Easysoft Data Access

SQI-Unisys LINC Developer Driver

Installation Guide and User Manual

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CONTENTS

LIST OF FIGURES

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.

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.

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

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*.

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.

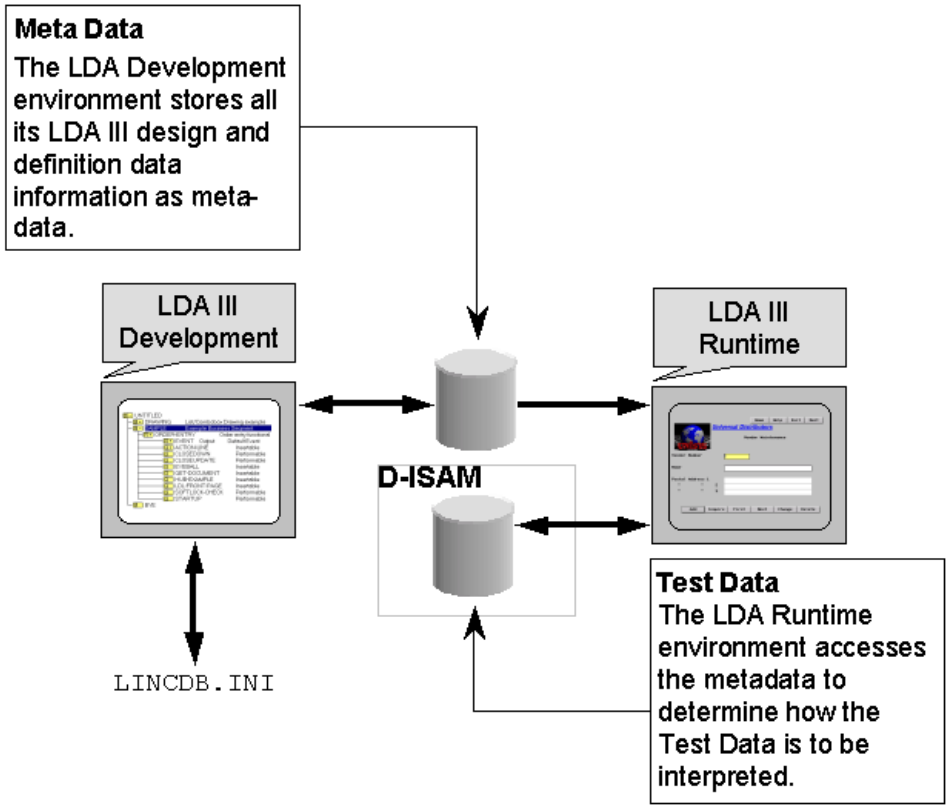

Figure 1: LINC Development Assistant III schematic

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.

These applications 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. It is broken into *business segments*. In theory, a business segment is simply a segment of the business model. 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:

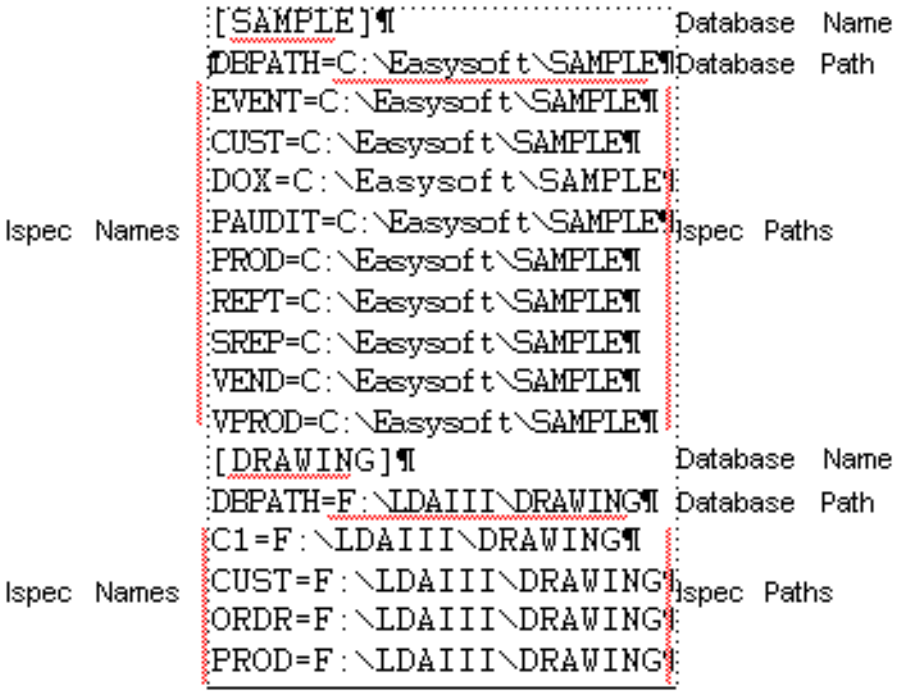

Figure 2: An example LINCDB.INI

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.

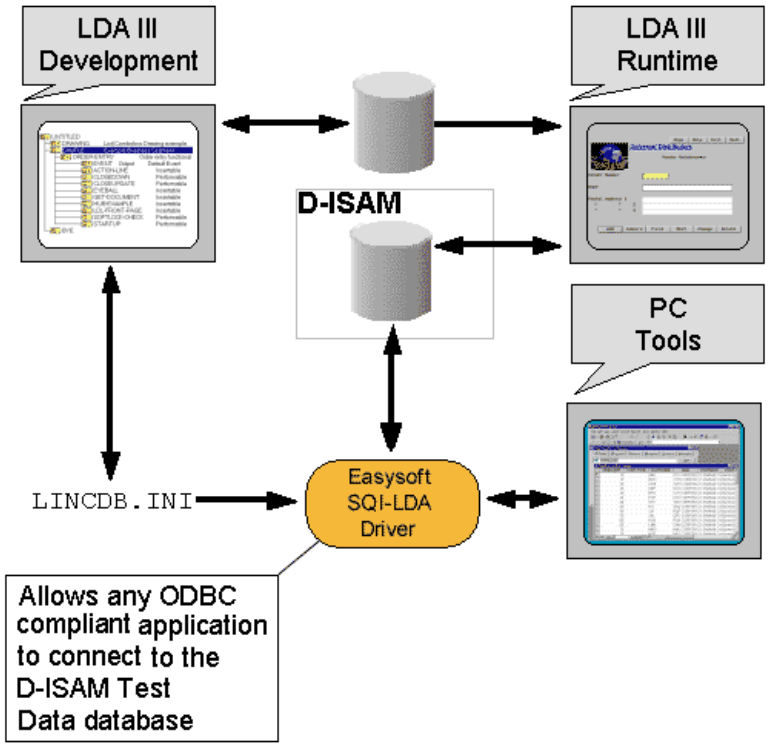

Figure 3: The Easysoft SQI-Unisys LINC Developer Driver schematic

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

Installing the Easysoft SQI-Unisys LINC Developer Driver will enable you to make your LDA III Runtime Database visible as an ODBC DSN.

This section covers the tasks necessary to install and remove the Easysoft SQI-Unisys LINC Developer Driver.

Chapter Guide

Obtaining the Easysoft SQI-Unisys LINC Developer Driver

1. 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 **Free Trials** page on 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**. 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/lda` 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**).

2. Whichever medium you choose, the Easysoft SQI-Unisys LINC Developer Driver and its install program are contained in a single executable file, named `EasysoftDataAccessForLDAIII`*.exe*.

Installing the Easysoft SQI-Unisys LINC Developer Driver

1. Execute the `EasysoftDataAccessForLDAIII.`*exe* file.

Caution! As a precaution, check that all ODBC and LDA III programs are shut down before commencing the installation.

   There will be a short delay while setup prepares the wizard to guide you through the rest of the install procedure. You will then be presented with the **Welcome** screen.

2. Click **Next** when you have read the **Welcome** screen. If you agree to the Licence Agreement then click **Yes** to continue with the installation.

   You will then be presented with information relating to this release of the Easysoft SQI-Unisys LINC Developer Driver.

   – OR –

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

3. Read the information relating to this release and click the **Next** button.

   The install program then displays the **User Information** dialog box:

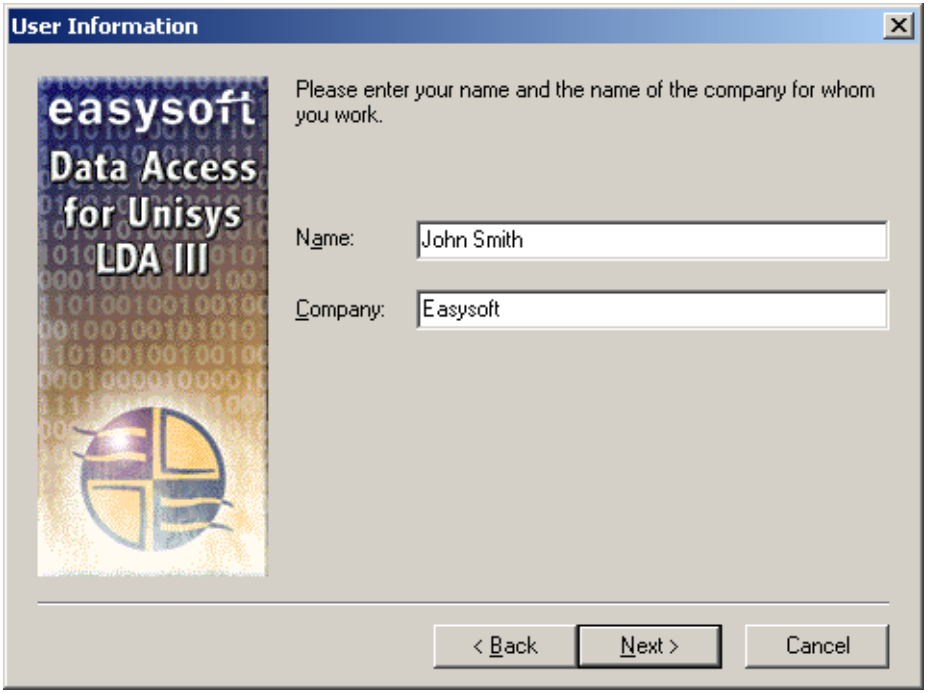

Figure 4: The User Information dialog box

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

   You will then be presented with the **Choose Destination Location** dialog box.

SPECIFYING THE INSTALL LOCATION

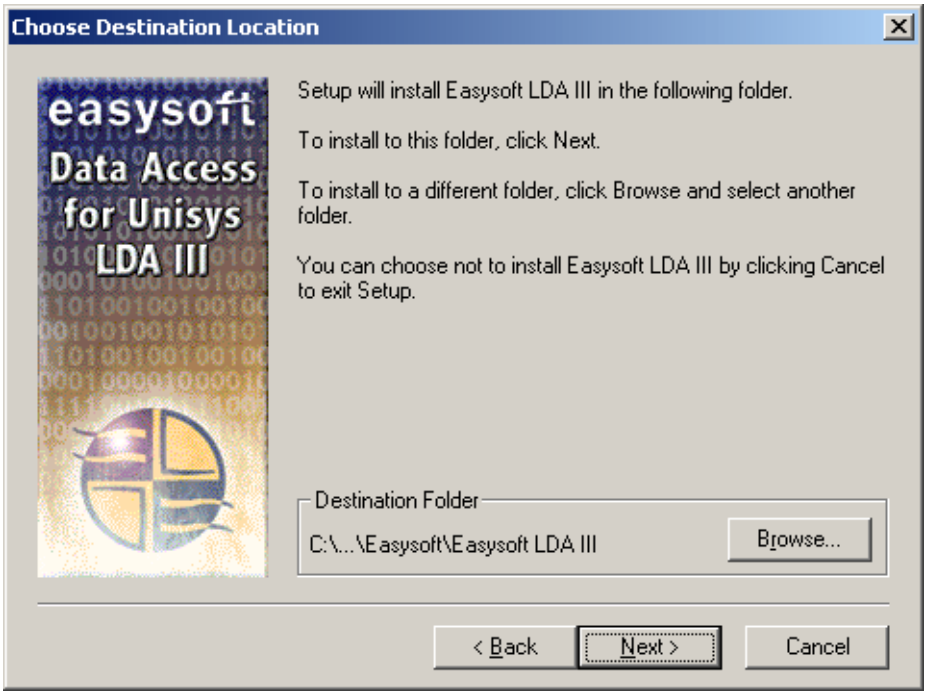

Figure 5: The Choose Destination Location dialog box

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

   – OR –

   Click **Browse** and select an alternative directory location for the installation, before clicking **Next**.

   You will then be informed that the necessary files are being installed, before being presented with the pre-configured **DSN** dialog box.

CREATING THE SAMPLE_LDAIII DATA SOURCE

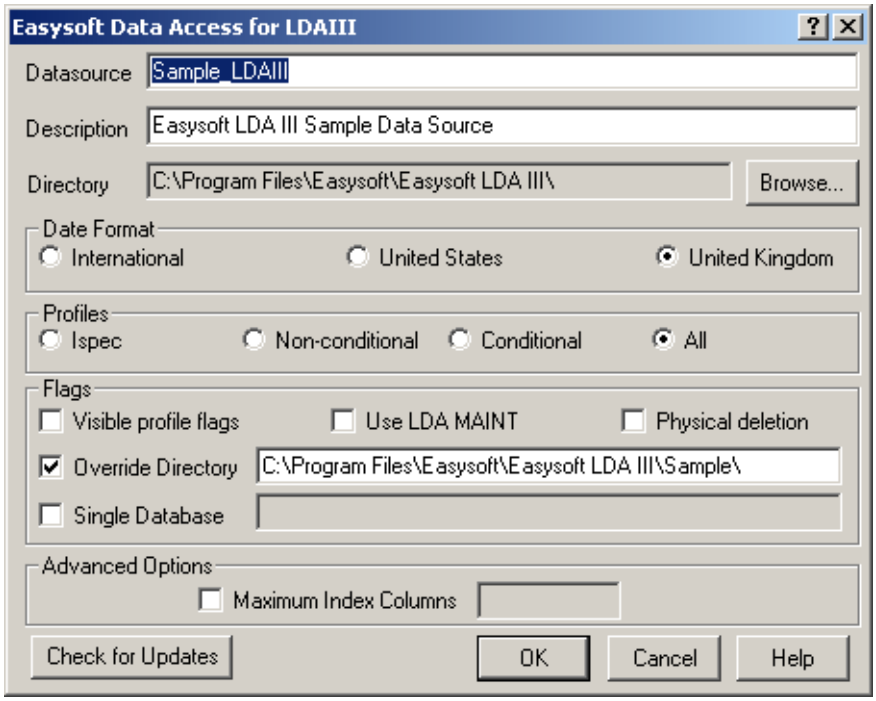

Figure 6: An example Easysoft SQI-Unisys LINC Developer Driver Data Source dialog box

> **NB** Do not click **Check For Updates** at this stage. This dialog box is discussed in more detail in **"Configuration" on page 31**.

6. Click **OK** to accept the default configuration of the DSN **Sample_LDAIII**. The specifics of the configuration of this type of DSN are discussed further in **"Configuration" on page 31**.

The Install program runs the Easysoft licensing manager, which presents the License Manager dialog box (see **Figure 7 on page 23**).

Licensing the Easysoft SQI-Unisys LINC Developer Driver

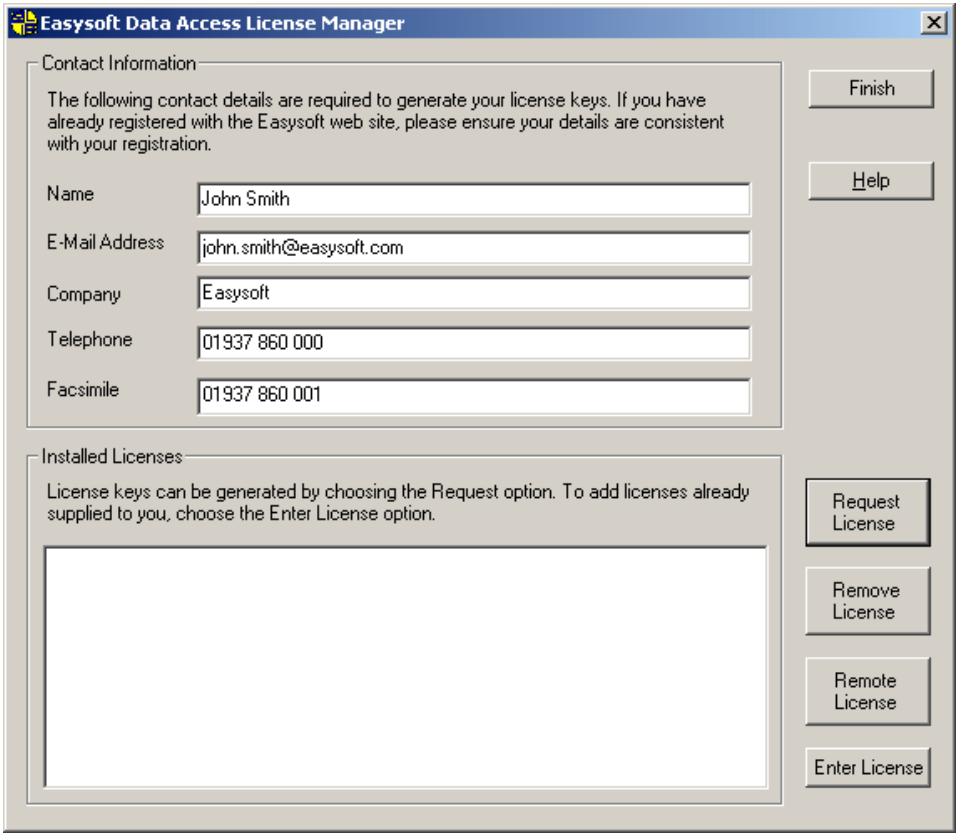

Figure 7: The Easysoft License Manager dialog box

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 easysoft.com. If you 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 correct company name in the **Company** text box.

4. Enter your telephone and fax details in the next two text boxes.

   Again, this will be sent to Easysoft to help us provide product support.

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

   The License Manager asks you what sort of key you would like to request.

Figure 8: The License Manager License Type Selection dialog box

6. If you are installing the software for evaluation purposes, select **Trial** and click **Next**. Skip to **step 8 on page 25**.

   – OR –

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

7. You are prompted for your license number. Enter it and click **Next**. Skip to **step 9 on page 25**.

8. In the drop-down list box, select the Easysoft SQI-Unisys LINC Developer Driver. Click **Next**.

9. You are now presented with a dialog box summarising the information you have entered so far. There are three buttons for submitting a license request.

Figure 9: The License Request Submission dialog box

You can click **Online Request** to send a request directly by the internet to Easysoft. This is the quickest method and results in your details being entered immediately into our support database.

– OR –

If you entered your email address, you can click **E-mail Request** to submit your request by email.

– OR –

You can click on **Print Request** to print off the information for faxing or phoning-in your request.

10. You have now requested a license. You will receive a key by email or phone which you can use to activate the license (see **"Enabling an Easysoft License" on page 28**).

    You are returned to the main License Manager dialog box, which now contains details of the licenses you requested. Click **Finish**. You are then presented with the Setup Complete dialog box:

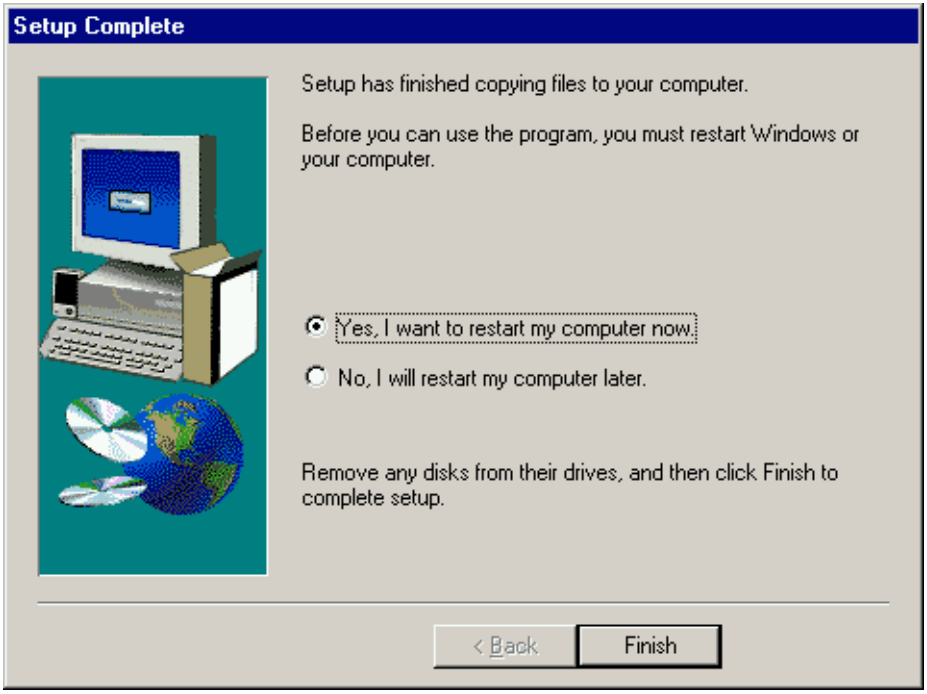

Figure 10: The Setup Complete dialog box

11. 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 option **Yes** has been checked and then click the **Finish** button to complete the installation.

– OR –

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

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.

ENABLING AN EASYSOFT LICENSE

Enabling an Easysoft license is easy. If you recieved your license key in an email, then you can simply execute the attachment and your licenses will automatically have their keys applied.

If you received the license key by phone or on paper then you must enter it by hand into the Easysoft License Manager.

1. Select **Start > Programs > Easysoft > Easysoft Data Access Licensing > License Manager**.

   You are presented with the License Manager dialog box (see **Figure 7 on page 23**).

2. Click on **Enter License**.
3. In the text box, type your license key.
4. Click **Apply**.

   You have now licensed your Easysoft product.

Uninstalling the Easysoft SQI-Unisys LINC Developer Driver

If required you can uninstall the Easysoft SQI-Unisys LINC Developer Driver.

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

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

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

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	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 **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 the **Yes** button to proceed.

   – OR –

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

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.

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 you need to connect the Easysoft SQI-Unisys LINC Developer Driver to your own LDA III data source. It is presented as a step-by-step guide to creating a Data Source Name (DSN). The chapter covers all cases and is useful as a reference for when you create future DSNs.

First time users, or those who wish only to connect to the DSN, may prefer to skip to **"Demonstration" on page 53** which uses a specific example.

Chapter Guide

Creating a System Data Source Name

1. Select **Start > Setting > Control Panel** and open the ODBC icon.

2000	To find the ODBC icon in Windows 2000, open `Administrative Tools` in Control Panel. The ODBC icon is called `Datasources (ODBC)`.

You will then be presented with the ODBC Data Source Administrator window.

2. Click on the **System DSN** tab.

NB	Note that if a **User DSN** is created, it will only be available to the user on that system who created that DSN. By creating a System DSN it is made available to all users on this system.

3. Click the **Add** button. Windows then prompts you to select a data source driver.
4. Select the **Easysoft LDA III** driver and click **Finish**.

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

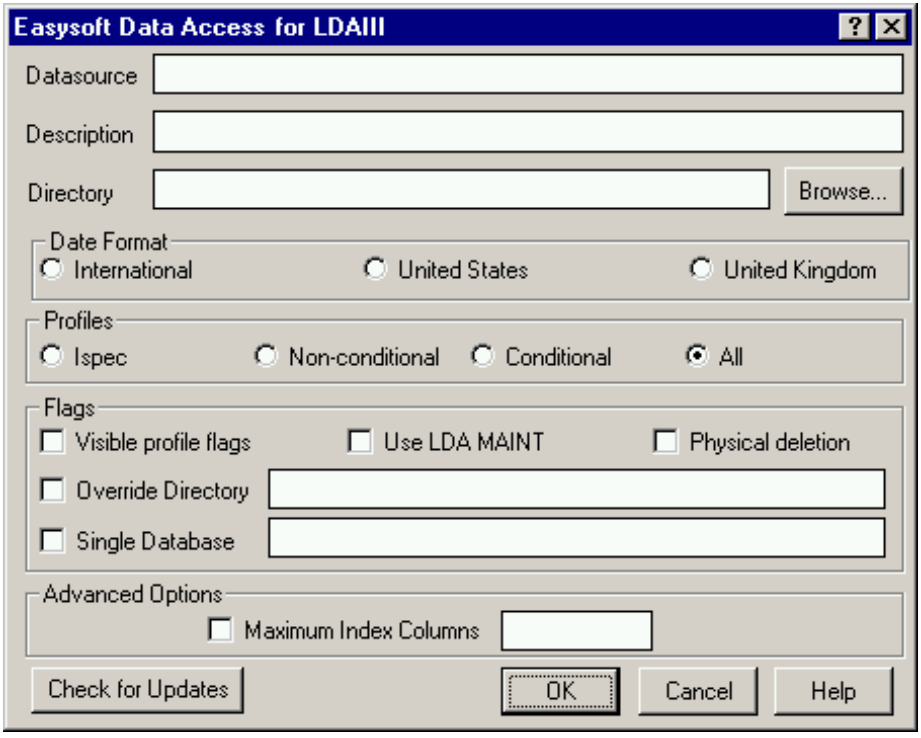

Figure 11: The Easysoft SQI-Unisys LINC Developer Driver Setup dialog box

5. Choose a suitable name for your 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, Miscrosoft's Data Source Manager displays the description field next to the data source name when you create link tables in Access 97.

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 14**). 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. The table below summarises the options.

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

Figure 12: 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. Check the **Visible profile flags** option 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. Check the **Use LDA MAINT** option 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** option 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** option 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. Check the **Physical deletion** option 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 checking the **Override Directory** option 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 14**).

    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. Check the **Single Database** option 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. Check the **Maximum Index Columns** advanced option 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 be presented with information about 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.

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 97, all the exercises can be carried out with any ODBC-compliant SQL tool.

Chapter Guide

Prerequisites

1. This chapter assumes you have the **Sample_LDAIII** DSN connected to the Easysoft sample database.
2. You should have received a `SAMPLE` database when you obtained LDA III from Unisys. Make sure that:
   - You have this database
   - You do not mind altering the information in this database
   - You know the path to its repository
3. The User DSN **Sample_LDAIII**, created as part of the Easysoft SQI-Unisys LINC Developer Driver, was 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 System Data Source Name" on page 32** for more information on how DSNs are configured.
4. 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

5. Start Microsoft Access 97, 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.

6. 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.

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

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

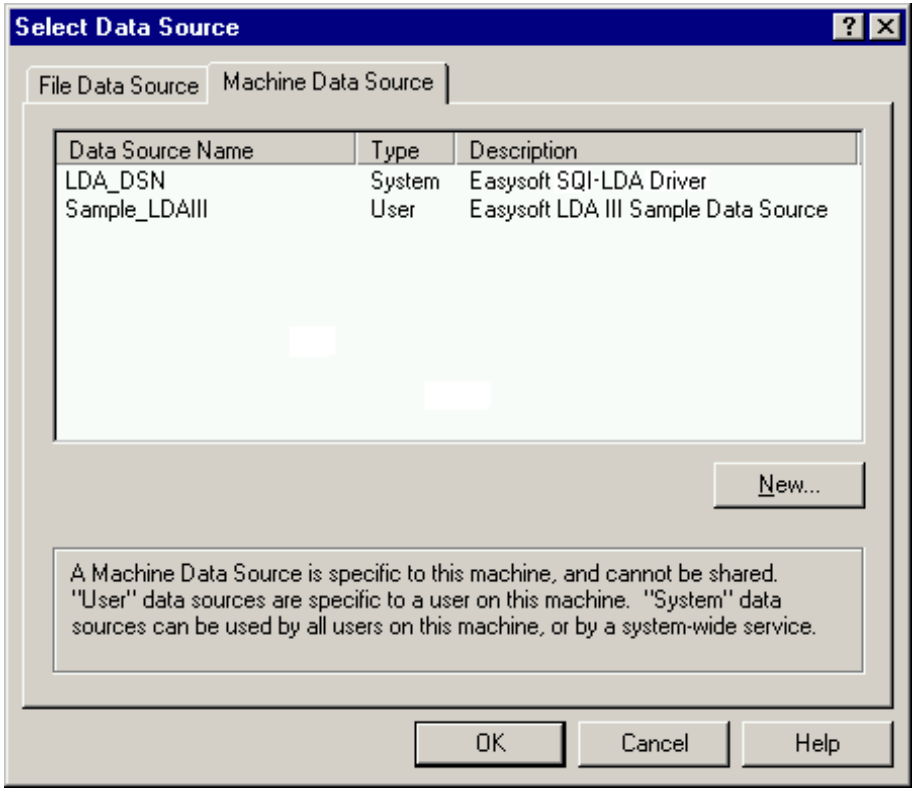

Figure 13: The Select Data Source dialog box

8. 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** Note that the list of tables presented is not a complete listing due to the fact that the **Ispec** profile option was chosen in the **Sample_LDAIII** DSN.

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

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

Connecting to the Sample LDA III Runtime Database

10. 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.

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

    This then presents the **Select Data Source** window.

12. Click the **Machine Data Source** Tab, and 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 35**.

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

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

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

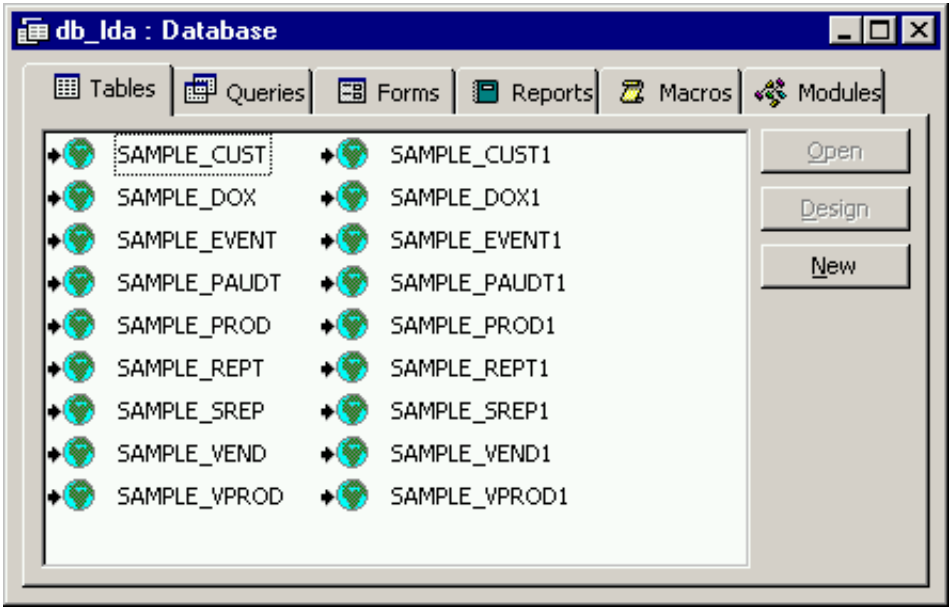

Figure 14: db_lda tables in the Database window

14. Select the **SAMPLE_PROD** table and click **Open** to be shown the data within that table.

	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 15: Sample data within the SAMPLE_PROD table

15. Select the **SAMPLE_PROD1** table and click **Open** to be shown that no data exists within that table.

	MAINT	NAM	PRODUCT	REORDLEV	SELLPRICE	UNITSALE
▶						

Figure 16: 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	Note that 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 transactions, where a sale is made or goods are received.

Preparing to Enter the 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.

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

    The **New Query** window is displayed.

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

18. Click **Close**.

    This then presents the **Select Query** window, showing that no tables or fields are currently defined.

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

Entering the 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.

20. By default the statement `SELECT;` is presented, this should be deleted and replaced with the following:

```
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	Note that in statement shown above, the source MAINT column data has not been selected. This is due to the fact that data is being appended to the LDA III Runtime Database table, and thus the MAINT status flag is set to A, regardless of its value in the source table.

21. Having entered the statement, select **File > Save** and give it the name `Populate_CUST`.

    The remaining queries can then be created.

22. 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;
```

23. 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;
```

24. 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;
```

25. 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;
```

26. 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 the SQL Statements

27. 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.

28. Click **Yes** to continue.

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

29. Click **Yes** to continue.

30. Select the remaining queries shown below, and click **Open**.

31. `Populate_PROD`

32. `Populate_REPT`

33. `Populate_SREP`

34. `Populate_VEND`

35. `Populate_VPROD`

36. Exit Microsoft Access 97 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

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

    You will then be presented with the **LDA III Runtime** window.

38. Select **File > Open Session**.

    You will then be presented with the **Select a LINC System** window.

39. 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 97, all the exercises can be carried out with any ODBC-compliant SQL tool.

Chapter Guide

Prerequisites

1. This chapter assumes you have completed **"Installation" on page 17**, and thus have the **Sample_LDAIII** DSN connected to the Easysoft sample database.
2. You will require an ODBC compliant SQL tool (preferably Microsoft Access 97). If you have Microsoft Access you can ignore the text boxes marked "SQL" in the instructions below.
3. The exercise connects to the LDA III data source that was installed along with the Easysoft SQI-Unisys LINC Developer Driver. It does not need LDA III installed on your system.

Using the Easysoft Sample DSN

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

   The **Link** window is displayed, showing the existing databases on your system.
3. From the **Files of type** drop-down list, choose **ODBC Databases**.

   This displays the **Select Data Source** dialog box.
4. Click the **Machine Data Source** Tab.

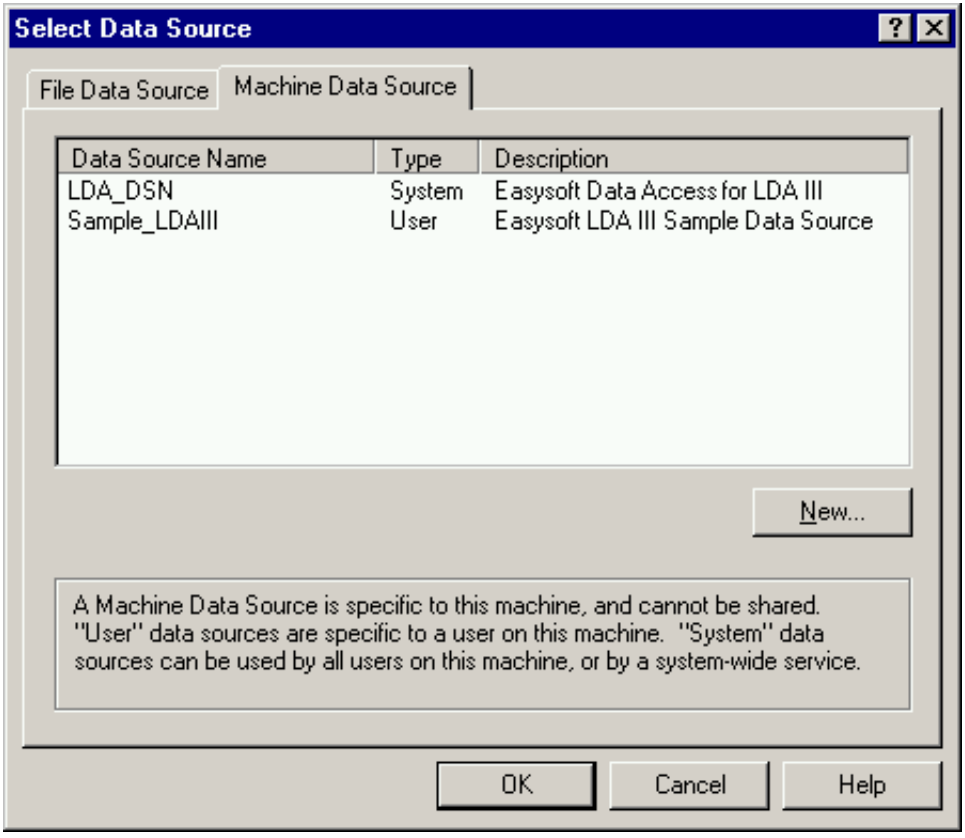

Figure 17: The Select Data Source dialog box

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 22**). Microsoft Access 97 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** box was left unchecked during the install process.

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

SQL	In general SQL, you can view a handful of the 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	To delete a record, use: `DELETE FROM sample_cust WHERE rowid=1;` then use the SELECT statement above for **step 9 on page 56** below.

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

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

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 driver, and each is presented with a short list of points to note.

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

   A few hints:

   - Use 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 System Data Source Name" on page 32**).
   - 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 **Use LDA MAINT** 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 **Use LDA MAINT** checked, 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 **Physical deletion** setting and observe the change in behaviour when deleting with your client.
   - Even with **Use LDA MAINT** *off* and the `MAINT` column displayed, deleted records disappear for good.
   - Unchecking **Physical Deletion** does not result in their reinstatement.

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 61**) 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 62**.

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 60**.

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 60**.

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 64**.

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 64**.

INDEX

E

F

H

I

L

M

N

O

P

R

S

T

U

V

W