## **Easysoft Data Access**

Easysoft ODBC-Quickbooks Desktop Driver

**User's Guide** 

This manual documents version 1.0.n of the Easysoft ODBC-QuickBooks Desktop Driver.

Publisher: Easysoft Limited

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### **PREFACE**

### About this manual

This manual is intended for use by anyone who wants to install the Easysoft ODBC-QuickBooks Desktop Driver, configure it, and then access QuickBooks Desktop from an ODBC-enabled application.

### **Chapter Guide**

- Notational Conventions
- Typographical Conventions
- Contents
- Trademarks

### Displaying the Manual

This manual is available in the following formats:

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

### **Notational Conventions**

A note box provides additional information that may further your understanding of a particular topic in this manual:

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

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

### Linux

On Linux, you must log on as the root user to make many important changes.

A caution box provides 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

This manual uses the following typographical conventions:

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

Click **Next** to continue.

 Commands to be typed are displayed in a monotype font, for example:

At the command prompt, type admin.

 File listings and system names (such as file names, directories and database fields) are displayed in a monotype font.

### Contents

Introduction

Introduces the Easysoft ODBC-QuickBooks Desktop Driver.

Installation

Explains how to install the Easysoft ODBC-QuickBooks Desktop Driver.

Configuration

Explains how to configure the Easysoft ODBC-QuickBooks Desktop Driver.

Appendices

Technical Reference and Glossary.

### Trademarks

Throughout this manual, *Windows* refers generically to Microsoft Windows 7, 8, 2012 R2, 10, 2016, 2019 or 2022, 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*.

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### **CHAPTER 1 INTRODUCTION**

Introducing the Easysoft ODBC-QuickBooks Desktop Driver

The Easysoft ODBC-QuickBooks Desktop Driver is an ODBC 3.51 driver for QuickBooks Desktop. It lets ODBC-enabled applications access QuickBooks Desktop from Windows platforms.

### **Chapter Guide**

- Overview
- Product Status

#### INTRODUCTION

Easysoft ODBC-QuickBooks Desktop Driver

### Overview

The Easysoft ODBC-QuickBooks Desktop Driver connects ODBC-enabled applications on Windows to QuickBooks Desktop. For example, access QuickBooks Desktop from Excel, Access, PHP, SQL Server and more.

### **Product Status**

The Easysoft ODBC-QuickBooks Desktop Driver is currently available on Windows platforms. The most up to date list of Easysoft ODBC-QuickBooks Desktop Driver platforms is available at:

http://www.easysoft.com/products/data\_access/odbc-quickbooks-driver/index.html

Software problems can be reported to **support@easysoft.com** by users who have either purchased support or registered at the Easysoft web site at **http://www.easysoft.com** and are evaluating Easysoft products.

### **CHAPTER 2 INSTALLATION**

Installing the Easysoft ODBC-QuickBooks Desktop Driver

This chapter explains how to install, license and remove the Easysoft ODBC-QuickBooks Desktop Driver on Windows.

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

### Chapter Guide

- Obtaining the Easysoft ODBC-QuickBooks Desktop Driver
- What to Install
- Installing the Easysoft ODBC-QuickBooks Desktop Driver on Windows
- Uninstalling the Easysoft ODBC-QuickBooks Desktop Driver on Windows

### Obtaining the Easysoft ODBC-QuickBooks Desktop Driver

There are three ways to obtain the Easysoft ODBC-QuickBooks Desktop Driver:

- The Easysoft web site is available 24 hours a day at http://www.easysoft.com and lets you download product releases and documentation.
  - Choose **Download** from the Easysoft ODBC-QuickBooks Desktop Driver section of the web site and then choose the platform release that you require.
  - If you have not already done so, you will need to register at the web site to download Easysoft software.
- The Easysoft FTP site is available 24 hours a day at ftp://ftp.easysoft.com and lets you download free patches, upgrades, documentation and beta releases of Easysoft products, as well as definitive releases.
  - Change to the pub/quickbooks subdirectory and then choose the platform release that you require.

Easysoft ODBC-QuickBooks Desktop Driver

### What to Install

The name of the Easysoft ODBC-QuickBooks Desktop Driver distribution file varies from platform to platform. The file name format is:

odbc-quickbooks\_desktop-x\_y\_z-windows.exe (Windows)

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

platform depends on the operating system distribution you require. File names may have this format:

Note

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

To continue, refer to the installation instructions for your platform:

 "Installing the Easysoft ODBC-QuickBooks Desktop Driver on Windows" on page 18

### Installing the Easysoft ODBC-QuickBooks Desktop Driver on Windows

### INSTALLING THE EASYSOFT ODBC-QUICKBOOKS DESKTOP DRIVER

 Execute the file distribution that you downloaded in "Obtaining the Easysoft ODBC-QuickBooks Desktop Driver" on page 16
 Follow the on screen instructions.

#### UPDATING FILES THAT ARE IN USE

To avoid rebooting your computer, the Easysoft ODBC-QuickBooks Desktop Driver installer prompts you when files that it needs to update are in use by another application or service. This frees the locked files and allows the installation to complete without a system restart.

On Windows Vista and later, the Easysoft ODBC-QuickBooks Desktop Driver installer uses the Restart Manager to locate the applications that are using files that need updating. These applications are displayed in the Files in Use dialog box. To avoid a system restart, choose **Automatically close applications and attempt to restart them after setup is complete**. The Easysoft ODBC-QuickBooks Desktop Driver installer then uses the Restart Manager to try to stop and restart each application or service in the list. If possible, the Restart Manager restores applications to the same state and with the same data that they were in before it shut them down.

Easysoft ODBC-QuickBooks Desktop Driver

On earlier versions of Windows, when the Files in Use dialog is displayed, manually shut down each application in the list and then click **Retry** to avoid a system restart.

### LICENSING ON WINDOWS

The install program starts the Easysoft License Manager (documented in the **Licensing Guide**), because you cannot use the Easysoft ODBC-QuickBooks Desktop Driver until a license is obtained.

The following types of license are available:

- a free time-limited trial license which gives you free and unrestricted use of the product for a limited period (usually 14 days).
- a full license if you have purchased the product. On purchasing the product you are given an authorization code, which you use to obtain a license.

### 1. Enter your contact details.

You MUST enter the Name, E-Mail Address and Company fields.

The **Telephone** and **Facsimile** fields are important if you require Easysoft to contact you by those methods.

The **E-Mail Address MUST** be the same as the address used to register and download from the Easysoft web site or you will be unable to obtain trial licenses.

### 2. Click Request License.

You are asked for a license type.

For a trial license click Time Limited Trial and then click Next.

The License Manager asks what software you are licensing:

Select your required version of the Easysoft ODBC-QuickBooks Desktop Driver (Standard or Remote, for example) from the drop-down list and then click **Next**.

- OR -

If you have obtained an authorization code for a purchased license, select **Non-expiring License** and then click **Next**.

The License Manager requests your authorization code.

Enter the authorization code and then click Next.

- 4. The License Manager displays a summary of the information you entered and allows you to choose the method of applying for your license.
- 5. Choose **On-line Request** if your machine is connected to the internet and can make outgoing connections to port 8884.

Easysoft ODBC-QuickBooks Desktop Driver

The License Manager then sends a request to the Easysoft license server to activate your license key automatically. This is the quickest method and results in your details being entered immediately into our support database. You can now go to **step 6 on page 22**.

NB

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

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

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

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

To use this method, click View Request, and then visit:

- http://www.easysoft.com/support/licensing/trial\_license.html (trial licenses)
- http://www.easysoft.com/support/licensing/full\_license.html
   (purchased licenses)

In the Licensing page, enter your machine number (and authorization code for purchased license), click **Submit** and your license key will be emailed to you.

NB

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

### Easysoft ODBC-QuickBooks Desktop Driver

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

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

NB

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

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

7. Click Finish in the License Manager.

The installation is complete.

### REPAIRING THE EASYSOFT ODBC-QUICKBOOKS DESKTOP DRIVER INSTALLATION

The installer can repair a broken Easysoft ODBC-QuickBooks Desktop Driver installation. For example, you can use the installer to restore missing Easysoft ODBC-QuickBooks Desktop Driver files or registry keys.

In Windows Vista and later versions of Windows:

- 1. In Control Panel, open Programs and Features.
- 2. Right-click **Easysoft ODBC-QuickBooks Desktop Driver**, and then click **Repair**.

In earlier versions of Windows:

- 1. In Control Panel, open Add or Remove Programs.
- Select Easysoft ODBC-QuickBooks Desktop Driver and click Change/Remove.

### Uninstalling the Easysoft ODBC-QuickBooks Desktop Driver on Windows

This section explains how to remove the Easysoft ODBC-QuickBooks Desktop Driver from your system.

### REMOVING EASYSOFT ODBC-QUICKBOOKS DESKTOP DRIVER DATA SOURCES

Easysoft ODBC-QuickBooks Desktop Driver data sources are not removed when you uninstall. You therefore do not need to recreate your Easysoft ODBC-QuickBooks Desktop Driver data sources if you reinstall or upgrade. If you do not want to keep your Easysoft ODBC-QuickBooks Desktop Driver data sources, use ODBC Administrator to remove them, **before** uninstalling the Easysoft ODBC-QuickBooks Desktop Driver.

1. In the Windows Run dialog box, type:

%windir%\syswow64\odbcad32.exe

2. Select the data source in the **ODBC Administrator** and click the **Remove** button.

### REMOVING THE EASYSOFT ODBC-QUICKBOOKS DESKTOP DRIVER

In Windows Vista and later versions of Windows:

- 1. In Control Panel, open Programs and Features.
- 2. Double-click Easysoft ODBC-QuickBooks Desktop Driver.

In earlier versions of Windows:

- 1. In Control Panel, open Add or Remove Programs.
- Select Easysoft ODBC-QuickBooks Desktop Driver and click Change/Remove.

The uninstall process is complete.

Any licenses you obtained for the Easysoft ODBC-QuickBooks Desktop Driver and other Easysoft products are held in the Windows registry.

When you uninstall, your licenses are not removed so you do not need to relicense the product if you reinstall or upgrade.

### **CHAPTER 3 CONFIGURATION**

Configuring the Easysoft ODBC-QuickBooks Desktop Driver

The Easysoft ODBC-QuickBooks Desktop Driver is installed on the computer where your applications are running. ODBC applications access ODBC drivers through the ODBC Driver Manager and a data source. The data source tells the Driver Manager which ODBC driver to load, how the driver should connect to QuickBooks. This chapter describes how to create data sources, use DSN-less connections and configure the Easysoft ODBC-QuickBooks Desktop Driver.

Before setting up a data source, you must have successfully installed the Easysoft ODBC-QuickBooks Desktop Driver.

For Easysoft ODBC-QuickBooks Desktop Driver installation instructions, see "Installation" on page 15.

### Chapter Guide

- Configuring the Easysoft ODBC-QuickBooks Desktop Driver
- Setting Up Data Sources on Windows
- Attribute Fields
- DSN-less Connections

### **CONFIGURATION**

Easysoft ODBC-QuickBooks Desktop Driver

## Configuring the Easysoft ODBC-QuickBooks Desktop Driver

This section describes how to configure the Easysoft ODBC-QuickBooks Desktop Driver to connect to QuickBooks by using a data source or a DSN-less connection string. The section assumes you are, or are able to consult with, a database administrator.

Refer to the section relevant to your platform to continue:

"Setting Up Data Sources on Windows" on page 27

### Setting Up Data Sources on Windows

To connect an ODBC application on a Windows machine to a Salesforce database:

- 1. Open ODBC Data Source Administrator:
  - In the Windows Run dialog box, type:

%windir%\syswow64\odbcad32.exe

The ODBC Data Source Administrator dialog box is displayed:

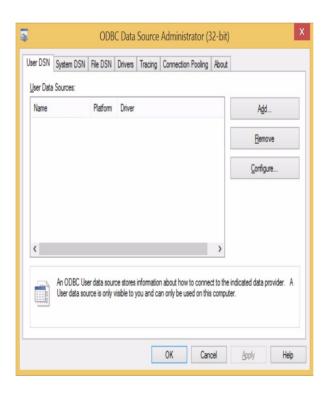


Figure 1: The ODBC Data Source Administrator dialog box

Easysoft ODBC-QuickBooks Desktop Driver

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

- OR -

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

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

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

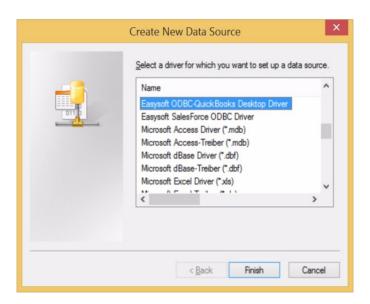


Figure 2: The Create New Data Source dialog box

4. Select Easysoft ODBC-QuickBooks Desktop Driver and click Finish.

Easysoft ODBC-QuickBooks Desktop Driver

The Easysoft ODBC-QuickBooks Desktop Driver DSN Setup dialog box is displayed:

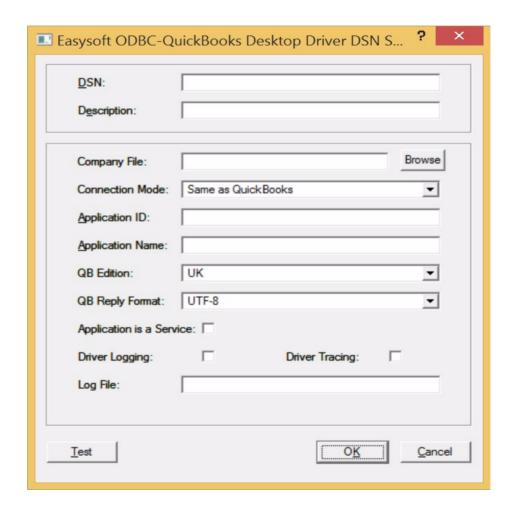


Figure 3: The Easysoft ODBC-QuickBooks Desktop Driver DSN Setup dialog box

For details of the attributes that can be set on this dialog box, see "Attribute Fields" on page 31.

#### CONFIGURATION

Easysoft ODBC-QuickBooks Desktop Driver

QuickBooks Desktop is a 32-bit application, which can only be used with 32-bit libraries. The Easysoft ODBC-QuickBooks Desktop Driver is a library and is therefore 32-bit as well. The implications of this are:

# 64-bit Applications

You need to use the 32-bit version of Microsoft's ODBC Administrator, which you can access by typing the following command in the Windows Run Dialog box:

%windir%\syswow64\odbcad32.exe

If you want to use the Easysoft ODBC-QuickBooks Desktop Driver to connect a 64-bit application to QuickBooks, you also need to install the Easysoft ODBC-ODBC Bridge and enable the Application is a Service Easysoft ODBC-QuickBooks Desktop Driver attribute.

Easysoft ODBC-QuickBooks Desktop Driver

### Attribute Fields

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

- The label of the attribute on the Windows dialog box
- 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 " $0 \mid 1$ ".

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

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

#### CONFIGURATION

Easysoft ODBC-QuickBooks Desktop Driver

#### DESCRIPTION

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

Interface	Value
DSN Dialog Box (Windows)	Description
Connect String	Not Used

### COMPANY FILE

The full path to your QuickBooks file (.qbw). For example, C:\Users\Public\Documents\Intuit\QuickBooks\Sample Company Files\QuickBooks 2014\Sample Pro ServiceBased.gbw.

If you choose to specify a file, QuickBooks does not have to be running. (Although connecting to a named file will cause a QuickBooks instance to be launched in the background.)

By default, the Easysoft ODBC-QuickBooks Desktop Driver will open the company file that's currently open in QuickBooks, which means that you can switch between files without having to create separate data sources for each company file.

Interface	Value
DSN Dialog Box (Windows)	Company File
Connect String	COMPANYFILE=value

### CONNECTION MODE

How to open a QuickBooks file.

Easysoft ODBC-QuickBooks Desktop Driver

If you choose Same as Quickbooks, the Easysoft ODBC-QuickBooks Desktop Driver will use whatever mode is currently set on the company file.

If you choose Multiuser, the Easysoft ODBC-QuickBooks
Desktop Driver will set the file to Multi-user mode, where multiple
users can update the file simultaneously.

If you require exclusive write access to the file (for record deletes for example), select Single User.

Interface	Value
DSN Dialog Box (Windows)	Connection Mode
Connect String	MODE=0   1   2 0 is Single User 1 is Multi User 2 is Same as Quick- Books

Easysoft ODBC-QuickBooks Desktop Driver

### APPLICATION ID

The Application ID is a text value that identifies the Easysoft ODBC-QuickBooks Desktop Driver to QuickBooks. When you first connect, Quickbooks asks you to allow the driver to access your QuickBooks data. The Application ID (and Application Name) are then stored in QuickBooks. The Application ID is used internally in QuickBooks and is exposed in the QuickBooks log file qbsdklog.txt.

Interface	Value
DSN Dialog Box (Windows)	Application ID
Connect String	APPID=value

#### APPLICATION NAME

The Application Name is a descriptive text value that identifies the Easysoft ODBC-QuickBooks Desktop Driver to QuickBooks. After you allow the Easysoft ODBC-QuickBooks Desktop Driver to access your QuickBooks data, the Application Name is stored in QuickBooks under Edit > Preferences > Integrated Applications > **Company Preferences.** 

Although you can use the same Application Name and Application ID across multiple Easysoft ODBC-QuickBooks Desktop Driver data sources, you may choose to use different values. For example, you might use one pair of Application IDs and Names to identify a connection from Excel, and another pair to identify a connection from Access.

Interface	Value
DSN Dialog Box (Windows)	Application ID
Connect String	APPNAME=value

### QB EDITION

The QuickBooks editions supported by the Easysoft ODBC-QuickBooks Desktop Driver. Different editions of Quickbooks have different tables, and so you need to make sure that you choose the correct edition.

Interface	Value
DSN Dialog Box (Windows)	QB Edition
Connect String	EDITION = 0   1   2 0 is UK 1 is US 2 is Canada

Easysoft ODBC-QuickBooks Desktop Driver

#### CONFIGURATION

#### QB REPLY FORMAT

How non ASCII characters returned by the Easysoft ODBC-QuickBooks Desktop Driver are encoded.

If you set this to HTML, a non ASCII character is returned as an HTML entity. For example, a pound symbol (£) is returned as £.

If you set this to HTML (Modified), a non ASCII character is returned as an extended ASCII character. For example, a pound symbol (£) is returned as £.

Interface	Value
DSN Dialog Box (Windows)	QB Reply Format
Connect String	RESPONSE=0   1   2
	0 is UTF-8
	1 is HTML
	2 is HTML Modified

#### APPLICATION IS A SERVICE

Enable this setting if the application you want to connect to QuickBooks is a Windows service. For example, the Oracle listener (DG4ODBC) or the Easysoft ODBC-ODBC Bridge server.

Interface	Value
DSN Dialog Box (Windows)	Application is a Service
Connect String	Service=Yes   No

Easysoft ODBC-QuickBooks Desktop Driver

#### DRIVER LOGGING

If you experience a problem when using the Easysoft ODBC-QuickBooks Desktop Driver, Easysoft Technical Support may ask you to enable driver logging to help provide you with a solution.

Interface	Value
DSN Dialog Box (Windows)	Driver Logging
Connect String	Logging = Yes   No

### DRIVER TRACING

If you experience a problem when using the Easysoft ODBC-QuickBooks Desktop Driver, Easysoft Technical Support may ask you to enable driver tracing to help provide you with a solution.

Interface	Value
DSN Dialog Box (Windows)	Driver Tracing
Connect String	Tracing = Yes   No

### CONFIGURATION



### LOG FILE

The file where debug and trace information from the Easysoft ODBC-QuickBooks Desktop Driver gets written. For example, C:\Windows\Temp\QB.log.

Interface	Value
DSN Dialog Box (Windows)	Log File
Connect String	LOGFILE = value

## EASYSOFT ODBC-QUICKBOOKS DESKTOP DRIVER

Easysoft ODBC-QuickBooks Desktop Driver

## **DSN-less Connections**

In addition to using a data source, you can also connect to a database by using a DSN-less connection string of the form:

SQLDriverConnect(..."connection string"...)

An example *connection\_string* is:

DRIVER={Easysoft ODBC-QuickBooks Desktop
Driver};appid=QBFROMEXCELID;AppName=QBFROMEXCELID;Mode=2;



## **APPENDIX A TECHNICAL REFERENCE**

Technical Reference for the Easysoft ODBC-Quickbooks Desktop Driver

This section contains extra information relating to the deployment of the Easysoft ODBC-Quickbooks Desktop Driver.

## Appendix Guide

- ODBC Conformance
- Inserting and Updating QuickBooks Data
- Tracing

### TECHNICAL REFERENCE

Easysoft ODBC-Quickbooks Desktop Driver

## **ODBC** Conformance

The Easysoft ODBC-Quickbooks Desktop Driver complies with the ODBC 3.51 specification.

The Easysoft ODBC-Quickbooks Desktop Driver is Level 2 compliant.

## ODBC API SUPPORT

All ODBC 3.51 calls are supported.

## Inserting and Updating QuickBooks Data

If the Easysoft ODBC-Quickbooks Desktop Driver implements a RQUseCachedID column for a table, a cache enabling requests to be batched together is available for that table.

The cache is committed or rolled back when an end transaction is sent. If your application allows you to turn autocommit off, you can execute several INSERTS or UPDATEs in one batch. For example:

```
-- AUTOCOMMIT OFF

-- BEGIN TRANSACTION

INSERT INTO BillItemLine ("VendorRef_listID",

"RefNumber", "ItemGroupLine_ItemGroupRef_ListID")

values ('8000007A-1356973501', 666, '80000089-
1349127814')

INSERT INTO BillItemLine
("ItemGroupLine_ItemGroupRef_ListID",

"RQUSeCachedID") values ('80000088-1349127627', 1
)

INSERT INTO BillItemLine
("ItemLine_ItemRef_ListID", "RQUSeCachedID")

values ('8000001A-1356973474', 1)

-- END TRANSACTION
```

Each time a new record is inserted or a record is updated, the relevant ID (ListID or TxnID) is added to the cache along with the latest edit sequence.

When autocommit is on, RQUseCachedID or TxnID/ListID can be to insert or update records, however each insert or update is a seperate transaction.

#### TECHNICAL REFERENCE

Easysoft ODBC-Quickbooks Desktop Driver

## Tracing

The ODBC calls an application makes can be traced:

- Within the Driver Manager by an application.
- From within the Driver Manager.
- From within the Easysoft ODBC-Quickbooks Desktop Driver.

#### WITHIN THE DRIVER MANAGER BY AN APPLICATION

An application can turn tracing on in the Driver Manager by using the ODBC API SQLSetConnectAttr (...,SQL ATTR TRACE,...).

The trace file name may also be specified with the SQLSetConnectAttr attribute SQL ATTR TRACEFILE.

# FROM WITHIN THE EASYSOFT ODBC-QUICKBOOKS DESKTOP DRIVER

Driver manager trace files show all the ODBC calls applications make, their arguments and return values. Easysoft ODBC-Quickbooks Desktop Driver driver tracing is specific to the Easysoft driver and is of most use when making a support call.

## APPENDIX B GLOSSARY

### Terms and definitions

## **Application Programmer Interface (API)**

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

#### **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.

#### **Batch**

A set of SQL statements submitted together and run as a group. A script is often a series of batches submitted one after the other.

#### Column

The vertical component of a database table. A column has a name and a particular data type (for example, character, decimal, or integer).

#### Commit

To end a unit of work by releasing locks so that the database changes made by that unit of work can be perceived by other processes. This operation makes the data changes permanent.

#### Cursor

An entity that maps over a result set and establishes a position on a single row within the result set. After the cursor is positioned on a row, operations can be performed on that row, or on a block of rows starting at that position. The most common operation is to fetch (retrieve) the current row or block of rows.

### **Data Definition Language**

The subset of SQL statements that define all attributes and properties of a database and its objects. DDL statements typically start with CREATE, ALTER, or DROP.

## **Data Manipulation Language**

The subset of SQL statements that is used to retrieve and manipulate data. DML statements typically start with SELECT, INSERT, UPDATE, or DELETE.

#### Data source

A database or other data repository coupled with an ODBC Driver, which has been given a Data Source Name (see "DSN" on page 47) to identify it to the ODBC Driver Manager.

## Data type

An attribute that specifies what type of information can be stored in a column, parameter, or variable.

#### **DBMS**

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

## **Distributed query**

A single query that accesses data from multiple data sources.

#### **Driver**

See "ODBC driver" on page 49.

## **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. On 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.

#### **DSN-less connection**

A type of data connection that is created based on information in a data source name (DSN), but is stored as part of a project or application. DSN-less connections are especially useful for Web applications because they let you move the application from one server to another without re-creating the DSN on the new server.

#### 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

#### Host

A computer visible on the network.

#### Index

In a relational database, a database object that provides fast access to data in the rows of a table, based on key values. Indexes can also enforce uniqueness on the rows in a table. The primary key of a table is automatically indexed. In full-text search, a full-text index stores information about significant words and their location within a given column.

#### Isolation level

An attribute that defines the degree to which an application process is isolated from other concurrently executing application processes. Isolation levels generally relate to the behavior of an application with respect to locks.

## License key

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

#### **NULL**

An entry that has no explicitly assigned value. NULL is not equivalent to zero or blank. A value of NULL is not considered to be greater than, less than, or equivalent to any other value, including another value of NULL.

#### **ODBC**

Open Database 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.

#### Record

A group of related fields (columns) of information treated as a unit. A record is more commonly called a row in a relational database.

#### Result set

A set of row values as returned by, for example, a cursor or procedure.

#### Row

The horizontal component of a table, consisting of a sequence of values, one for each column of the table.

## **Structured Query Language (SQL)**

A standardised language for defining and manipulating data in a relational database.

#### **SQL-92**

The version of the SQL standard published in 1992. The international standard is ISO/IEC 9075:1992 Database Language SQL. The American National Standards Institute (ANSI) also published a corresponding standard (Data Language SQL X3.135-1192), so SQL-92 is sometimes referred to as ANSI SQL in the United States.

### Stored procedure

An application program, possibly containing SQL statements, that is stored on the database server and can be invoked with the SQL CALL statement.

#### **Table**

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

#### **Transaction**

An atomic series of SQL statements that make up a logical unit of work. All of the data modifications made during a transaction are either committed together as a unit or rolled back as a unit.

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