Easysoft Data Access
ODBC-Interbase 7 Driver

Installation Guide and User Manual

This document is valid for version 3.0 of the Easysoft ODBC-Interbase 7 Driver.

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PREFACE

About this manual

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

Chapter Guide

- **Intended Audience**
- **Displaying the Manual**
- **Notational Conventions**
- **Typographical Conventions**
- **Contents**
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Intended Audience

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

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

Displaying the Manual

This manual is available in the following formats:

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

- HTML (the format Easysoft recommend for viewing onscreen).

Notational Conventions

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

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

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

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

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

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

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

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

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

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

Typographical Conventions

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

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

  Click **Next** to continue.

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

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

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

  At the command prompt type `admin`.

- Keyboard Commands

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

  Press *<F1>* for help.

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

Contents

- **Introduction**

  An overview of ODBC and the Easysoft ODBC-InterBase 7 Driver.

- **Installation**

  A step-by-step guide to installing the Easysoft ODBC-InterBase 7 Driver.

- **Configuration**

  Explains how to set up and manage user access to client data sources.

- Appendices

  Comprising a Technical Reference and a Glossary.

Trademarks

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

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

Easysoft and Easysoft Data Access are trademarks of Easysoft Limited.

InterBase is a trademark of the Borland Software Corporation.

INTRODUCTION

Introducing the Easysoft ODBC-InterBase 7 Driver

Easysoft Data Access is a suite of programs that add significant value to your investment in ODBC.

With Easysoft software you can connect applications on more platforms to more database systems than ever.

Chapter Guide

- **Overview**
- **Feature List**

Overview

The Easysoft ODBC-InterBase 7 Driver provides ODBC 3.5 access to Borland's InterBase 7. It can also be used with earlier versions of Firebird and InterBase.

The Easysoft ODBC-InterBase 7 Driver is available on a variety of platforms and is compatible with the Windows ODBC Driver Manager and unixODBC, the open source ODBC driver manager. Data sources created with the driver can be configured to support a wide range of InterBase features.

Unicode support is provided on certain platforms. ANSI only versions are also available to ensure compatibility with older client applications and ensure optimum performance when Unicode is not a requirement.

Feature List

ODBC CONFORMANCE

The Easysoft ODBC-InterBase Driver is a "pure" ODBC 3.5 driver providing efficient operation with ODBC 3 applications such as ADO and full backwards conformance with older ODBC applications.

SUPPORTS ALL INTERBASE 7 DATA TYPES

All the older IB 5.x data types are supported, as well as the new IB 6 data types (such as `BIGINT`), numeric storage as floating types (IB 5) and exact precision types (`SHORT`, `INT`, `BIGINT`) in IB 6. Native InterBase data types such as `BLOB`, `SUB`, `TYPE` and `TEXT` are mapped to the correct ODBC data type (`SQL_LONGVARCHAR` in this case), but the native format is still available. The InterBase 7 `BOOLEAN` datatype is also implemented to the SQL 99 standard.

68-BYTE METADATA NAMES

Support is provided for 68 byte Metadata names (67 bytes plus a null terminator).

METADATA CALLS

Direct access is provided to all the InterBase catalog tables. This information is also available via the standard ODBC calls such as `SQLTables` and `SQLColumns`.

INTERBASE ROLES

Support is provided for Roles, both via the DSN setup and as an option to the `SQLDriverConnect` function.

UNICODE

The driver provides both ANSI and Unicode access to InterBase databases, converting from the internal UTF8 storage format used by the InterBase server.

Default character sets may be configured and all conversions are done transparently and automatically. ANSI only applications such as Microsoft Query will only "see" 8 Bit ANSI data, while Unicode applications such as Microsoft Access are provided with direct access to 16 Bit Unicode data.

Two versions of the driver are provided, one providing ANSI only support, to ensure trouble free operation with older ODBC applications.

SUPPORT FOR OLDER INTERBASE DATABASES

Due to changes in the metadata storage for older (pre 6.0) InterBase databases, the Easysoft ODBC-InterBase 7 Driver will detect the InterBase database version in use at run time and transparently adjust its operation to match the available data.

In cases where the detection fails (for instance with partially upgraded databases) the version may be manually configured.

Support is also provided for older InterBase interface libraries and the operation of the driver will be adjusted to ensure the most efficient execution.

For example, if the InterBase `rollback_retaining` function is available, it will be used by the Easysoft ODBC-InterBase 7 Driver (with potential performance improvements), but if it is absent the driver will adjust its operation in such a way that the calling application is unaware of the change in server capability.

SUPPORT FOR OLDER SQL DIALECTS

The required SQL Dialect may be configured and the Easysoft ODBC-InterBase 7 Driver will adjust its operation to ensure that only matching SQL is passed to the InterBase server.

This enables the Easysoft ODBC-InterBase 7 Driver to be used with many versions of InterBase and it has been successfully tested from version 4 to version 7.

TRANSACTIONS

The driver maps ODBC transaction requirements to the provided InterBase model in a transparent and efficient manner. There is also provision to select the behaviour on detection of lock conflicts. The driver provides "wait" and "no wait" operation.

STORED PROCEDURE SUPPORT

The driver fully supports InterBase stored procedures and provides mapping from the ODBC call methods to the native InterBase calls. Provision is made for both the "`SELECT`" and "`EXEC PROCEDURE`" calling methods and the driver will pick the correct translation. A manual override on this selection is provided for unusual procedures.

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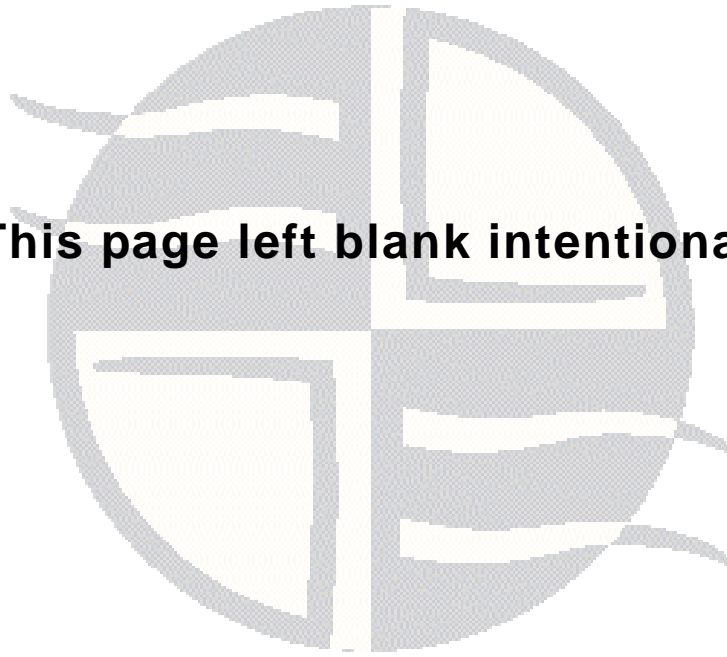
INSTALLATION

Installing the Easysoft ODBC-InterBase 7 Driver

This section covers the tasks necessary to install and remove the Easysoft ODBC-InterBase 7 Driver under both Windows and Unix operating systems.

A Windows installation can be carried out by anyone with administrator privileges.

A Unix installation assumes you are, or have available for consultation, a system administrator.

Chapter Guide

- **Obtaining the Easysoft ODBC-InterBase 7 Driver**
- **Installing the Easysoft ODBC-InterBase 7 Driver**
- **Installing under Windows**
- **Uninstalling under Windows**
- **Installing under Unix**
- **Uninstalling under Unix**

Obtaining the Easysoft ODBC-InterBase 7 Driver

There are three ways to obtain the Easysoft ODBC-InterBase 7 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 ODBC-InterBase 7 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/interbase` directory and then choose the platform release that you require.

- If you have an extremely slow connection you can order Easysoft software on CD by email, telephone or post (see **Contact Details**).

DOWNLOAD COMPONENTS

The selection of components that you require to download in order to configure the Easysoft ODBC-InterBase 7 Driver varies depending on the platform on which you wish to run.

The name of the distribution file for the Easysoft ODBC-InterBase 7 Driver varies from platform to platform, but conforms to two basic formats:

On Windows:

- `EasysoftODBCForInterBase7UNICODE.exe`

On Unix:

- `ib6-`*`platform-x.y.z`*`.tar`

  where `platform` is any supported platform that this particular version is built for, "*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.

  This filename may be suffixed with `.gz` for a "`gzipped`" archive or `.Z` for a "`compressed`" archive. For example:

  `ib6-`*`platform-x.y.z`*`.tar.gz`

Once you have downloaded the distribution file, place it in a temporary directory on the machine where your InterBase data is held.

Installing the Easysoft ODBC-InterBase 7 Driver

The exact installation process depends on your operating system.

Caution! | If you are upgrading your Easysoft ODBC-InterBase 7 Driver installation, you must decide whether or not to remove your previous installation before continuing. Generally, you are advised to remove the previous version and reboot your machine before installing.

Refer to the section relevant to your platform to continue:

- **"Installing under Windows" on page 23**
- **"Uninstalling under Windows" on page 29**
- **"Installing under Unix" on page 31**
- **"Uninstalling under Unix" on page 34**

After installing the Easysoft ODBC-InterBase 7 Driver you can proceed to add or amend any of the available attribute fields which you require in order to correctly configure your client data source (see **"Configuring the Easysoft ODBC-InterBase 7 Driver" on page 35** for details of the Easysoft ODBC-InterBase 7 Driver DSN setup).

Windows

Installing under Windows

1. Execute the file distribution that you downloaded in **"Obtaining the Easysoft ODBC-InterBase 7 Driver" on page 20**.

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

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:
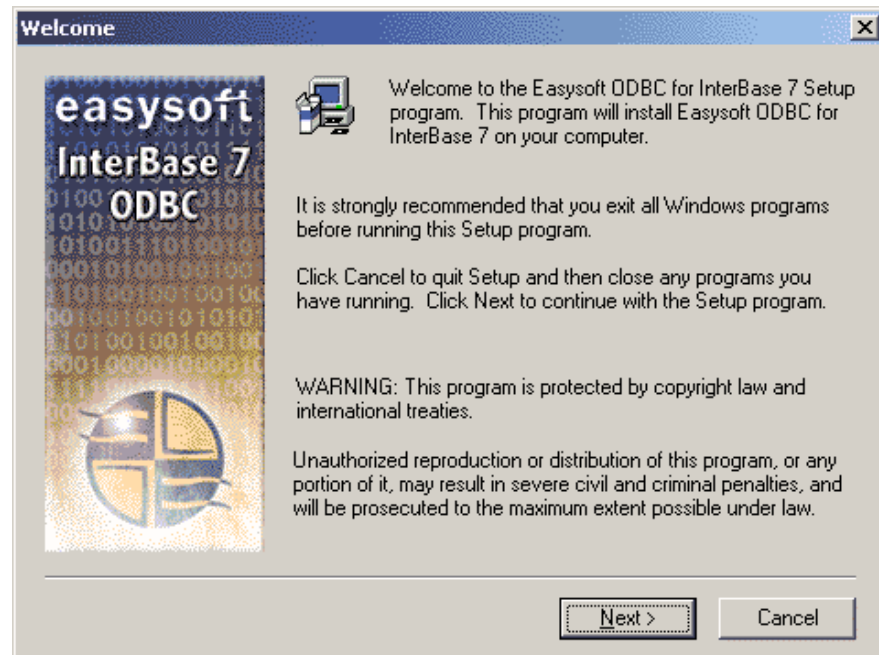
Figure 1: The Welcome dialog box

2. Click **Next** when you have read the **Welcome** dialog box.

Windows

The Easysoft End User licensing details are displayed in the **Software License Agreement** dialog box:
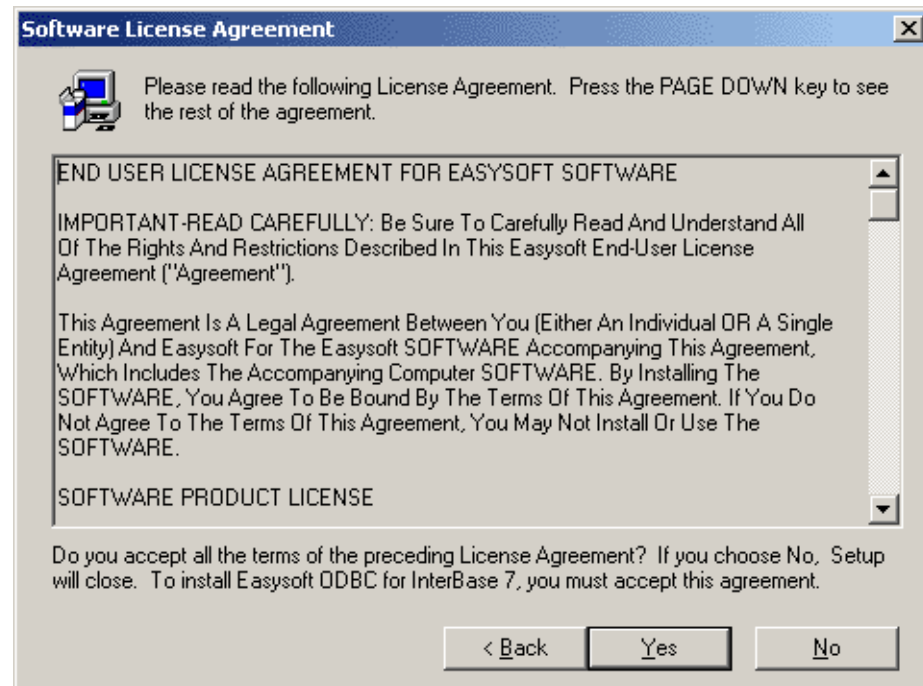
Figure 2: The Software License Agreement dialog box

3. Click **Yes** to accept the terms of the License Agreement and continue.

The **Information** dialog box is displayed:

Windows
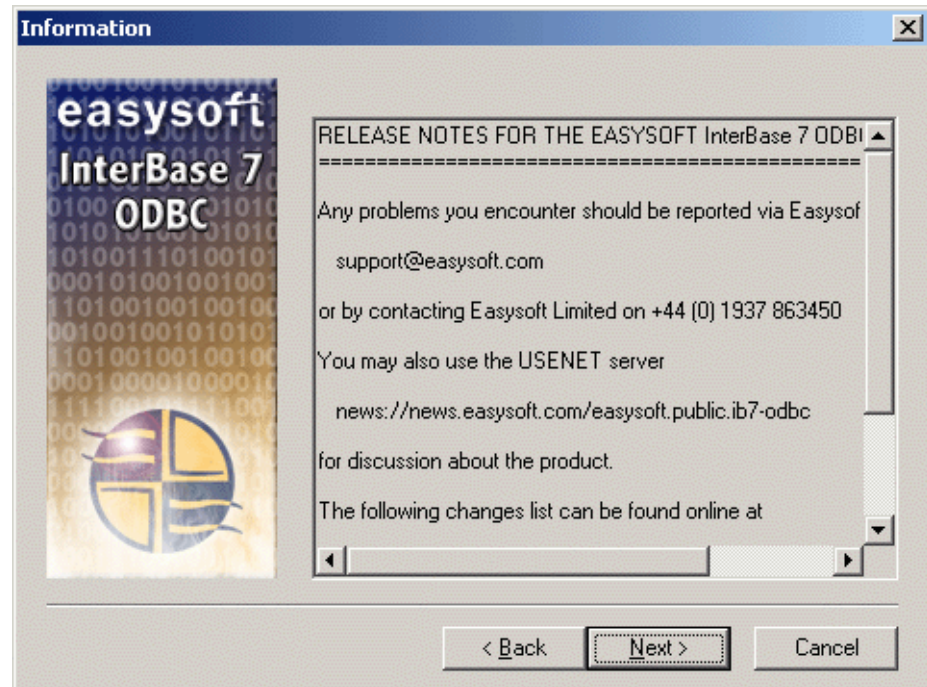
Figure 3: The Information dialog box

4. Click **Next** to continue.

Windows

The **User Information** dialog box is displayed:
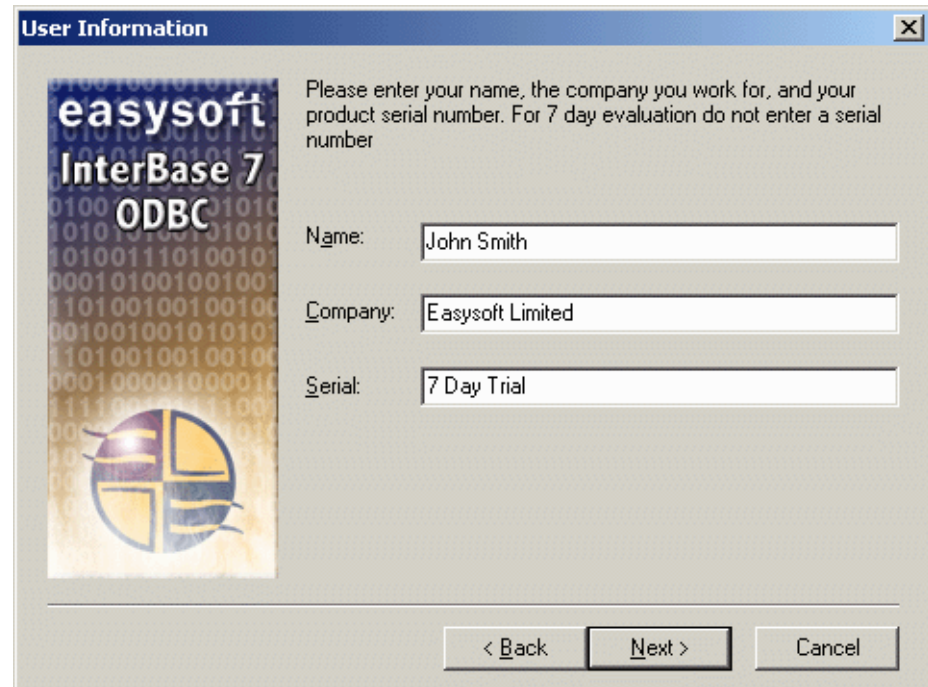
Figure 4: The User Information dialog box

5. In the **Serial** field, enter either "7 Day Trial" or a valid Easysoft serial number for a permanent license.

6. Click **Next** to continue.

The **Choose Destination Location** dialog box is displayed:
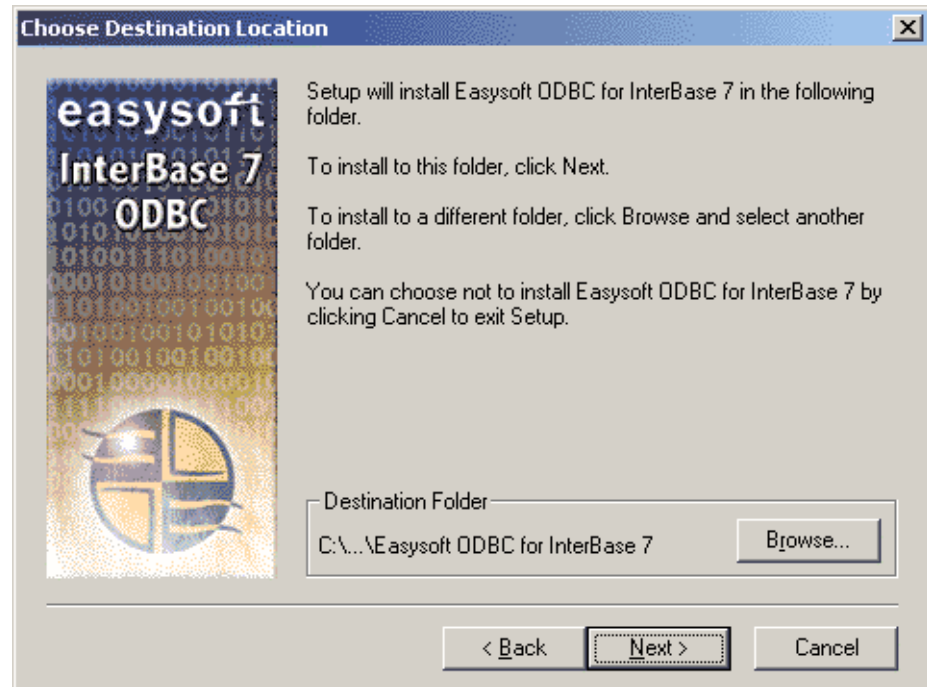
Figure 5: The Choose Destination Location dialog box

7. Accept the default installation directory unless you have a very good reason for not doing so.

8. Click **Next**.

There is a short pause while the Easysoft ODBC-InterBase 7 Driver components are copied and configured.

Windows

The **Setup Complete** dialog box is displayed:
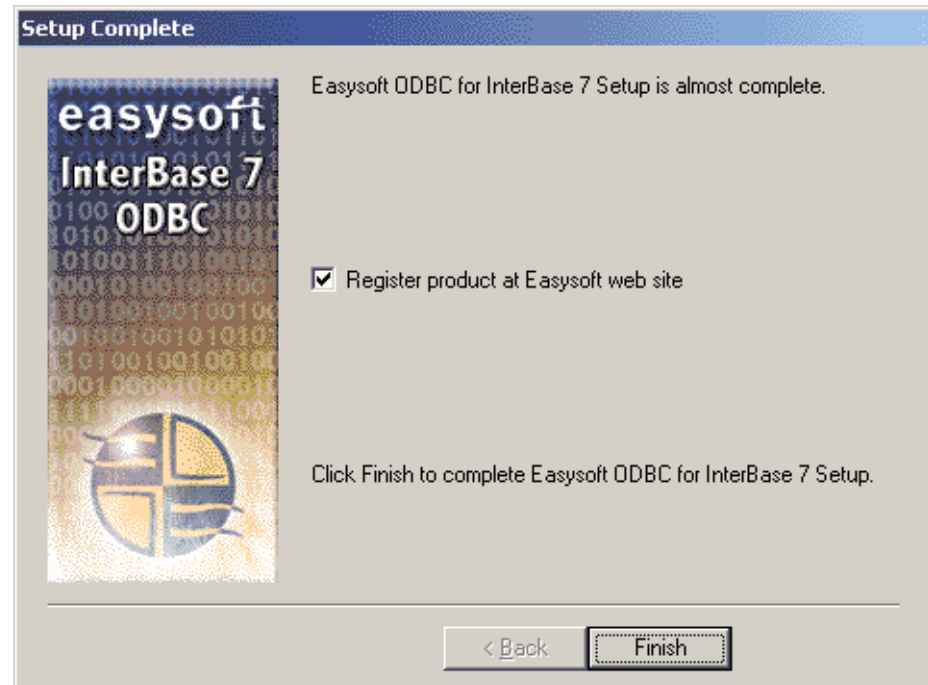
Figure 6: The Setup Complete dialog box

Leave the **Register product at Easysoft web site** check box
selected if you wish to display the Easysoft web site Easysoft
ODBC-InterBase 7 Driver **registration** page after the installation.

9. Click **Finish**.

The installation is complete.

After restarting your machine you should have a new **Start >
Programs > Easysoft > ODBC for InterBase6** program group with
links to the Easysoft InterBase news group and the Easysoft web
site Easysoft ODBC-InterBase 7 Driver **registration** page.

Uninstalling under Windows

This section explains how to remove the Easysoft ODBC-InterBase 7 Driver from your system.

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

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

2. Select **Easysoft ODBC for InterBase 6** and click the **Add/Remove** button.

3. Click **Yes** to confirm that you wish to remove the Easysoft ODBC-InterBase 7 Driver and all its components.

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

NB	Under 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 the registry was 'repaired' after a system crash.

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

   – OR –

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

Windows

Windows

The uninstall process removes the Easysoft ODBC-InterBase 7 Driver components from your system.

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

The uninstall process is complete.

Installing under Unix

1. Download the Easysoft ODBC-InterBase 7 Driver distribution file.

2. Copy it to a newly-created directory on your target machine.

> **NB** You will need to be logged on as the `root` user in order to install the Easysoft ODBC-InterBase 7 Driver, because Administrative privileges are required.

3. If the archive has been `gzip`ped (i.e. the filename ends in `.gz`), then use:

   `gunzip ib7-`*`platform-x.y.z`*`.tar.gz`

   – OR –

   If the archive has been `compress`ed (i.e. the filename ends in `.Z`), then use:

   `uncompress ib7-`*`platform-x.y.z`*`.tar.Z`

4. Extract the Easysoft ODBC-InterBase 7 Driver files from the archive by using the `tar` command:

   `tar -xvf ib7-`*`platform-x.y.z`*`.tar`

> **NB** If you already have a version of the Easysoft ODBC-InterBase 7 Driver installed then all relevant files and directories must be removed before proceeding (see **"Uninstalling under Unix" on page 34**).

Unix

The following files are installed into the directory you chose in **step 2 on page 31**:

- `libib7odbcS`

- `libib7odbc`

- `odbc.template`

- `odbcinst.template`

- `libodbcinst`

- `LICENSE`

- `README`

- `libib7odbcS` contains an in-built GUI DSN configuration program, but requires access to a QT 2.2.x shared library (obtainable from **http://www.troll.no**).

- `libib7odbc` contains the ODBC driver proper, which does not contain a GUI component and the setup for which must be performed by editing the required `.ini` files manually.

Unix

> **NB** `libib7odbcS` and `libib7odbc` both expect to be used in conjunction with the unixODBC driver manager (available from **http://www.unixodbc.org**) and are available as `.a` files for statically linking to the Easysoft ODBC-InterBase 7 Driver (not recommended) and as `.la` Libtool instruction files (`libodbcinst` also has a `.la` Libtool instruction file available).

- The two supplied template files (`odbc.template` and `odbcinst.template`) should be added to the driver manager `odbc.ini` and `odbcinst.ini` files respectively, amending the user name, password and database information in the `odbc.template` example section to suit each specific user installation (see **"Unix Setup" on page 41**).

  Note that the `DontDLClose` flag is required to be set.

- Easysoft also install a copy of the unixODBC driver manager file `libodbcinst.so` with the Easysoft ODBC-InterBase 7 Driver.

  Note that this assumes that the `odbc.ini` and `odbcinst.ini` files are located in the `/etc` directory (i.e unixODBC was configured with `./configure --sysconfdir=/etc`).

5. To use the Easysoft ODBC-InterBase 7 Driver beyond the end of the trial period you need to obtain a serial number from Easysoft, which should be deployed using one of the following methods:

- In the `odbc.ini` InterBase DSN entry, under the key `"serial_number"`:

  e.g.

  ```
  [ib7]

  Driver        = INTERBASE 7

  Description   = InterBase 7 Driver

  .

  .

  serial_number = SERIALNUMBER0123
  ```

– OR –

Unix

Unix

- In the `odbcinst.ini` InterBase driver entry, under the key "`serial_number`":

  e.g.

  ```
  [INTERBASE 7]

  Description    = ODBC-InterBase 7 Driver

  .

  .

  serial_number = SERIALNUMBER0123
  ```

– OR –

- If you are using an ODBC driver manager other than unixODBC, then add the serial number to the file `/etc/ibserial`.

Uninstalling under Unix

To uninstall the Easysoft ODBC-InterBase 7 Driver, remove the entire directory into which the product distribution file was copied in .

CONFIGURATION

Configuring the Easysoft ODBC-InterBase 7 Driver

In terms of the Easysoft ODBC-InterBase 7 Driver, the client is the machine running the ODBC application with which you want to access data on your InterBase server.

To allow an ODBC application on the client machine to access data on the remote server, you need to create a data source on the client.

This data source uses the Easysoft ODBC-InterBase 7 Driver and specifies the attributes required to connect to the InterBase database on the server.

Before setting up a data source on your client machine, you must have successfully installed the Easysoft ODBC-InterBase 7 Driver on this machine.

Instructions for installing the Easysoft ODBC-InterBase 7 Driver on Windows and Unix platforms are provided in **"Installation" on page 19**.

Chapter Guide

- **Configuring the client**
- **Windows Setup**
- **Unix Setup**
- **Attribute Fields**

Configuring the client

This section outlines how to configure the attribute fields which are available to be set for the Easysoft ODBC-InterBase 7 Driver.

Attribute fields are configured either:

- by entering values into the DSN setup dialog box (Windows or Unix GUI)

– OR –

- by text-editing the `odbc.ini` file (Unix only)

Refer to the section relevant to your platform to continue:

Windows

Windows Setup

This section explains the steps you should take to connect an ODBC application on a Windows machine to an InterBase database on a remote server.

The first step is to open Microsoft's Data Source Administrator.

1. Select **Start > Settings > Control Panel**, open `Administrative Tools` and then `Data Sources (ODBC)`.

Win 9x | Select **Start > Settings > Control Panel** and open the `ODBC` icon.

The ODBC Data Source Administrator opens.

2. To create a data source that is only available to the user currently logged into this machine, select the **User DSN** tab.

   – OR –

   To create a data source that is available to any user who logs into this machine, select the **System DSN** tab.

3. Click the **Add...** button to add a new data source.

The **Create New Data Source** dialog box displays a list of drivers:
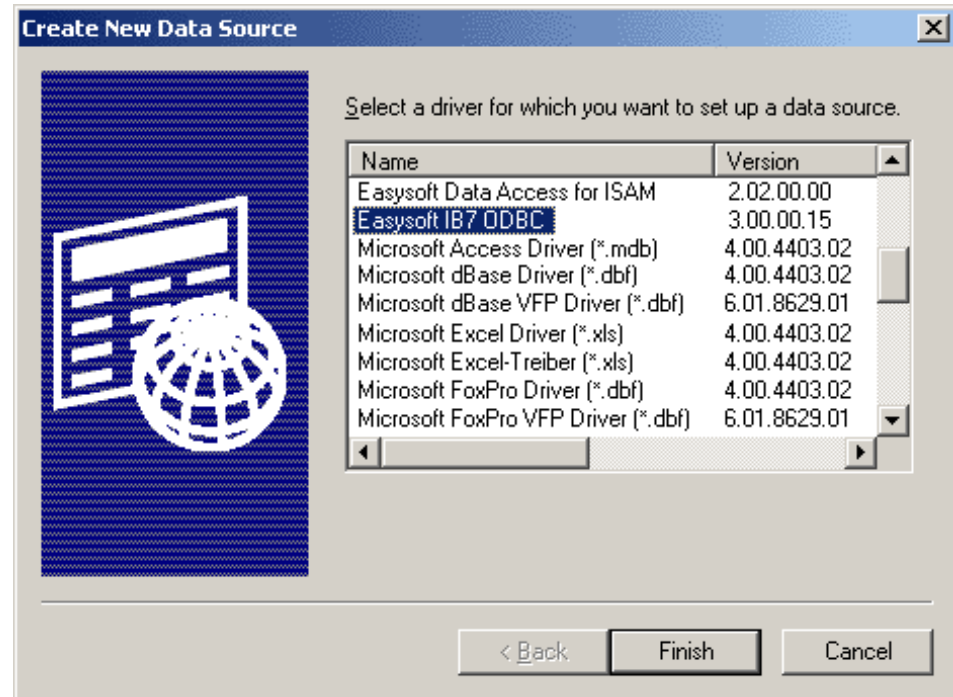
Figure 7: The Create New Data Source dialog box

4. Select **Easysoft IB7 ODBC** and click **Finish**.

The Easysoft ODBC-InterBase 7 Driver DSN Setup dialog box is displayed:
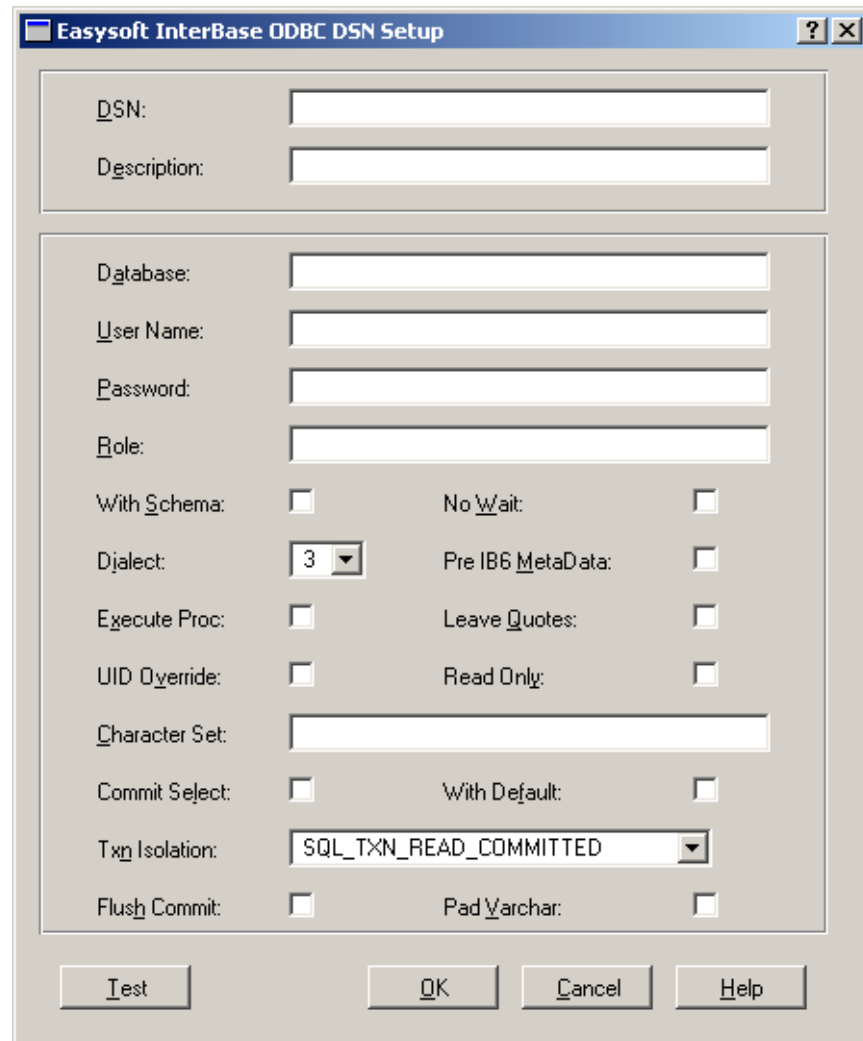
Figure 8: The Easysoft ODBC-InterBase 7 Driver DSN Setup dialog box

Windows

The **Test** button allows you to check that the client is able to connect to the specified server data source.

For details of the other attributes for the Easysoft ODBC-InterBase 7 Driver that can be set on this dialog box, refer to **"Attribute Fields" on page 43**.

Unix Setup

1. Add the contents of the `odbc.template` file supplied with the Easysoft ODBC-InterBase 7 Driver installation to the driver manager `odbc.ini` file:

```
[ib6]

Driver       = INTERBASE

Description = InterBase driver

Database     = server:/path/to/database.gdb

User         = nick

Password     = easysoft

With_Schema = 0

Dialect      = 3

Charset      =

Role         =

Nowait       = 0

OldMetaData = 0

ExecProc     = 0

LeaveQuotes = 0
```

2. Amend the `Database, User` and `Password` attributes in the new `odbc.ini` section to suit your specific user installation.

    For details of the other attributes for the Easysoft ODBC-InterBase 7 Driver that can be set in `odbc.ini`, refer to .

Unix

3. Add the contents of the `odbcinst.template` file supplied with the Easysoft ODBC-InterBase 7 Driver installation to the driver manager `odbcinst.ini` file:

```
[INTERBASE]
Description = Easysoft Driver for InterBase
Driver      = /usr/local/lib/libib7odbc.so
Setup       = /usr/local/lib/libib7odbcS.so
FileUsage   = 1
DontDLClose = 1
```

4. Amend the `Driver and Setup` attributes to the reflect the install directory you chose in **step 2 on page 31**.

Attribute Fields

This section lists the attributes which can be set for the Easysoft ODBC-InterBase 7 Driver in a table showing:

- the label of the attribute on the Windows dialog box

- the entry required when editing the Unix `odbc.ini` file.

- the string to be used in a call to `SQLDriverConnect` or in a connect string for ADO type use.

Attributes which are text fields are displayed as "`value`".

Attributes which are logical fields can contain either 0 (to set to off) or 1 (to set to on) and are displayed as "`0|1`".

If an attribute can contain one of several specific values then each possible entry is displayed and separated by a pipe symbol.

For example, in the statement:

`DIALECT=1|2|3`

the value entered may be "1", "2" or "3".

DSN NAME

The name of the User or System data source to be created, as used by the application when calling the `SQLConnect` or `SQLDriverConnect` functions..

Interface	Value
DSN Dialog Box (Windows)	DSN
odbc.ini file (Unix)	[value]
Connect String	DSN=value

DSN DESCRIPTION

Descriptive text which may be retrieved by certain applications to describe the data source.

Interface	Value
DSN Dialog Box (Windows)	Description
odbc.ini file (Unix)	Description=value
Connect String	Not Used

DATABASE NAME

The database name passed to the InterBase `Connect` function.

Interface	Value
DSN Dialog Box (Windows)	Database
odbc.ini file (Unix)	Database=value
Connect String	DATABASE=value

This attribute may be entered in several formats, depending on where the database is located and the connection method required.

If a value is specified in the connect string then any entry in the DSN will be ignored (see **"UID Override" on page 54**).

The Easysoft ODBC-InterBase 7 Driver may prompt for this attribute if no value is supplied.

- Connecting to a local database (i.e. on the same machine as the client):

  The database string contains only the location of the InterBase database.

For example, on Windows:

```
DATABASE=c:\programfiles\borland\interbase\
examples\database\employee.gdb
```

or Linux:

```
DATABASE=/opt/interbase/isc4.gdb
```

As this type of connection is made in the process context of the client application, it can fail if the privileges of a user do not permit database access (e.g. if the connection is being made by a Web Server).

- Specifying a remote database connection:

  The client process uses a network protocol to connect to a server process, which then connects to the server database, so avoiding many problems with permissions encountered when connecting to a local database.

  The server may be located either on a remote computer, or on the same computer as the client and the communication protocol used may be specified by the contents of the database string.

  To establish a connection using TCP/IP, prefix the database with "`servername:`" (where "`servername:`" resolves via the normal IP name lookup to a machine on the network).

  It may be possible to use a dotted quad IP address instead of "`servername`" , but this is dependent on the IP protocol stack being used.

  For example, to connect via TCP/IP to a server on a Windows machine:

```
DATABASE=servername:c:\program files\

borland\interbase\examples\database\employee.gdb
```

or Linux:

```
DATABASE=servername:/opt/interbase/isc4.gdb
```

- Connecting via NetBIOS and Named Pipes:

```
DATABASE=\\servername\program files\

borland\interbase\examples\database\employee.gdb
```

- Connecting with a mapped drive:

```
DATABASE=X:\program files\borland\

interbase\examples\database\employee.gdb
```

U S E R   N A M E

The name of the user that will be supplied to InterBase to authenticate the connection.

Interface	Value
DSN Dialog Box (Windows)	User Name
odbc.ini file (Unix)	User=value
Connect String	USER=value

Note that this attribute must contain a valid user name for the InterBase server database.

If a value is specified in the connect string then any entry in the DSN will be ignored (see **"UID Override" on page 54**).

The Easysoft ODBC-InterBase 7 Driver may prompt for this attribute if no value is supplied.

P ASSWORD

The password supplied to InterBase to authenticate the connection

Interface	Value
DSN Dialog Box (Windows)	Password
odbc.ini file (Unix)	Password=value
Connect String	PASSWORD=value

If a value is specified in the connect string then any entry in the DSN will be ignored (see **"UID Override" on page 54**).

The Easysoft ODBC-InterBase 7 Driver may prompt for this attribute if no value is specified.

R OLE

An optional InterBase role by which a user can connect.

Interface	Value
DSN Dialog Box (Windows)	Role
odbc.ini file (Unix)	Role=value
Connect String	ROLE=value

See the InterBase documentation for more details on the use of roles.

S CHEMA   I NFORMATION

Specifies that owner and schema information be returned from metadata calls.

Interface	Value
DSN Dialog Box (Windows)	With Schema
odbc.ini file (Unix)	With_Schema=0|1
Connect String	WITH_SCHEMA=0|1

The InterBase metadata store contains a value for the Owner or Schema of a table.

So, for example, if the following CREATE TABLE statement was executed while logged in as USR1:

```
CREATE TABLE TEST1 (I INTEGER NOT NULL PRIMARY KEY)
```

a table called TEST1 would be created and its schema would be set to USR1.

However, InterBase does not have the ability to use this information in later SQL statements, so for instance

```
SELECT * FROM USR1.TEST1
```

would fail with a syntax error.

To avoid this, the default behaviour of the Easysoft ODBC-InterBase 7 Driver is to not return this information from metadata calls (such as `SQLTables`) unless this attribute is set.

Setting this attribute will cause most applications to fail when used with the Easysoft ODBC-InterBase 7 Driver.

DEADLOCKS

Instructs the Easysoft ODBC-InterBase 7 Driver to report update conflicts.

Interface	Value
DSN Dialog Box (Windows)	No Wait
odbc.ini file (Unix)	Nowait=0|1
Connect String	NOWAIT=0|1

InterBase uses a transaction model that avoids deadlocks between conflicting updates from concurrent applications.

This is achieved by pausing the transaction within any secondary application until the active transaction within a primary application has finished and then executing that secondary transaction.

By default, the Easysoft ODBC-InterBase 7 Driver will also act in this manner, but setting this attribute to 1 will return an error message reporting the update conflict.

SQL DIALECT

The SQL dialect passed to the server when processing SQL queries.

Interface	Value
DSN Dialog Box (Windows)	Dialect
odbc.ini file (Unix)	Dialect=1|2|3
Connect String	DIALECT=1|2|3

For more details consult the InterBase documentation detailing the difference between dialects.

See **"Leave Quotes" on page 53** for details of how amending the value of this attribute may also affect the way in which the Easysoft ODBC-InterBase 7 Driver converts certain SQL strings.

METADATA PRECISION

Indicates to the Easysoft ODBC-InterBase 7 Driver not to use the precision field in metadata queries.

Interface	Value
DSN Dialog Box (Windows)	Pre IB6 MetaData
odbc.ini file (Unix)	OldMetaData=0|1
Connect String	OLDMETADATA=0|1

In current versions of InterBase, the metadata describing NUMERIC columns contains both a precision and scale value, so that, for instance, a column created as

```
NUMERIC (10, 2)
```

would have a precision of 10 and a scale of 2.

However, in versions of InterBase prior to version 6, this column would have been stored in a double precision field, which cannot supply a fixed precision value, so the metadata for this version contains a column length only (8 in the case of a double precision field), rather than the precision value.

The Easysoft ODBC-InterBase 7 Driver will convert the length value into a precision value, but in this case it would not be a 10, but an 18, this being the maximum precision that could be stored in the field.

In most cases the Easysoft ODBC-InterBase 7 Driver will attempt to determine if the metadata contains a precision value without help, but there are some InterBase version 6 databases that do not have the precision value.

This attribute indicates to the Easysoft ODBC-InterBase 7 Driver not to use the precision field in metadata queries.

The default setting is off, which is correct in most cases, but this attribute should be set if problems are encountered with the `SQLColumns` ODBC API.

E X E C U T E   P R O C E D U R E

Specifies which of two InterBase methods translated from the ODBC syntax should be used to execute stored procedures.

Interface	Value
DSN Dialog Box (Windows)	Execute Proc
odbc.ini file (Unix)	ExecProc=0|1
Connect String	EXECPROC=0|1

InterBase executes stored procedures in two ways, one of which produces a result set and another (the EXECUTE PROCEDURE function) which may return a set of values in an output parameter instead of a result set.

If an application employs a direct InterBase stored procedure call then the Easysoft ODBC-InterBase 7 Driver will adapt to match that usage if this attribute is set.

The default behaviour of the Easysoft ODBC-InterBase 7 Driver is not to call the `EXECUTE PROCEDURE` function.

This means that given an ODBC SQL syntax of

```
{CALL SPNAME (ARG1,ARG2)}
```

where `SPNAME` is the name of the stored procedure, and `ARG1` and `ARG2` are optional arguments for the procedure, the Easysoft ODBC-InterBase 7 Driver will pass the statement

```
SELECT * FROM SPNAME (ARG1,ARG2)
```

to the server, which will generate a result set that can be accessed in the same way as any result set.

Alternatively, if this attribute is set then this statement will be converted to

```
EXECUTE PROCEDURE SPNAME (ARG1,ARG2)
```

which may not return a result set.

No data will be returned unless one of the procedure arguments has been defined as an output parameter into which values can be placed.

However, the Easysoft ODBC-InterBase 7 Driver will generate a virtual result set consisting of a single row that contains any output values from the procedure, because an application can cause the server process to fail if it calls InterBase with the `SQLFetch` function in this state.

L E A V E   Q U O T E S

Instructs the Easysoft ODBC-InterBase 7 Driver to strip double quotes from any SQL string if the SQL Dialect attribute (see **"SQL Dialect" on page 49**) is set to 1 or 2.

Interface	Value
DSN Dialog Box (Windows)	Leave Quotes
odbc.ini file (Unix)	LeaveQuotes=0|1
Connect String	LEAVEQUOTES=0|1

Although SQL92 makes use of both single and double quotes in SQL strings, they have different meanings.

Given the SQL statement

```
SELECT * from TABLE WHERE
"COLUMN NAME" = 'COLUMN VALUE'
```

the result set would contain all the rows where the column with a name of "COLUMN NAME" contains the value 'COLUMN VALUE'.

Double quotes are used to quote identifiers (in this case column names) and single quotes are used to create character literals (normally values with a type of SQL_VARCHAR) containing printable characters.

InterBase treats quotes in this way when using Dialect 3, but double and single quotes are treated the same manner when using Dialect 1 or Dialect 2, so that in the above example the expression

```
WHERE "COLUMN NAME" = 'COLUMN VALUE'
```

would be identical to

```
WHERE 'COLUMN NAME' = 'COLUMN VALUE'
```

which would always evaluate to false.

This can cause problems with applications that use quotes around column and table names, because even though the Easysoft ODBC-InterBase 7 Driver is queried as to the character to use for quoted identifiers, at least one application (Microsoft Access) fails if the application is instructed not to use any character for this purpose.

To overcome this issue, if the SQL Dialect attribute is set to 1 or 2 then the Easysoft ODBC-InterBase 7 Driver will strip double quotes from any SQL string by default.

This default operation may be disabled by setting this attribute.

UID OVERRIDE

Allows the user and password information passed in as part of the connect string in the `SQLDriverConnect` function and the user and password used in the `SQLConnect` function to be overridden by the values in the DSN or `.ini` file.

Interface	Value
DSN Dialog Box (Windows)	UID Override
odbc.ini file (Unix)	UIDOverride=0|1
Connect String	Not Used

This functionality is useful as some applications (e.g. Seagate Crystal Reports in server mode) will pass the Windows (rather than the InterBase) user name and password to the Easysoft ODBC-InterBase 7 Driver.

Normal use would not require the setting of this attribute.

R EAD O NLY

Restricts a database connection to read-only access.

Interface	Value
DSN Dialog Box (Windows)	Read Only
odbc.ini file (Unix)	ReadOnly=0|1
Connect String	READONLY=0|1

Only `Select` statements are permitted and no `Update`, `Insert` or `Delete` statements are allowed.

C HARACTER S ET

Allows a default InterBase character set to be specified for the database connection.

Interface	Value
DSN Dialog Box (Windows)	Character Set
odbc.ini file (Unix)	Charset=value
Connect String	CHARSET=value

See the InterBase documentation for a list of valid character sets (such as `UNICODE_FSS`).

COMMIT SELECT

Forces a call to a `Commit` statement after each call to a `Select` statement if `auto commit` mode is set.

Interface	Value
DSN Dialog Box (Windows)	Commit Select
odbc.ini file (Unix)	CommitSelect=0|1
Connect String	COMMITSELECT=0|1

This attribute is provided for those situations where the `Select` statement is calling a stored procedure that performs an update operation.

WITH DEFAULT

Returns the default column type from the `SQLColumns` statement.

Interface	Value
DSN Dialog Box (Windows)	With Default
odbc.ini file (Unix)	WithDefault=0|1
Connect String	WITHDEFAULT=0|1

This is less useful than it could be, as the BLOB that comes back is the internal BLR representation of the default value.

TRANSACTION ISOLATION

Causes the database connection to use a different default isolation method for transactions.

Interface	Value
DSN Dialog Box (Windows)	Txn Isolation
odbc.ini file (Unix)	TxnMode=0|2|8
Connect String	TXNMODE=0|2|8

- 0 = SQL_TXN_REPEATABLE_READ

  the database default; in InterBase terms, either `isc_tpb_read` or `isc_tpb_write`, depending on mode

- 2 = SQL_TXN_READ_COMMITTED

  in InterBase terms, `isc_tpb_read_committed` and `isc_tpb_rec_version`

- 8 = SQL_TXN_SERIALIZABLE

  in InterBase terms, `isc_tpb_consistency`

Any non-zero value specified in this attribute will override any isolation method specified in the calling application.

NB	The default value for the Easysoft ODBC-InterBase 7 Driver is set to 2 (SQL_TXN_READ_COMMITTED). This is NOT the same as the database default, which is 0 (SQL_TXN_REPEATABLE_READ).

The default isolation method can also be set via the ODBC API, but this attribute provides a way of setting it without altering the calling client application.

F LUSH C OMMIT

Use a `Commit` statement instead of a `Commit_Retaining` statement when writing to a database.

Interface	Value
DSN Dialog Box (Windows)	Flush Commit
odbc.ini file (Unix)	FlushCommit=0|1
Connect String	FLUSHCOMMIT=0|1

Forces a `Commit` after a `Select` statement if required (e.g. with a `Select` statement from a stored procedure that does a update).

Note that although this ensures that transactions are restarted, the visibility of altered rows in other connections can be affected.

P AD V ARCHAR

Returns VARCHAR data in the same format as CHAR data (i.e. they are not right space truncated).

Interface	Value
DSN Dialog Box (Windows)	Pad Varchar
odbc.ini file (Unix)	Pad Varchar=0|1
Connect String	PADVARCHAR=0|1

TECHNICAL REFERENCE

Technical Reference for the Easysoft ODBC-InterBase 7 Driver

This section contains extra information relating to the deployment of the Easysoft ODBC-InterBase 7 Driver.

Appendix Guide

- **ODBC Compliance**

- **Multiple transactions on a single connection**

- **IB 6 data types**

- **Runtime SQL Dialect support**

- **Rollback Retaining**

- **Chili!soft**

ODBC Compliance

The Easysoft ODBC-InterBase 7 Driver is an ODBC 3.5 driver and uses the driver manager to provide the deprecated and old ODBC 2 functions:

- The driver conforms to all the Core Level requirements

- The driver conforms to 104 and 109 of Level 1 requirements

- The driver conforms to 202, 205, 209 and 211 of Level 2 requirements

- The driver implements all ODBC 3 functions with the exception of:

  ```
  SQLBrowseConnect
  ```

  ```
  SQLBulkOperations
  ```

  ```
  SQLSetPos
  ```

Cursor support in the Easysoft ODBC-InterBase 7 Driver is restricted to FORWARD_ONLY, as this is the only cursor type supported by InterBase. As a result, the Easysoft ODBC-InterBase 7 Driver will work with ADO snapshots, but not with dynasets.

Multiple transactions on a single connection

Multiple transactions on a single connection are not supported by ODBC 3 and therefore cannot be supported by the Easysoft ODBC-InterBase 7 Driver.

IB 6 data types

The Easysoft ODBC-InterBase 7 Driver supports the DATE, TIME, TIMESTAMP and INT64 IB 6 data types.

Runtime SQL Dialect support

The required SQL Dialect can be set for a connection, but cannot be set at runtime, as it is not a statement level property.

Easysoft are considering adding this property in a future release.
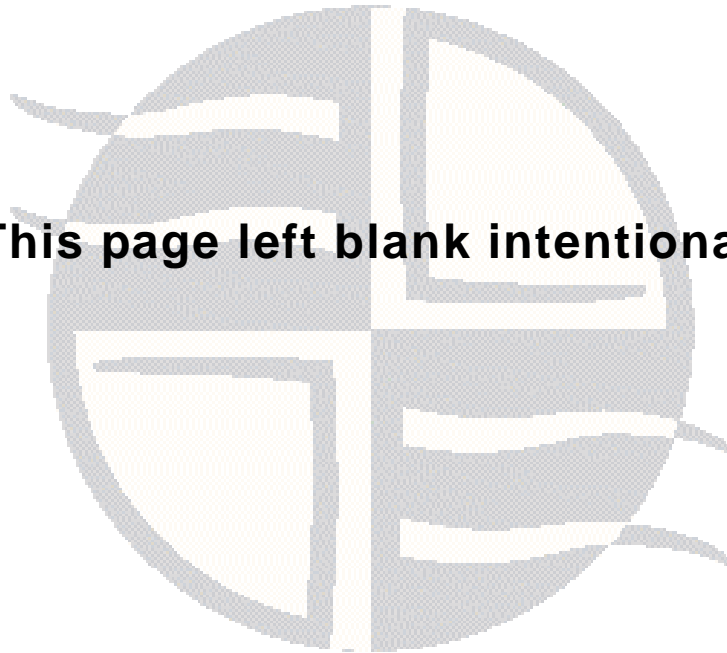
Rollback Retaining

The Easysoft ODBC-InterBase 7 Driver will support the `isc_rollback_retaining` function if it is present in a `GDS32.DLL` library.

Chili!soft

The Easysoft ODBC-InterBase 7 Driver can be configured to work with Sun Chili!Soft ASP.

Specific installation information is provided on the **Easysoft web site**.

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GLOSSARY

Terms and definitions

ADO (ActiveX Data Objects)

A Microsoft interface designed to provide a consistent method of accessing different data types, such as web pages, spreadsheets and relational databases.

API (Application Programmer Interface)

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

Application

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

Authorization code

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

Client

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

Client/Server

The architecture whereby one process (the server) keeps track of global data, and another task (the client) is responsible for formatting

and presenting the data. The client connects to the server and requests queries or actions be performed on its behalf. Often these processes run on different hosts across a local-area network.

Column

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

Database

A collection of data files.

Data source

In ODBC terms, a data source is a database or other data repository coupled with an ODBC Driver, which has been given a Data Source Name (see **"DSN" on page 65**) to identify it to the ODBC Driver Manager.

Data type

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

DBMS

Database Management System - software that handles access to a database.

Download

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

Driver

See **"ODBC driver" on page 66**.

Driver Manager

Software whose main function is to load ODBC drivers. ODBC applications connect to the Driver Manager and request a data source name (DSN). The Driver Manager loads the driver specified in the DSN's configuration file. In Windows, the ODBC Data Source Administrator is used to set up the Driver Manager.

DSN

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

Field

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

FTP

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

Host

A computer visible on the network.

HTTP

HyperText Transfer Protocol. The means of transferring web pages.

Middleware

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

License key

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

ODBC

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

ODBC driver

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

Row

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

Schema

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

Server

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

OR

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

SQL

> Structured Query Language (SQL) - an international standard text language for querying and manipulating databases.

System data source

> In the context of ODBC under Microsoft Windows, a data source which can be accessed by any user on a given system. Compare with **"User data source" on page 67**.

Table

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

TCP/IP

> Transmission Control Protocol/Internet Protocol - a standard method of accessing data on different machines.

User data source

> In the context of ODBC under Microsoft Windows, a data source which can only be accessed by a specific user on a given system. Compare with **"System data source" on page 67**.

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