies forecasting should be done related to the STGPOOLS table.
ForecastTable_LIBVOLUMES:=True	True or False	True specifies forecasting should be done related to the LIBVOLUMES table.
ForecastTable_NODES:=True	True or False	True specifies forecasting should be done related to the NODES table.
ForecastTable_OCCUPANCY:=True	True or False	True specifies forecasting should be done related to the OCCUPANCY table.
ForecastNumberofDays:=5	Number	The number of days to include in the forecast prediction.
ForecastSizeof SampleSet=14	Number	The number of days of historical data to include in the sample set.

Running the Decision Support Loader

The Decision Support Loader is a resource-intensive tool that may slow down some network activities. We recommend that you run it daily, during off-peak times, to minimize processing time.

You can use any of the following methods to run the Decision Support Loader:

- Open the Decision Support Loader, click **Cancel** to stop the autorun timer, and click the **Go** button on the Decision Support Loader interface.

- Open the Decision Support Loader and let the autorun timer run to zero (See “Opening the Decision Support Loader” on page 26 for more information.)

- Schedule the Decision Support Loader to run automatically (See “Scheduling a Decision Support Loader Run” on page 42 for more information.)

- Click **Load** to specify a particular configuration file for a Decision Support Loader and then click the **Go** button**.**

The first time you run the Decision Support Loader for an RDBMS database, the Decision Support Loader will collect TSM data recorded since 12:00 a.m. the previous day. After that, each time you run the Decision Support Loader for an RDBMS database, it will collect data recorded since the last Decision Support Loader run for that database.

Be aware that if you run the Decision Support Loader more than once per day, the last run will override the TSM data collected from the previous run.

When you run the Decision Support Loader from the product interface, processing results are displayed by the interface. Each Decision Support Loader run also generates a dynamic HTML log file named *tsmlog.htm*. This file is located in the Decision Support Loader installation directory, and can be viewed using any web browser. (See "Oracle ODBC Setup" on page 24 for information about customizing the log file.)

Note: If you run the Decision Support Loader and get no results, make sure the specified TSM server is running. The Decision Support Loader cannot process data if the TSM server is not running, and will not return a specific error message in this case.

If the Decision Support Loader fails to initialize, install MS Active X Control Pad. This application contains a file which the Decision Support Loader needs to operate. It is available from: http://www.microsoft.com.

Warning: After you start a Decision Support Loader processing run, do not attempt to end the task before processing has completed. Stopping the process can compromise the integrity of data that has been written to the RDBMS database. After the Decision Support Loader finishes collecting data from a TSM server in the **Server List** setup option, you can click **Exit** to stop the processing of any remaining servers in the list.

Scheduling a Decision Support Loader Run

You can use the following methods to schedule a Decision Support Loader run:

- Windows NT **At** command
- Cognos Scheduler
- Tivoli Storage Manager Scheduler

Using the Windows NT At command

You can schedule the Decision Support Loader to run using the Windows NT **At** command. You will need to create a batch file for processing the Decision Support Loader that includes the following commands, with the -CONFIG and -LOG options:

```
"tsmdsl.exe -CONFIG=mssql.ini -LOG=log_mssql.htm"
"tsmdsl.exe -CONFIG=db2.ini -LOG=log_db2.htm"
"tsmdsl.exe -CONFIG=testdb.ini -LOG=log_testdb.htm"
"pause"
"exit"
```

Note: If, for example, the batch file is named *auto.bat,* it should be stored in the same directory as the Decision Support Loader file, tsmdsl.exe.

The **.ini* files listed above were created when the Decision Support Loader was configured using the graphical user interface. You can save the configuration settings in any file, as long as the name includes an *.ini extension. Processing results that were displayed on the interface when the Decision Support Loader ran were redirected to the **.htm* log files. If these files do not already exist, they will be automatically generated.

For example, to schedule the Decision Support Loader to run one time at 16:40 p.m:

1. Open a command prompt window and navigate to the directory path where the tsmdsl.exe file is stored. For example:

```
"c:\program files\tivoli\tsm\decision
```

2. Enter the following command at the command prompt:

```
at 16:40 /interactive "c:\program files\tivoli\tsm\decision\auto.bat"
```

See the Windows NT Help for information about using the **At** command. For a list of command parameters, open a DOS prompt and enter:

```
help at
```

Using the Cognos Scheduler

To schedule a Decision Support Loader run using the Cognos Scheduler, do the following:

1. Select **Programs** > **Cognos** from the Windows NT Start Menu, and then click **Scheduler** to start the Cognos Scheduler.

2. Select **Insert** > **Recurring Task** to open the **Insert Task** dialog box.

3. Click the **Identification** tab, and then type the following command string in the **File Name** box:

   ```
   "<directory path>\tsmdsl.exe"
   ```

   where `<directory path>` is the installation directory path for the Decision Support Loader.

Enclose the directory path and tsmdsl.exe in quotation marks as shown in the following example:

```
"c:\Program Files\Tivoli\TSM\decision\tsmdsl.exe"
```

4. Click the **Timetable** tab, and then specify the frequency, run time, and duration.

5. Minimize the Cognos Scheduler.

The Cognos Scheduler must be running for the Decision Support Loader to run at the scheduled time. See the Cognos PowerPlay documentation set for more information about using the Cognos scheduler.

Note: When you schedule the Decision Support Loader to run unattended, *TSMDSL.ini* is used as the default configuration file.

Using the Tivoli Storage Manager Scheduler

Before you define a schedule to run the Decision Support Loader using the Tivoli Storage Manager Scheduler, ensure that the backup-archive client is installed on a Windows NT workstation where the Decision Support Loader is installed.

To schedule a Decision Support Loader run using the Tivoli Storage Manager Scheduler, do the following:

On the Tivoli Storage Manager server:

1. Register the client node. Assume the client node you registered is named ASTRO.

2. Define a client schedule on the server from which the Decision Support Loader will extract data. For example, if the schedule is called DAILYTSM and the client node ASTRO is registered in the STANDARD domain, enter:

```
define schedule standard dailytsm action=command object='"c:\program
files\tivoli\tsm\decision\tsmdsl"'
```

Note: Enclose the full directory path in quotation marks as shown in the previous example**.** The installation directory path for the Decision Support Loader is:

```
"c:\Program Files\Tivoli\TSM\decision\tsmdsl.exe"
```

3. Associate the client node to the DAILYTSM schedule.

```
define association standard dailytsm astro
```

On the client's workstation:

4. Ensure that the Tivoli Storage Manager scheduler is installed. See *Tivoli Storage Manager for Windows Administrator's Guide* for information about installing the scheduler.

5. Start the scheduler for the client. Leave the scheduler running until scheduled rollups are no longer needed. To start the scheduler, you can open a command prompt window and navigate to where the backup-archive client is installed and enter:

```
> dsmc schedule
```

Note: If the Decision Support Loader does not run according to the schedule you have defined, check the directory path where the Decision Support Loader is installed.

Troubleshooting

See the *Tivoli Decision Support for Storage Management Analysis Release Notes* for troubleshooting tips.

Contacting Customer Support

If you encounter difficulties with any Tivoli products, access the Tivoli Customer Support home page at http://www.support.tivoli.com. After you link to and submit the customer registration form, you can access many customer support services on the World Wide Web.

Use the following phone numbers to contact customer support at the Tivoli Customer Call Center in the United States:

- Tivoli: 1-800-848-TIVOLI8
- IBM: 1-800-237-5511 (after reaching this number, press or say 8 to connect to Tivoli Customer Call Center)

We at Tivoli are very interested in hearing from you about your experience with Tivoli products, documentation, and services. We welcome your suggestions for improvements. If you have comments or suggestions about this documentation, please send e-mail to pubs@tivoli.com.