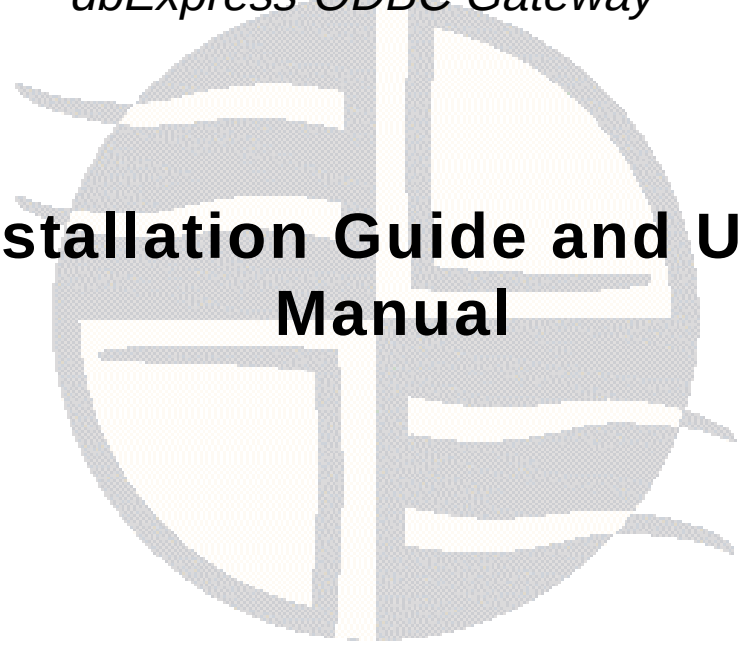
Easysoft® Data Access

dbExpress-ODBC Gateway



Installation Guide and User Manual

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PREFACE

About this manual

This manual is intended for use by anyone who wants to access ODBC data sources from applications developed using Borland's Kylix or Delphi RAD applications.

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**

  Intoduces the Easysoft dbExpress-ODBC Gateway.

- **Installation**

  Explains how to install the Easysoft dbExpress-ODBC Gateway.

- Appendices

  Comprising a Technical Reference and 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.

1 INTRODUCTION

Introducing the Easysoft dbExpress-ODBC Gateway

Easysoft Data Access is a series of programs that allow you to have heterogeneous access to any database on any platform.

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

This section explains what the Easysoft dbExpress-ODBC Gateway is and how it works, and how to obtain and test the unixODBC driver manager.

Chapter Guide

- **Deployment**
- **Functionality**
- **Compatibility**
- **Obtaining the unixODBC driver manager**
- **Testing the unixODBC driver manager**

Deployment

The Easysoft dbExpress-ODBC Gateway consists of a library which is loaded by the dbExpress part of an application.

This library then links to either the target ODBC 3 driver, or preferably a ODBC 3 driver manager which in turn links to a ODBC 2 or 3 driver:

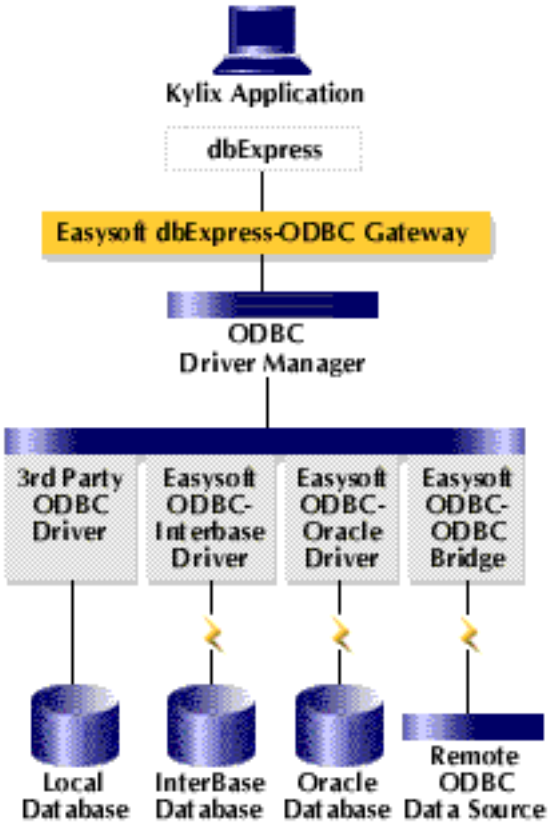

Figure 1: Easysoft dbExpress-ODBC Gateway deployment

Functionality

The Easysoft dbExpress-ODBC Gateway allows applications developed using Borland's Kylix (under Unix platforms), Delphi or C++ Builder (under Windows platforms) applications to access data in any local or remote ODBC compliant database.

It enables users to develop for ODBC and deploy against any database, anywhere on the network.

Compatibility

The Easysoft dbExpress-ODBC Gateway is compatible with both the Microsoft ODBC Driver Manager and unixODBC, the open source ODBC driver manager available on Linux and Unix platforms.

Database systems which can be accessed include Postgres, MySQL, InterBase, DB2, Oracle, Microsoft SQL Server, Access and every other database which has a Windows or Unix compatible ODBC driver.

Obtaining the unixODBC driver manager

The Easysoft dbExpress-ODBC Gateway has been developed using the driver manager supplied as part of the unixODBC source.

This should be downloaded from **http://www.unixodbc.org** and built on your target machine before using the Easysoft dbExpress-ODBC Gateway.

Testing the unixODBC driver manager

Easysoft recommend that you should prove that the connection between the driver manager, the ODBC driver and the target RDBMS is working before you start to configure the Easysoft dbExpress-ODBC Gateway, as this will help you to pinpoint the source of any problems you encounter.

The unixODBC web site (**http://www.unixodbc.org**) shows how you can use either `isql` or the unixODBC `DataManager` utility to verify your DSN setup.

2

INSTALLATION

Installing the Easysoft dbExpress-ODBC Gateway

This section explains how to install and license the Easysoft dbExpress-ODBC Gateway on Windows or Unix.

The Windows installation can be carried out by anyone.

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

Chapter Guide

- **Obtaining the Easysoft dbExpress-ODBC Gateway**
- **Installing the Easysoft dbExpress-ODBC Gateway**
- **Installing under Windows**
- **Uninstalling under Windows**
- **Installing under Unix**
- **Uninstalling under Unix**

Obtaining the Easysoft dbExpress-ODBC Gateway

There are three ways to obtain the Easysoft dbExpress-ODBC Gateway:

- 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 dbExpress-ODBC Gateway 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/kylix` 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**).

Installing the Easysoft dbExpress-ODBC Gateway

The name of the install file for the Easysoft dbExpress-ODBC Gateway varies from platform to platform, but should be of the form:

- `dbxodbc-`*`x.y.z`*`.zip` (Windows)

– OR –

- `libsqlodbc.`*`x.y.z`*`.tar.gz` (Unix)

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

Within the major version number, you should select the highest release available for your platform. Note that the installation of software of a different major version number requires a new license.

Whichever medium you choose, you should now download the file and begin the installation process.

The exact installation process depends on your operating system.

Caution! If you are upgrading your Easysoft dbExpress-ODBC Gateway installation, you must decide whether or not to remove your previous installation before continuing. Generally, Easysoft advise you to remove any previous version and reboot before installing.

Refer to the section relevant to your platform to continue:

- **"Installing under Windows" on page 18**
- **"Uninstalling under Windows" on page 20**
- **"Installing under Unix" on page 21**
- **"Uninstalling under Unix" on page 23**

Installing under Windows

The distribution for the Easysoft dbExpress-ODBC Gateway under Windows consists of a zip file which contains a text file called `Readme.win32` and a dynamic link library file called `dbexpodbc.dll`.

1. To install, copy `dbexpodbc.dll` into either:

   the `C:\WINNT\System32` Windows system directory

Win 9x	Under Windows 9x, the Windows system directory is called `C:\Windows\System`.

   – OR –

   the `Delphi6\Bin` directory.

NB	If the Delphi directory is selected then the driver will only be usable within the Delphi6 IDE.

2. Edit the dbExpress setup files, which should be found in the **Program Files > Common Files > Borland Shared > DBExpress** directory.
3. In the `dbxdrivers.ini` file, add ODBC to the list of installed drivers.

   For example:

   ```
   [Installed Drivers]

   Interbase=1

   MYSQL=1

   ODBC=1
   ```

4. In the `dbxdrivers.ini` file, add an ODBC section to describe the driver:

```
[ODBC]
GetDriverFunc=getSQLDriverODBC
LibraryName=DBEXPODBC.DLL
VendorLib=ODBC32.DLL
BlobSize=-1
Database=DBNAME
HostName=ServerName
Password=password
User_Name=user
```

where `LibraryName` points to the Easysoft dbExpress-ODBC Gateway driver and `VendorLib` indicates the Microsoft ODBC driver manager.

5. In the connections file `dbxconnections.ini`, add a section to describe your specific data source:

> **NB**
>
> This example adds a DSN called `ib6` (in this case to InterBase).
>
> The driver type is not important to the Easysoft dbExpress-ODBC Gateway, as the loading of the ODBC driver is performed by the driver manager.

```
[ib6]
BlobSize=-1
Database=ib6
DriverName=ODBC
HostName=ServerName
```

```
Password=masterkey

User_Name=sysdba

RowSetSize=0
```

`Database` indicates the DSN that will be connected to using ODBC. `HostName` is unused. `Password` and `User_Name` are passed to `SQLConnect` when your data source is accessed.

This should be all that is needed to make the connection.

Uninstalling under Windows

To uninstall the Easysoft dbExpress-ODBC Gateway under Windows, delete the `dbexpodbc.dll` file from the install directory into which they were copied, as specified in **step 1 on page 18**.

Installing under Unix

The distribution file for the Easysoft dbExpress-ODBC Gateway under Unix consists of a text file called `Readme` and a dynamic shared library called `libsqlodbc`.

To install:

1. Copy all the `libsqlodbc.so*` files to a location that the dynamic linker on the system can find, such as `/usr/lib`, `/lib` or `/usr/local/lib` (if it is included in `/etc/ld.so.conf`).
2. Edit the Borland driver and connection setup files, which are named `$HOME/.borland/dbxdrivers` and `$HOME/.borland/dbxconnections` respectively.
3. In the `dbxdrivers.ini` file, add ODBC to the list of installed drivers.

   For example:

   ```
   [Installed Drivers]

   Interbase=1

   MYSQL=1

   ODBC=1
   ```

4. In the `dbxdrivers.ini` file, add an ODBC section to describe the driver:

   ```
   [ODBC]

   GetDriverFunc=getSQLDriverODBC

   LibraryName=libsqlodbc.so

   VendorLib=libodbc.so

   BlobSize=-1
   ```

```
Database=DBNAME

HostName=ServerName

Password=password

User_Name=user
```

where `LibraryName` points to the Easysoft dbExpress-ODBC Gateway driver and `VendorLib` indicates the Microsoft driver manager.

5. In the connections file `dbxconnections.ini`, add a section to describe your specific data source:

> **NB**
>
> This example adds a DSN called `ib6` (in this case to InterBase).
>
> The driver type is not important to the Easysoft dbExpress-ODBC Gateway, as the loading of the ODBC driver is performed by the driver manager.

```
[ib6]

BlobSize=-1

Database=ib6

DriverName=ODBC

HostName=ServerName

Password=masterkey

User_Name=sysdba
```

`Database` indicates the DSN that will be connected to using ODBC. `HostName` is unused. `Password` and `User_Name` are passed to `SQLConnect` when your data source is accessed.

This should be all that is needed to make the connection.

Uninstalling under Unix

To uninstall the Easysoft dbExpress-ODBC Gateway under Unix, delete all the `libsqlodbc.so*` files from the install directory into which they were copied, as specified in **step 1 on page 21**.

TECHNICAL REFERENCE

A

Technical Reference

This section contains extra information relating to the deployment of the Easysoft dbExpress-ODBC Gateway.

Appendix Guide

- **Shared ODBC functions**
- **Compliance**
- **Compliance**
- **Problems seeing SQLServer tables**
- **Build Issues**
- **Query Issues**

Shared ODBC functions

If you wish either to connect directly to a driver or via another driver manager, this is the list of ODBC functions that the Easysoft dbExpress-ODBC Gateway driver expects to find in the shared library referenced by the `VendorLib` setting in the drivers file:

`SQLAllocHandle`

`SQLFreeHandle`

`SQLSetEnvAttr`

`SQLConnect`

`SQLDriverConnect`

`SQLDisconnect`

`SQLGetDiagRec`

`SQLGetInfo`

`SQLTables`

`SQLFreeStmt`

`SQLFetch`

`SQLNumResultCols`

`SQLColAttribute`

`SQLGetData`

`SQLColumns`

`SQLPrepare`

`SQLExecute`

`SQLExecDirect`

```
SQLRowCount
SQLStatistics
SQLCloseCursor
SQLPrimaryKeys
SQLNumParams
SQLBindParameter
SQLDescribeParam
SQLEndTran
SQLSetConnectAttr
SQLProcedures
SQLMoreResults
SQLProcedureColumns
SQLGetConnectAttr
SQLGetCursorName
SQLSetStmtAttr
SQLGetStmtAttr
```

Compliance

Note that many Linux ODBC drivers (**PostgreSQL**, for example) are still only ODBC 2 compliant and therefore will not work directly without a driver manager.

The use of an ODBC 3 driver manager will solve this problem.

Connectivity

The Easysoft dbExpress-ODBC Gateway has been used succesfully with the following drivers:

- **PostgreSQL** (part of the unixODBC distribution).
- The **Easysoft ODBC-Interbase Driver**.
- The **Easysoft ODBC-ODBC Bridge** to Microsoft SQL Server and Microsoft Access.

If you have successfully used other drivers, please let us know and they will be added to this list.

Problems seeing SQLServer tables

There can be a problem when connecting to SQLServer databases which is caused by the dbExpress interface setting the schema name to the user name in the `connection ini` file.

This causes tables in the data source to be invisible.

For instance, in the following `connection ini` definition (where the user name is an NT user account), when the tables call is made the dbExpress interface will set the schema of the `SQLTables` call to "Nick Gorham":

```
[sql_server]
BlobSize=-1
Database=sql1
DriverName=ODBC
Password=pwd
User_Name=Nick Gorham
```

This may be what you want, but in most cases it won't be. The solution is to use the alternative connection method, encode the user name in the connect string and leave the user name field empty, so that the tables call is made with no specified schema:

```
[sql_server]
BlobSize=-1
Database=DSN=sql1;UID=Nick Gorham;PWD=pwd
DriverName=ODBC
Password=
User_Name=
```

Build Issues

If you are using Kylix 1 and it has stopped working with build 1.0.18 of the Easysoft dbExpress-ODBC Gateway, then please contact Easysoft via **support@easysoft.com** to obtain an alternative build, as version 1.0.18 has been linked to work with Kylix 2 only.

Note that this restriction with Kylix 1 is only present in the trial driver, because of the need to create a splash screen.

Query Issues

CLX SQL code in Delphi contains a default rowset size of 20 that all other dbExpress drivers appear to ignore.

If you find you are only getting 20 rows back from a query then add the following line to your code:

```
Params.Values['ROWSETSIZE'] := '0';
```

GLOSSARY

B

Terms and definitions

API (Application Programmer Interface)

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

Application

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

Authorization code

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

Client

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

Client/Server

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

Column

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

Database

A collection of data files.

Data source

In ODBC terms, a data source is a database or other data repository coupled with an ODBC Driver, which has been given a Data Source Name (see **"DSN" on page 31**) 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**.

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 33**.

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 33**.

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