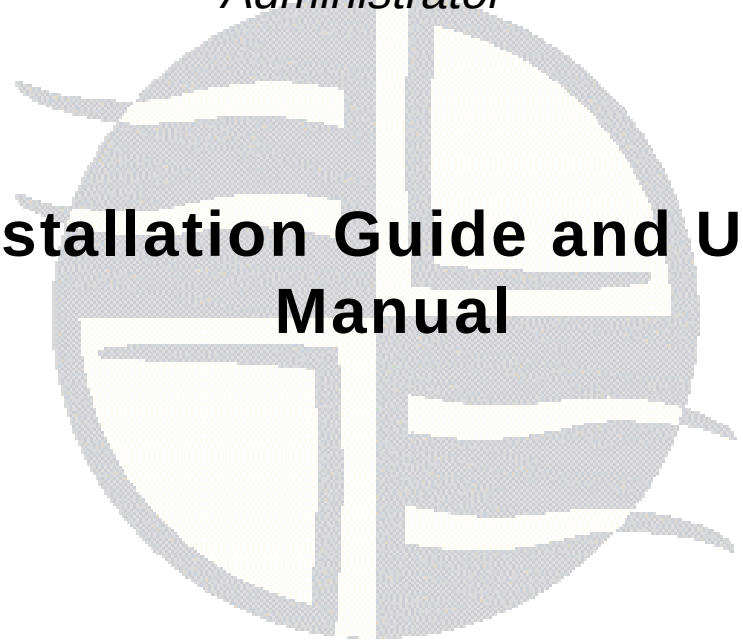
Easysoft® Data Access

Administrator



Installation Guide and User Manual

Document Version 1.1.0

Publisher: Easysoft Limited

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PREFACE

About this manual

This manual is intended for use by anyone who wants to access ISAM application data, stored on a Windows or Unix machine, from an ODBC-compliant application.

Intended Audience

The sections written for the Microsoft Windows platforms require some familiarity with the use of buttons, menus, icons and text boxes. If you have any experience of Apple Macintosh computers, Microsoft Windows or the X Window System, you will have no difficulty with these sections.

The Unix-based sections require that you are experienced at using a Unix shell, and can perform basic functions like editing a file. More complex activities are detailed more clearly and do not require any knowledge of specialist Unix shells.

Displaying the Manual

This manual is available in the following formats:

- Portable Document Format (PDF), which can be displayed and printed using the Acrobat Reader, available free from Adobe at **http://www.adobe.com**.
- HTML (the format Easysoft recommend for viewing onscreen).

Notational Conventions

Across the range of Easysoft manuals you will encounter passages that are emphasized with a box and a label.

A *note box* provides additional information that may further your understanding of a particular procedure or piece of information relating to a particular section of this manual:

NB	Note boxes often highlight information that you may need to be aware of when using a particular feature.

A *reference box* refers to resources external to the manual, such as a useful website or suggested reading:

REF	For more manuals that use this convention, see the rest of the Easysoft documentation.

A *platform note* provides platform-specific information for a particular procedure step:

Linux	In Linux you must log on as the `root` user in order to make many important changes.

A *caution box* is used to provide important information that you should check and understand, prior to starting a particular procedure or reading a particular section of this manual:

Caution!	Be sure to pay attention to these paragraphs because Caution boxes are important!

Information has also been grouped within some chapters into two broad classes of operating system, Windows and Unix, for which side tabs are used to help you turn to the section relevant to you.

Typographical Conventions

To avoid ambiguity, typographic effects have been applied to certain types of reference:

- User interface components such as icon names, menu names, buttons and selections are presented in bold, for example:

  Click **Next** to continue.

  Where there is a chain of submenus, the following convention is used:

  Choose **Start > Programs > Command Prompt**.

- Commands to be typed are presented using a `monotype` font, for example:

  At the command prompt type `admin`.

- Keyboard Commands

  It is assumed that all typed commands will be committed by pressing the *<Enter>* key, and as such this will not normally be indicated in this manual. Other key presses are italicized and enclosed by angle brackets, for example:

  Press *<F1>* for help.

- File listings and system names (such as file names, directories and database fields) are presented using the `monotype` plain text style.

Contents

- **Introduction**

  Introduces the Easysoft Administrator.

- **Installation**

  Explains the procedures for obtaining and installing the Easysoft Administrator on Windows.

- **Administration**

  Explains how to manage user access to data sources and how to map your unique ISAM data source schema.

- **File Mapping Tutorial**

  Guides a user through the process of mapping a sample ISAM file using the Easysoft Administrator.

- Appendices

  Comprising a Glossary.

Trademarks

Throughout this manual, *Windows* refers generically to Microsoft Windows 95, 98, 2000, NT or XP, which are trademarks of the Microsoft Corporation. The X Window system is specifically excluded from this and is referred to as *The X Window System* or just *X*.

Note also that although the name UNIX is a registered trademark of UNIX System Laboratories, the term has come to encompass a whole range of UNIX-like operating systems, including the free, public Linux and even the proprietary Solaris. Easysoft use Unix (note the case) as a general term covering the wide range of Open and proprietary operating systems commonly understood to be Unix ‘flavors’.

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1 INTRODUCTION

Introducing the Easysoft Administrator

This section explains the purpose and general functionality of Easysoft Administrator.

Chapter Guide

- **Features**
- **Deployment**

Features

The Easysoft Administrator allows you to:

- view a list of local data types
- view SQL Type information
- create and update table details for a data source
- create and update user details for a data source
- create and update a list of views for a data source

Deployment

The Easysoft Administrator is a single executable file, which does not require either licencing or registry entries.

Although it is envisaged that the Easysoft Administrator will only be installed and run from a single Windows client machine (probably that of a system administrator), there is nothing to stop the Easysoft Administrator being deployed on multiple machines.

The Easysoft Administrator requires the Easysoft ODBC-ODBC Bridge to access data held on non-Windows servers.

Both client and server components of the Easysoft ODBC-ODBC Bridge are required in order to gain access to your ISAM data on Unix servers from the Easysoft Administrator running on a remote Windows client.

INSTALLATION

2

Installing the Easysoft Administrator

This section explains how to install and license the Easysoft Administrator on Windows.

Chapter Guide

- **Obtaining the Easysoft Administrator**
- **Installing the Easysoft Administrator**
- **Uninstalling the Easysoft Administrator**

Obtaining the Easysoft Administrator

There are three ways to obtain the Easysoft Administrator:

- The Easysoft web site is available 24 hours a day at **http://www.easysoft.com** for downloads of definitive releases and documentation. Select **Download** from the **Free Trials** page on the Easysoft Administrator section of the website, and then choose the platform release that you require. First time visitors must complete the new user form and click **Register**. Note that your personal Internet options may require you to login and click **Continue** if you have previously registered.
- The Easysoft FTP server is available 24 hours a day at **ftp://ftp.easysoft.com**. It contains free patches, upgrades, documentation and beta releases of Easysoft products, as well as definitive releases. The FTP site is useful if you have a slow connection or if you want to write a script to retrieve the file. Change to the `pub/administrator` directory and then choose the platform release that you require.
- If you have an extremely slow connection you can order Easysoft software on CD by email, telephone or post (see **Contact Details**).

Download Components

The name of the Easysoft Administrator distribution file varies from release to release, but conforms to a basic formats:

- `EasysoftAdministrator_`*`w_x_y_z`*`.exe`

  where `w.x.y.z` is an incremented version number.

For example:

`EasysoftAdministrator_2_0_0_2.exe`

Once you have downloaded the distribution file, place it in a temporary directory on your machine, from where you can install it.

Installing the Easysoft Administrator

This section explains how to install the Easysoft Administrator on Windows.

1. From the web, click to download the distribution file.

   – OR –

   In your FTP client, switch to `binary` mode and `get` the distribution file.

   – OR –

   If you have a CD, go to the folder containing the distribution file.

Caution!

Please shut down other Windows programs before installing. In particular, if Microsoft Outlook is running there can be a pause of up to several minutes when InstallShield is started.

If you are upgrading a previous installation of the Easysoft Administrator, you are advised to uninstall your existing installation before continuing. Refer to **"Uninstalling the Easysoft Administrator" on page 22** for details about this procedure.

2. Execute the distribution file that you downloaded in **"Obtaining the Easysoft Administrator" on page 15**.

There will be a short delay while setup prepares the wizard to guide you through the rest of the install procedure before you are presented with the **Welcome** dialog box:

Figure 1: The Welcome dialog box

3. Click **Next** to continue.

The **Software License Agreement** dialog box then displays Easysoft End User licensing details:

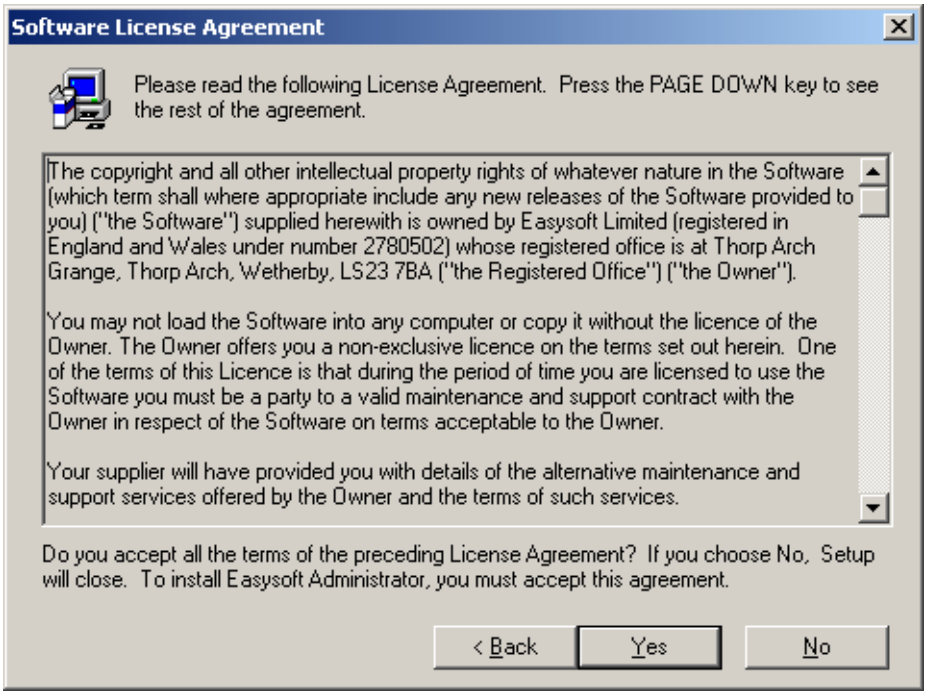


Figure 2: The Software License Agreement dialog box

You are required to accept the terms of the License Agreement before continuing.

4. If you do not agree to the License Agreement, click **No** to exit the installation.

   – OR –

   Click **Yes** to accept the License Agreement and continue with the installation.

The **Choose Destination Location** dialog box is displayed:

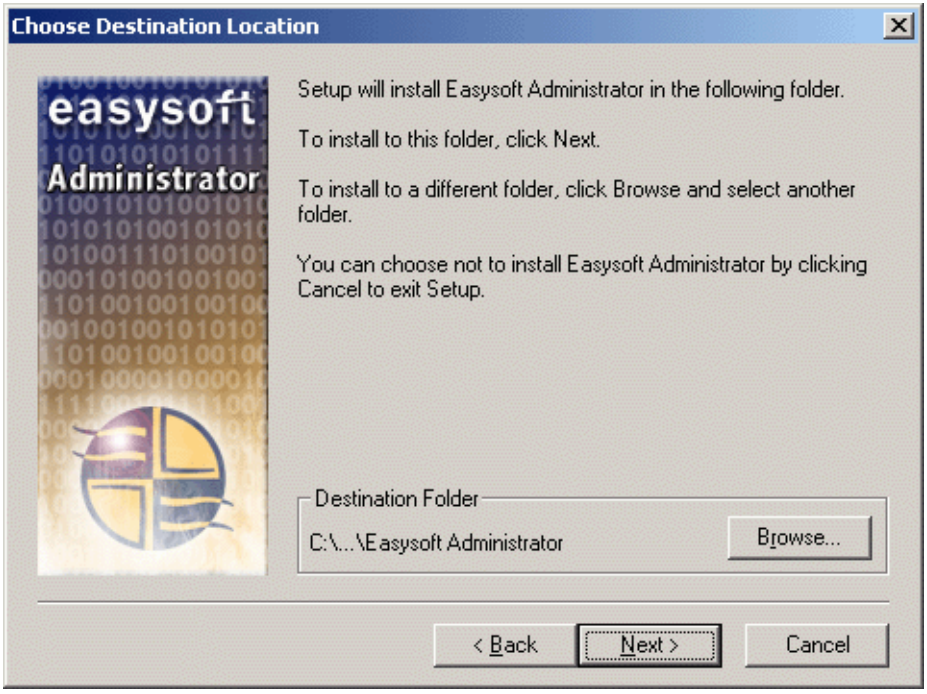


Figure 3: The Choose Destination Location dialog box

Choose the directory in which you want to install the Easysoft Administrator.

5. To accept the default, click **Next**.

   – OR –

   To choose an alternative directory, click **Browse** to select the path you want, then click **Next** to continue.

The **Set Program Folder** dialog box is displayed:

Figure 4: The Select Program Folders dialog box

Choose the program folder to which the Easysoft Administrator icons are to be added.

6. To accept the default, click **Next**.

   – OR –

   Choose an alternative folder by either typing an alternative name into the **Program Folders** box or selecting one of the folders from the **Existing Folders** box, and then click **Next** to continue.

   There is now a short wait while the relevant Easysoft Administrator components are copied and configured.

The **Setup Complete** dialog box is displayed:

Figure 5: The Setup Complete dialog box

7. Click **Finish**.

   The Windows installation of the Easysoft Administrator is complete.

   You will find that the following menu options have been installed under **Start > Programs > Easysoft > Easysoft Administrator**:

   - **Catalog Administrator**

   This allows you to run the Web Administrator from the Start Menu.

Uninstalling the Easysoft Administrator

This section explains how to remove the Easysoft Administrator from your system.

You should uninstall this software before installing a more recent version.

1. Select **Start > Settings > Control Panel** and then double-click the **Add/Remove Programs** icon.

   You are then presented with a list of applications that can be automatically removed.

2. Select **Easysoft Administrator** and click the **Add/Remove** button.

3. Click **Yes** to confirm that you wish to remove the Easysoft Administrator and all its components.

   The system begins to remove all the components. If shared components seem not to be required, you will be prompted to decide whether or not to delete them.

NB	Windows' install/uninstall procedures incorporate a mechanism in the registry to determine whether or not shared files are still required by other programs. Sometimes this database can become out-of-date, for instance if the user deleted an application directly, without using the **Add/Remove Programs** button, or if the registry was 'repaired' after a system crash.

4. If you feel confident with the registry (i.e. your system has had relatively few programs installed and removed) you should click the **Yes** or **Yes to All** button to continue.

   – OR –

If you have any doubts (e.g. uninstall procedures have failed in the past) you should click the **No** or **No to All** buttons.

The uninstall process removes the Easysoft Administrator components from your system.

NB	If files have been created in any of the installation directories then these directories will not be removed. In this case, the uninstall program will issue a warning and you can click **Details** to find out what directories remain.

5. On completion, click **OK** to go back to the Control Panel Install/Uninstall window.
6. The uninstall process is complete.

   Any licenses you obtained for the Easysoft Administrator and other Easysoft products are held in the Windows registry. When you uninstall, your licenses are not removed so you do not need to relicense the product if you reinstall or upgrade.

ADMINISTRATION

3

Using the Easysoft Administrator

This section describes how to map your unique ISAM data source schema so that your data can be accessed by Easysoft products.

Chapter Guide

- **Starting the Easysoft Administrator**
- **Connecting to a data source**
- **Local Data Types**
- **SQL Types**
- **Tables**
- **Users**
- **Views**
- **Importing and Exporting**

Starting the Easysoft Administrator

The Easysoft Administrator is started as follows:

Select **Start > Programs > Easysoft > Easysoft Administrator > Catalog Administrator**.

The **Datasources** window is displayed:

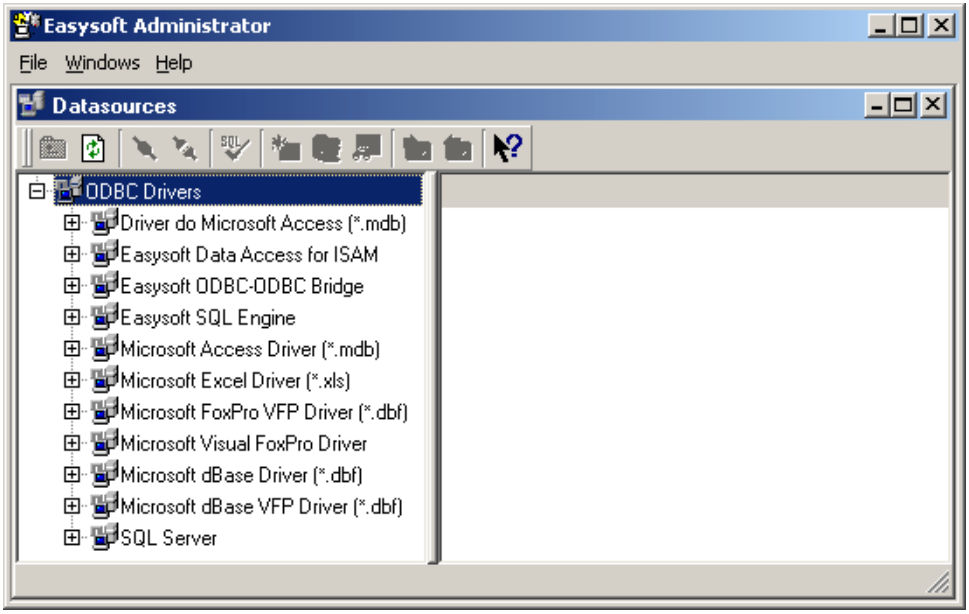


Figure 6: The Datasources window

A list of all the ODBC drivers for which ODBC data sources have been created on this machine is displayed on the left-hand side of the program window.

Either click on the **+** symbol next to the driver name or double-click the driver name itself to display a list of System and User DSNs for a driver.

System data sources are displayed with icons picturing a machine alongside the data source name.

User data sources are displayed with icons picturing a head alongside the data source name.

Notice that the data sources are displayed with an icon showing a green arrow on a white background, to signify that a connection has not yet been made to them.

Connecting to a data source

Data source details can be displayed by either:

- clicking on the **+** symbol next to the data source name
- double-clicking on the data source name itself
- highlighting the required data source name and selecting the **Connect** icon on the Toolbar.

You can also highlight any data source name and select the **Disconnect** icon at any time to end your session.

You will see entries displayed for:

- Local Datatypes
- SQL Type Info
- Tables
- Users
- Views

If a connection succeeds then the data source is displayed with an icon showing a white arrow on a green background.

If a connection fails then the user wil receive an error message in a dialog box and the data source will be displayed with an icon showing a white cross on a red background.

If you connect to a data source and then do not access it for a period of time then the connection will automatically be dropped and you will be asked if you wish to reconnect:

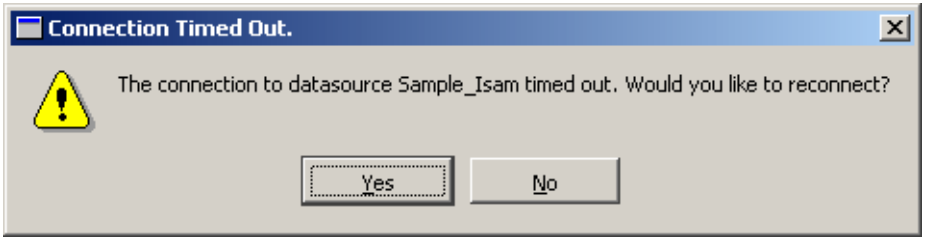


Figure 7: The Connection Timed Out dialog box

Note that if the Target User with which a data source has been configured via the Data Source Administrator on the client is not dbo, then an error message similar to the following will appear when a user tries to connect from that client machine:

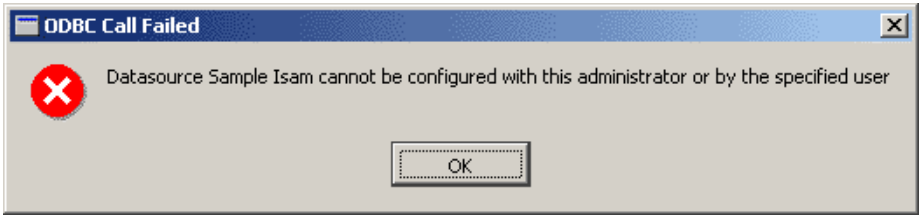


Figure 8: The ODBC Call Failure dialog box

Local Data Types

A list of valid data types may be viewed by clicking on **Local Datatypes**:

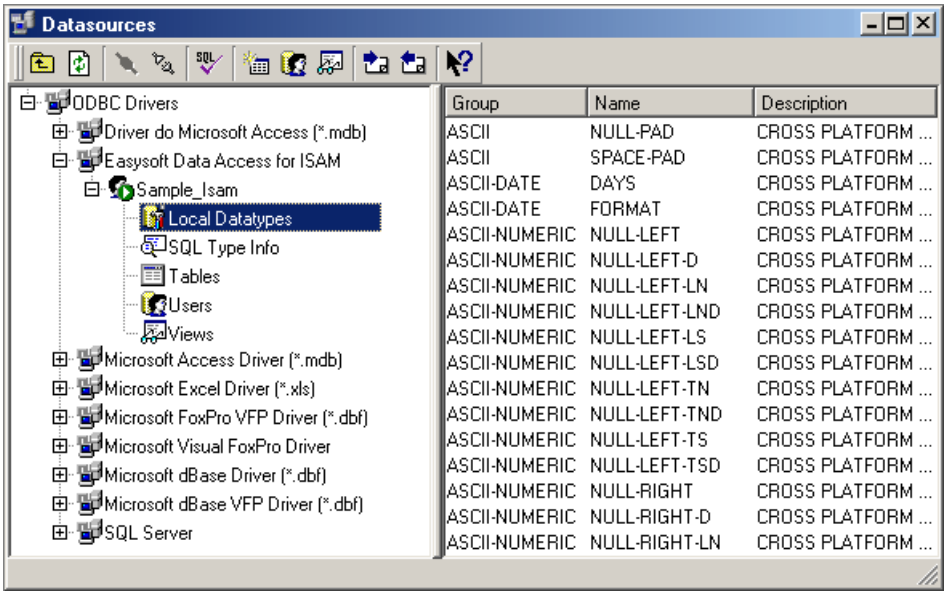


Figure 9: Local data types on the Datasources window

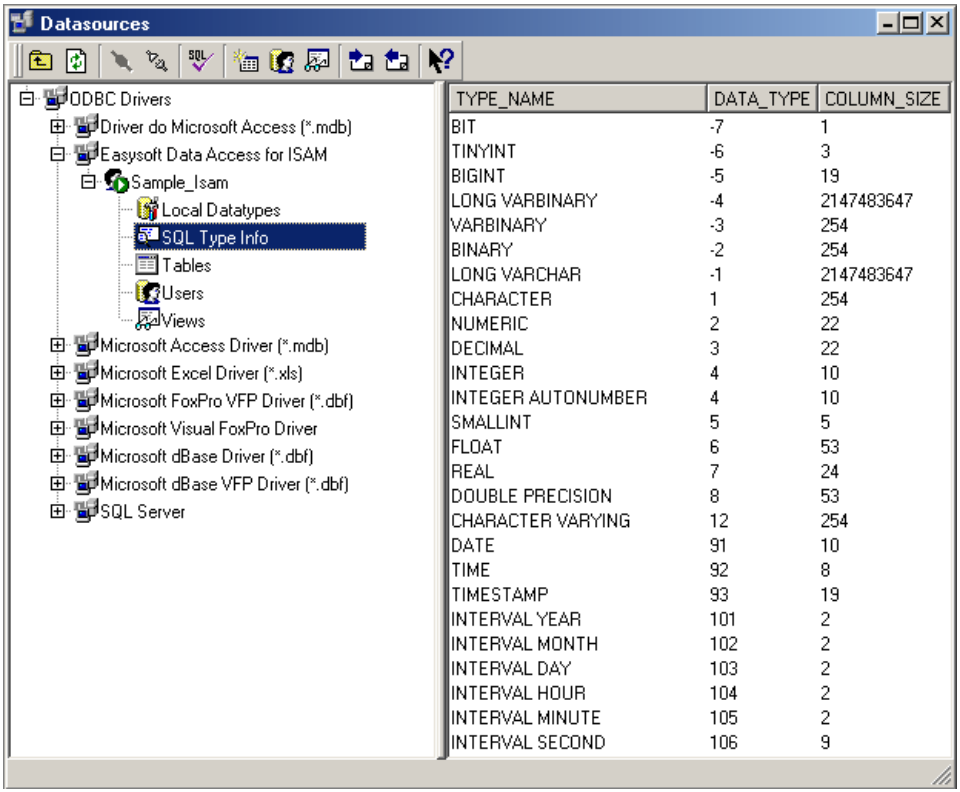
Various data type groups are defined, along with a list of data types available within them, their description, SLQ group and SQL type:

> **NB** The **V14** data type group is for the deprecated Easysoft ISAM for ODBC product, for which an Import utility exists (see **“Importing and Exporting” on page 51**).

Local Datatypes cannot be added to or amended within the current version of the Easysoft Administrator.

SQL Types

A list of valid SQL types may be viewed by clicking on **SQL Type Info**:



TYPE_NAME	DATA_TYPE	COLUMN_SIZE
BIT	-7	1
TINYINT	-6	3
BIGINT	-5	19
LONG VARBINARY	-4	2147483647
VARBINARY	-3	254
BINARY	-2	254
LONG VARCHAR	-1	2147483647
CHARACTER	1	254
NUMERIC	2	22
DECIMAL	3	22
INTEGER	4	10
INTEGER AUTONUMBER	4	10
SMALLINT	5	5
FLOAT	6	53
REAL	7	24
DOUBLE PRECISION	8	53
CHARACTER VARYING	12	254
DATE	91	10
TIME	92	8
TIMESTAMP	93	19
INTERVAL YEAR	101	2
INTERVAL MONTH	102	2
INTERVAL DAY	103	2
INTERVAL HOUR	104	2
INTERVAL MINUTE	105	2
INTERVAL SECOND	106	9

Figure 10: SQL data types on the Datasources window

SQL Types cannot be added to or amended within the current version of the Easysoft Administrator.

Tables

CREATING TABLES

A new table may be created either by selecting the **New Table** icon on the **Datasources** window or by right-clicking on **Tables** and selecting **New Table** from the pop-up menu.

This displays the **Table Properties** dialog box:

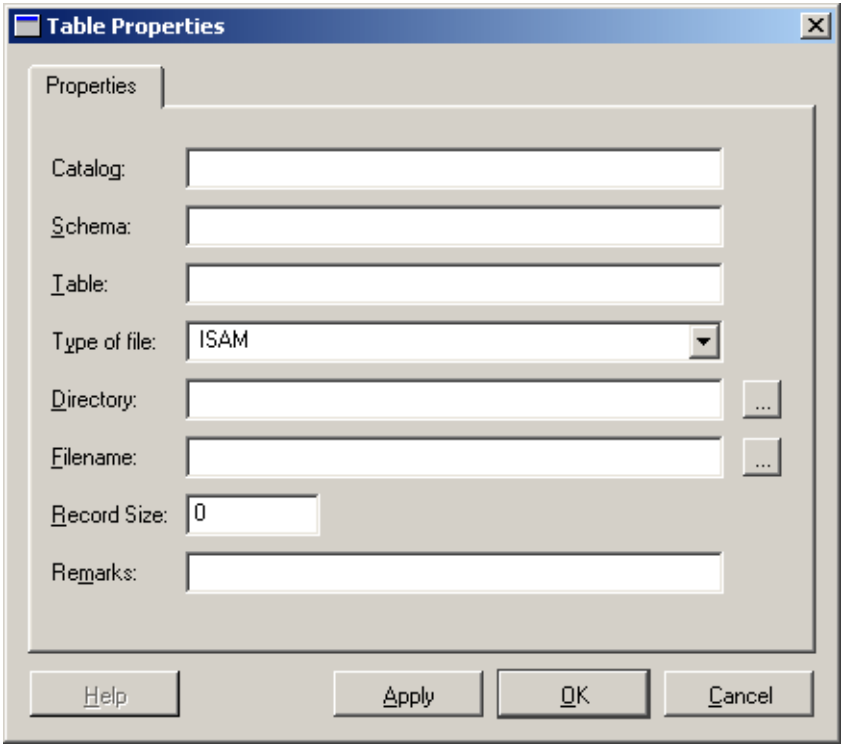


Figure 11: The Table Properties dialog box

The following fields are displayed and require details to be entered:

- **Catalog**: enter any catalog name incorporated into the data source.
- **Schema**: enter any schema name incorporated into the data source.
- **Table**: enter a logical name for the table. This field is mandatory.
- **Type of file**: select the file type to be ISAM or sequential.
- **Directory**: enter the directory within the operating system where the table is located. Specifying this field allows an ISAM file to be located in a directory other than the default schema directory, which will be searched either after the specific location, or directly if the field is left blank. A browse button allows a graphical search for the directory name required via the **Select Directory** dialog box.
- **Filename**: enter the physical filename of the table within the operating system without its extension. This field is case-sensitive on Unix systems and is mandatory. A browse button allows a graphical search for the filename required via the **Select File Specification** window. If the **Split File Specification** tick box on that window is selected then the filename will be placed into the **Filename** field and the file path into the **Directory** field on the **Table Properties** window. Otherwise, the full path and filename will be placed into the **Table Properties** window **Filename** field.
- **Record Size**: enter the total record size of the table.
- **Remarks**: enter any relevant extra information about the table.

Click the **Apply** button to accept the new details and enter information for another new table if required. When all new table

data has been input then click the **OK** button to finish. Click the **Cancel** button to reject the input.

The newly created table (or tables) will be displayed in the list of tables in the right-hand pane of the **Datasources** window.

DISPLAYING TABLES

Clicking on **Tables** within the **Datasources** window will display a list of tables for that data source:

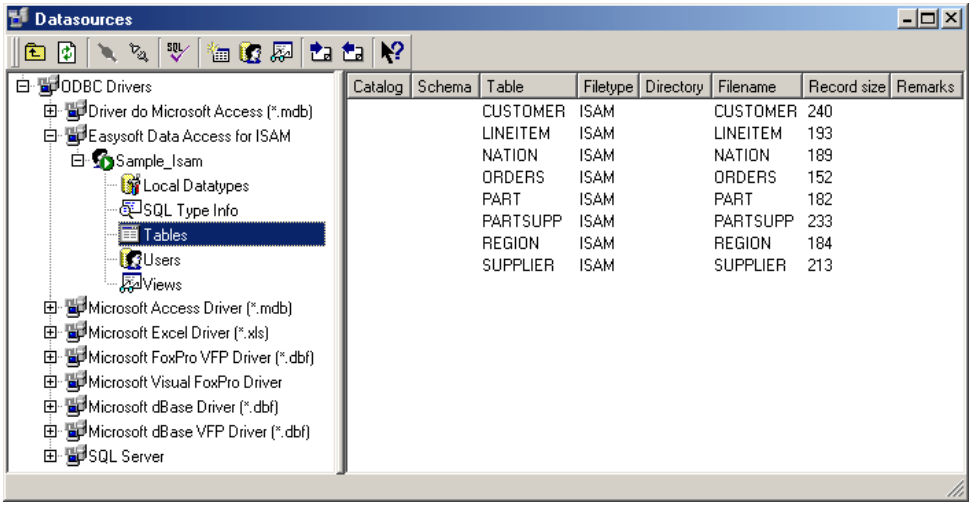


Figure 12: Tables on the Datasources window

Highlighting and then either double-clicking on a row on the right-hand side of the program window or right-clicking and selecting **Edit** will display a window showing details of the selected table, the logical name of which will appear on the title bar.

The window below shows information for the CUSTOMER table from the sample database:

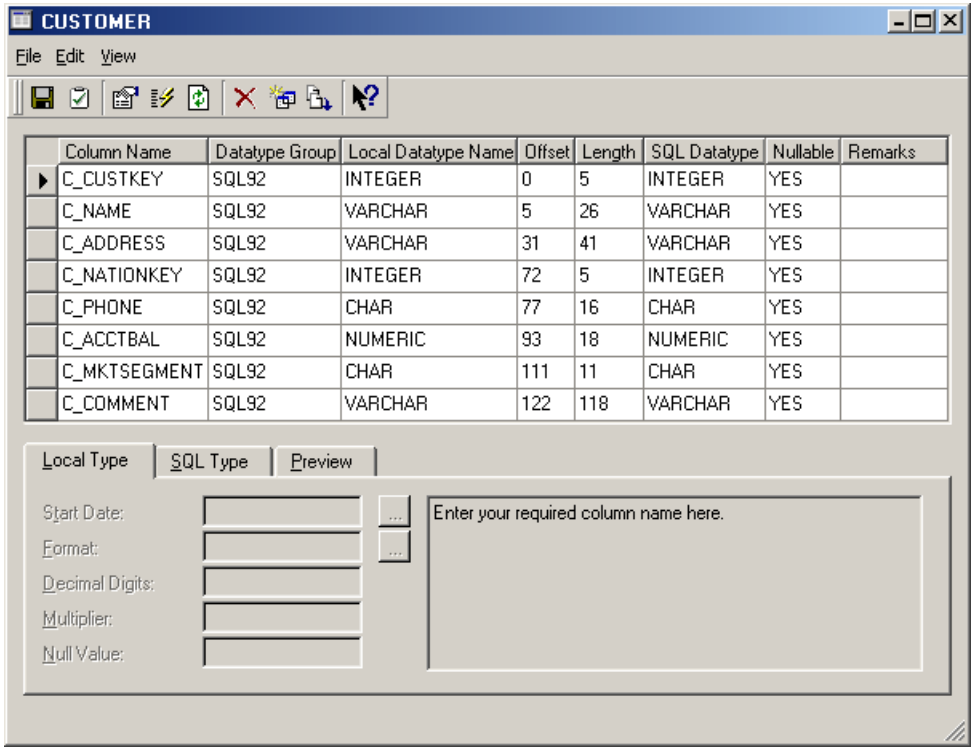


Figure 13: A sample file definition

The window contains the following columns, all of which can be amended by clicking onto them and either overtyping or selecting an item from a drop-down list:

- **Column Name:** displays and allows you to rename a data source column.

- **Datatype Group:** clicking on the field displays and allows you to select a data type group name from a drop-down list. The list of groups in the drop-down list corresponds to the data type information held within the data source schema. Within each of these groups are subset of local data types, as displayed in the **Local Datatype Name** column.
- **Local Datatype Name:** clicking on the field displays and allows you to select a local data type name from a drop-down list. The list of names in the drop-down list corresponds to the data type information held within the data source schema and the selected **Datatype Group**.
- **Offset:** displays and allows you to renumber the offset of the selected data source column.
- **Length:** displays and allows you to renumber the length of the selected data source column.
- **SQL Datatype:** clicking on the field displays and allows you to select an SQL data type from a drop-down list. The list of SQL data types in the drop-down list corresponds to the selected **Datatype Group** and **Local Datatype Name** fields.
- **Nullable:** enter "YES" if null values are allowed.
- **Remarks:** displays and allows you to enter any relevant additional information.

Selecting a table row and then right-clicking on a table name also displays the following options in addition to **Edit** on a pop-up menu:

- **New Table:** displays the **Table Properties** window for the entry of **Catalog**, **Schema**, **Table**, **Type of file**, **Directory**, **Filename**, **Record Size** and **Remarks** fields.

- **Copy:** displays the **Copy Table** dialog box with the **Table** and **New Table** fields preselected with the current catalog, schema and table names.

  You are then able to enter the details of the new table you require:

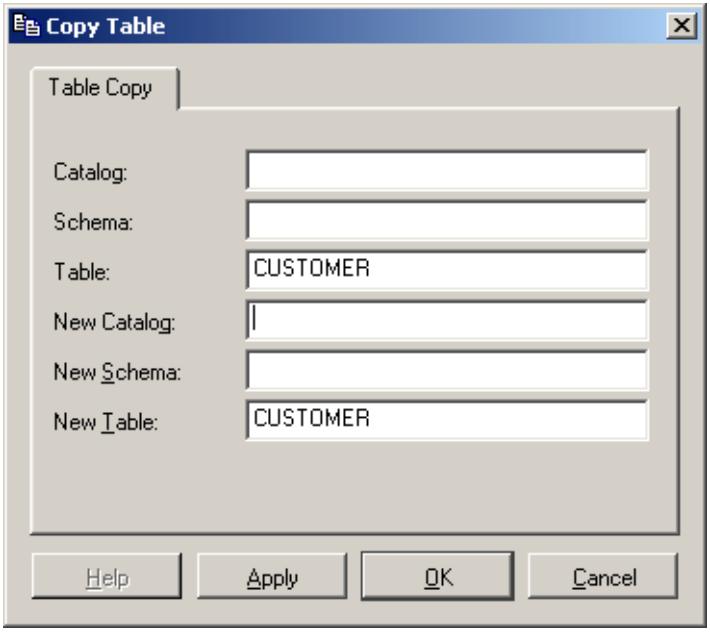


Figure 14: The Copy Table dialog box

- **Delete:** displays a dialog box asking you whether you are sure you wish to delete the selected table.
- **Settings:** displays two system attributes in the **Table Settings** dialog box:

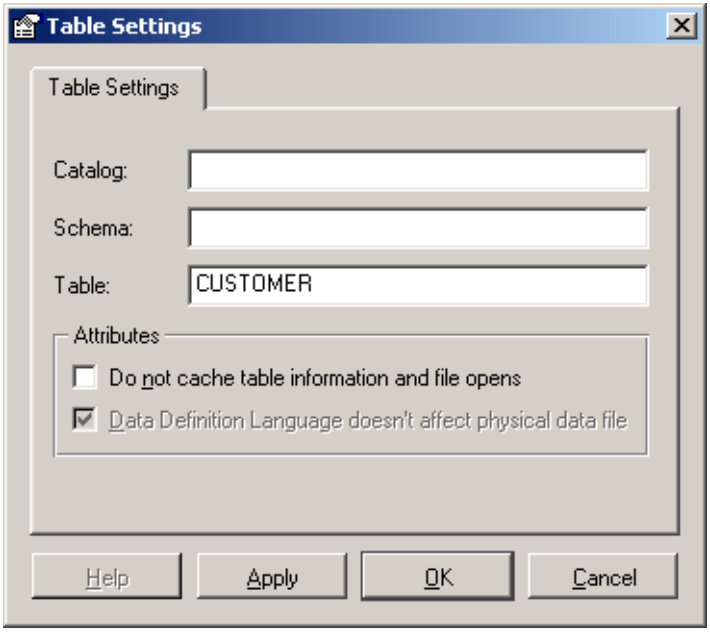


Figure 15: The Table Settings dialog box

Please do not amend these settings without contacting Easysoft support:

Right-clicking anywhere on the grid in the file definition window displays the following options on a pop-up menu:

- **Insert New Column:** opens up a new row on the grid (as signified by a marker against the **Column Name**) in which to enter field details.
- **Delete Column:** allows you to delete a row on the grid (as signified by a marker against the **Column Name**) in which is held

field details. A dialog box is displayed asking whether you are sure you wish to proceed with the deletion.

- **Recalculate Offsets:** recalculates the offset value of each defined column name on the table. A dialog box is displayed asking you whether you are sure you wish to proceed.
- **Indexes:** displays the **Index Properties** dialog box showing details of any indexes defined for the selected table.
- **Properties:** displays the **Table Properties** window showing the properties of the selected table, as shown in **"Creating Tables" on page 30**.

The **Table Details** window also displays three Tab folders, two of which contain type information for each column and a third which allows the user to preview the ISAM data against the layout which has been defined:

The **Local Type** tab folder corresponds to the field selected via the **Local Datatype Group** and **Local Datatype Name** columns, and contains the following fields.

Note that only the attributes that apply to the selected local data type will be enabled:

- **Start Date:** this field enables you to specify the start date for a julian date field.

  The browse button displays a dialog box in which the required day, month and year can be entered. You cannot type directly into the field itself:

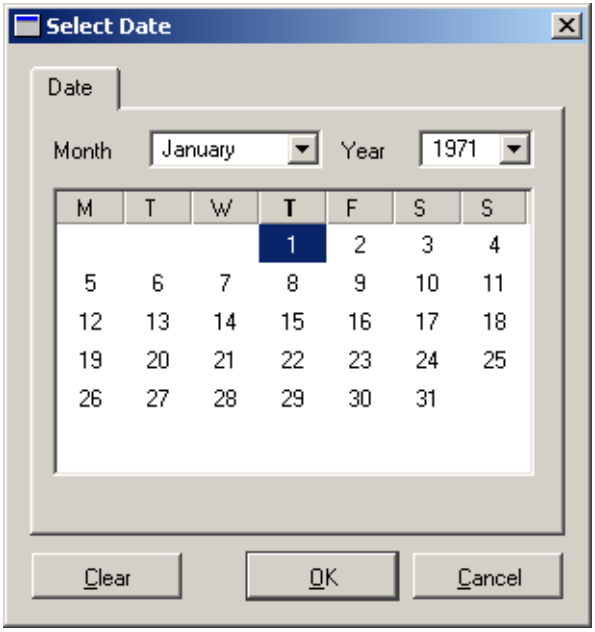


Figure 16: The Select Date dialog box

- **Format:** this field enables you to specify the format of a date, time or timestamp field.

  The browse button displays a dialog box in which day, month, year and punctuation symbols can be entered. You cannot type directly into the field itself.

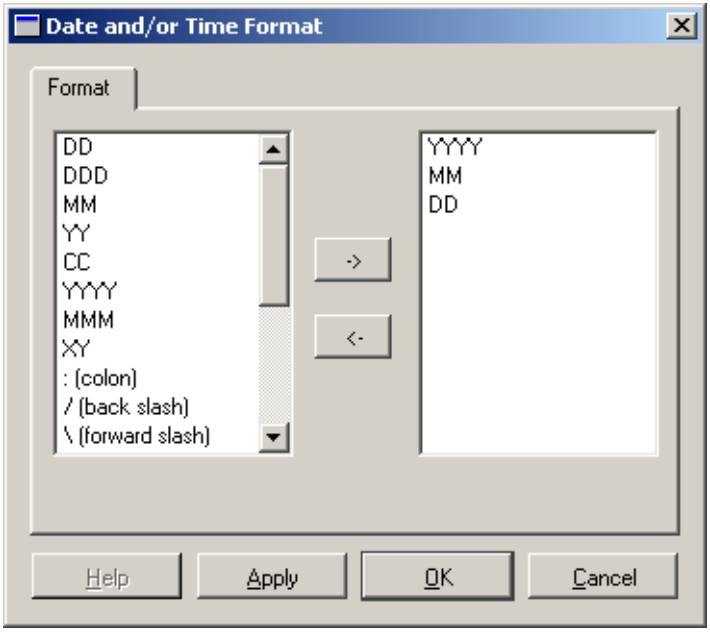


Figure 17: The Date/Time Format dialog box

- **Decimal Digits:** this field enables you to specify the number of decimal places within a numeric field.
- **Multiplier:** this field enables you to specify the multiplier within a numeric field (i.e. the value stored in the field will be multiplied by ten to the power of this value).
- **Null Value:** this field enables you to specify the null value for the field.

The **SQL Type** tab folder corresponds to the field selected via the **SQL Datatype** column and contains the following fields.

Note that only the attributes that apply to the selected SQL data type will be enabled:

- **Length:** this allows you to specify the number of significant leading characters within a character field where this differs from the actual length of the field on the target data source. Note that the actual length of the field is displayed in the Precision field below, but cannot be amended.
- **Precision:** this allows you to specify the leading number of significant digits within a numeric field where this differs from the actual length of the field on the target data source.
- **Scale:** this allows you to specify the number of decimal places within a numeric field to be applied when a value is inserted or queried by an application.
- **Seed:** this allows you to specify the initial integer start value of an automatically incrementing numeric field.
- **Increment:** this allows you to specify the integer amount by which an automatically incrementing numeric field increases each time a new instance is inserted.
- **Default:** this allows you to specify the additional default value in a field when a value is inserted or queried by an application e.g. a salutation (Mr, Ms, Mrs etc.) in a character field or non-zero value in a numeric field.

The **Preview** tab folder displays each column of the current data table with its specified layout, assuming that the defined layout matches the data source.

This allows you to test whether or not your tables have been correctly defined.

Either right-clicking anywhere on the grid of table details and selecting **Properties** or selecting the **Properties** toolbar button will display the **Table Properties** window showing the properties of the selected table, as shown in **“Creating Tables” on page 30**.

Either right-clicking anywhere on the grid of table details and selecting **Indexes** or selecting the **Indexes** toolbar button will display the **Index Properties** dialog box showing details of any indexes defined for the selected table:

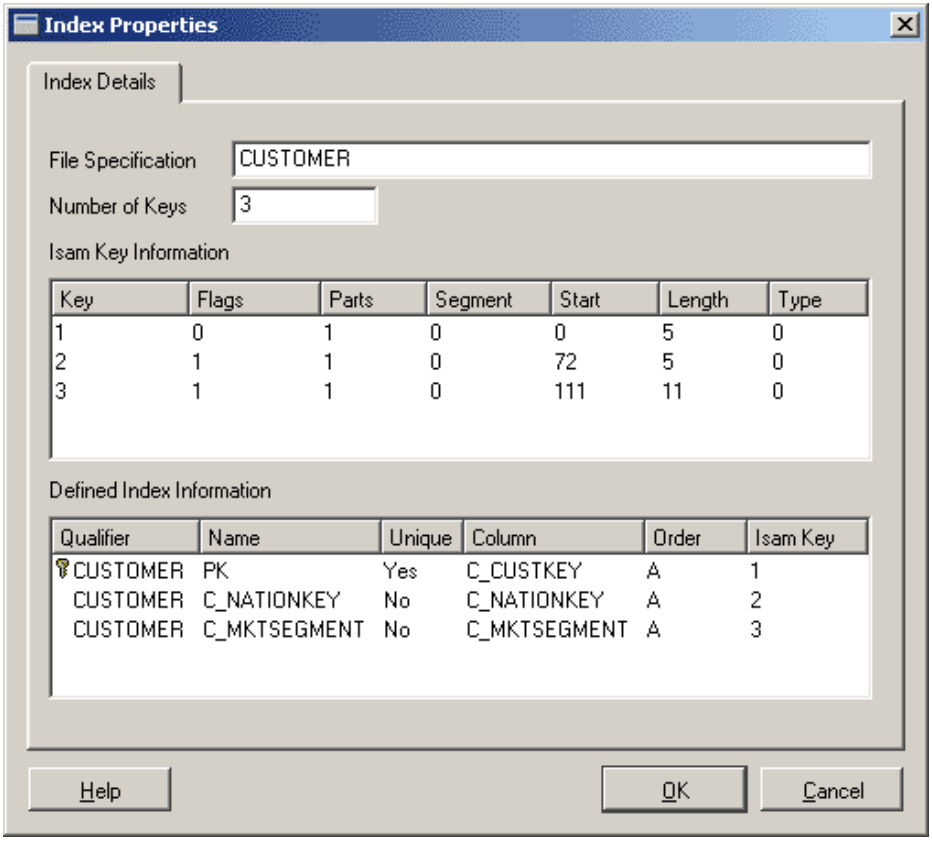


Figure 18: The Index Properties dialog box

The ISAM Key Information data is built by the Administrator each time the window is invoked.

However, the Defined Index Information data must be generated by entered by right-clicking on the **Defined Index Information** pane and selecting **Generate Indexes**.

Once generated, these indexes may then be removed, regenerated or moved up and down in their priority by right-clicking and selecting the appropriate menu item.

It is not mandatory to define generated indexes, as the Easysoft software will still read an ISAM data file, as long as its fields have been correctly defined.

There may well be a valid reason not to specify any indexes, although there will almost certainly be a degradation in performance.

Note that the index which is specified as the primary key is signified by a **key** icon.

Users

Creating Users

A new user may be created either by selecting the **New User** icon on the **Datasources** window or by right-clicking on **Users** and selecting **New User** from the pop-up menu.

This displays the **User Details - New** dialog box:

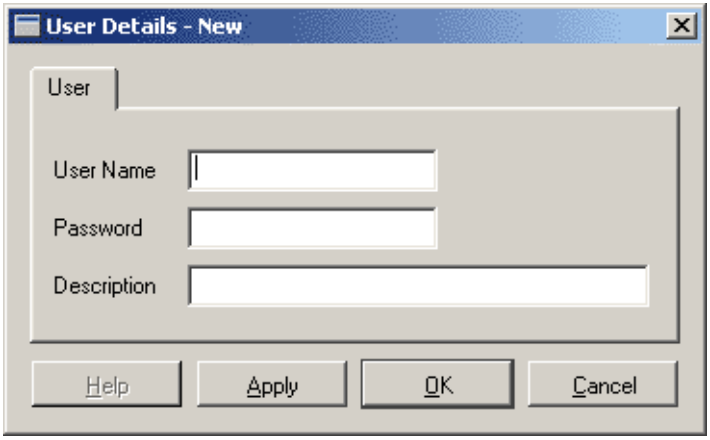


Figure 19: The User Details - New dialog box

The following fields are displayed and require details to be entered:

- **User Name**: enter a unique name for the user.
- **Password**: enter a unique password that the user must enter when they log on.
- **Description**: enter a general description of the user.

Click the **Apply** button to accept the new details and re-enter information for another new user if required.

When all new user data has been entered, click the **OK** button to finish and accept the input or click the **Cancel** button to reject the input.

The newly created user (or users) will be displayed in the list of users in the right-hand pane of the **Datasources** window.

DISPLAYING USERS

Clicking on **Users** from within the **Datasources** window will display a list of users for that data source:

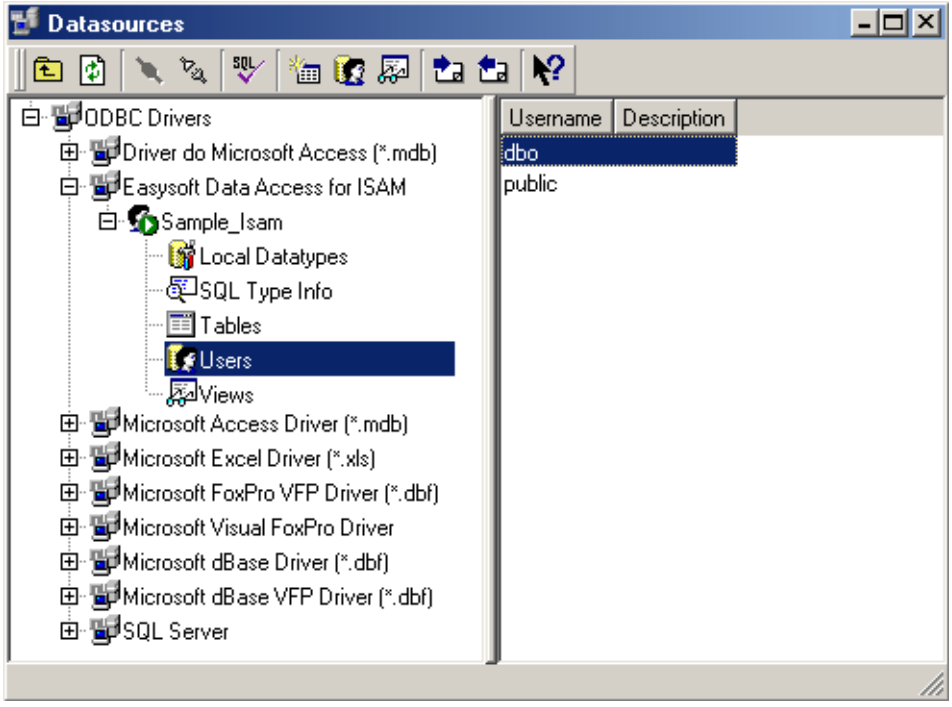


Figure 20: Users on the Datasources window

Highlighting and then either double-clicking on a row on the right-hand side of the program window or right-clicking and selecting **Permissions** from the pop-up menu displays a **User Permissions** window.

This defaults to the current user and displays Select, Delete, Insert and Update permission details for each table in the data source for that user.

By selecting from the **User Name** drop-down list the details for all other users can also be displayed and updated:

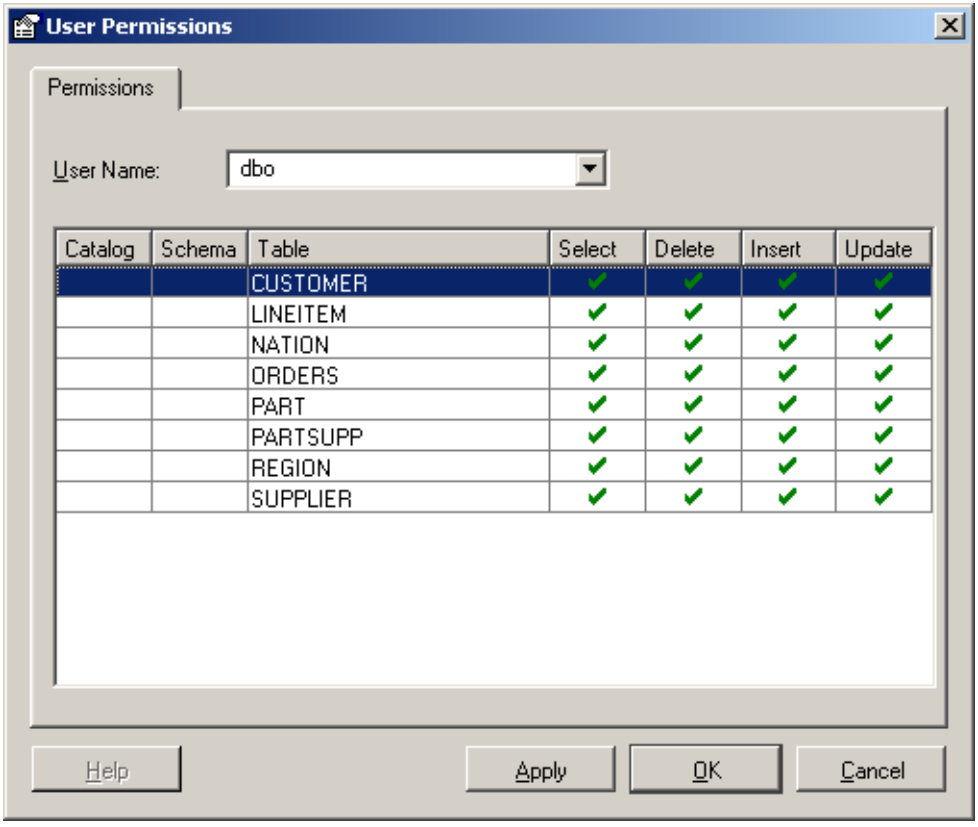


Figure 21: The User Permissions dialog box

Selecting and then right-clicking on a user name also displays the following options in addition to **Permissions** on the pop-up menu:

- **New User:** displays the **User Details** window for the entry of **User Name**, **Password** and **Description** fields.
- **Edit:** displays the **User Details** window for the entry of **Password** and **Description** fields.
- **Copy:** displays the **User Details** window for the entry of a **New User** field.
- **Delete:** displays a dialog box asking you whether you are sure you wish to delete the selected user.
- **Rename:** displays the **User Details** window for the entry of a **New User** field.

The availability of these options varies depending on the nature of the selected user:

- **dbo:** this user name is hard-coded and cannot be deleted or renamed. This is because, as database owner, this is a unique top level user with full rights and permissions over all other users. You are allowed to amend the dbo user password, description or table permissions and also to create a new user with the dbo table permissions attached.
- **public:** this user name is hard-coded and cannot be edited, copied, deleted or renamed. This is because, as a public user, it is effectively a unique group identifier and is subject only to amendments to its table permissions.
- **others:** this category refers to any users created other than dbo and public. There are no restrictions on the properties of these users.

Views

Creating Views

A new view may be created either by selecting the **New View** icon on the **Datasources** window or by right-clicking on **Views** and selecting **New View** from the pop-up menu.

This displays the **View Properties** dialog box:

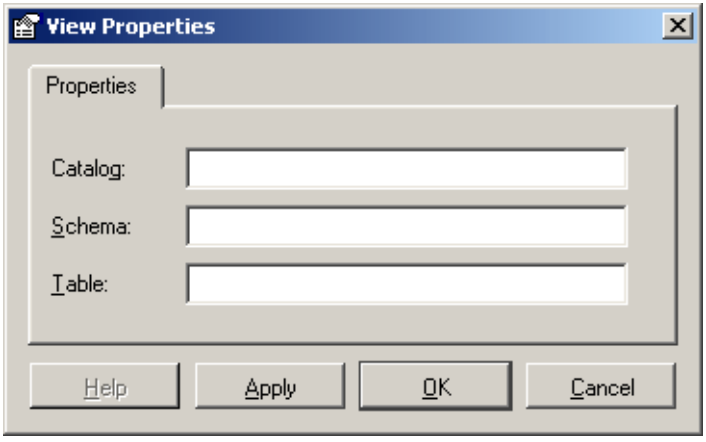


Figure 22: The View Details - New dialog box

The following fields are displayed and require details to be entered:

- **Catalog**: enter any catalog name incorporated into the data source.
- **Schema**: enter any schema name incorporated into the data source.
- **Table**: enter a logical name for the table. This field is mandatory.

Click the **Apply** button to accept the new details and re-enter information for another new view if required.

When all new user view has been entered, click the **OK** button to finish and accept the input or click the **Cancel** button to reject the input.

The newly created view (or views) will be displayed in the list of views in the right-hand pane of the **Datasources** window.

DISPLAYING VIEWS

Clicking on **Views** from within the **Datasources** window will display a list of views for that data source:

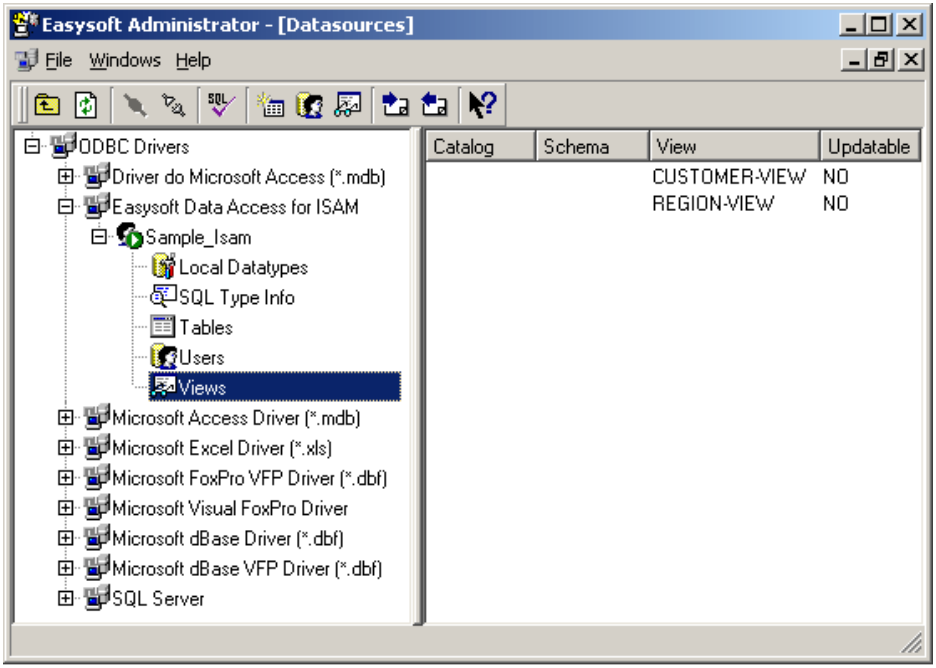


Figure 23: Views on the Datasources window

Highlighting and then either double-clicking on a row on the right-hand side of the program window or right-clicking and selecting **Edit** from the pop-up menu displays a **Edit View Definition** window.

At this point you can type any SQL statement into the top window, combining tables and fields as you require.

e.g

select * from CUSTOMER;

select * from CUSTOMER where C_ADDRESS like 'X%';

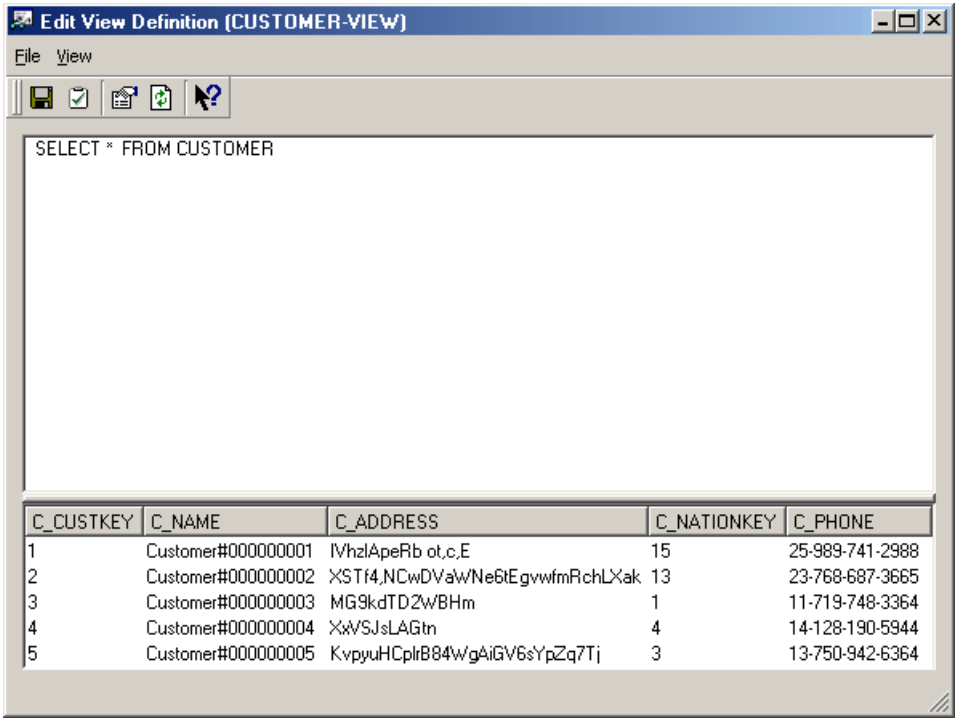


Figure 24: Validating a View in the Edit View Definition window

To validate and run your view, you can either select the **Validate** icon on the **Edit View Definition** window or select **File > Validate** from the **Edit View Definition** window menu.

A successful SQL statement will display the following message:

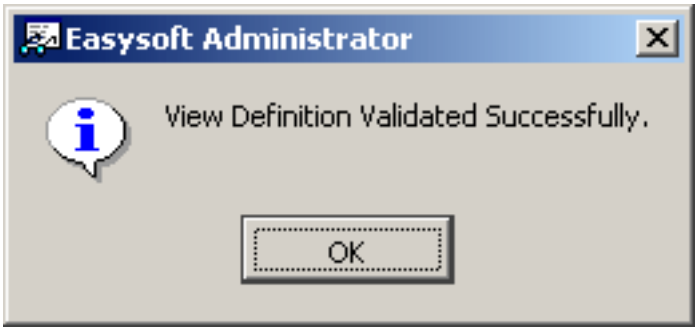


Figure 25: A successful View in the Edit View Definition window

An invalid SQL statement will result in an "`ODBC Call Failed`" message similar to that below:

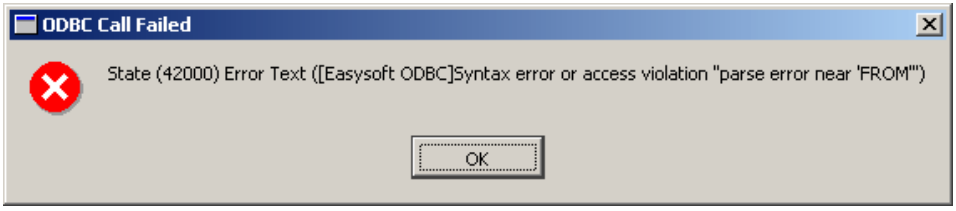


Figure 26: A failed View in the Edit View Definition window

There are many different possible errors that could arise in your SQL statement, but reading the error message carefully should allow you to work out which part of the clause is causing the problem.

Importing and Exporting

By selecting the **Export** button you can write SQL to a flat text file containing privilege, table and user schema definitions of the currently accessed data source. Once generated, this SQL may then be used to input into a different blank data source using the Import utility outlined below.

You are guided through this process by three Easysoft Export Definition Wizard screens which will ask you what export format, filename and schema definitions you require.

By selecting the **Import** button you can import generated privilege, table and user schema definitions of a selected data source into the currently accessed data source.

You are guided through this process by two Easysoft Import Definition Wizard screens which will ask you what import format, catalog name and schema definitions you require.

FILE MAPPING TUTORIAL

4

How to map Easysoft Administrator files

This section guides a user through the process of mapping a sample ISAM file into the Easysoft Administrator schema files.

It assumes that:

- the required Easysoft Administrator software has been installed
- the sample files can be read successfully
- the data is being accessed from a Windows client machine and stored on a Unix server machine.

Chapter Guide

- **Creating a data source**
- **Connecting to a data source**
- **Creating a new table**
- **Entering column attributes**
- **Saving a table and generating indexes**

Creating a data source

To demonstrate how to a map a new ISAM file it is necessary first to gain access to a blank schema file set on the Unix Server where the sample files reside.

For ease of demonstration there is a data source already set up on the server that contains a blank schema file set.

Look in the file `/etc/odbc.ini` by typing:

```
vi /etc/odbc.ini
```

and search for the `EASYSOFT_ISAM` data source:

```
[EASYSOFT_ISAM]
driver          = EASYSOFT_ISAM
sort_path       = /tmp
sort_mem_size   = 128
rs_mem_size     = 128
rs_path         = /tmp
blob_path       = /tmp
sqicount        = 1
target_string1  = Data Access for ISAM
target_driver1  = /usr/local/easysoft/isam/lib/libesdisam_sqi.so
dtcount         = 1
dtlibrary1      = /usr/local/easysoft/isam/lib/libesdisam_dt.so
data_path       = /usr/local/easysoft/isam/schema/
schema_path     = /usr/local/easysoft/isam/schema/
isamlibrary     = /usr/local/easysoft/isam/lib/libesisam.so
```

Figure 27: EASYSOFT_ISAM data source details

Create a new data source in order to gain access to the blank schema files:

1. Start up the Microsoft Data Source Administrator by selecting **Start > Settings > Control Panel > Administrative Tools > Data Sources (ODBC)**, choose the **System DSN** tab and click **Add**:

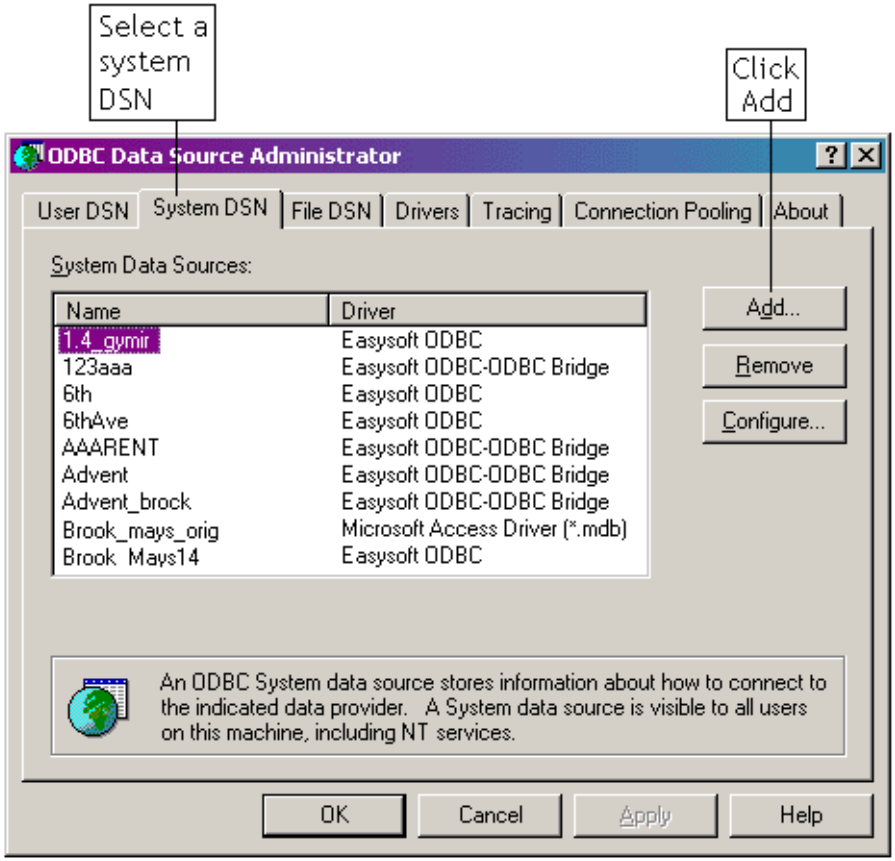


Figure 28: The ODBC Data Source Administrator

2. Select **Easysoft ODBC-ODBC Bridge** from the list of drivers and click **Finish**:

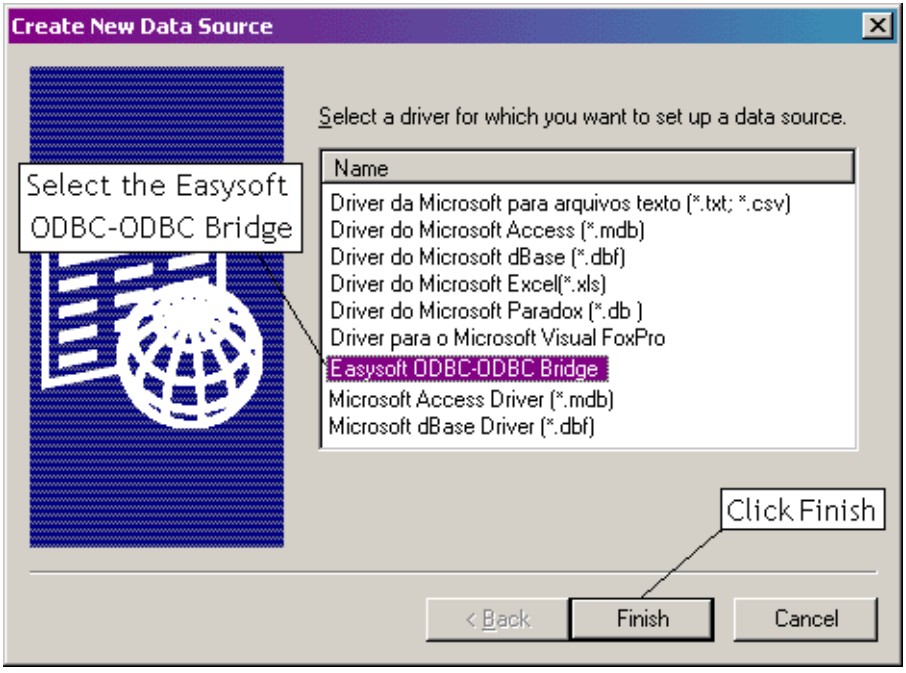


Figure 29: The Create New Data Source dialog box

3. Fill in your details using this outline and click **Test**:

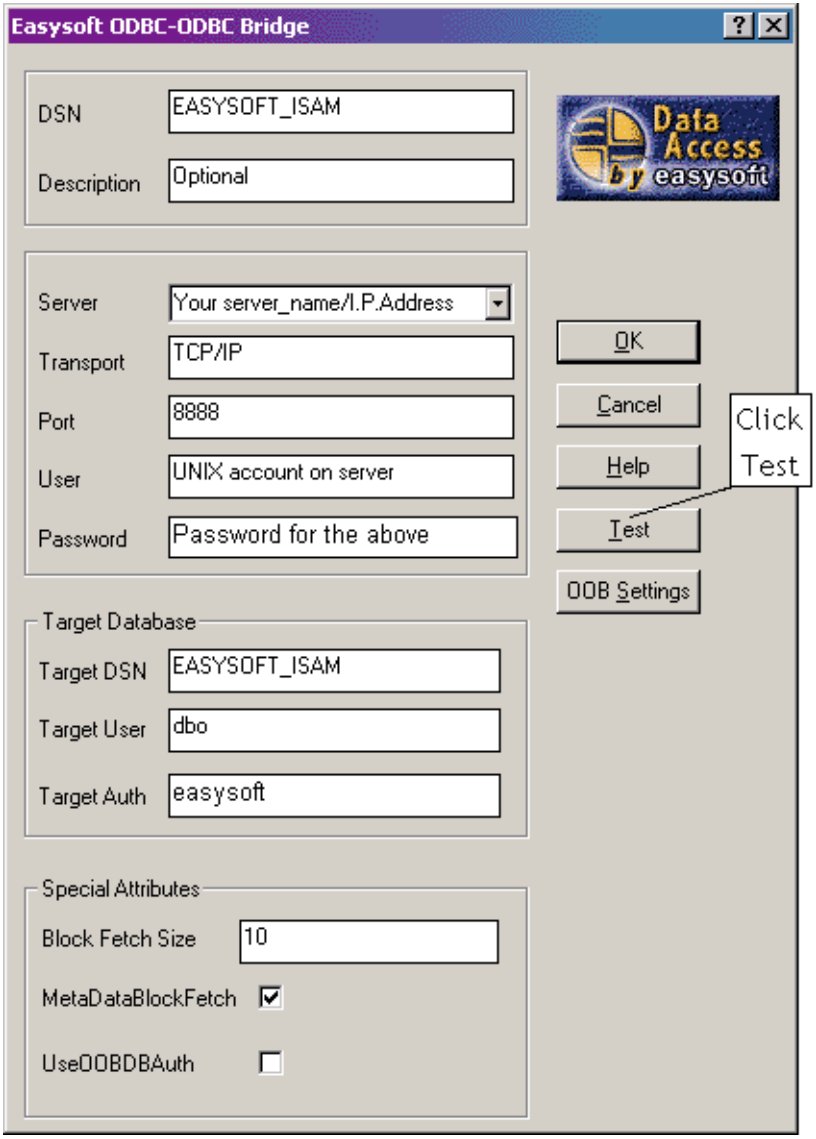


Figure 30: The Easysoft ODBC-ODBC Bridge DSN dialog box

Clicking **Test** against the data source should display a dialog box with details of the connection that has been made:

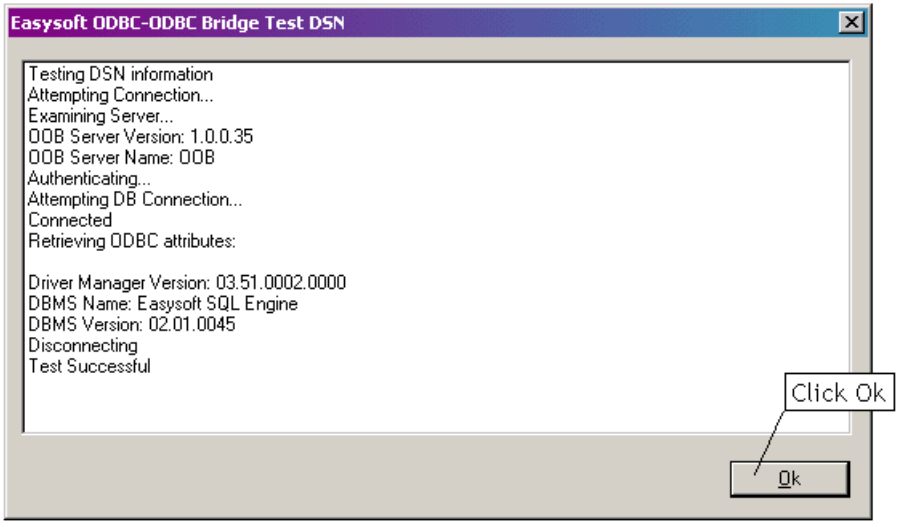


Figure 31: The Easysoft ODBC-ODBC Bridge Test DSN dialog box

4. Once you have a successful test connection, select **OK** all the way out of the Data Source Administrator to save the data source.

Connecting to a data source

The Easysoft Administrator now needs to be loaded up in order to allow file definitions to be entered into the blank schema files.

For this you will need to understand the layout of your ISAM files.

The key parameters in the layout of the file are:

- length
- data type
- offset

By mapping these attributes into the schema files, the ISAM files can be manipulated relationally.

1. Select **Start > Programs > Easysoft > Easysoft Administrator > Catalog Administrator** to load the Easysoft Administrator.

   A list of all the ODBC drivers for which ODBC data sources have been created on this machine is displayed on the left-hand side of the **Datasources** window.

2. Either click on the **+** symbol next to **Easysoft ODBC-ODBC Bridge** or double-click on **Easysoft ODBC-ODBC Bridge** itself to display a list of its associated System and User DSNs:

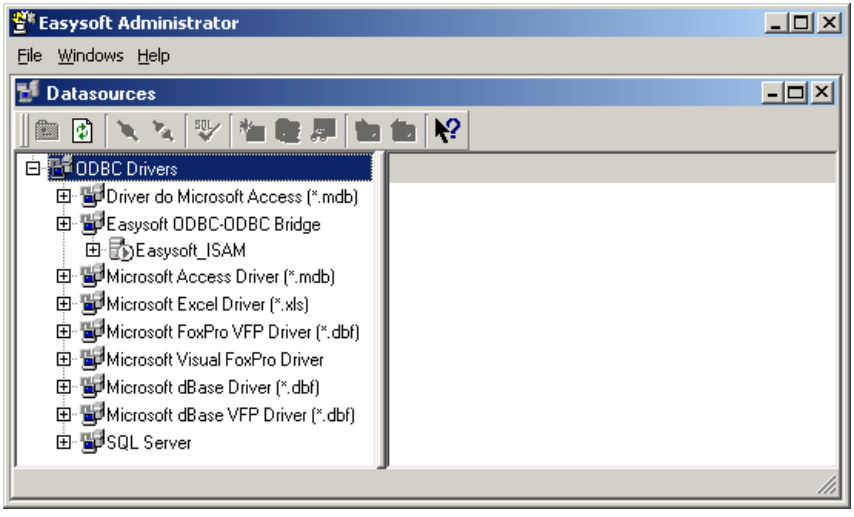


Figure 32: A list of data sources on the Datasources window

3. Open the `Easysoft_ISAM` data source by either clicking on the **+** symbol next **Easysoft_ISAM** or double-clicking on **Easysoft_ISAM** itself:

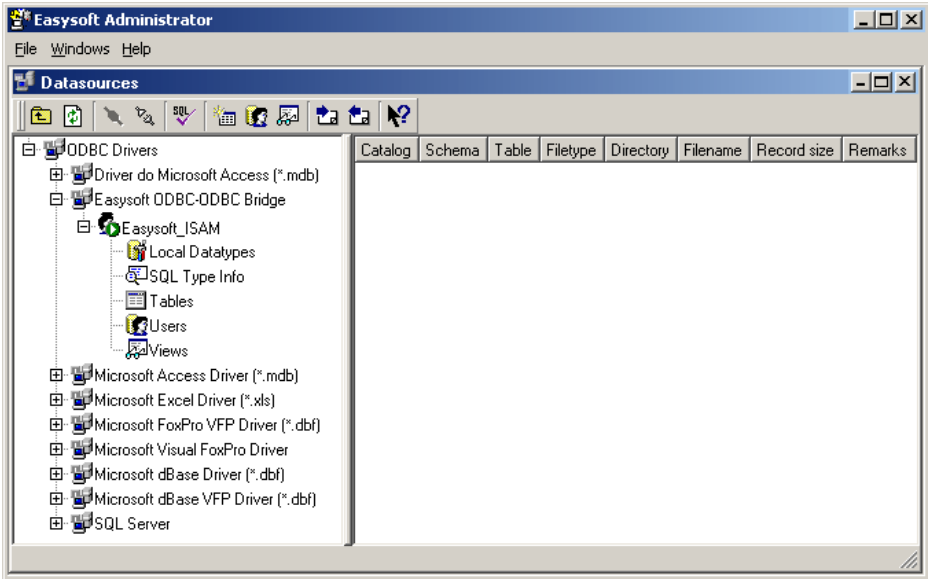


Figure 33: The EASYSOFT_ISAM data source on the Datasources window

Creating a new table

Before a new file definition is entered, a table that will reference the file needs to be created.

Within the Easysoft Administrator software you map the definition straight onto tables, rather than defining the file and then having to create a separate table definition.

In this example we will be using the `ORDERS` file from the Easysoft sample data to create a new schema table:

1. Click the **New Table** toolbar button at the top of the Administrator (or alternatively right click on the tables icon and select **New Table**):

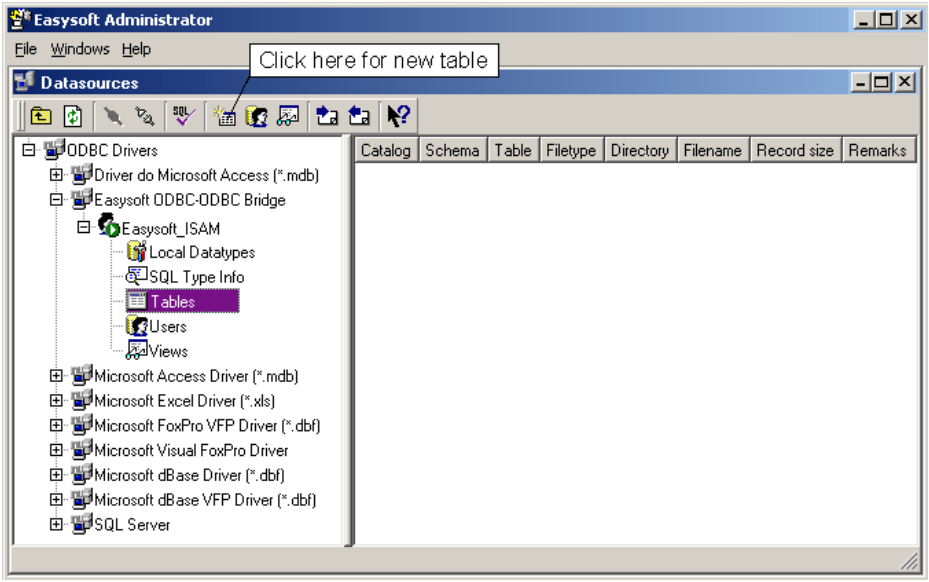


Figure 34: The New Table button on the Datasources window

The **Table Properties** dialog box is displayed, which requires you to input details of the location and name of the file you wish to map.

2. Substitute your own file for the example ORDERS file:

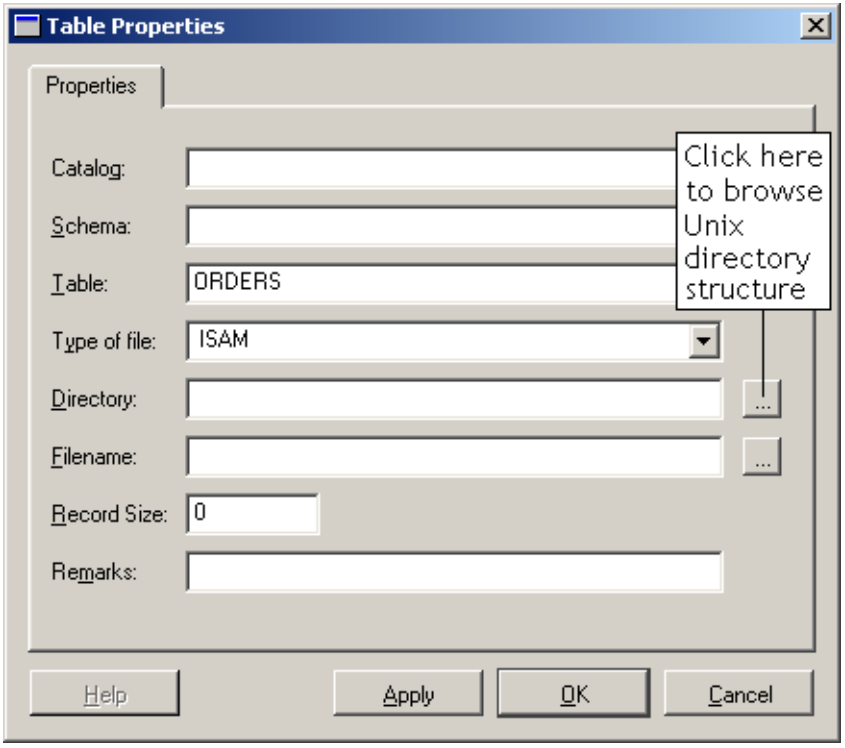


Figure 35: Browsing for a directory on the Table Properties dialog box

3. Click on the browse button to the right of the **Directory** field to browse to the directory where your ISAM file is located on your Unix server:

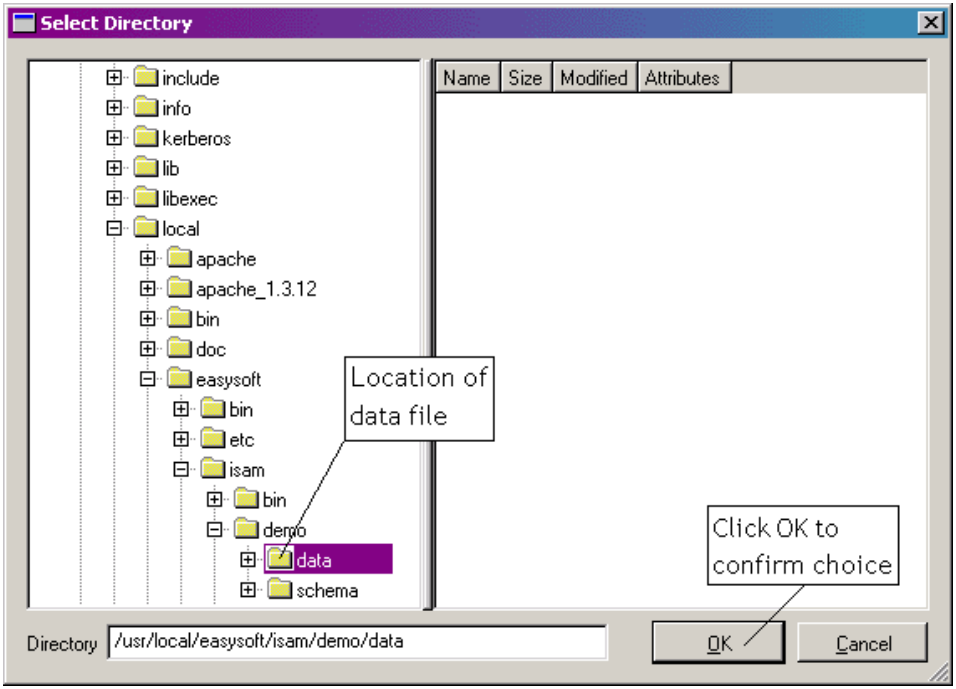


Figure 36: The Select Directory dialog box

4. The directory where the file is located will then appear in the **Table Properties** dialog box.

5. You will then need to select the file that your table will reference:

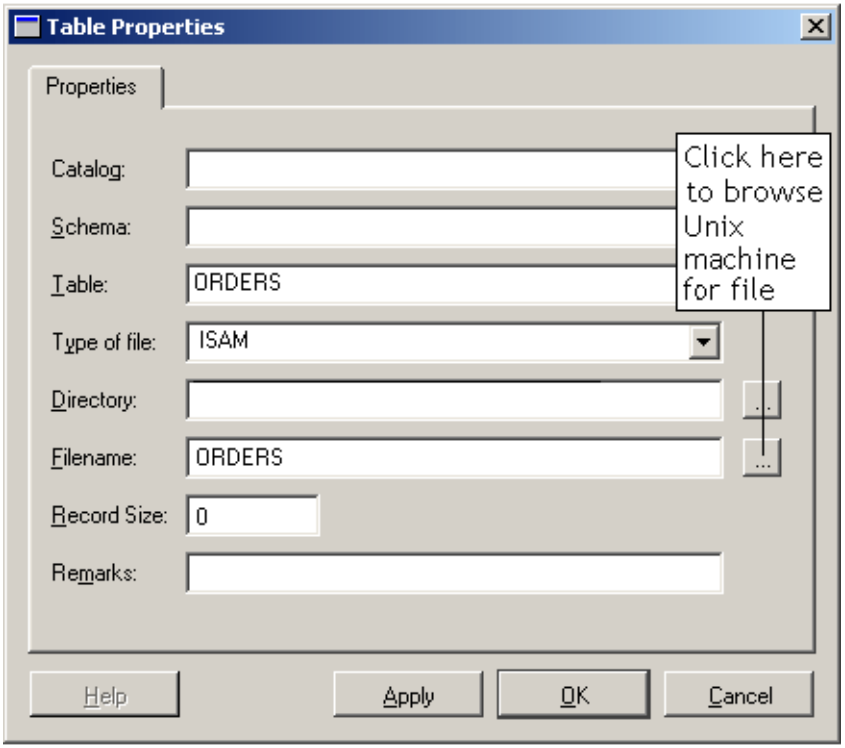


Figure 37: Browsing for a file on the Table Properties dialog box

6. From the Unix directory structure select the `.dat` data file that you want to define:

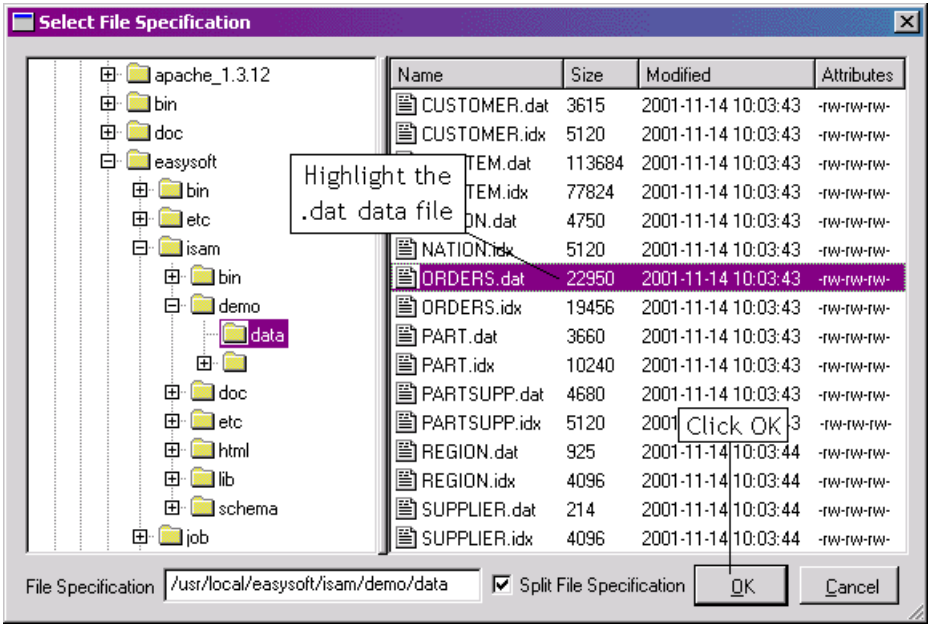


Figure 38: Using the Select File Specification dialog box

7. Select the **Split File Specification** check box to list the directory location and file name separately in the **Table Properties** dialog box.

8. Click **OK**.

An **Update Record Size** dialog box displays information regarding the record length of your file:

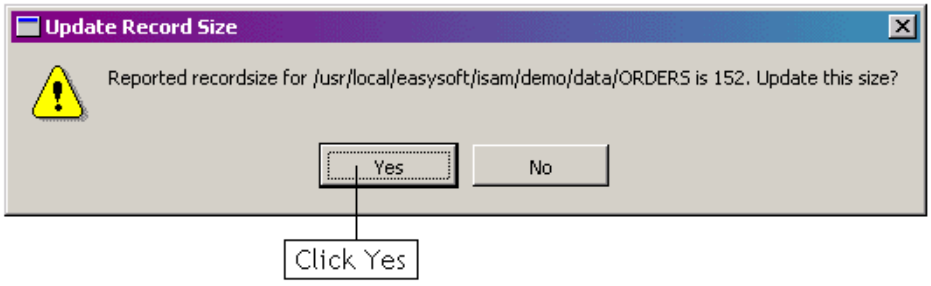


Figure 39: Using the Update Record Size dialog box

The reported record length of the file will be inserted into the **Record Size** field on the **Table Properties** dialog box if you click **Yes**.

However, if you believe the reported record size is incorrect you may enter an alternative value manually if you click **No**.

Once all the details have been entered the **Table Properties** dialog box will look like this:

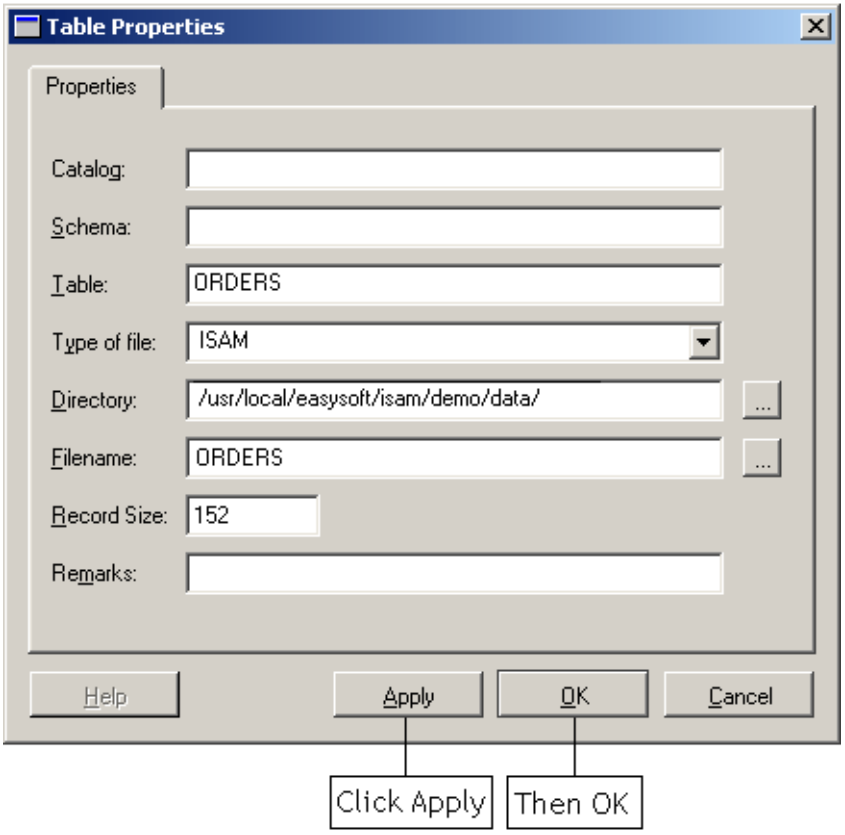


Figure 40: A file defined on the Table Properties dialog box

9. Click **Apply** and then **OK**, and the table definition will be saved into the schema files on the Unix server.

   The column attribute details can now be entered.

Entering column attributes

Having created a table definition, it is necessary to create a file definition.

For the ORDERS file the definition could look something like this:

```
Filename ORDERS

ORDERKEY          INTEGER          OFFSET (0)
CUSTKEY           INTEGER          OFFSET (5)
ORDERSTATUS       CHAR(1)          OFFSET (10)
TOTALPRICE        NUMERIC(15,2)    OFFSET (12)
ORDERDATE         DATE             OFFSET (30)
ORDERPRIORITY     CHAR (15)        OFFSET (35)
CLERK             CHAR (15)        OFFSET (51)
SHIPPRIORITY      INTEGER          OFFSET (67)
COMMENT           VARCHAR (79)     OFFSET (72)

primary key       ORDERKEY         key (1)
index ORDERS      CLERK            key (2)
index ORDERS      CUSTKEY          key (3)
index ORDERS      ORDERDATE        key (4)
```

Figure 41: A sample ISAM file definition

File definitions can take many forms and are often incorporated into the source code that created the files in the first place, but they need to contain three pieces of information about the field structure of the file to enable you to map these definitions into the Easysoft schema:

- field name
- data type
- offset

The Easysoft Administrator displays a blank grid for the entry of field details (in this case for the ORDERS file):

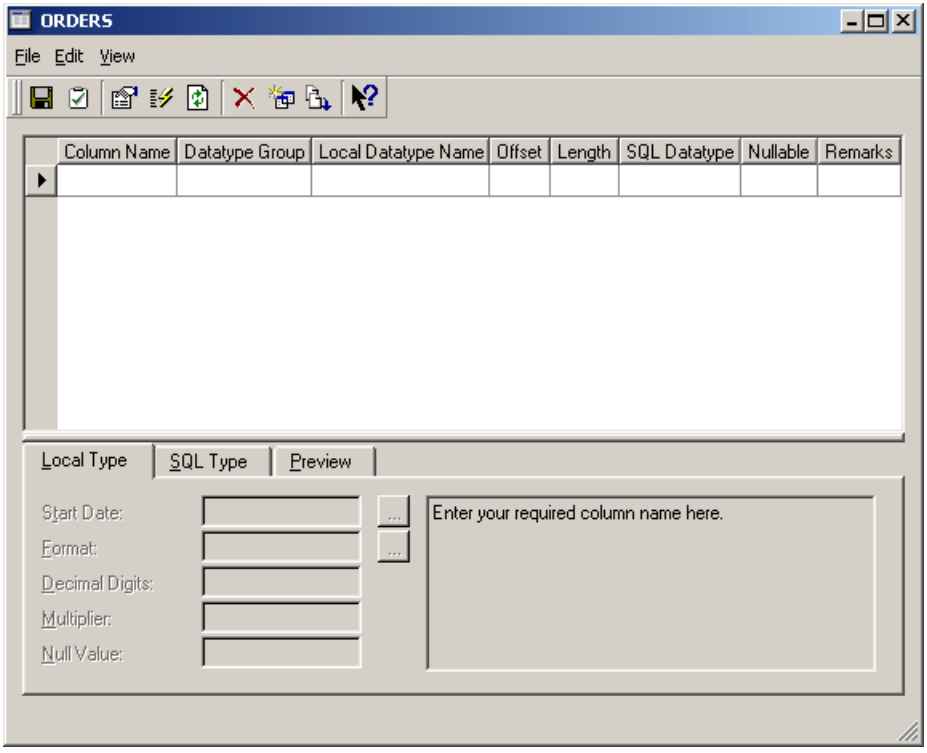


Figure 42: A blank field details grid

1. Enter the field name as the **Column Name**:

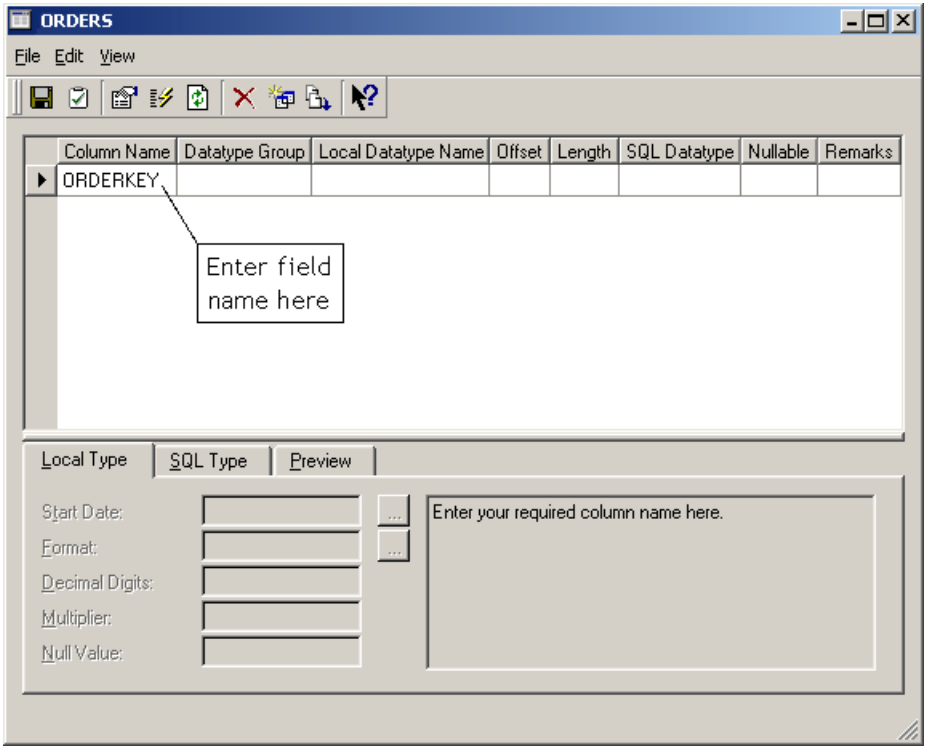


Figure 43: Entering a Column Name

2. Choose the **Datatype Group** from the drop down:

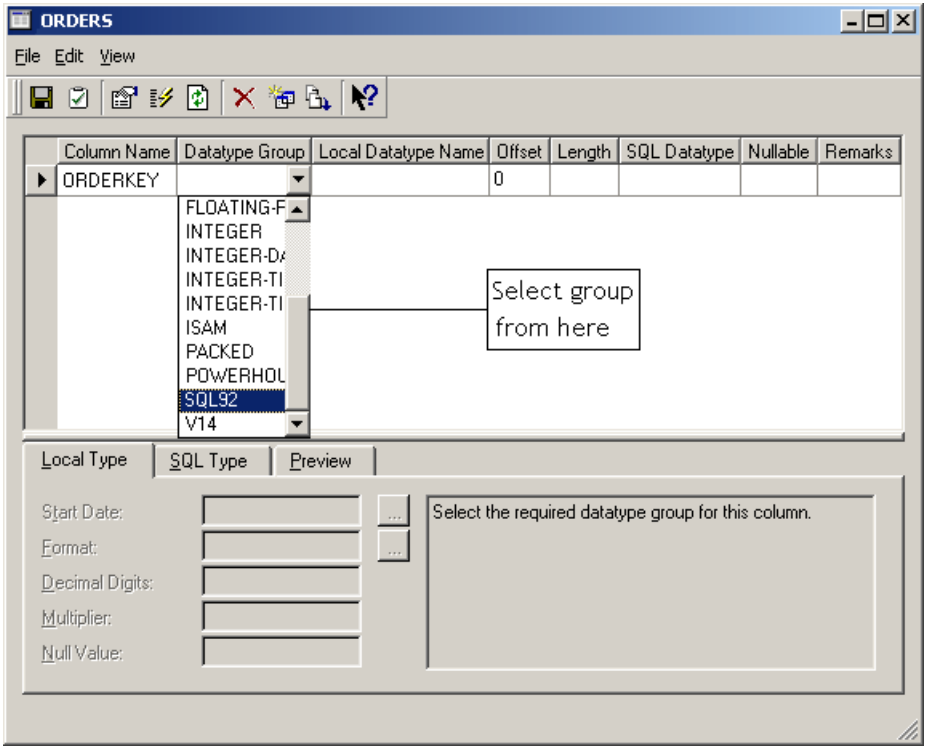


Figure 44: Entering a Datatype Group

The data type group you will need to select depends on the way in which the data is stored on your server.

The groups are based upon the different types of data storage that Easysoft have encountered on the servers of various customers.

The ORDERS file that is being mapped here as an example was created using SQL92 standard data types on the server, so this should be selected as the data type group.

Depending on the data storage at the file level (which should be known from a file definition) there should be a grouping that contains the datatype you require.

The ORDERKEY field is known to be stored as an INTEGER on the server with a length of 5, as the next field has an offset of 5, and the SQL92 integer has a fixed length of 5 (see **Figure 41 on page 67**).

Therefore the INTEGER data type can be inserted into the **Local Datatype Name** column, as it seems to fit with the server data type:

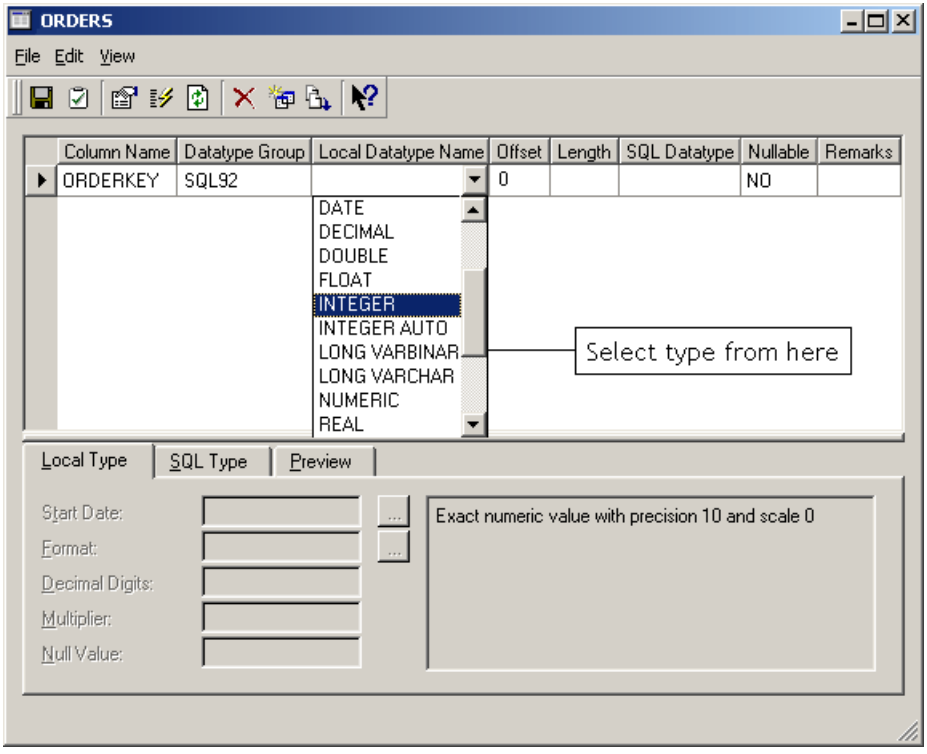


Figure 45: Entering a Local Datatype Name

3. For the first field the column will be at **Offset** 0 (the beginning of the record):

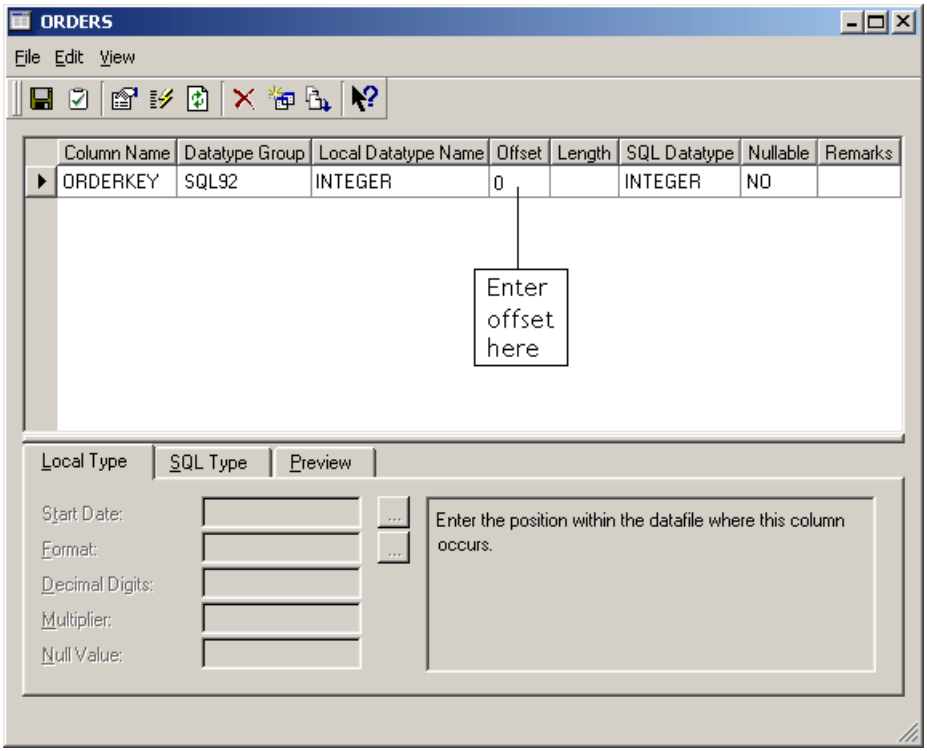


Figure 46: Entering a Column Offset

As the datatype INTEGER has a fixed length of 5, this value must be used for the **Length** field. Any other entries (and this is valid for all fixed length data types) will result in an error when the table is validated.

See **“Saving a table and generating indexes” on page 77** for further information on table validation.

4. Insert the **Length** field:

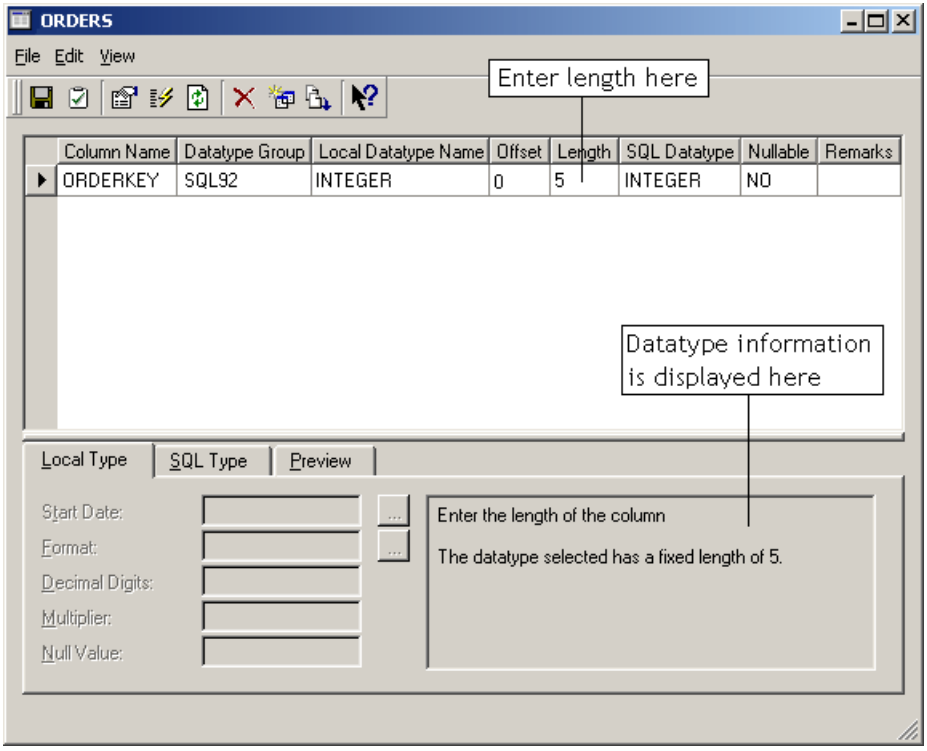


Figure 47: Entering a Column Length

Once the length field has been entered, the **SQL Datatype** field will be added automatically to complete the row.

5. Tab down to the next column and repeat this process for the rest of the file.

   During the process to add in the rest of the columns note that **Offset** values will be generated automatically. These can be manually amended to allow file mapping in an order other than by offset.

DEFINING NUMERIC FIELDS WITH DECIMAL PLACES

Precision and scale can be defined in a field with implied decimal places within the **SQL Datatype** field. For example, the `TOTALPRICE` field in the `ORDERS` table is described as:

```
TOTALPRICE    NUMERIC(15,2)    OFFSET (12)
```

indicating that this field has a precision (maximum number of digits) of 15 and that two of those 15 digits are stored after the decimal point. This would be configured by entering "15" into the **Precision** field and "2" into the **Scale** field:

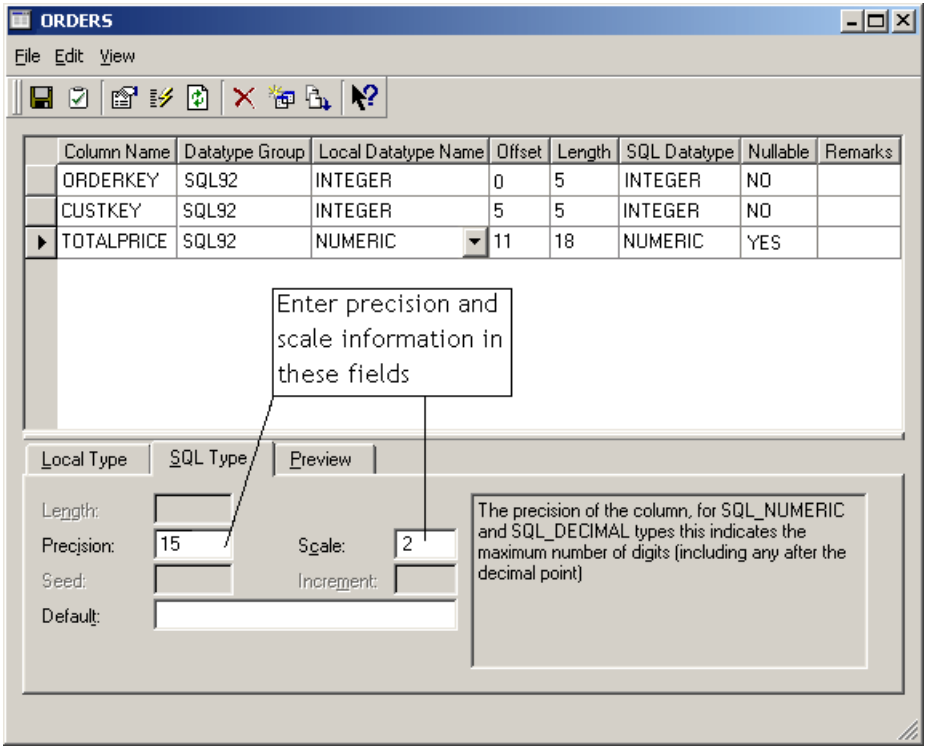


Figure 48: Entering a Column Precision and Scale

DEFINING DATE FIELDS

Date fields within Easysoft are extremely flexible and reflect the many different ways in which dates can be stored.

The data type used in the ORDERS example has a fixed format date data type. However, fields containing Julian date formats, for example, contain a count of a number of days from a specific start date, which can be entered into the **Start Date** field:

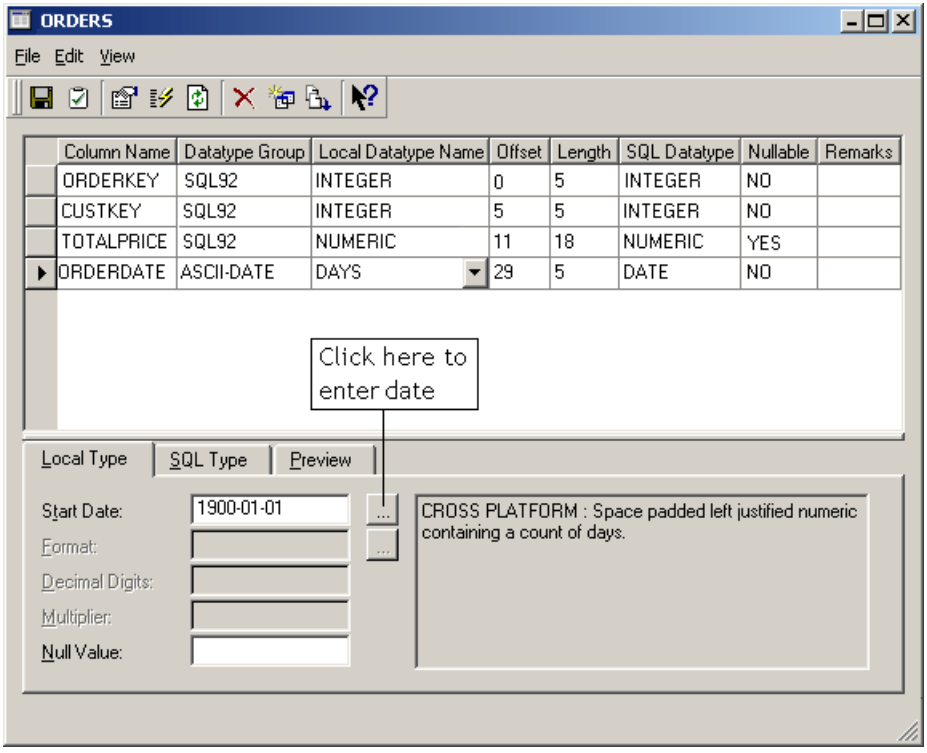


Figure 49: Entering a Start Date

Select the required day, month and year:

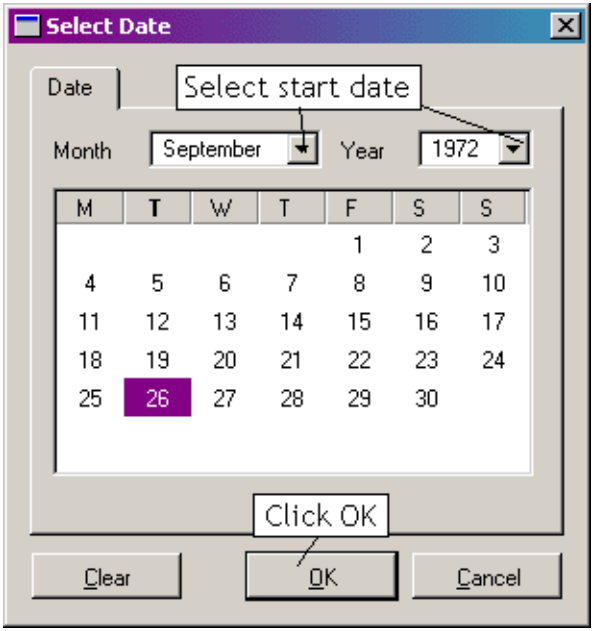


Figure 50: Using the Select Date dialog box

Saving a table and generating indexes

1. Once the file has been completely mapped, the table definition must be saved into the schema files:

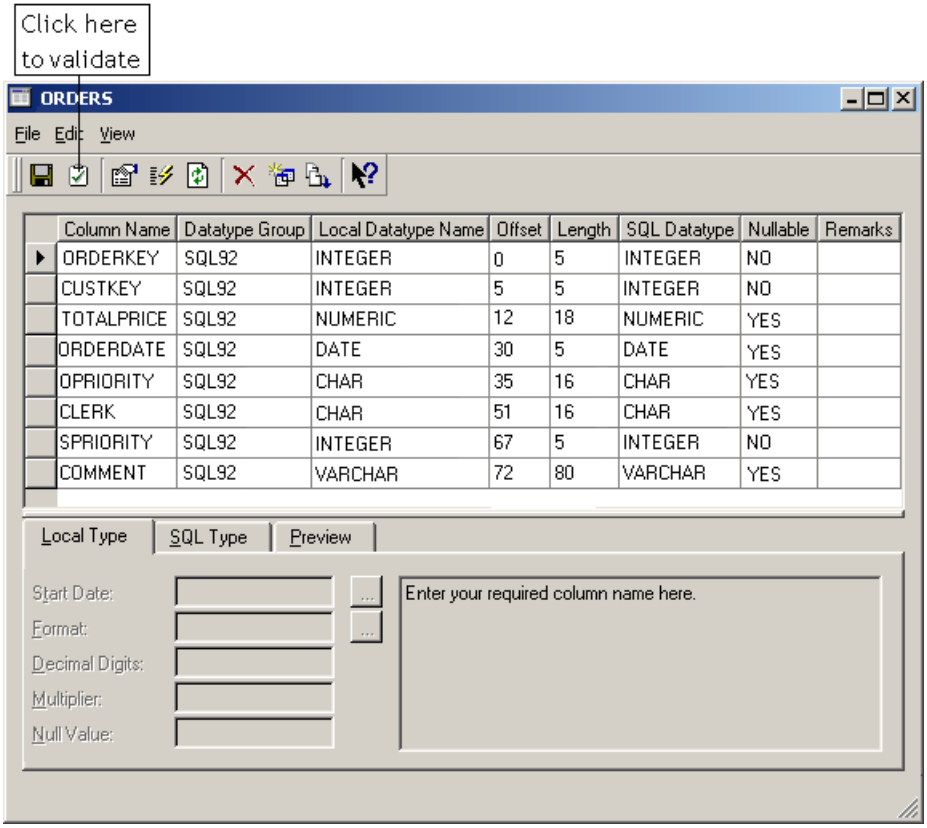


Figure 51: Validating a file definition

The table will now be validated to make sure that the definitions entered are valid and that they can be parsed without error into the schema files.

You may receive error messages informing you that amendments are necessary, such as:

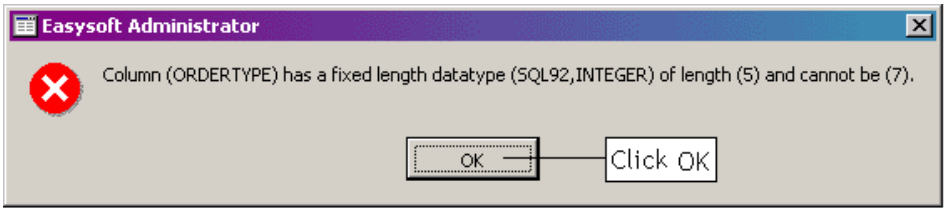


Figure 52: A sample Administrator error message

Otherwise you will receive a message informing you that the table definition layout is valid:

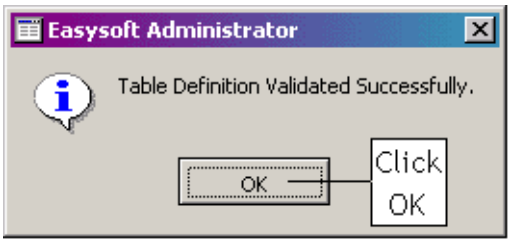


Figure 53: A sample Administrator confirmation message

2. Once the table has been validated, save the definitions:

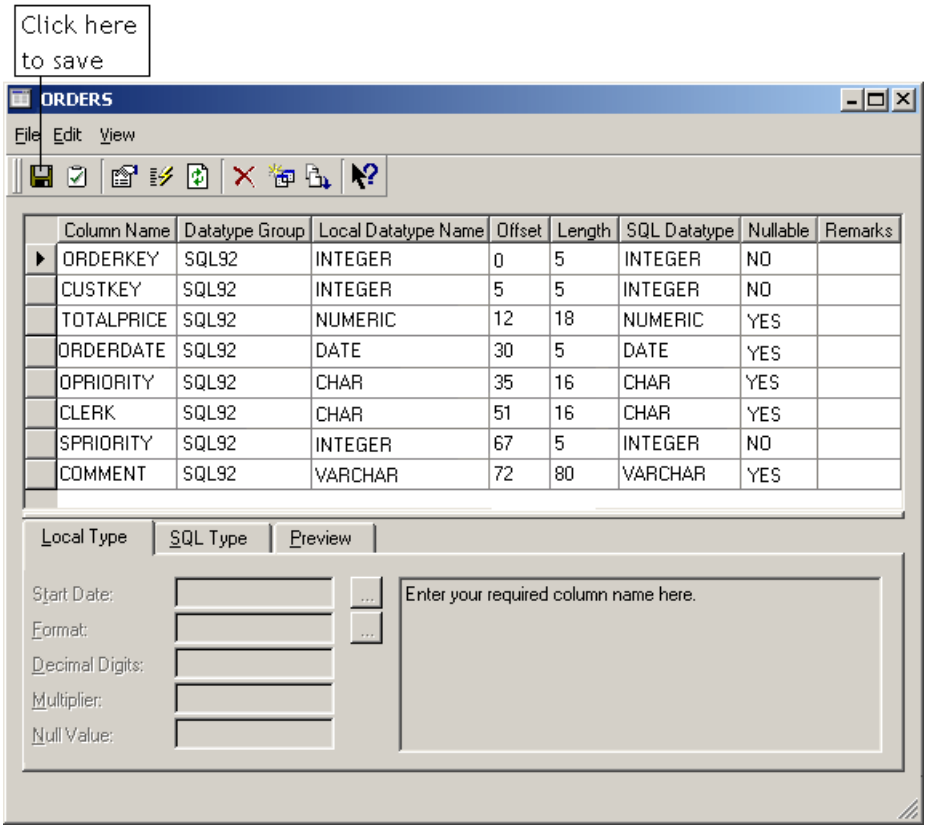


Figure 54: Saving a file definition

Usually the software will include all keys set on a file into the new definition. However, it is always best to check that all indexes are present, as if they are missing performance can be impaired.

3. Enter the **Index Properties** dialog box by clicking on the indexes icon:

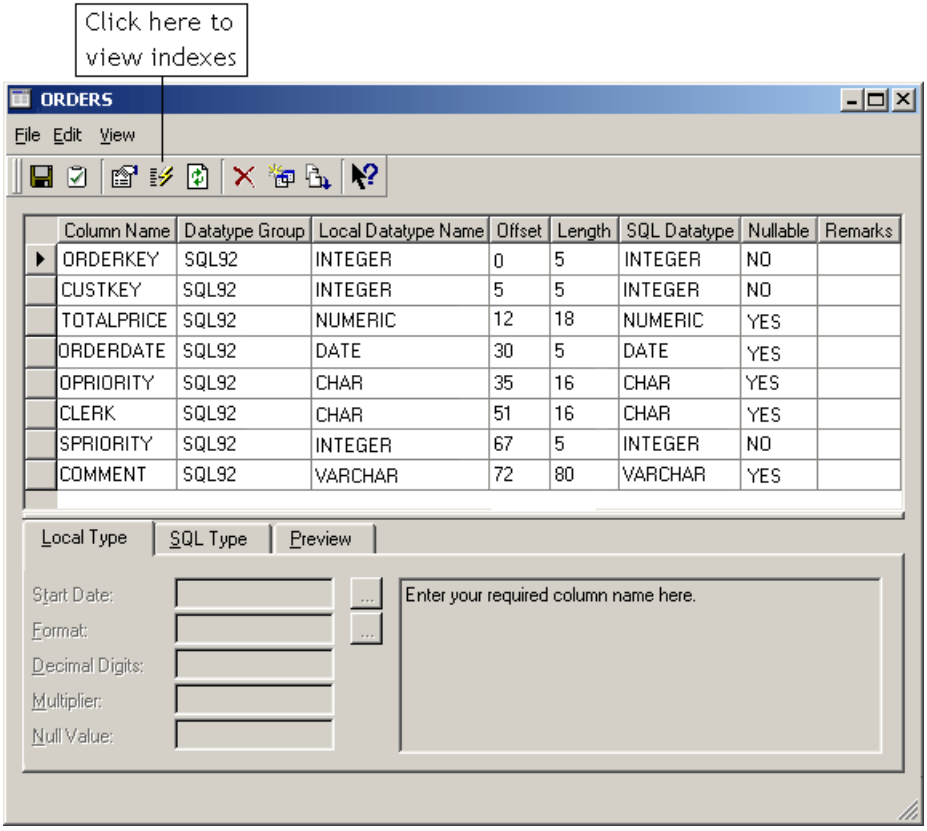


Figure 55: Viewing file indexes

The **Index Properties** dialog box displays the key information from which indexes will be generated:

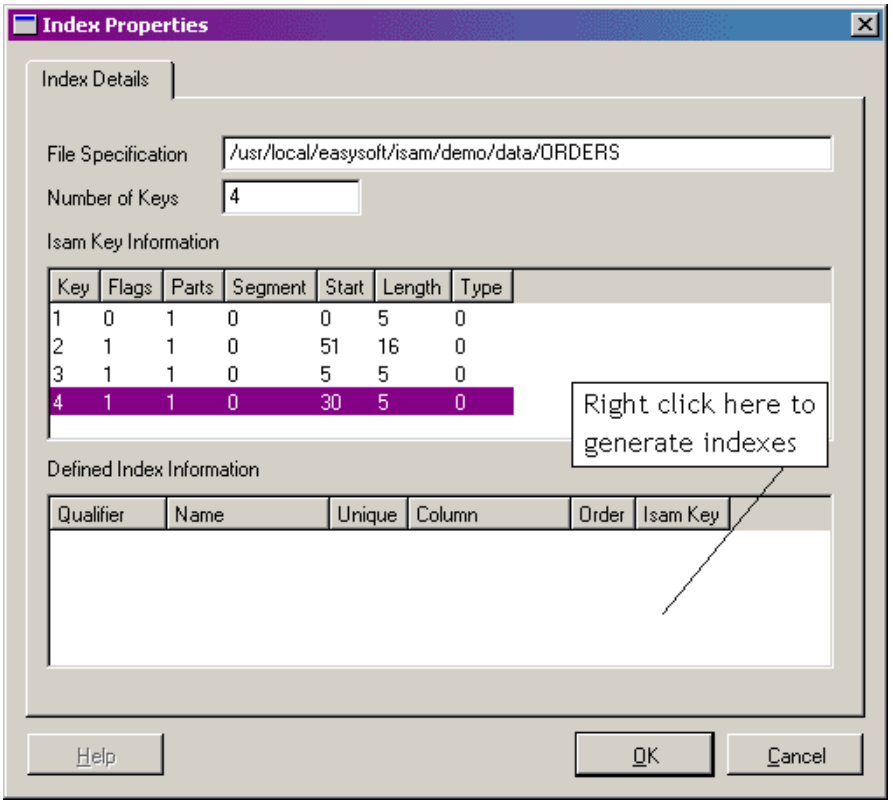


Figure 56: Generating indexes on the Index Properties dialog box

New indexes cannot be generated at this stage, but the existing indexes that have been read from the `.idx` file can be manipulated.

4. View the existing indexes by positioning your mouse pointer over the **Defined Index Information** pane and right clicking.

   A dialog box will appear entitled **Generate Indexes**.

5. Click **OK** and the indexes will be read from the file that you are defining:

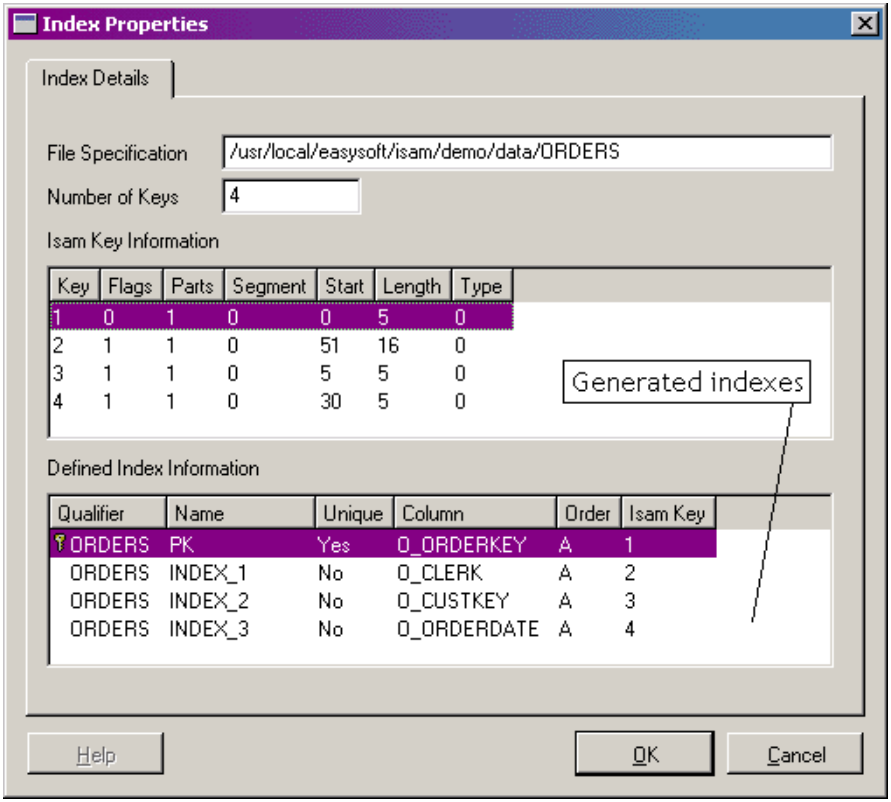


Figure 57: Viewing generated indexes on the Index Properties dialog box

6. Once the indexes have been generated, click **OK** to get back to the main administrator screen.

7. Validate and save the table definition and then exit the pane by clicking **Close**.
8. Display the new table by clicking **Refresh**:

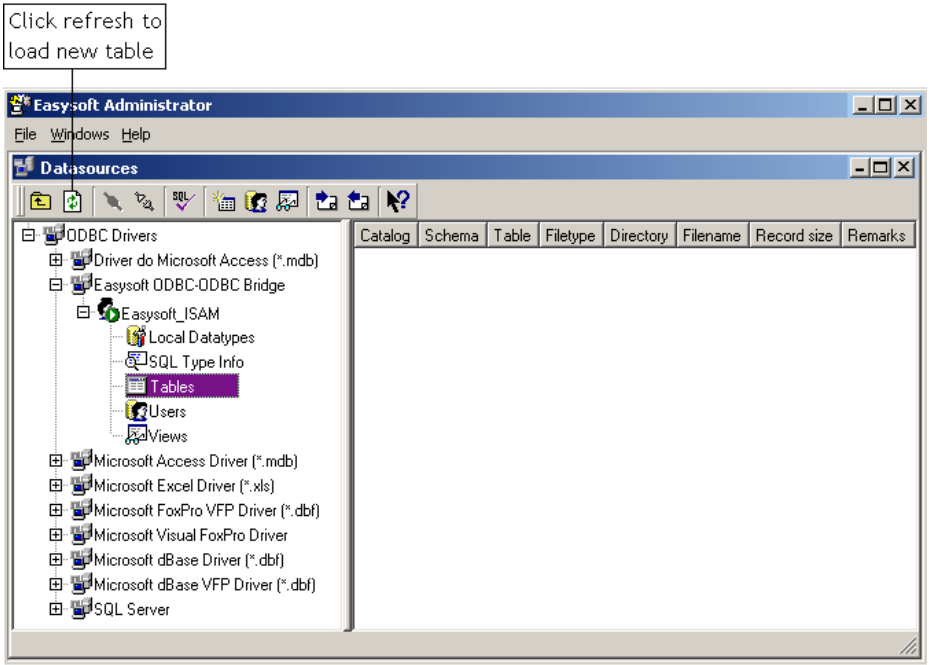


Figure 58: Loading a new table

The table will appear within the tables icon:

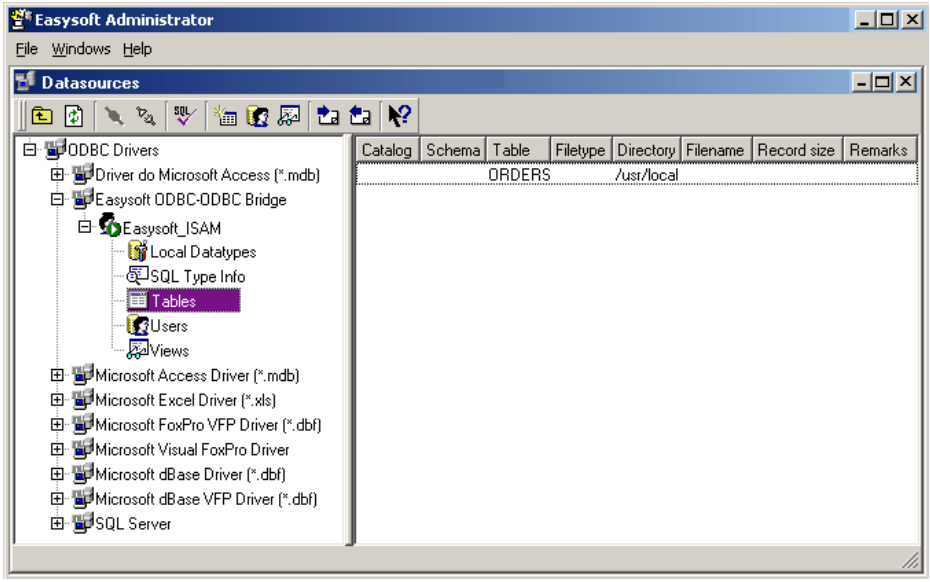


Figure 59: Viewing a new table

The table is now ready to be linked into any ODBC compliant application.

GLOSSARY

A

Terms and definitions

API (Application Programmer Interface)

A published set of function calls and constants allowing different programmers to utilize a ready-written library of subroutines.

Application

A program that applies the computer to solving some real-world problem. In ODBC terms, it is the program connecting to the data source.

Authorization code

You must have an authorization code for the Easysoft product you wish to license in order to obtain a purchased license. When you purchase a product your authorization code is emailed to you. You do not need an authorization code to obtain a trial license.

Client

A process performing tasks local to the current user, for example, formatting and displaying a report from data retrieved from the server.

Client/Server

The architecture whereby one process (the server) keeps track of global data, and another task (the client) is responsible for formatting and presenting the data. The client connects to the server and requests queries or actions be performed on its behalf. Often these processes run on different hosts across a local-area network.

Column

The vertical dimension of a table. Columns are named and have a domain (or type).

Database

A collection of data files.

Data source

In ODBC terms, a data source is a database or other data repository coupled with an ODBC Driver, which has been given a Data Source Name (see **"DSN" on page 87**) to identify it to the ODBC Driver Manager.

Data type

The specification of permitted values. A data type limits the values which are allowed to be used.

DBMS

Database Management System. Software that handles access to a database.

Download

To retrieve data from a remote machine (or the Internet) to your local machine. Mechanisms for achieving this include FTP and the World Wide Web.

Driver

See **"ODBC driver" on page 88**.

Driver Manager

Software whose main function is to load ODBC drivers. ODBC applications connect to the Driver Manager and request a data source name (DSN). The Driver Manager loads the driver specified

in the DSN's configuration file. In Windows, the ODBC Data Source Administrator is used to set up the Driver Manager.

DSN

Data Source Name. A name associated with an ODBC data source. Driver Managers, such as unixODBC or the Microsoft Windows Driver Manager, use the Data Source Name to cross-reference configuration information and load the required driver.

Field

A placeholder for a single datum in a record. For example, you can have a Surname field in a Contact Details record. Fields are sometimes referred to as cells.

FTP

File Transfer Protocol. A standard method of transferring files between different machines.

Host

A computer visible on the network.

HTTP

HyperText Transfer Protocol. The means of transferring web pages.

Middleware

Software that is placed between the client and the server to improve or expand functionality.

License key

A string which is provided by Easysoft for use in the licensing process.

ODBC

Open Data Base Connectivity. A programming interface that enables applications to access data in database management systems that use Structured Query Language (SQL) as a data access standard.

ODBC driver

Software that accesses a proprietary data source, providing a standardized view of the data to ODBC.

Row

The horizontal dimension of a table. At its most basic, a row equates to a record within a file.

Schema

A specification of the structure of a database, including the tables, their column headings and keys.

Server

A computer, or host, on the network, designed for power and robustness rather than user-friendliness and convenience. Servers typically run around-the-clock and carry central corporate data.

OR

A process performing the centralized component of some task, for example, extracting information from a corporate database.

SQL

Structured Query Language. An international standard text language for querying and manipulating databases.

System data source

In the context of ODBC under Microsoft Windows, a data source which can be accessed by any user on a given system. See also **"User data source" on page 89**.

Table

A data set in a relational database, composed of rows and columns.

TCP/IP

Transmission Control Protocol/Internet Protocol. A standard method of accessing data on different machines.

User data source

In the context of ODBC under Microsoft Windows, a data source which can only be accessed by a specific user on a given system. See also **"System data source" on page 89**.

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