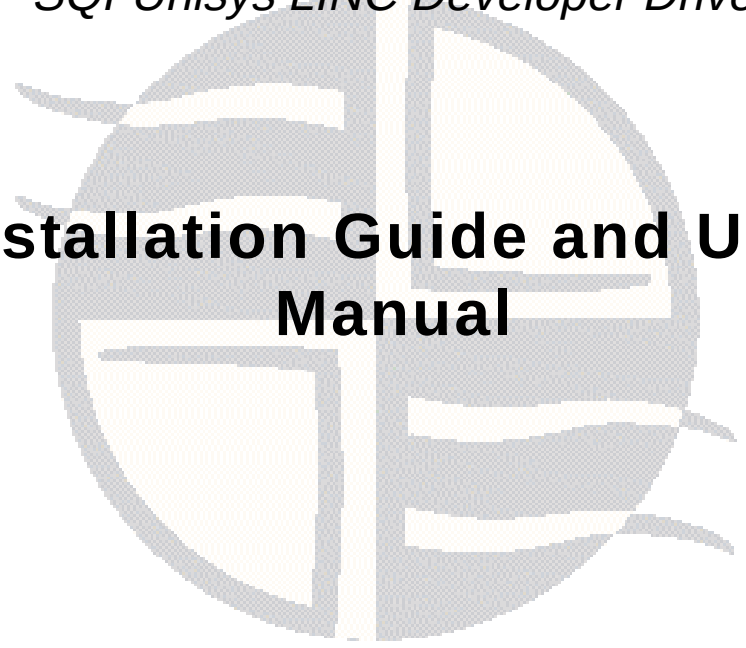
Easysoft Data Access

SQI-Unisys LINC Developer Driver



Installation Guide and User Manual

Version 10.

This manual documents version 2.1.n of the Easysoft SQI-Unisys LINC Developer Driver.

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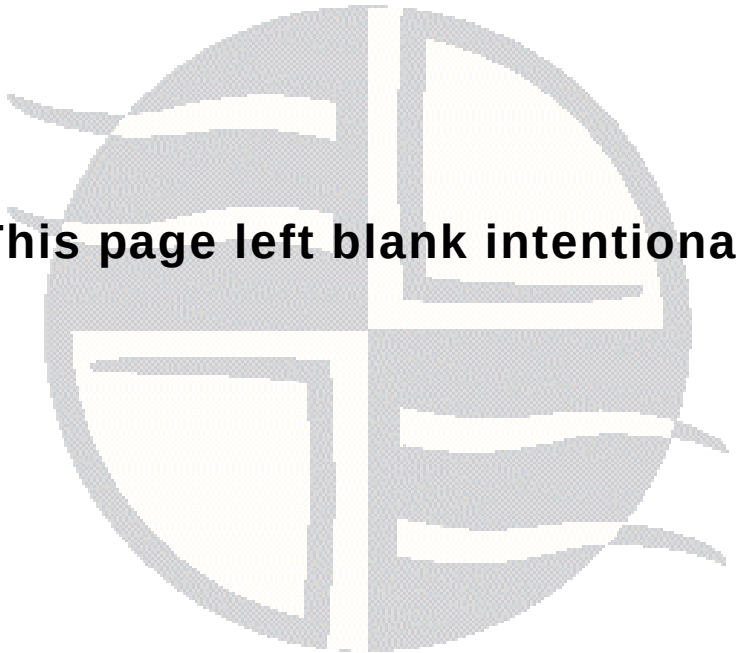

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PREFACE

About this manual

This manual covers the installation, configuration and connection of the Easysoft SQI-Unisys LINC Developer Driver, and provides a short exercise to demonstrate its operation.

Chapter Guide

Intended Audience

This manual is intended for use by anyone who is familiar with Unisys LINC Development Assistant III (LDA III) and Microsoft Windows systems, who wishes to install and use the Easysoft SQI-Unisys LINC Developer Driver.

The manual requires 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.

NB	In addition to this manual, further information may be provided in README and other files copied into the Easysoft SQI-Unisys LINC Developer Driver installation directory. Please check all the documentation provided before contacting Easysoft with a query.

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!

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**

  Begins with a basic introduction to LDA III, and introduces the Easysoft SQI-Unisys LINC Developer Driver.

- **Installation**

  A step-by-step guide to installing the software.

- **Configuration**

  Explains configuration options for the Easysoft SQI-Unisys LINC Developer Driver.

- **Connection**

  Provides three short exercises that demonstrate connecting to data sources via the Easysoft SQI-Unisys LINC Developer Driver.

- **Demonstration**

  Contains two exercises to consolidate the information presented so far.

- Appendices

  Comprising a Glossary.

Trademarks

Throughout this manual, *Windows* refers generically to Microsoft Windows 95, 98, 2000, NT, XP, ME or 2003 Server, 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*.

Easysoft and Easysoft Data Access are trademarks of Easysoft Limited.

1 INTRODUCTION

Introducing the Easysoft SQI-Unisys LINC Developer Driver

The Easysoft SQI-Unisys LINC Developer Driver connects any ODBC (Open DataBase Connectivity) compliant application for Microsoft Windows 95, Windows NT or Windows 2000, to the LDA III Runtime Database. A suitable ODBC client (such as Microsoft Query) then permits *ad hoc* data creation, update and enquiry.

This section briefly describes LDA III itself, and how the Easysoft SQI-Unisys LINC Developer Driver can make access to this data both easier and more flexible.

Chapter Guide

About LINC Development Assistant III

LINC Development Assistant III (LDA III) by Unisys offers LINC users an environment that allows design, development, testing and implementation of a LINC System completely within Windows.

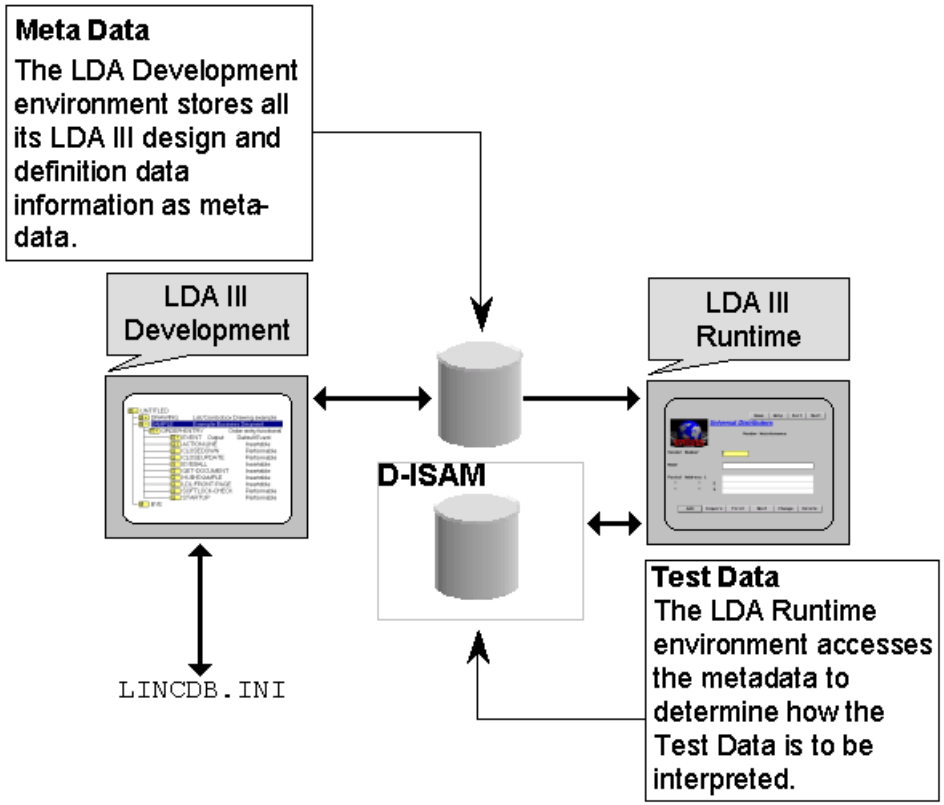


Figure 1: LINC Development Assistant III schematic

LDA III provides users with the following Windows environments:

- LDA III Development
- LDA III Runtime

LDA III Development

LDA III Development environment allows design prototyping and development of LINC systems, which can then be transferred to a host once complete.

Three modes of operation are supported:

- single-user, using a stand-alone system.
- single-user, using a networked system accessing a network based repository.
- multiple-users, using a networked system accessing a network based repository.

LDA III Runtime

The LDA III Runtime environment allows the developed LINC System to be run on a Windows system for test purposes.

It uses a collection of applications to implement the LDA III Runtime environment, which connect to a *repository* that may be on the local machine or on a mounted network drive.

The LDA repository stores a model of the business that is being automated, along with multi-user environment information, and is broken into *business segments*.

In theory, a business segment is simply a segment of the business model, but in practice it normally corresponds to a LINC System project.

LDA III uses various configuration setting (`.INI`) files to specify the development environment, but this manual refers only to the location of the `LINCDB.INI`, normally found in the LDA III repository.

The `LINCDB.INI` contains the location of the runtime database and information relating to each transaction screen *Ispec* within the LDA III environment. It consists of a sequence of sections, each of which contains the path to the database and a set of Ispec paths:

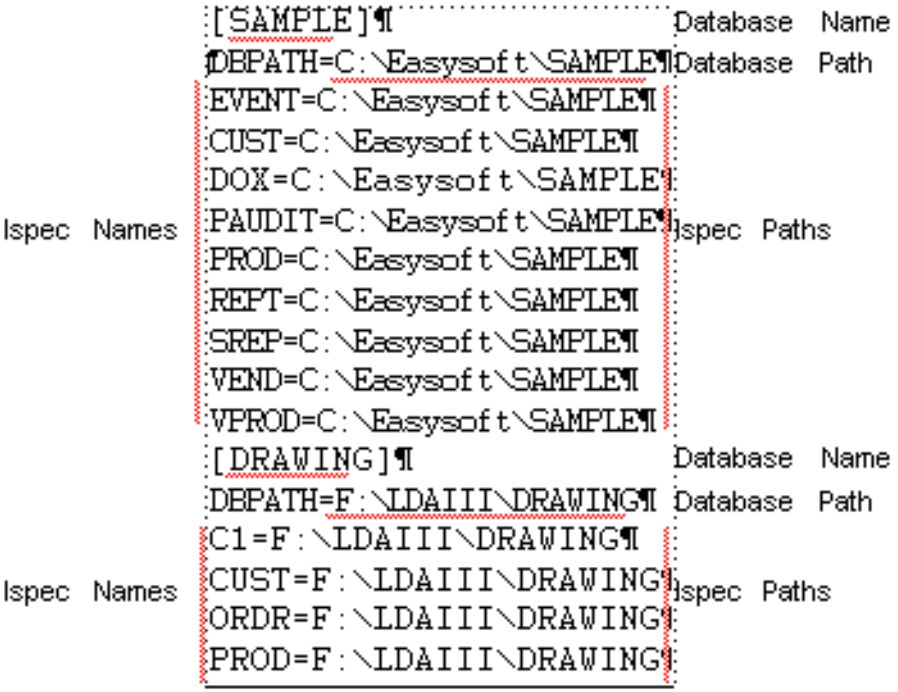


Figure 2: An example LINCDB.INI

REF	In LDAIII Development, choose **Help > Contents**. Double-click on **Configuration Files > Configuration Files**. An explanation of the functions of the .INI files is given here, with diagrams.

LDA Viewer, another Unisys product, permits the browsing of data, but not modification. Since the LDA III Runtime Database uses non-standard D-ISAM database structures, there has been no browser capable of viewing and modifying arbitrary LDA III databases.

Introducing the Easysoft SQI-Unisys LINC Developer Driver

The Easysoft SQI-Unisys LINC Developer Driver allows you to begin using any ODBC compliant application to create, update and/or view data held within the LDA III Runtime Database.

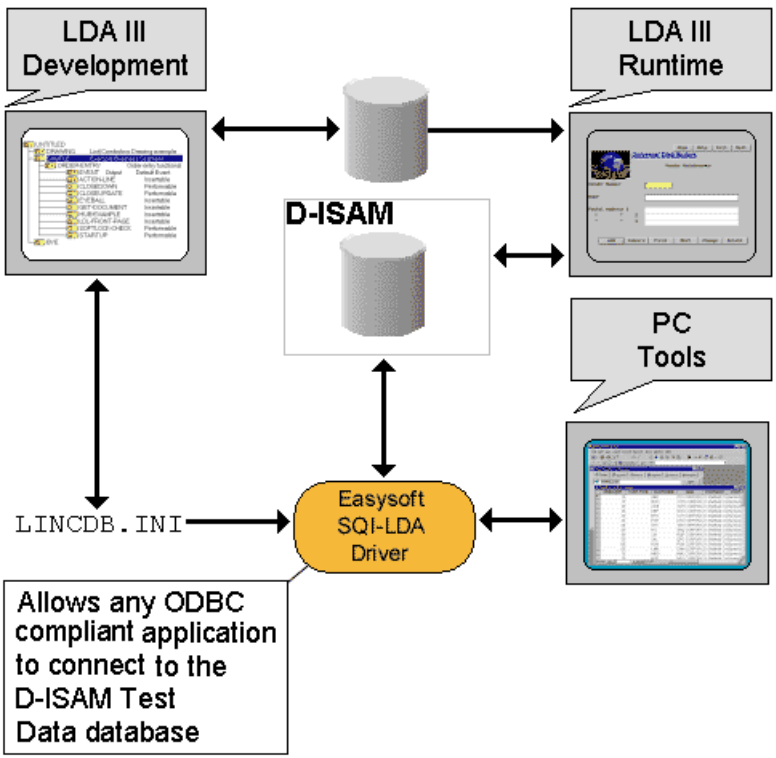


Figure 3: The Easysoft SQI-Unisys LINC Developer Driver schematic

By creating an ODBC Data Source Name (DSN) attached to Easysoft SQI-Unisys LINC Developer Driver, you can transparently access the `LINCDB.INI` file and obtain the runtime database and table information relating to a specific Ispec (or multiple Ispecs) within the LDA III environment.

The Easysoft SQI-Unisys LINC Developer Driver allows you to define how you handle:

- date formatting
- profiles
- profile flags
- LDA MAINT status and physical deletions
- overriding the directory settings in `LINCDB.INI`
- selection of a single database from the many possibly defined in `LINCDB.INI`
- advanced options relating to specific ODBC compliant applications

The Easysoft SQI-Unisys LINC Developer Driver also allows you to:

- use Microsoft Excel to examine information entered or updated in the LDA III Runtime Database.
- use Microsoft Access to enter test data, via a form or SQL insert query, into the LDA III Runtime Database.
- use Microsoft Access queries to extract data from a live SQL-Server database, translate and then load the resulting data directly into the LDA III Runtime Database for test purposes.

INSTALLATION

2

Installing the Easysoft SQI-Unisys LINC Developer Driver

This section explains how to install, license and remove the Easysoft SQI-Unisys LINC Developer Driver on supported Windows platforms.

The installation can be carried out by anyone with local administrator privileges for the target machine.

Chapter Guide

Obtaining the Easysoft SQI-Unisys LINC Developer Driver

There are three ways to obtain the Easysoft SQI-Unisys LINC Developer Driver:

- 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 Easysoft SQI-Unisys LINC Developer Driver 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**, containing free patches, upgrades, documentation and beta releases of Easysoft products, as well as definitive releases.

  Change to the `pub/lda` directory and then choose the platform release that you require.

- You can order Easysoft software on CD by email, telephone or post (see **Contact Details**).

What to install

The name of the Easysoft SQI-Unisys LINC Developer Driver install file is of the form:

- `lda-`*`x_y_z-platform`*`.exe`

where "*x*" is the major version number, "*y*" is the minor version number and "*z*" is the build index, which is incremented when minor changes are made.

"*platform*" will vary depending on the operating system distribution you require.

NB	Select the highest release available for your platform within your licensed major version number (installing software of a different major version number requires a new Easysoft license).

You can now download a file and begin the installation process.

Caution!

As long as you stop all running applications, it is safe to reinstall or upgrade the Easysoft SQI-Unisys LINC Developer Driver without uninstalling.

If you do uninstall, you should first back up any configuration data that you still need, as uninstalling some Easysoft products will result in this information being deleted (license details remain in place).

Installing the Easysoft SQI-Unisys LINC Developer Driver

1. Execute the file distribution that you downloaded in **"Obtaining the Easysoft SQI-Unisys LINC Developer Driver" on page 20**.

Caution! Please shut down other Windows programs before installing. In particular, Microsoft Outlook can cause the installation routine to pause for several minutes when you start it.

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

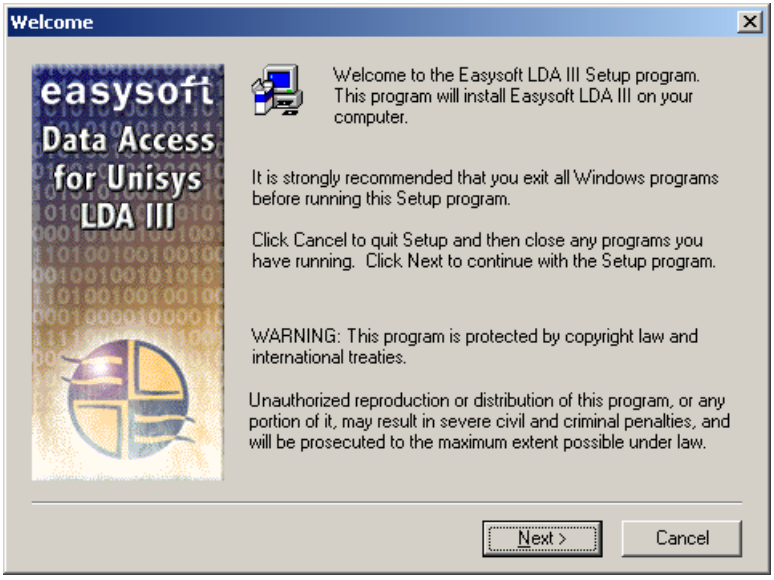


Figure 4: The Welcome dialog box

2. Click **Next** to continue.

The **Software License Agreement** dialog box is displayed:

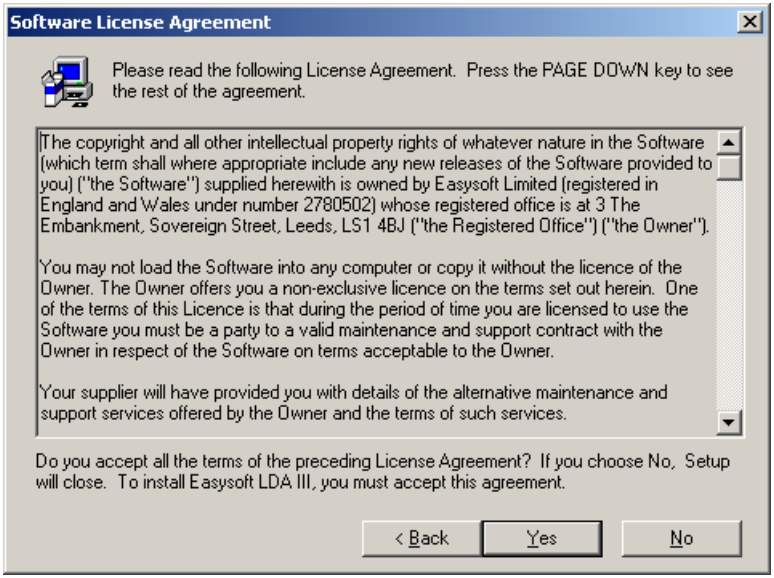


Figure 5: The Software License Agreement dialog box

3. If you agree to the Licence Agreement then click **Yes** to continue with the installation.

   – OR –

   If you do not agree with the licence agreement click **No** and refer to **Easysoft License Agreement** for more information.

The **Information** dialog box is displayed:

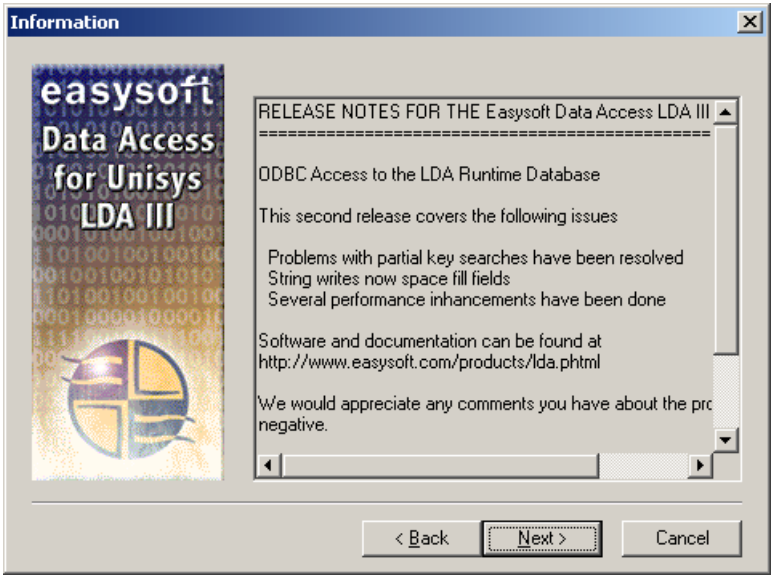


Figure 6: The Information dialog box

4. Read the information relating to this release of the Easysoft SQI-Unisys LINC Developer Driver and click **Next**.

The **User Information** dialog box is displayed:

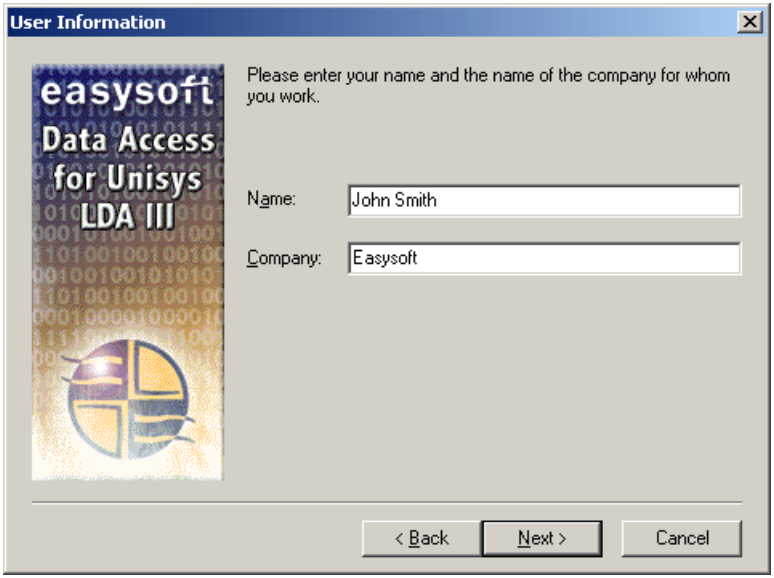


Figure 7: The User Information dialog box

5. Enter your name and the name of your company in the relevant fields and click **Next**.

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

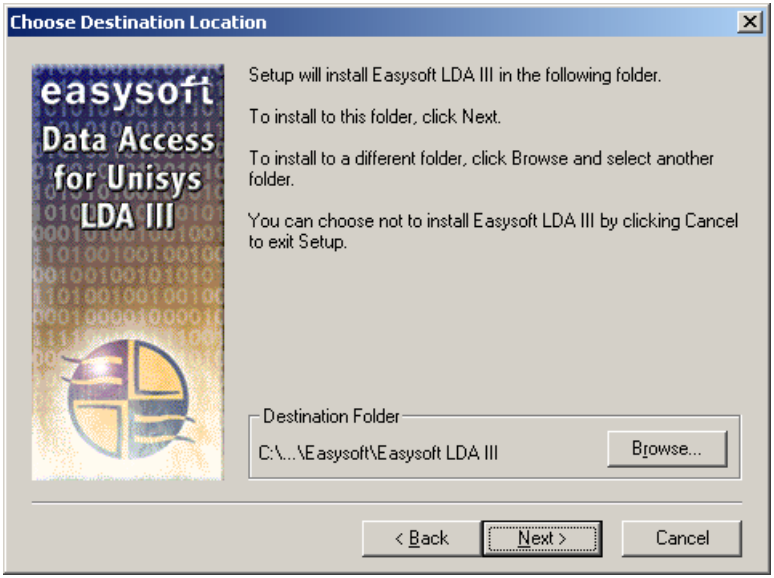


Figure 8: The Choose Destination Location dialog box

6. Click **Next** to install the application into the default directory location `C:\Program Files\Easysoft\Easysoft Data Access for LDA III`.

   – OR –

   Click **Browse** to select an alternative directory location for the installation and then click **Next**.

You will then be informed that the necessary files are being installed, before the pre-configured **Easysoft Data Access for LDAIII** dialog box is displayed:

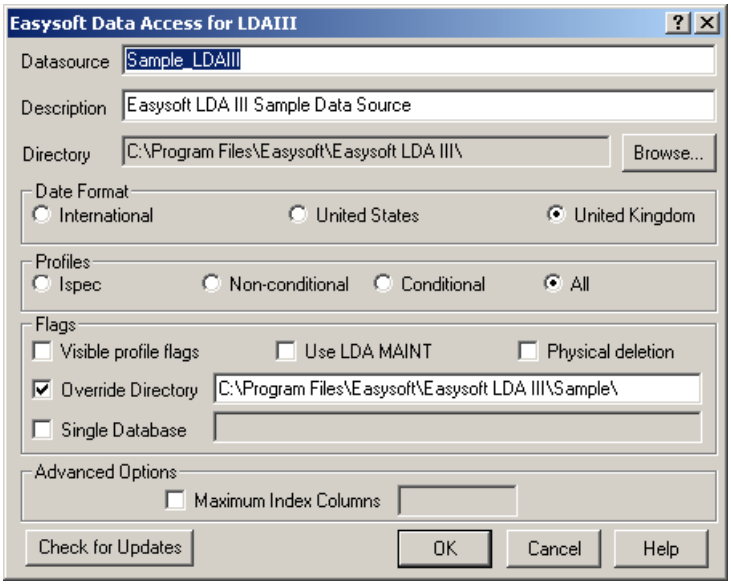


Figure 9: The Easysoft Data Access for LDAIII DSN dialog box

NB	Do not click **Check For Updates** at this stage. This dialog box is discussed in more detail in **"Configuration" on page 37**.

7. Click **OK** to accept the default configuration of the **Sample_LDAIII** DSN.

LICENSING UNDER WINDOWS

The Easysoft License Manager dialog box is displayed:

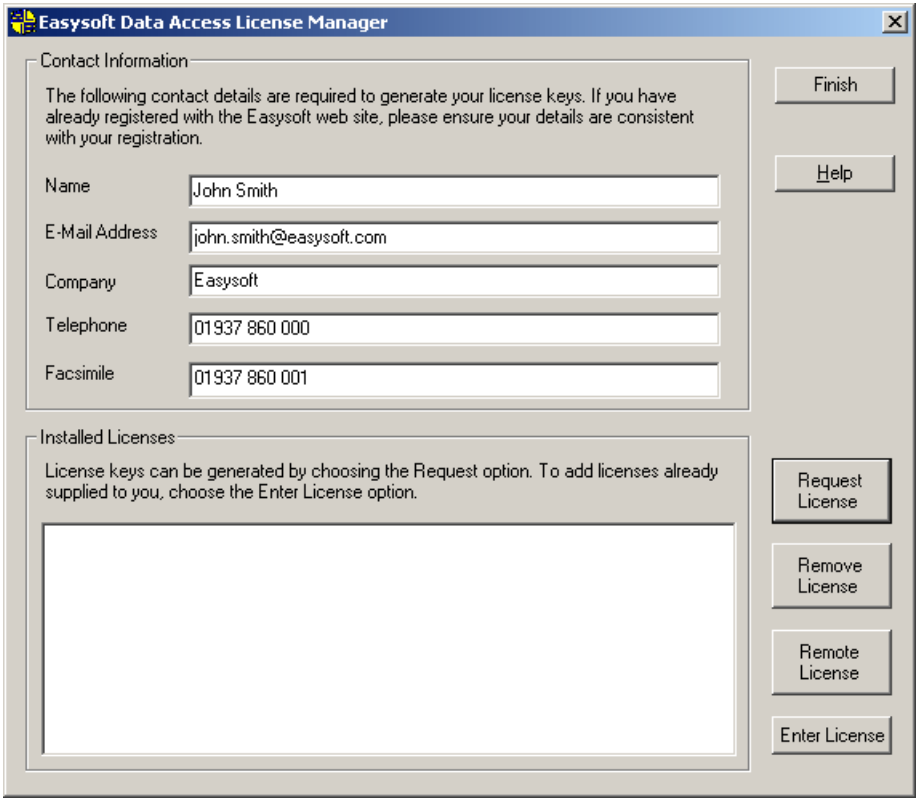


Figure 10: The Easysoft License Manager dialog box

NB	You *must* obtain a license to use the Easysoft SQI-Unisys LINC Developer Driver. If you have obtained the software for evaluation purposes, you can obtain a trial license at this point.

1. Enter your name in the **Name** text box.

   You can choose whether to request a license by email, by phone or fax, or by a direct internet connection to **http://www.easysoft.com**. If you have already purchased the software you will need your authorisation key to hand.

2. Enter your email address in the **E-Mail Address** box.

   If you have registered at the Easysoft web site before then you should enter the exact same address that you registered with. This will help us in providing you with support.

3. Enter your company name in the **Company** text box.

4. Enter your **Telephone** and **Facsimile** details as indicated.

   These fields will also help Easysoft to provide product support.

NB	You MUST enter values for the **Name**, **E-Mail Address** and **Company** fields, but **Telephone** and **Facsimile** are optional.

5. Click **Request License** to begin adding a license for the Easysoft SQI-Unisys LINC Developer Driver.

The License Manager asks you what type of license you would like to request:

Figure 11: The License Manager License Type dialog box

6. If you are installing the software for evaluation purposes, select **Trial** and click **Next**.

   Skip to **step 7 on page 30**.

   – OR –

   If you have purchased the software, select **Purchase** and click **Next**.

   You are prompted for your license number. Enter it and click **Next**.

   Skip to **Figure 9 on page 31**.

7. In the drop-down list box, select the Easysoft SQI-Unisys LINC Developer Driver and click **Next**.

A dialog box now displays the information you have entered so far:

Figure 12: The License Request dialog box

Choose **On-line Request** if your machine has an internet connection.

The License Manager then sends a request to the Easysoft license server to activate your license key automatically. This is the quickest method and results in your details being entered immediately into our support database. You can now go to **step 8 on page 32**.

NB	Only your license request identifier and contact details as they are displayed in the main License Manager screen are sent to Easysoft.

The remaining three options (**Email Request**, **Print Request** and **View Request**) are all ways to obtain a license if your machine is offline (i.e. does not have a connection to the internet).

Each of these methods involves providing Easysoft with information including your machine number (a number unique to your machine) and then waiting to receive your license key.

Instead of emailing, faxing or telephoning your details to Easysoft, you can enter them directly onto the Easysoft web site and your license key will be emailed to you automatically.

To use this method, click **View Request** to display your machine number and then go to **http://www.easysoft.com/sales/autolicense.phtml** in a web browser. Choose the type of license you require, enter your machine number, click **Continue** and your license key will be emailed to you.

NB	You can copy your machine number from the **View Request** dialog box using `CTRL-C` and then paste it into the License Generator by using `CTRL-V`.

When you receive the license key, you can activate it either by double-clicking the email attachment or by clicking **Enter License** on the License Manager main screen and pasting the license key into the dialog box.

8. A message tells you how many licenses have been added.

NB	If you use the **Email Request** option, the license key is emailed to the email address as displayed on the License Manager screen, not the `from:` address of your email.

For more information about the licensing procedure refer to the **Licensing Guide**.

NB	If you add a new license you will need to restart the Easysoft SQI-Unisys LINC Developer Driver in order to access the new details.

9. Click **Finish** in the License Manager to return to the install program.

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

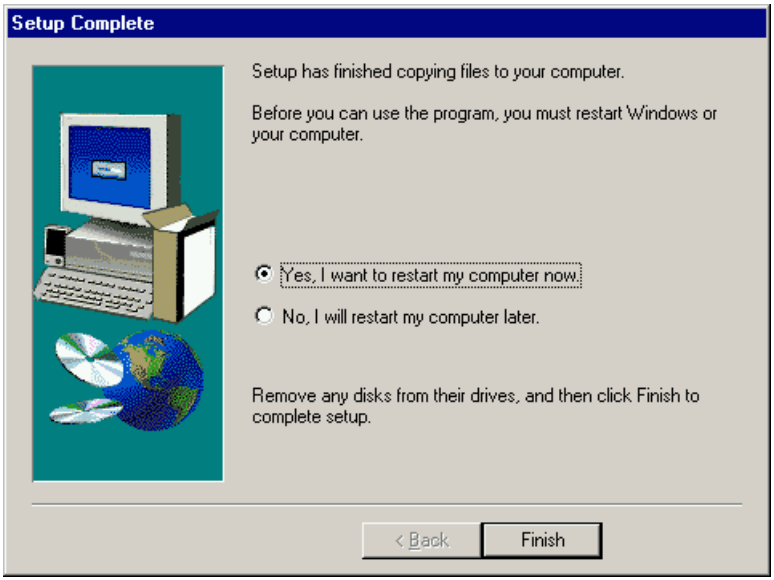


Figure 13: The Setup Complete dialog box

10. You may be informed that your computer needs to be rebooted prior to using the Easysoft SQI-Unisys LINC Developer Driver.

    If this is the case ensure that the **Yes** option has been checked and then click **Finish** to complete the installation.

    – OR –

    Check the **No** option, and then click **Finish**.

Caution! If you choose to continue working by clicking the **No** option, be sure to restart Windows before attempting to configure or use Easysoft SQI-Unisys LINC Developer Driver.

Uninstalling the Easysoft SQI-Unisys LINC Developer Driver

This section explains how to remove the Easysoft SQI-Unisys LINC Developer Driver 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.

   A list is displayed of applications that can be automatically removed.

2. Select **Easysoft SQI-Unisys LINC Developer Driver** and click **Add/Remove**.

3. Click **Yes** to confirm that you are sure you wish to remove the Easysoft SQI-Unisys LINC Developer Driver and all its components.

   The system will then begin to remove all the components. If shared components seem no longer to be required, then you will be prompted to decide whether or not to delete them.

NB	The Windows install/uninstall procedure incorporates 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 **Add/Remove Programs**, or there was an undetected fault in an install script.

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

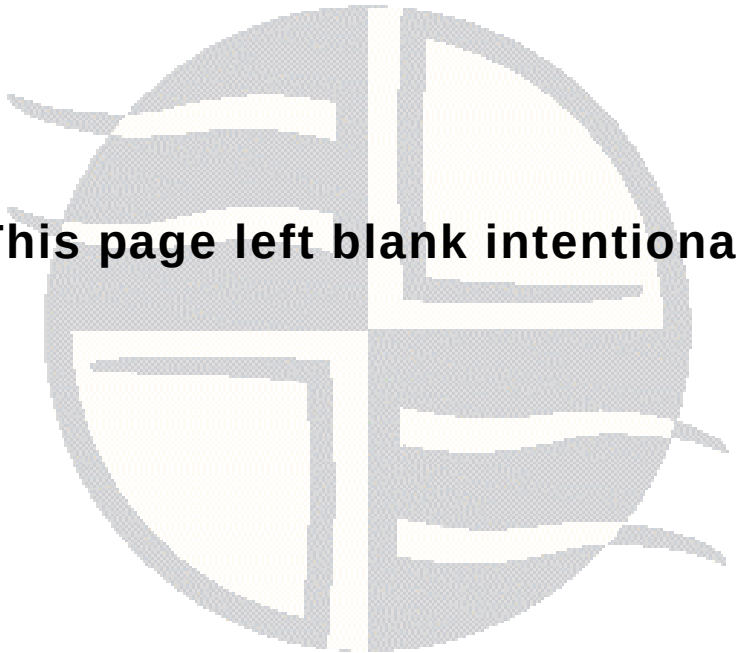
   – OR –

If you have any doubts you should click **No** or **No to All**.

The uninstall process removes the following Easysoft SQI-Unisys LINC Developer Driver components in your system:

- Shared Program Files
- Standard Program Files
- Folder Items
- Program Folders
- Program Directories
- Program Registry Entries

5. On completion, click **OK** to go back to the **Control Panel Install/Uninstall** window.



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CONFIGURATION

3

Configuring the Easysoft SQI-Unisys LINC Developer Driver

This section details the configuration options for the Easysoft SQI-Unisys LINC Developer Driver and covers all the information required to connect the Easysoft SQI-Unisys LINC Developer Driver to an LDA III data source.

It is contains a step-by-step guide to creating a Data Source Name (DSN), covers all cases and is useful as a reference for when future DSNs are created.

First time users or those who wish only to connect to the DSN may prefer to skip to **"Demonstration" on page 61**, which uses a specific example.

Chapter Guide

Creating a data source

To create a data source connecting to your local LDA III data:

1. Select **Start > Settings > Control Panel**, double-click **Administrative Tools** and then **Data Sources (ODBC)**.

9x	Select **Start > Settings > Control Panel** and double-click **ODBC Data Sources (32bit)**.
NT	Select **Start > Settings > Control Panel** and double-click **Data Sources (ODBC)**.

The **ODBC Data Source Administrator** dialog box is displayed:

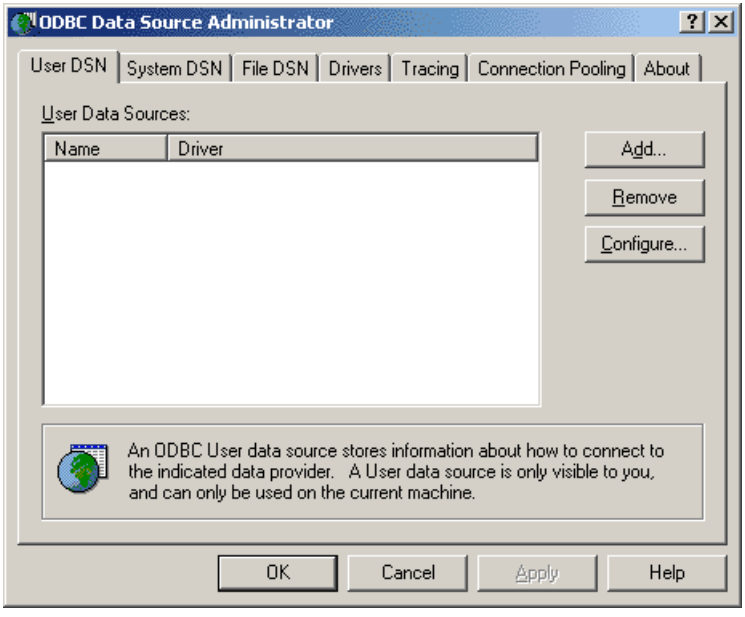


Figure 14: The ODBC Data Source Administrator

2. Click the **User DSN** tab to set up a data source that only you can access.

   – OR –

   Click the **System DSN** tab to create a data source which is available to anyone who logs on to this Windows machine.

3. Click **Add** to add a new DSN.

   The **Create New Data Source** dialog box displays a list of the drivers which are available:

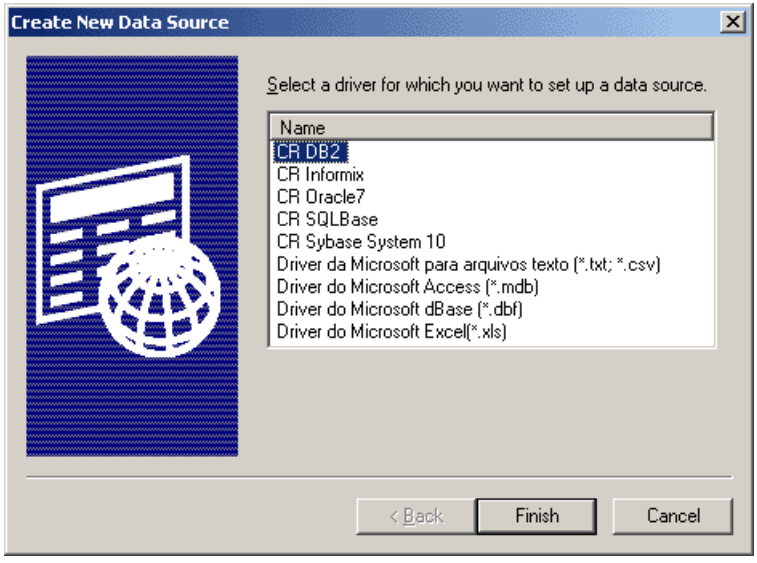


Figure 15: The Create New Data Source dialog box

4. Select `Easysoft LDA III` and then click **Finish**.

The Easysoft SQI-Unisys LINC Developer Driver **Configuration** dialog box is displayed.

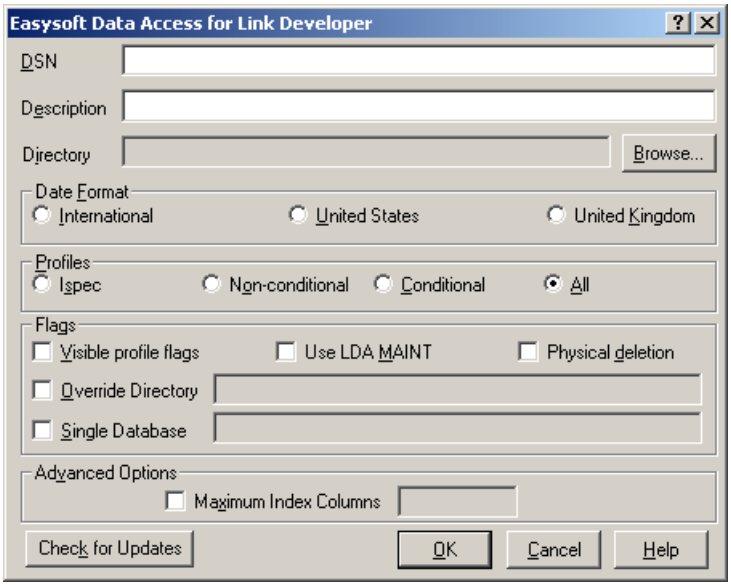


Figure 16: The Easysoft SQI-Unisys LINC Developer Driver setup dialog box

5. Choose a suitable name for the data source and enter it in the **Datasource** box.
6. Enter an appropriate **Description** for this DSN.

   The description may be displayed in DSN selection dialog boxes.

   For example, the Microsoft Data Source Manager displays the description field next to the data source name when you create link tables in Microsoft Access.

SPECIFYING THE LOCATION OF THE LINCDB.INI FILE

7. Specify the location of your chosen `LINCDB.INI` in the **Directory** box. You can select the directory with the mouse by clicking the **Browse** button.

> **NB** LDA III uses the file `LINCDB.INI` to coordinate the files that form a repository (see **Figure 2 on page 16**). Easysoft SQI-Unisys LINC Developer Driver exploits this to minimize the amount of path information you need to supply to the driver. You need to specify the location because there may be more than one `LINCDB.INI` on your system.

DETERMINING THE DATE FORMAT TO BE APPLIED

Choose the required **Date Format** to indicate how the driver should interpret dates stored in the runtime database files.

> **Caution!** Be sure to check the correct date format, since a mismatch between the ODBC driver and the LDA III database will not only result in the display of scrambled dates, but could lead to incorrect values in the database file.

8. Check **International** if the LDA III database stores dates in the formats YYMMDD or YYYYMMDD.

   – OR –

   Check **US** for the formats MMDDYY or MMDDYYYY.

   – OR –

   Check **UK** if you wish to use the formats DDMMYY or DDMMYYYY.

NB	The Easysoft SQI-Unisys LINC Developer Driver automatically detects whether or not century information is stored by examining the length of the field. It will always return a standard ODBC date to the client, regardless of the underlying format. Beware that if short dates are used in the LDA III database then the underlying Unisys date format is only good for dates up to 2050.

DETERMINING PROFILE RECORD SELECTION CRITERIA

The *profile* is the means by which an index to the data is provided, where the data collectively performs a specific function.

In simple terms, a profile presents data in either a raw format (an Ispec profile) or a filtered format.

Additionally profiles may have conditional logic applied to them. For instance, you would apply conditional logic to indicate a specific month against that profile in order to access sales data for a given month.

9. If you wish to make available the Ispec profile information alone, check the **Ispec** option.

   – OR –

   If you wish to access the Ispec information along with any profiles that do not have conditional logic applied to them, check the **Non-Conditional** option.

   – OR –

If you wish to access the Ispec information along with any profiles that have conditional-logic applied to them, check the **Conditional** option.

– OR –

If you wish to access all profiles, regardless of their nature, then you should check the **All** option.

Option\Visible	**Ispec**	**Conditional**	**Non-Conditional**
Ispec	Yes		
Conditional	Yes	Yes	
Non-Conditional	Yes		Yes
All	Yes	Yes	Yes

Figure 17: Profile Record Selection criteria

DETERMINING PROFILE FLAG OPTION CRITERIA

In the LDA III repository, each profile in an Ispec is flagged with Y or N to indicate whether data is to be included in the profile or not. You may wish to make this visible to the ODBC client for debugging purposes.

10. Select the **Visible profile flags** check box if you wish profile flags to be visible to the ODBC client.

DETERMINING LDA MAINT STATUS CRITERIA

The `MAINT` status is a single character reflecting the most recent action by LINC on that data, either A for added (ADD), C for changed (CHG) or D for deleted (DEL). The Easysoft SQI-Unisys LINC Developer Driver driver maintains this field at all times, but you can modify the driver's behaviour when reading the field.

11. Select the **Use LDA MAINT** check box if you wish to *interpret* the `MAINT` field. That is, records marked with a D will not be returned as they are regarded as deleted.

    – OR –

    Clear the **Use LDA MAINT** check box if you wish to *display* the `MAINT` field, and have all data, regardless of `MAINT` status, made visible. In addition any data deleted will be purged automatically.

NB	Do not write to the `MAINT` field using your ODBC client. The driver still maintains this field, and altering it will, for instance, cause Access to warn that “Another user edited this record and saved the changes before you attempted to save your changes”.

DETERMINING PHYSICAL DELETION CRITERIA

The Runtime Database is comprised of two layers; the LDA Layer and the ISAM File Layer.

The behaviour of the LDA layer is governed by `MAINT` status.

Physical deletions occur at the ISAM file layer.

The **Physical deletion** check box can be useful to reduce the database size by physically removing redundant data.

Caution!	The consequences of checking the **Physical deletion** option can be severe. Not only will data be purged irretrievably from the ISAM file layer, but the subsequent re-indexing may take some time for large databases.

12. Select the **Physical deletion** check box if you want physical deletion in the ISAM layer to automatically follow logical deletion in the LDA layer.

OVERRIDING THE LINCDB.INI SPECIFICATIONS

Under certain circumstances you may want to override the directory settings in `LINCDB.INI`.

For instance, if you copy a directory containing database files to another location, you can set up a DSN to the new database location without modifying the `LINCDB.INI` file.

13. You may define where the database directory is located by selecting the **Override Directory** check box and entering a valid directory location.

    The mechanism for overriding directories is as follows:

    The `LINCDB.INI` file contains sections beginning with the name of the database and the database path, followed by a series of Ispec locations (**Figure 2 on page 16**).

    If you specify an override directory, then the Easysoft SQI-Unisys LINC Developer Driver performs a search-and-replace on the `LINCDB.INI` file. It reads the `DBPATH and` then replaces every occurrence of that directory with the override directory.

NB	The search-and-replace operation takes place in the driver's memory. No changes are made to the `LINCDB.INI` file itself.

SINGLE DATABASE OPTION

By default the DSN will connect to all databases found in the `LINCDB.INI` file. If you prefer, you can restrict the driver to a specific database. This can be useful if you connect with a client that does not handle multiple schemas correctly: for example, Microsoft Query cannot handle a data source where two Ispecs in different business segments have the same name.

14. Select the **Single Database** check box and enter the name of the database you wish to access when using this DSN. The database name is the bracketed string at the head of each section of `LINCDB.INI`, without the brackets, for example: `SAMPLE`.

SPECIFYING ADVANCED OPTIONS

In relational databases, every table should have a *primary key*, which uniquely identifies each row (record). Sometimes it is necessary or desirable to combine fields to create this key (a *composite key*). It is theoretically possible that the key for a given table might be the entire row. The Easysoft SQI-Unisys LINC Developer Driver uses indexing information in the repository to decide what constitutes the table's key on the client side.

Some ODBC clients may fail if a given key is composed of too many fields, so the driver can generate a simple, read only, numeric key (called `ROWID`) for tables whose indexing requirements are too complex.

Caution! If this advanced option is enabled, the profiles may not necessarily present the data in the correct sequence due to the index not being used.

15. Select the **Maximum Index Columns** check box under **Advanced Options** and enter a value that relates to the application being used.

    Those tables with more than this number of index columns then have `ROWID` appended, preventing an error or warning occurring while using the DSN.

NB Regardless of the Maximum Index Columns setting, any tables without ordinates (such as tables mapped directly to an Ispec) will have the extra `ROWID` column appended, so that each row can be uniquely identified.

Ensuring the latest version is installed

Click **Check for Updates** to ensure that you are using the latest version of the Easysoft SQI-Unisys LINC Developer Driver.

This will then attempt to access the Internet from your PC and get the latest version number from the Easysoft version server. If a later version is available you will be informed accordingly.

Caution!

If you have made changes to the DSN, click **OK** to commit the new configuration information before accepting the new release.

The attempt to initiate a connection will instigate whatever method is used to connect your PC to the Internet, and should this connection fail or not be available you will be informed accordingly.

NB

Please note that when a connection to Easysoft is established, no information about your installed software is sent to the Easysoft version server.

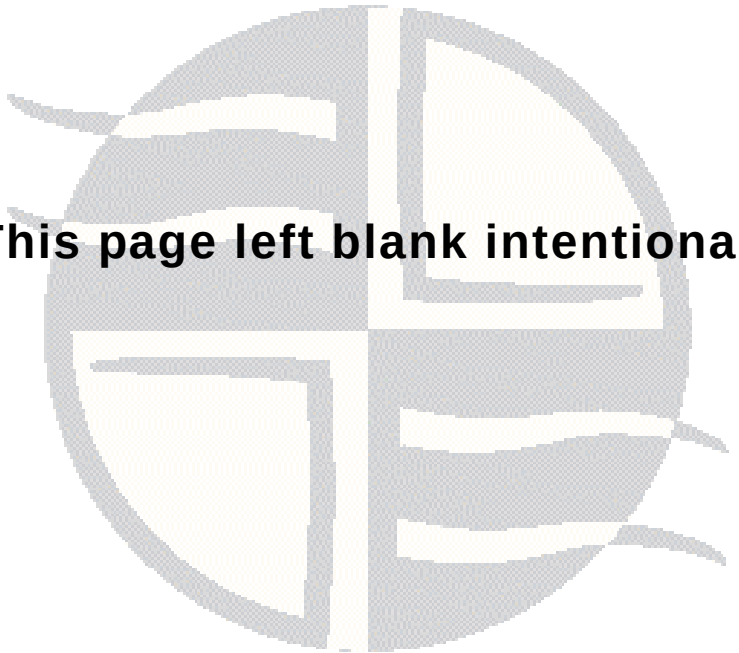
On receiving the request for version information, the Easysoft server sends the latest number back to the requesting host (your PC), where the configuration software checks to see if it is the latest version.

Accessing the Online Help

Click **Help** to display information on using the Easysoft SQI-Unisys LINC Developer Driver configuration screen.

– OR –

Click **?** (located in the title bar of the dialog box) and then click on an individual field to learn more about a specific part of the Easysoft SQI-Unisys LINC Developer Driver configuration screen.



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CONNECTION

4

Connecting to the Easysoft SQI-Unisys LINC Developer Driver

Having installed the Easysoft SQI-Unisys LINC Developer Driver, you can immediately demonstrate a connection to an LDA III Runtime Database.

This section contains exercises to demonstrate the Easysoft SQI-Unisys LINC Developer Driver connecting to and amending data in two LDA III data sources.

Although the exercises were created with and make reference to Microsoft Access, they can be carried out with any ODBC-compliant SQL tool.

Chapter Guide

Prerequisites

This section assumes you have the **Sample_LDAIII** User DSN connected to the Easysoft sample database.

You should have received a `SAMPLE` database when you obtained LDA III from Unisys.

Make sure that you:

- have this database
- do not mind altering the information in this database
- know the path to its repository

The **Sample_LDAIII** User DSN, created as part of the Easysoft SQI-Unisys LINC Developer Driver, is to be used with the following changes:

- the **Profiles** option set to `Ispec`
- the **Maximum Index Columns** option enabled and set to `10`

Refer to **"Creating a data source" on page 38** for more information on how DSNs are configured.

Both the sample model supplied with LDA III and the sample database supplied with the Easysoft SQI-Unisys LINC Developer Driver contain the following tables:

- `SAMPLE.CREDITS`
- `SAMPLE.CUST`
- `SAMPLE.CUSTINV`
- `SAMPLE.CUSTNAMES`
- `SAMPLE.DOX`

- SAMPLE.EVENT
- SAMPLE.INVENTORY
- SAMPLE.PAUDT
- SAMPLE.PRICE-CHG
- SAMPLE.PROD
- SAMPLE.PRODNAMES
- SAMPLE.RECEVABLE
- SAMPLE.REPT
- SAMPLE.SREP
- SAMPLE.SREPNAMES
- SAMPLE.VEND
- SAMPLE.VENDNAMES
- SAMPLE.VENDPROD
- SAMPLE.VPROD

Connecting to the source data Database

1. Start Microsoft Access, create a blank database and then save it as `db_lda.mdb`.

   A **Database** window is displayed, which currently has no tables. It is now necessary to link to the tables containing the source data.

2. Select **File > Get External Data > Link Tables** to begin connecting to the sample database and its tables, installed as part of the Easysoft SQI-Unisys LINC Developer Driver.

   This displays the **Link** window, in which the appropriate database can be selected.

3. From the **Files of type** drop-down list, choose **ODBC Databases**.

   The **Select Data Source** dialog box is displayed:

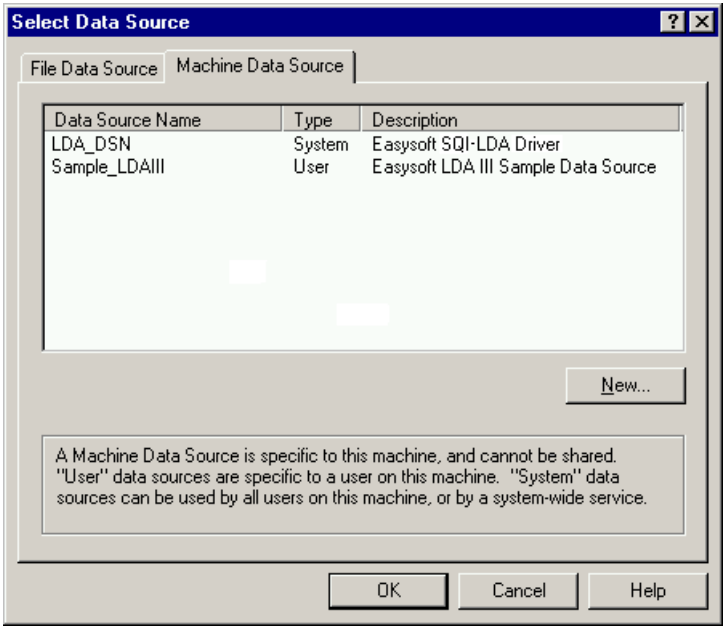


Figure 18: The Select Data Source dialog box

4. Click the **Machine Data Source** Tab, select **Sample_LDAIII** and click **OK**.

   The **Link Tables** window displays the following list of tables:

   - SAMPLE.CUST
   - SAMPLE.DOX
   - SAMPLE.EVENT
   - SAMPLE.PAUDT
   - SAMPLE.PROD

- SAMPLE.REPT
- SAMPLE.SREP
- SAMPLE.VEND
- SAMPLE.VPROD

> **NB** The list of tables displayed is not a complete listing, because the **Ispec** profile option was chosen in the **Sample_LDAIII** DSN.

5. Click **Select All** to select all the tables shown, then click **OK**.

   This will then link all the displayed source tables, before returning to the **Database** window, where the destination tables may then be selected.

Connecting to the Sample LDA III Runtime Database

1. Select **File > Get External Data > Link Tables** to begin connecting to the sample LDA III Runtime database.

   This displays the **Link** window, in which the appropriate database can be selected.

2. From the **Files of type** drop-down list, choose **ODBC Databases**.

   The **Select Data Source** window is displayed.

3. Click the **Machine Data Source** Tab, select **LDA_DSN** and click **OK**.

   The **Link Tables** window is displayed, which due to the **Ispec** profile option being chosen in this DSN, will contain the same number of tables as displayed for the previous DSN used.

For more information please refer to **"Determining Profile Record Selection Criteria" on page 42**.

4. Click **Select All** to select all the tables shown and then click **OK**.

   This will then link all the destination tables into the database before returning to the **Database** window.

> **NB** The **LDA_DSN** table names selected will have the suffix 1 applied to them, because the table names are identical in both databases.

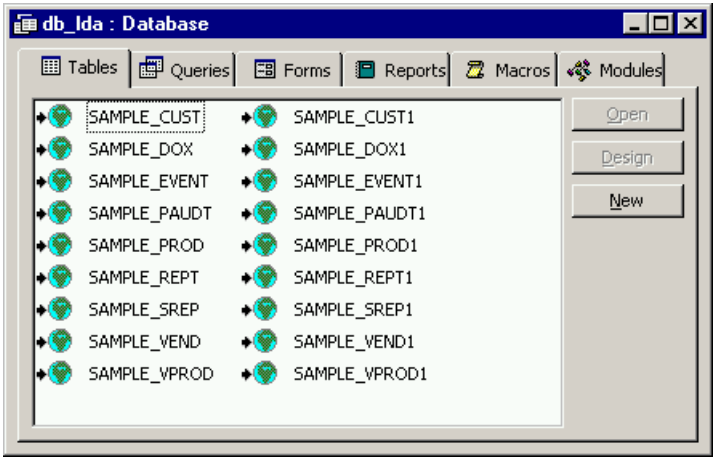


Figure 19: db_lda tables in the Database window

5. Select the **SAMPLE_PROD** table and click **Open**.

The data within the **SAMPLE_PROD** table is displayed:

	MAINT	NAM	PRODUCT	REORDLEV	SELLPRICE	UNITSALE
▶	A	ABC WIDGET	ABC	15	1	EA
	A	BCD WIDGET	BCD	15	2	EA
	A	CDE WIDGET	CDE	15	3	EA
	A	DCB WIDGET	DCB	15	49	EA
	A	DEF WIDGET	DEF	15	4	EA
	A	EDC WIDGET	EDC	15	48	EA
	A	EFG WIDGET	EFG	15	5	EA
	A	FED WIDGET	FED	15	47	EA
	A	FGH WIDGET	FGH	15	6	EA
	A	GFE WIDGET	GFE	15	46	EA
	A	GHI WIDGET	GHI	15	7	EA
	A	HGF WIDGET	HGF	15	45	EA
	A	HIJ WIDGET	HIJ	15	8	EA
	A	IHG WIDGET	IHG	15	44	EA

Figure 20: Sample data within the SAMPLE_PROD table

6. Select the **SAMPLE_PROD1** table and click **Open**.

   An empty **SAMPLE_PROD1** table is displayed:

	MAINT	NAM	PRODUCT	REORDLEV	SELLPRICE	UNITSALE
▶						

Figure 21: The sample linked SAMPLE_PROD1 table empty

Appropriate SQL statements must now be used in order to populate the empty table with the data from the populated table.

NB

SQL statements will not be generated for use with `SAMPLE_DOX` and `SAMPLE_PAUDT` since, although the tables need to exist, no records exist in these source database tables.

In addition `SAMPLE_EVENT` is not used, since this table is used to track specific events within the LDA III Runtime, such as a stock transaction, where a sale is made or goods are received.

Preparing to enter SQL Statements

Although the process of populating the empty tables may be done by either the Microsoft Access Query Wizards, the **Select Query** window in **Design View** or by using drag-and-drop, it is also possible to use SQL statements to perform this task:

1. Click on the **Queries** tab and click **New**.

   The **New Query** window is displayed.

2. In order to not use query wizards select **Design View** and then click **OK**.

3. Click **Close**.

   The **Select Query** window is displayed, showing that no tables or fields are currently defined.

4. Select **View > SQL View** to display the **Select Query** window in SQL mode, which now allows SQL statements to be entered directly.

Entering SQL Statements

The empty tables must now be populated from the source data tables by using the SQL statement `INSERT INTO`.

NB	In order for these statements to work, the sequence of column names used in the SQL statements must be the same sequence as they occur in both source and destination tables. Additionally all columns must be accounted for in the statement, regardless of whether that column is to be populated or not.

1. By default the statement `SELECT;` is displayed, which should be deleted and replaced with:

```
INSERT INTO sample_cust1 (credlimit, [cust-type],
customer, deladd1, deladd2, deladd3, maint, nam,
postadd1, postadd2, postadd3, salesrep)

SELECT credlimit, [cust-type], customer, deladd1,
deladd2, deladd3, "A" AS maint, nam, postadd1,
postadd2, postadd3, salesrep

FROM sample_cust;
```

NB	The source MAINT column data has not been selected, because data is being appended to the LDA III Runtime Database table and therefore the MAINT status flag is set to A, regardless of its value in the source table.

2. Select **File > Save** and name the file `Populate_CUST`.

   The remaining queries can then be created.

3. Create the following statement and save as `Populate_PROD`.

```
INSERT INTO sample_prod1 (maint, nam, product,
reordlev, sellprice, unitsale)

SELECT "A" AS maint, nam, product, reordlev,
sellprice, unitsale

FROM sample_prod;
```

4. Create the following statement and save as `Populate_REPT`.

```
INSERT INTO sample_rept1 (maint, report, reptcode)

SELECT "A" AS maint, report, reptcode

FROM sample_rept;
```

5. Create the following statement and save as `Populate_SREP`.

```
INSERT INTO sample_srep1 (area, maint, nam,
salesrep)

SELECT area, "A" AS maint, nam, salesrep

FROM sample_srep;
```

6. Create the following statement and save as `Populate_VEND`.

```
INSERT INTO sample_vend1 (maint, nam, postadd1,
postadd2, postadd3, vendor)

SELECT "A" AS maint, nam, postadd1, postadd2,
postadd3, vendor

FROM sample_vend;
```

7. Create the following statement and save as `Populate_VPROD`.

```
INSERT INTO sample_vprod1 (rowid, comments, maint,
product, vendor)

SELECT rowid, comments, "A" AS maint, product,
vendor
```

```
FROM sample_vprod;
```

You will then need to implement the SQL statements created, in order to begin populating the empty tables with the test data.

Implementing SQL Statements

1. To implement the SQL statement and populate the empty table, select `Populate_CUST` and click **Open**.

   If confirmation messages are enabled, Microsoft Access will ask for confirmation to run the append query and modify the relevant table.

2. Click **Yes** to continue.

   The system will ask for further confirmation, indicating the number of rows that are about to be appended.

3. Click **Yes** to continue.

4. Select:

   - `Populate_PROD`
   - `Populate_REPT`
   - `Populate_SREP`
   - `Populate_VEND`
   - `Populate_VPROD`

5. Click **Open**.

6. Exit Microsoft Access by selecting **File > Exit**.

   You can now use the test data residing in the LDA III Runtime Database.

Using the LDA Runtime Database Test Data

1. Select **Start > Programs > LDA III > Runtime**.

   The **LDA III Runtime** window is displayed.

2. Select **File > Open Session**.

   The **Select a LINC System** window is displayed.

3. Select the **SAMPLE** system name, and click **OK**.

   This will open a session to allow you to begin testing your LINC system, with the test data now residing in the LDA Runtime Database.

DEMONSTRATION

5

Demonstrating the Easysoft SQI-Unisys LINC Developer Driver

This section contains two exercises to consolidate the information presented so far.

Although the exercises were created with and make reference to Microsoft Access, they can both be carried out with any ODBC-compliant SQL tool.

Chapter Guide

Prerequisites

To run these exercises you must have:

- completed the installation of the Easysoft SQI-Unisys LINC Developer Driver in **"Installation" on page 19** (LDA III itself does not need to be installed on your system) and thus have the **Sample_LDAIII** DSN connected to the Easysoft sample database
- use of an ODBC compliant SQL tool (preferably Microsoft Access).

NB	If you use Microsoft Access you can ignore any text boxes marked "SQL".

Using the Easysoft Sample DSN

1. Start Microsoft Access and create a blank database.
2. Select **File > Get External Data > Link Tables** to connect to the sample database.

   The **Link** dialog box is displayed, showing the existing databases on your system:

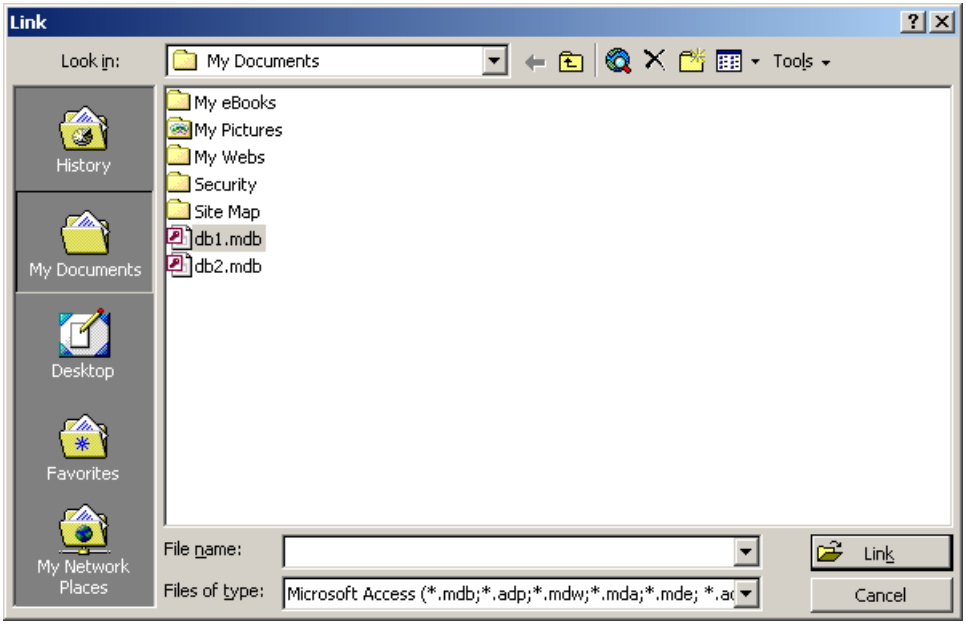


Figure 22: The Link dialog box in Microsoft Access

3. From the **Files of type** drop-down list, choose **ODBC Databases**.

The **Select Data Source** dialog box is displayed.

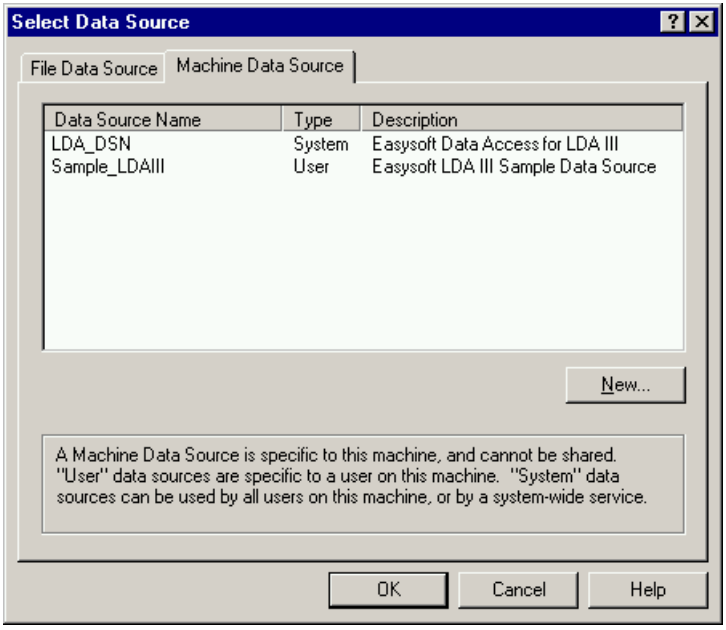


Figure 23: The Select Data Source dialog box

4. Click the **Machine Data Source** tab.
5. Select **Sample_LDAIII** and click **OK**.

   Recall that this is the name of the data source you created during the install process (see **Figure 6 on page 27**).

   Microsoft Access now displays the **Link Tables** window, showing a list of available data sets.
6. Click **Select All** to select all the tables shown, and then click **OK**.

   After a short wait, you are returned to the **Database** window.
7. Double-click on `SAMPLE_CUST` to open the data set as a table.

Notice the `MAINT` field, which shows you the most recent action performed on the record.

This is present because the **Use LDA MAINT** check box was not selected during the install process.

Note also the ROWID field, which is generated by the Easysoft SQI-Unisys LINC Developer Driver driver in order to guarantee a unique reference for each row.

SQL	In general SQL, you can view subset of records like this: `SELECT * FROM sample_cust WHERE rowid<6;`

8. Navigate to any record that contains a C or an A in the `MAINT` field.

   Note the value in the `CUSTOMER` field and then select **Edit > Delete Record**.

Access	You may get a confirmation box at this point, depending on how you have configured Microsoft Access. Confirm that you wish to perform the deletion.

SQL	Use: `DELETE FROM sample_cust WHERE rowid=1;`

9. Close the datasheet and then open it again by double-clicking `SAMPLE_CUST`.

SQL	Use: `SELECT * FROM sample_cust;`

Your record has returned, with a D in the `MAINT` field. This is because the Easysoft SQI-Unisys LINC Developer Driver DSN was configured with the **Use LDA MAINT** check box unselected.

The `MAINT` field is maintained but not honoured.

NB	Many clients perform some degree of caching to reduce server load, which may make it appear as if the record really has been deleted. For instance, using **Records > Refresh** in Microsoft Access will not cause the record to return. You must close and re-open the datasheet.

Two Short Exercises

This section sets two exercises without step-by-step instructions.

They cover the key aspects of the Easysoft SQI-Unisys LINC Developer Driver, and each is presented with a short list of points to note.

1. Change the setting of the **Use LDA MAINT** check box a couple of times and observe how deletions in your client really result in data disappearing.

   A few hints:

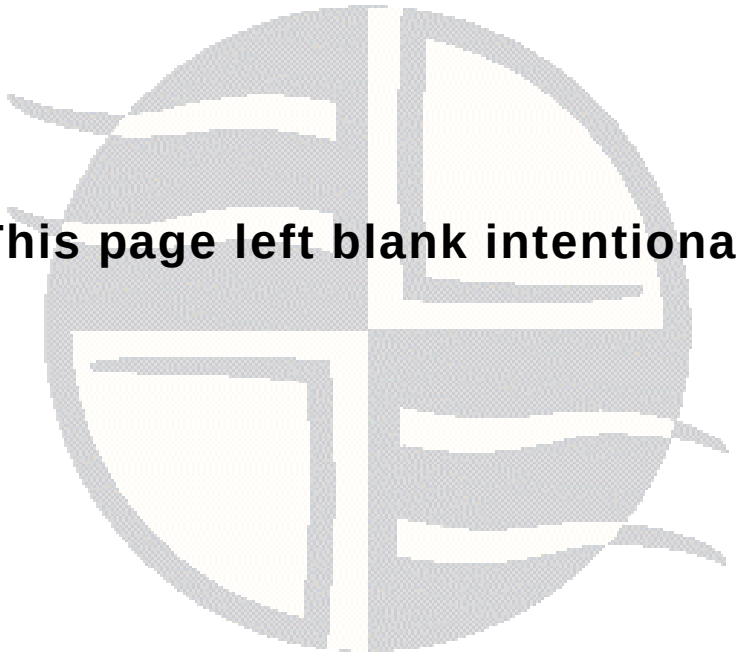
   - Use the Windows ODBC Administrator (**Start > Settings > Control Panel**, then the **ODBC** icon) to get to the Easysoft SQI-Unisys LINC Developer Driver configuration dialog box (see **“Creating a data source” on page 38**).
   - When making changes to a data source, some clients (e.g. Microsoft Access) do not implement those changes immediately, and it may be necessary to close the client or re-link the tables.

- Changing the setting of the **Use LDA MAINT** check box effectively changes the description of the table returned by removing the MAINT column.

  In Microsoft Access the link-tables therefore need to be deleted and recreated.

- Note that with the **Use LDA MAINT** check box selected, deletions really do disappear. They do not return when you quit and re-enter the database.
- When **Use LDA MAINT** is cleared again, those deleted records reappear, since they were never physically deleted. The rows were concealed only because the Easysoft SQI-Unisys LINC Developer Driver driver honoured the MAINT status field.

2. Change the setting of the **Physical deletion** check box and observe the change in behaviour when deleting with your client.
   - Even with the **Use LDA MAINT** check box cleared and the `MAINT` column displayed, deleted records disappear for good.
   - Clearing the **Physical Deletion** check box does not result in their reinstatement.



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GLOSSARY

A

Terms and definitions

API

Application Program Interface. An API is a published set of function calls and constants allowing different programmers to utilise a ready-written library of subroutines.

Application

An Application Program ("Application" or "App") is a program that *applies* the computer to solving some real-world problem. In ODBC terms, it is a program connecting to the data source, normally under Microsoft Windows. Easysoft Data Access opens up the range of platforms for ODBC applications.

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.

Business model

By bringing together various business segments, a model of the requirements for that part of the organisation requiring the LINC system can be established and can directly be compared to that of repository.

Business segment

Provides the definition for the LINC System and can be directly compared to that of a database or schema.

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 name given to 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.

Column

The vertical dimension of a table. A named, typed "field" along with all its data.

conditional profile

A profile that has conditional records in its definition. These records define the data that should be visible within the profile. When a row is inserted or updated in the Ispec, the conditional profiles must be checked and the profile flag set to ‘Y’ or ‘N’ accordingly.

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 71**) to identify it to the ODBC Driver Manager.

to **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

Data Source Name. A name associated with an ODBC data source. Driver Managers, such as the Microsoft Windows Driver Manager, use the Data Source Name to cross-reference configuration information and load the required driver. See also **“ODBC driver” on page 72**.

Driver Manager

A piece of software whose main function is to load ODBC drivers. ODBC applications connect to the Driver Manager and requests a 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

See **“data source” on page 70**.

field

A placeholder for a single datum in a record. For example you can have a Surname field in a Contact Details record.

Ispec

The means by which a transaction is entered, either a Component Ispec or an Event Ispec, where the transaction proposed has a single purpose. An Ispec roughly equates to a screen in the LINC system.

LDA

LDA (LINC Development Assistant) is a set of applications that allow the design, development, testing and implementation of a LINC System on a Windows platform.

LDA Development

The part of LDA for building the LINC system.

LDA Runtime

The part of LDA for running a LINC system on the Windows platform.

LINC

A suite of programs and methods for the rapid development of transaction intensive systems, by Unisys.

LINC System

A suite of programs allowing data entry and the production of reports. LINC Systems comprise multiple Ispecs.

LINCDB.INI

A configuration setting file that contains names and directories that define the locations of the files for all business segments and Ispecs.

MAINT

A single character column containing either A for added; C for changed or D for deleted. This is maintained by the LDA runtime and reflects the most recent action on the given record (or *row*).

ODBC (Open DataBase Connectivity)

Is Microsoft's standard *API* for connecting to heterogeneous database formats from Windows programs. ODBC is available on an number of platforms.

ODBC driver

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

operating system

Academics still haven’t agreed on the actual definition of an operating system, but a working definition can be:

A collection of software programs, APIs and working practices that control and integrate the execution of system functions on behalf of application programs.

platform

The term "platform" covers the hardware and operating system as a unit, such as a PC running Microsoft Windows.

profile

Provides an index to a specified selection of data, and provides a means of access to just those data that are required to perform a specific function.

profile flags

A single character field, containing Y or N, that exists for each profile in an Ispec and indicates whether or not that Ispec data is included in the profile.

repository

A database containing details of business segments (LINC Specifications) held by LDA. The concrete implementation of the business model.

row

Is the horizontal dimension of a table (compare column). A row roughly corresponds to a single entity in the real world.

schema

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

server

A process performing the centralised component of some task, for example extracting information from a corporate database. See **“Client/server” on page 70**.

SQL (Structured Query Language)

A standard language for interacting with relational database systems, based on Relational Theory.

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 74**.

table

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

software	
vendor	name
Easysoft	Easysoft Data Access
MySoft	My ODBC Compliant Application

This table has two columns; `vendor`, and `name`. It has two rows, that corresponding to *Easysoft Data Access*, and that corresponding to MySoft’s ODBC client software. The term *table* can also apply to just the definition of the table, without its data.

user data source

An ODBC Data Source with access limited to a specific user on a given system. See also **“system data source” on page 74**.

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