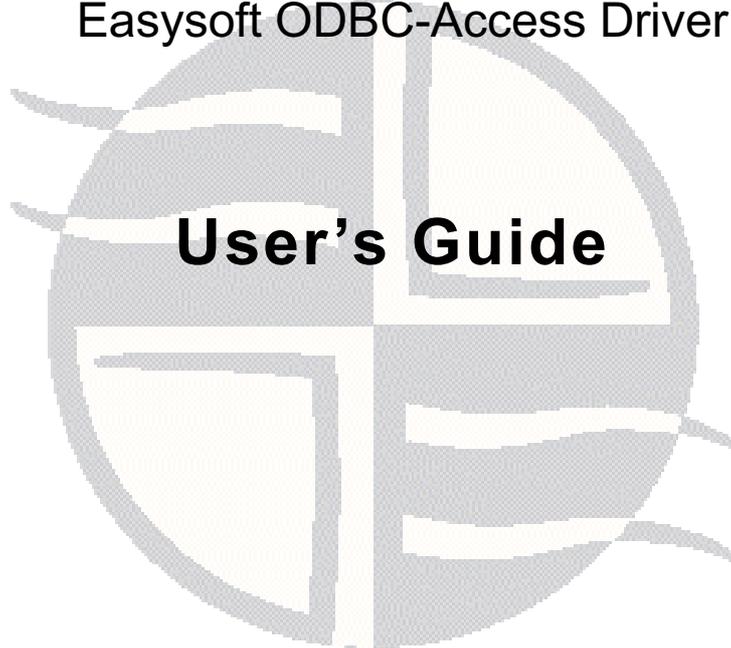


Easysoft Data Access

Easysoft ODBC-Access Driver



User's Guide

This manual documents version 0.1.n of the Easysoft ODBC-Access Driver.

Publisher: Easysoft Limited

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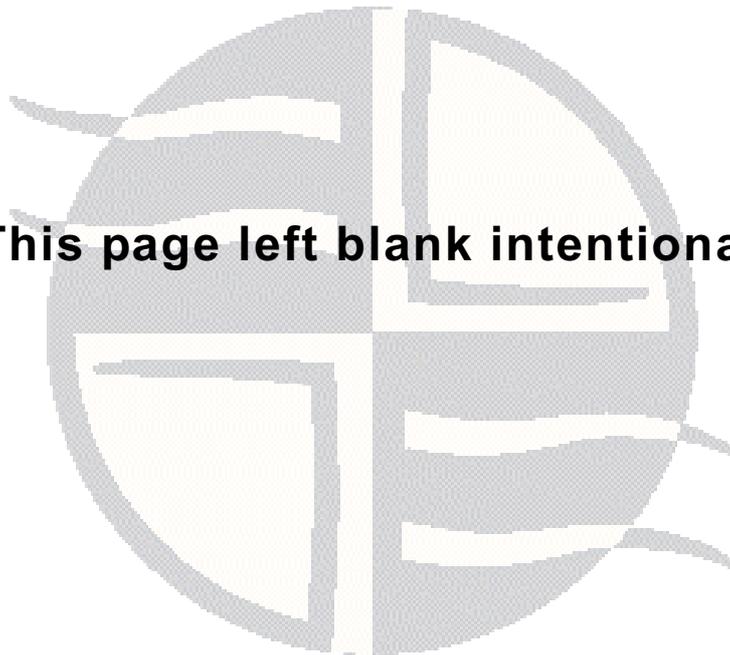
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PREFACE

About this manual

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

Chapter Guide

- **Intended Audience**
- **Notational Conventions**
- **Typographical Conventions**
- **Contents**
- **Trademarks**



PREFACE

Easysoft ODBC-Access Driver

Intended Audience

The Unix-based sections require experience of using Unix shell commands. You need to be able to do basic tasks such as editing text files. More complex tasks are described in detail, but it helps to understand how your system handles dynamic linking of shared objects.

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 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 `monospace` 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 `monospace` font.

Contents

- **Introduction**
Introduces the Easysoft ODBC-Access Driver.
- **Installation**
Explains how to install the Easysoft ODBC-Access Driver.
- **Configuration**
Explains how to configure the Easysoft ODBC-Access Driver.
- Appendices
Technical Reference and **Glossary**.



PREFACE

Easysoft ODBC-Access Driver

Trademarks

Throughout this manual, *Windows* refers generically to Microsoft Windows 95, 98, 2000, NT, XP, ME, 2003 Server, Vista or 2008 server, which are trademarks of the Microsoft Corporation. The X Window system is specifically excluded from this and is referred to as *The X Window System* or just *X*.

Note also that although the name UNIX is a registered trademark of The Open Group, 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.

CHAPTER 1 INTRODUCTION

Introducing the Easysoft ODBC-Access Driver

The Easysoft ODBC-Access Driver is an ODBC 3.51 driver for Microsoft Access. It lets ODBC-enabled applications access Microsoft Access databases from Linux and Unix platforms.

Chapter Guide

- [Overview](#)
- [Product Status](#)
- [Deployment](#)



INTRODUCTION

Easysoft ODBC-Access Driver

Overview

The Easysoft ODBC-Access Driver connects ODBC-enabled applications on Linux and Unix to Access databases. For example, connect to Access databases from Apache, ApplixWare, Informatica, OpenOffice.org and StarOffice. In addition, the Easysoft ODBC-Access Driver supports the Perl DBI and DBD::ODBC modules, PHP, PEAR DB, the Python pyodbc and mxODBC interfaces, C and any other ODBC-enabled programming language or interface.

Product Status

The Easysoft ODBC-Access Driver is currently available on Unix and Linux platforms. The most up to date list of Easysoft ODBC-Access Driver platforms is available at:

http://www.easysoft.com/products/data_access/odbc-access-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.

Deployment

Access has four components: a structure to hold data (tables), a way to manipulate that data (the Microsoft Jet Database Engine engine), an environment to create a front end for the data (Design view of forms and reports) and tools that can run the front end (Data view of forms and reports). Access data is stored in a database file, which has the extension .mdb. The Easysoft ODBC-Access Driver communicates directly with the .mdb file. The Easysoft ODBC-Access Driver does not use Jet Database Engine to access the .mdb file. (However, the driver does use the Jet locking mechanisms to manage concurrent access to the .mdb file.)

If your Access database is split into two files, you can use the Easysoft ODBC-Access Driver to access your data by loading the backend (_be.mdb) file in which the tables are stored.

To access your Access data with the Easysoft ODBC-Access Driver:

- On the Easysoft ODBC-Access Driver machine, mount the remote directory/Windows share/Samba share where the .mdb file is stored.

– OR –

- Copy the .mdb file to the Easysoft ODBC-Access Driver machine.

The Easysoft ODBC-Access Driver does not support Access Project files (.adb), which allow you to create an Access client front end to a SQL Server databases. If you need to access your SQL Server data from Linux or Unix, use the Easysoft ODBC-SQL Server Driver, which is available to download at:

http://www.easysoft.com/products/data_access/odbc-sql-server-driver/index.html



INTRODUCTION

Easysoft ODBC-Access Driver

Supported Access Database Versions

The Easysoft ODBC-Access Driver supports version 4.0 .mdb files, which is the default format for databases created in Microsoft Access 2000, 2002 and 2003.

Although Microsoft Office Access 2007 introduced a new database file format, .accdb, version 4.0 .mdb files continue to be supported by later versions of Access.

The Easysoft ODBC-Access Driver also supports the .accdb database format.

CHAPTER 2 INSTALLATION

Installing the Easysoft ODBC-Access Driver

This chapter explains how to install, license and remove the Easysoft ODBC-Access Driver.

The installation instructions assume you are, or are able to consult with, a system administrator.

Chapter Guide

- **Obtaining the Easysoft ODBC-Access Driver**
- **What to Install**
- **Installing the Easysoft ODBC-Access Driver**
- **Uninstalling the Easysoft ODBC-Access Driver**



INSTALLATION

Easysoft ODBC-Access Driver

Obtaining the Easysoft ODBC-Access Driver

There are three ways to obtain the Easysoft ODBC-Access 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-Access 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/access` subdirectory and then choose the platform release that you require.

- You can order Easysoft software on CD. To do this, **contact us** by email, telephone or post.

What to Install

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

- `odbc-access-x.y.z-platform.tar.gz`

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:

- `odbc-access-x.y.z-platform-variation.tar`

where *platform-variation* refers to alternative versions available for a single platform.

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).

Unix file names may also be suffixed with `.gz` for a gzipped archive, `.bz2` for a bzip2ed archive, or `.Z` for a compressed archive.

Note

If you download a Unix file with a Windows browser, the browser may strip the file name extension. For example, if you download a `.gz` file and the browser strips the file name extension, it may not be obvious that the file is gzipped. Use `file filename` to find out the file type of the downloaded file.



INSTALLATION

Easysoft ODBC-Access Driver

Caution!

As long as you stop all Easysoft software first (or software that uses the Easysoft drivers), it is safe to reinstall or upgrade the Easysoft ODBC-Access Driver without uninstalling.

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

Installing the Easysoft ODBC-Access Driver

These instructions show how to install the Easysoft ODBC-Access Driver on Unix platforms. Please read this section carefully **before** installing the Easysoft ODBC-Access Driver.

BEFORE YOU INSTALL

Requirements

To install the Easysoft ODBC-Access Driver on Unix you need:

- The Bourne shell in `/bin/sh`. If your Bourne shell is not located there, you may need to edit the first line of the installation script.
- Various commonly used Unix commands such as:

`grep, awk, test, cut, ps, sed, cat, wc, uname, tr, find,
echo, sum, head, tee, id`

If you do not have any of these commands, they can usually be obtained from the [Free Software Foundation](#). As the `tee` command does not work correctly on some systems, the distribution includes a `tee` replacement.

INSTALLATION

Easysoft ODBC-Access Driver

- Depending on the platform, you will need up to 10 MB of temporary space for the installation files and up to 10 MB of free disk space for the installed programs. If you also install the unixODBC Driver Manager, these numbers increase by approximately 1.5 MB.
- For Easysoft Licensing to work, you must do one of the following:
 - Install the Easysoft ODBC-Access Driver in `/usr/local/easysoft`.
 - Install the Easysoft ODBC-Access Driver elsewhere and symbolically link `/usr/local/easysoft` to wherever you chose to install the software.

The installation will do this automatically for you so long as you run the installation as someone with permission to create `/usr/local/easysoft`.

- Install the Easysoft ODBC-Access Driver elsewhere and set the `EASYSOFT_ROOT` environment variable.

For more information about setting the `EASYSOFT_ROOT` environment variable, see **"Post installation" on page 39**.
- An ODBC Driver Manager. Easysoft ODBC-Access Driver distributions include the unixODBC Driver Manager.

- You do not have to be the `root` user to install, but you will need permission to create a directory in the chosen installation path. Also, if you are not the `root` user, it may not be possible for the installation to:

1. Register the Easysoft ODBC-Access Driver with `unixODBC`.
2. Create the example data source in the `SYSTEM` `odbc.ini` file.
3. Update the dynamic linker entries (some platforms only).

If you are not `root`, these tasks will have to be done manually later.

Easysoft recommend you install all components as the `root` user.

What you can Install

This distribution contains:

- The Easysoft ODBC-Access Driver.
- The `unixODBC` Driver Manager.

You will need an ODBC Driver Manager to use the Easysoft ODBC-Access Driver from your applications. The distribution therefore contains the **unixODBC Driver Manager**. Most (if not all) Unix applications and interfaces support the `unixODBC` Driver Manager. For example, Perl `DBD::ODBC`, PHP, Python and so on.

INSTALLATION

Easysoft ODBC-Access Driver

You do not have to install the unixODBC Driver Manager included with this distribution. You can use an existing copy of unixODBC. For example, a version of unixODBC installed by another Easysoft product, a version obtained from your operating system vendor or one that you built yourself. However, as Easysoft ensure that the unixODBC distributed with the Easysoft ODBC-Access Driver has been tested with that driver, we recommend you use it.

If you choose to use an existing unixODBC Driver Manager, the installation script will attempt to locate it. The installation script looks for the Driver Manager in the standard places. If you have installed it in a non-standard location, the installation script will prompt you for the location. The installation primarily needs unixODBC's `odbcinst` command to install drivers and data sources.

Where to Install

This installation needs a location for the installed files. The default location is `/usr/local`.

At the start of the installation, you will be prompted for an installation path. All files are installed in a subdirectory of your specified path called `easysoft`. For example, if you accept the default location `/usr/local`, the product will be installed in `/usr/local/easysoft` and below.

If you choose a different installation path, the installation script will try to symbolically link `/usr/local/easysoft` to the `easysoft` subdirectory in your chosen location. This allows us to distribute binaries with built in dynamic linker run paths. If you are not `root` or the path `/usr/local/easysoft` already exists and is not a symbolic link, the installation will be unable to create the symbolic link. For information about how to correct this manually, see **["Post Installation Steps for non-root Installations" on page 39.](#)**

Note that you cannot license Easysoft products until either of the following is true:

- `/usr/local/easysoft` exists either as a symbolic link to your chosen installation path or as the installation path itself.
- You have set `EASYSOFT_ROOT` to `installation_path/easysoft`.

Changes Made to Your System

This installation script installs files in subdirectories of the path requested at the start of the installation, Depending on what is installed, a few changes may be made to your system:

1. If you choose to install the Easysoft ODBC-Access Driver into unixODBC, unixODBC's `odbcinst` command will be run to add an entry to your `odbcinst.ini` file. You can locate this file with `odbcinst -j`. (`odbcinst` is in `installation_path/easysoft/unixODBC/bin`, if you are using the unixODBC included with this distribution.)

The `odbcinst.ini` entry for the Easysoft ODBC-Access Driver will look similar to this:

INSTALLATION

Easysoft ODBC-Access Driver

[Easysoft ODBC-ACCESS]

```
Description      = Easysoft ODBC-Access Driver
Driver           = /usr/local/easysoft/access/lib/libesmdb.so
Setup           = /usr/local/easysoft/access/lib/libesmdbS.so
Threading       = 0
FileUsage       = 1
DontDLClose     = 1
UsageCount      = 1
```

For information about removing these entries, see **"Uninstalling the Easysoft ODBC-Access Driver" on page 44.**

2. The installation script installs example data sources into unixODBC. The data sources will be added to your SYSTEM `odbc.ini` file. You can locate your SYSTEM `odbc.ini` file by using `odbcinst -j`. The data source for the standard driver will look similar to this:

[ACCESS_SAMPLE]

Description	=	Easysoft ODBC-Access Driver
Driver	=	Easysoft ODBC-ACCESS
mdbfile	=	/path/to/data.mdb
smbpath	=	
lockfile	=	
smblib	=	
smbuser	=	
smbauth	=	
readonly	=	yes
exclusive	=	no
ignore_rel	=	no

For information about removing these data sources, see **"Uninstalling the Easysoft ODBC-Access Driver" on page 44.**



INSTALLATION

Easysoft ODBC-Access Driver

3. Dynamic Linker.

On operating systems where the dynamic linker has a file listing locations for shared objects (Linux), the installation script will attempt to add paths under the path you provided at the start of the installation to the end of this list. On Linux, this is usually the file `/etc/ld.so.conf`.

Reinstalling or Installing When You Already Have Other Easysoft Products Installed

Each Easysoft distribution contains common files shared between Easysoft products. These shared objects are placed in `installation_path/easysoft/lib`. When you run the installation script, the dates and versions of these files will be compared with the same files in the distribution. The files are only updated if the files being installed are newer or have a later version number.

You should ensure that nothing on your system is using Easysoft software before starting an installation. This is because on some platforms, files in use cannot be replaced. If a file cannot be updated, you will see a warning during the installation. All warnings are written to a file called `warnings` in the directory you unpacked the distribution into.

If the installer detects you are upgrading a product, the installer will suggest you delete the product directory to avoid having problems with files in use. An alternative is to rename the specified directory.

If you are upgrading, you will need a new license from Easysoft to use the new driver.

Gathering Information Required During the Installation

During the installation, you will be prompted for various pieces of information. Before installing, you need to find out whether you have unixODBC already installed and where it is installed. The installation script searches standard places like `/usr` and `/usr/local`. However, if you installed the Driver Manager in a non-standard place and you do not install the included unixODBC, you will need to know the location.

INSTALLATION

Unpacking the Distribution

The distribution for Unix platforms is a tar file. There are multiple copies of the same distribution with different levels of compression. You unpack the distribution in one of the following ways.

If the distribution file has been gzipped (`.gz`), use:

```
gunzip odbc-access-x.y.z-platform.tar.gz
```

If the distribution file has been bziped (`.bz2`), use:

```
bunzip2 odbc-access-x.y.z-platform.tar.bz2
```

INSTALLATION

Easysoft ODBC-Access Driver

If the distribution file has been compressed, (.Z), use:

```
uncompress odbcc-access-x.y.z-platform.tar.Z
```

You may have a distribution file which is not compressed at all (.tar). To extract the installation files from the tar file, use:

```
tar -xvf odbcc-access-x.y.z-platform.tar
```

This will create a directory with the same name as the tar file (without the .tar postfix) containing further archives, checksum files, an installation script and various other installation files.

Change directory into the directory created by unpacking the tar file.

License to Use

The End-User License Agreement is contained in the file `license.txt`. Be sure to understand the terms of the agreement before continuing, as you will be required to accept the license terms at the start of the installation.

Answering Questions During the Installation

Throughout the installation, you will be asked to answer some questions. In each case, the default choice will be displayed in square brackets and you need only press Enter to accept the default. If there are alternative responses, these will be shown in round brackets; to choose one of these, type the response and press Enter.

For example:

```
Do you want to continue? (y/n) [n]:
```

The possible answers to this question are `y` or `n`. The default answer when you type nothing and press Enter is `n`.

Running the Installer

Before you run the installer, make sure you have read **"Installation" on page 29**. If you are considering running the installation as a non `root` user, we suggest you review this carefully as you will have to get a `root` user to manually complete some parts of the installation afterwards. Easysoft recommend installing as the `root` user. (If you are concerned about the changes that will be made to your system, see **"Changes Made to Your System" on page 25**.)

To start the installation, run:

```
./install
```

You will need to:

- Confirm your acceptance of the license agreement by typing "yes" or "no".

For more information about the license agreement, see **"License to Use" on page 30**.

- Supply the location where the software is to be installed. Easysoft recommend accepting the default installation path.

For more information, see **"Where to Install" on page 24**.

<p>Note If you are upgrading, you will need a new license from Easysoft.</p>

INSTALLATION

Easysoft ODBC-Access Driver

Locating or Installing unixODBC

Easysoft strongly recommend you use the unixODBC Driver Manager because:

- The installation script is designed to work with unixODBC and can automatically add Easysoft ODBC-Access Driver and data sources during the installation.
- Most ODBC-enabled applications and interfaces support unixODBC. The Easysoft ODBC-Access Driver and any data sources that you add during the installation will be automatically available to your applications and interfaces therefore.
- The unixODBC project is currently led by Easysoft developer Nick Gorham. This means that there is a great deal of experience at Easysoft of unixODBC in general and of supporting the Easysoft ODBC-Access Driver running under unixODBC. It also means that if you find a problem in unixODBC, it is much easier for us to facilitate a fix.

The installation starts by searching for unixODBC. There are two possible outcomes here:

1. If the installation script finds unixODBC, the following message will be output:

```
Found unixODBC under /unixODBC_path  
and it is version n.n.n
```

2. If the installation script cannot find unixODBC in the standard places, you will be asked whether you have it installed.

If unixODBC is installed, you need to provide the unixODBC installation path. Usually, the path required is the directory above where `odbcinst` is installed. For example, if `odbcinst` is in `/opt/unixODBC/bin/odbcinst`, the required path is `/opt/unixODBC`.

If unixODBC is not installed, you should install the unixODBC included with this distribution.

If you already have unixODBC installed, you do not have to install the unixODBC included with the distribution, but you might consider doing so if your version is older than the one included.

The unixODBC in the Easysoft ODBC-Access Driver distribution is not built with the default options in unixODBC's configure line.

Option	Description
<code>--prefix=/etc</code>	This means the default SYSTEM <code>odbc.ini</code> file where SYSTEM data sources are located will be <code>/etc/odbc.ini</code> .
<code>--enable-drivers=no</code>	This means other ODBC drivers that come with unixODBC are not installed.
<code>--enable-iconv=no</code>	This means unixODBC will not look for a <code>libiconv</code> . Warnings about not finding an <code>iconv</code> library were confusing our customers.

INSTALLATION

Easysoft ODBC-Access Driver

Option	Description
<code>--enable-stats=no</code>	Disables unixODBC statistics, which use system semaphores to keep track of used handles. Many systems do not have sufficient semaphore resources to keep track of used handles. In addition, the statistics are only available in the GUI ODBC Administrator.
<code>--enable-readline=no</code>	This disables readline support in <code>isql</code> . We disabled this because it ties <code>isql</code> to the version of <code>libreadline</code> on the system we build on. We build on as old a version of the operating system as we can for forward compatibility. Many newer Linux systems no longer include the older readline libraries and so enabling readline support makes <code>isql</code> unusable on these systems.
<code>--prefix=/usr/local/easysoft/unixODBC</code>	This installs unixODBC into <code>/usr/local/easysoft/unixODBC</code> .

Figure 1: Easysoft unixODBC configure line options.

Installing the Easysoft ODBC-Access Driver

The Easysoft ODBC-Access Driver installation script:

- Installs the driver.
- Registers the driver with the unixODBC Driver Manager.

If the Easysoft ODBC-Access Driver is already registered with unixODBC, a warning will be displayed that lists the drivers unixODBC knows about. If you are installing the Easysoft ODBC-Access Driver into a different directory than it was installed before, you will need to edit your `odbcinst.ini` file after the installation and correct the Driver and Setup paths. unixODBC's `odbcinst` will not update these paths if a driver is already registered.

- Creates an example Easysoft ODBC-Access Driver data source. If unixODBC is installed and you registered the Easysoft ODBC-Access Driver with unixODBC, an example data source will be added to your `odbc.ini` file.

If a data source called "Access_SAMPLE" already exists, the existing data source will be displayed and you have the option to replace it.

Licensing

The `installation_path/easysoft/license/licshell` program lets you obtain or list licenses.

Licenses are stored in the `installation_path/easysoft/license/licenses` file. After obtaining a license, you should make a backup copy of this file.

INSTALLATION

Easysoft ODBC-Access Driver

The installation script asks you if you want to request an Easysoft ODBC-Access Driver license:

```
Would you like to request a Easysoft ODBC-Access  
Driver license now (y/n) [y]:
```

You do not need to obtain a license during the installation, you can run `licshell` after the installation to obtain or view licenses.

If you answer yes, the installation runs the `licshell` script. The process of obtaining a license is best described in the [Licensing Guide](#).

To obtain a license automatically, you will need to be connected to the Internet and allow outgoing connections to `license.easysoft.com` on port 8884. If you are not connected to the Internet or do not allow outgoing connections on port 8884, the License Client can create a license request file that you can mail or fax to Easysoft. You can also supply the details to us by telephone.

Start the License Client. The following menu is displayed:

```
[0] exit  
[1] view existing license  
[n] obtain a license for the desired product.
```

To obtain a license, select one of the options from [2] onwards for the product you are installing. The License Client will then run a program that generates a key that is used to identify the product and operating system (we need this key to license you).

After you have chosen the product to license (Easysoft ODBC-Access Driver), you need to supply:

- Your full name.
- Your company name.
- An email contact address. This **must** be the email address that you used when you registered on the Easysoft web site.
- Your telephone number (you need to specify this if you telephone us to request a license).
- Your fax number (you need to specify this if you fax the license request to us).
- A reference number. When applying for a trial license, just press Enter when prompted for a reference number. This field is used to enter a reference number that we will supply you for full (paid) licenses.

You will then be asked to specify how you want to obtain the license. The choices are:

[1] Automatically by contacting the Easysoft License Daemon

This requires a connection to the Internet and the ability to support an outgoing TCP/IP connection to `license.easysoft.com` on port 8884.

[2] Write information to file so you can fax, telephone it

The license request is output to `license_request.txt`.

[3] Cancel this operation



INSTALLATION

Easysoft ODBC-Access Driver

If you choose to obtain the license automatically, the License Client will start a TCP/IP connection to `license.easysoft.com` on port 8884 and send the details you supplied and your machine number. No other data is sent. The data sent is transmitted as plain text, so if you want to avoid the possibility of this information being intercepted by someone else on the Internet, you should choose [2] and telephone or fax the request to us. The License daemon will return the license key, print it to the screen and make it available to the installation script in the file `licenses.out`.

If you choose option [2], the license request is written to the file `license_request.txt`. You should then exit the License Client by choosing option [0] and complete the installation. After you have mailed, faxed or telephoned the license request to us, we will return a license key. Add this to the end of the file `installation_path/easysoft/license/licenses`.

If any warnings or errors are output during this process, please mail the output to support@easysoft.com and we will correct the problem.

POST INSTALLATION

Supplied Documents and Examples

The last part of the installation runs a post install script that lists the resources available to you.

- The Easysoft ODBC-Access Driver documentation is installed in `installation_path/easysoft/access/doc`:
 - The Easysoft ODBC-Access Driver manual in PDF format.
 - The Easysoft ODBC-Access Driver EULA.

`installation_path/easysoft/access/doc/CHANGES.txt` lists all the changes in each version of the Easysoft ODBC-Access Driver.

There are also many resources at the [Easysoft web site](#).

Post Installation Steps for non-root Installations

If you installed the Easysoft ODBC-Access Driver as a non-root user (not recommended), there may be some additional steps you will need to do manually:

1. If you attempt to install the Easysoft ODBC-Access Driver under the unixODBC Driver Manager and you do not have write permission to unixODBC's `odbcinst.ini` file, the driver cannot be added.

You can manually install the driver under unixODBC by adding an entry to the `odbcinst.ini` file. Run `odbcinst -j` to find out the location of the `DRIVERS` file then append the lines from the `drv_template` file to the `odbcinst.ini` file. (`drv_template` is in the directory where the distribution was untarred to).

2. No example data sources can be added into unixODBC if you do not have write permission to the `SYSTEM odbc.ini` file. Run

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Easysoft ODBC-Access Driver

`odbcinst -j` to find out the location of the `SYSTEM DATA SOURCES` file then add your data sources to this file.

3. On systems where the dynamic linker has a configuration file defining the locations where it looks for shared objects (Linux), you will need to add:

```
installation_path/easysoft/lib
installation_path/easysoft/unixODBC/lib
```

The latter entry is only required if you installed the `unixODBC` included with this distribution. Sometimes, after changing the dynamic linker configuration file, you need to run a program to update the dynamic linker cache. (For example, `/sbin/ldconfig` on Linux.)

4. If you did not install the Easysoft ODBC-Access Driver in the default location, you need to do one of the following:
 - Link `/usr/local/easysoft` to the `easysoft` directory in your chosen installation path.

For example, if you installed in `/home/user`, the installation will create `/home/user/easysoft` and you need to symbolically link `/usr/local/easysoft` to `/home/user/easysoft`:

```
ln -s /home/user/easysoft /usr/local/easysoft
```

- Set and export the `EASYSOFT_ROOT` environment variable to `installation_path/easysoft`.

5. If your system does not have a dynamic linker configuration file, you need to add the paths listed in step 3 to whatever environment path the dynamic linker uses to locate shared objects. You may want to amend this in a system file run whenever someone logs in such as `/etc/profile`.

The environment variable depends on the dynamic linker. Refer to your `ld` or `ld.so` man page. It is usually:

`LD_LIBRARY_PATH`, `LIBPATH`, `LD_RUN_PATH` or `SHLIB_PATH`.

SETTING DYNAMIC LINKER SEARCH PATHS

Your applications will be linked against an ODBC Driver Manager, which will load the ODBC Driver you require. The dynamic linker needs to know where to find the ODBC Driver Manager shared object. The ODBC Driver Manager will load the Easysoft ODBC-Access Driver, which is dependent on further common Easysoft shared objects; the dynamic linker needs to locate these too.

On operating systems where the dynamic linker has a file specifying locations for shared objects (Linux, for example), the installation will attempt to add paths under the path you provided at the start of the installation to the end of this list; no further action should be required. For more information, see ["Dynamic Linker." on page 28](#).

On other Unix platforms, there are two methods of telling the dynamic linker where to look for shared objects:

1. You add the search paths to an environment variable and export it. This method always works and overrides the second method, described below.

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2. At build time, a run path is inserted into the executable or shared objects. On most System V systems, Easysoft distribute Easysoft ODBC-Access Driver shared objects with an embedded run path. The dynamic linker uses the run path to locate Easysoft ODBC-Access Driver shared object dependencies.

For the first method, the environment variable you need to set depends on the platform (refer to the platform documentation for `ld(1)`, `dlopen` or `ld.so(8)`).

Environment Variable	Platform
LD_LIBRARY_PATH	System V based operating systems and Solaris.
LIBPATH	AIX
SHLIB_PATH	HP-UX
LD_RUN_PATH	Many platforms use this in addition to those listed above.

Figure 2: Dynamic linker search path environment variables.

To use the Easysoft ODBC-Access Driver, you need to add:

```
installationdir/easysoft/access:installationdir/easysoft/lib
```

where *installationdir* is the directory in which you chose to install the Easysoft ODBC-Access Driver. If you accepted the default location, this is `/usr/local`.

An example of setting the environment path in the Bourne shell on Solaris is:

```
LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/usr/local/easysoft/access:/usr/local/easysoft/lib
export LD_LIBRARY_PATH
```

Note The exact command you need to set and export an environment variable depends on your shell.

If you installed the unixODBC Driver Manager included in the Easysoft ODBC-Access Driver distribution, you also need to add *installationdir/easysoft/unixODBC/lib* to the dynamic linker search path.

Uninstalling the Easysoft ODBC-Access Driver

There is no automated way to remove the Easysoft ODBC-Access Driver in this release. However, removal is quite simple. To do this, follow these instructions.

To uninstall the Easysoft ODBC-Access Driver

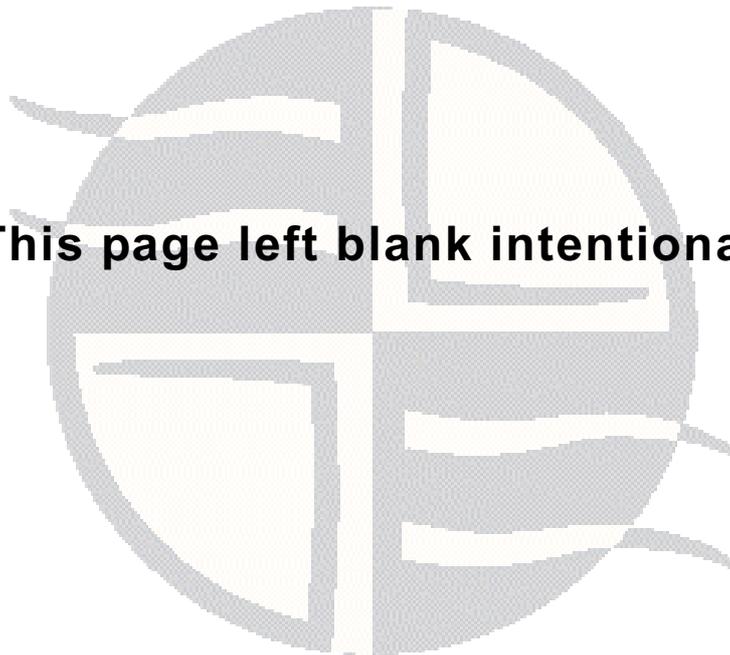
1. Change directory to *installation_path/easysoft* and delete the *access* directory. *installation_path* is the Easysoft ODBC-Access Driver installation directory, by default `/usr/local`.
2. If you had to add this path to the dynamic linker search paths (for example, `/etc/ld.so.conf` on Linux), remove it. You may have to run a linker command such as `/sbin/ldconfig` to get the dynamic linker to reread its configuration file. Usually, this step can only be done by the `root` user.
3. If you were using unixODBC, the Easysoft ODBC-Access Driver entry needs to be removed from the `odbcinst.ini` file. To check whether the Easysoft ODBC-Access Driver is configured under unixODBC, use `odbcinst -q -d`. If the command output contains `[Easysoft ODBC-ACCESS]`, uninstall the drivers from unixODBC by using:

```
odbcinst -u -d -n "Easysoft ODBC-ACCESS"
```

If a reduced usage count message is displayed, repeat this command until `odbcinst` reports that the drivers have been removed.

4. If you created any Easysoft ODBC-Access Driver data sources under unixODBC, you may want to delete these. To do this, first use `odbcinst -j` to locate USER and SYSTEM `odbc.ini` files. Then check those files for data sources that have the driver attribute set to Easysoft ODBC-Access.
5. Remove `access_install.info` from the `installation_path/easysoft` directory.

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CHAPTER 3 CONFIGURATION

Configuring the Easysoft ODBC-Access Driver

The Easysoft ODBC-Access 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 and which Access database to connect to. This chapter describes how to create data sources, use DSN-less connections and configure the Easysoft ODBC-Access Driver.

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

For Easysoft ODBC-Access Driver installation instructions, see ["Installation" on page 17](#).

Chapter Guide

- [Configuring the Easysoft ODBC-Access Driver](#)
- [Setting Up Data Sources](#)
- [DSN-less Connections](#)
- [Connecting to a Shared Access Database](#)
- [Troubleshooting Database Connection Problems](#)
- [Permissions Summary](#)



CONFIGURATION

Easysoft ODBC-Access Driver

Configuring the Easysoft ODBC-Access Driver

This section describes how to configure the Easysoft ODBC-Access Driver to connect to an Access database 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.

Setting Up Data Sources

There are two ways to set up a data source to your Access data:

- Create a SYSTEM data source, which is available to anyone who logs on to this Unix machine.
- OR –
- Create a USER data source, which is only available to the user who is currently logged on to this Unix machine.

By default, the Easysoft ODBC-Access Driver installation creates a SYSTEM data source named `[ACCESS_SAMPLE]`. If you are using the unixODBC included in the Easysoft ODBC-Access Driver distribution, the SYSTEM `odbc.ini` file is in `/etc`.

If you built unixODBC yourself, or installed it from some other source, SYSTEM data sources are stored in the path specified with the configure option `--sysconfdir=directory`. If `sysconfdir` was not specified when unixODBC was configured and built, it defaults to `/usr/local/etc`.

If you accepted the default choices when installing the Easysoft ODBC-Access Driver, USER data sources must be created and edited in `$HOME/.odbc.ini`.

Note

To display the directory where unixODBC stores SYSTEM and USER data sources, type `odbcinst -j`.
By default, you must be logged in as `root` to edit a SYSTEM data source defined in `/etc/odbc.ini`.

You can either edit the sample data source or create new data sources.

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Easysoft ODBC-Access Driver

Each section of the `odbc.ini` file starts with a data source name in square brackets `[]` followed by a number of *attribute=value* pairs.

Note Attribute names in `odbc.ini` are not case sensitive.

The `Driver` attribute identifies the ODBC driver in the `odbcinst.ini` file to use for a data source.

When the Easysoft ODBC-Access Driver is installed into unixODBC, an entry for the driver (`Easysoft ODBC-ACCESS`) is placed in `odbcinst.ini`.

For Easysoft ODBC-Access Driver data sources, you need to include a `Driver = Easysoft ODBC-ACCESS` entry.

To configure an Access data source, in your `odbc.ini` file, you need to specify:

- The path to the Access database file (`.mdb` or `.accdb`).

For example:

```
[ACCESS_SAMPLE]
```

```
Driver      = Easysoft ODBC-ACCESS
```

```
mdbfile     = /mnt/ms-access/Northwind.mdb
```

– OR –

```
[ACCESS_SAMPLE]
```

```
Driver      = Easysoft ODBC-ACCESS
```

```
mdbfile     = /mnt/ms-access/Northwind 2007.accdb
```

If the Access database is located in a shared directory, you also need to specify these settings, which allow the Easysoft ODBC-Access Driver to manage concurrent access to the database file.

- The SMB URL for the database file.
- The path to the to the SMB client library on the Easysoft ODBC-Access Driver machine.
- The user name and password of a user who can access the shared directory where the database file is located.

For example:

```
[ACCESS_SAMPLE_WINDOWS_SHARE]
```

```
Driver = Easysoft ODBC-ACCESS
```

```
mdbfile = /mnt/accounts/access/Northwind.mdb
```

```
smbpath = smb://mswin_machine/accounts/access/Northwind.mdb
```

```
smblib = /usr/lib/libsmclient.so
```

```
smbuser = mywindows_user
```

```
smbauth = mywindows_password
```

– OR –

```
[ACCESS_SAMPLE_SAMBA_SHARE]
```

```
Driver = Easysoft ODBC-ACCESS
```

```
mdbfile = /mnt/sales/access/Northwind.mdb
```

```
smbpath = smb://samba_server/sales/access/Northwind.mdb
```

```
smblib = /usr/lib/libsmclient.so
```

```
smbuser = my_samba_share_valid_user
```

```
smbauth = my_samba_share_valid_password
```



CONFIGURATION

Easysoft ODBC-Access Driver

Attribute Fields

The following attributes may be set in the `odbc.ini` file:

Attribute	Description
<code>Driver = value</code>	The name of the ODBC driver to use with this data source. Set this attribute value to <code>Easysoft ODBC-ACCESS</code> .
<code>Description = value</code>	A single line of descriptive text that may be retrieved by some applications to describe the data source.

Attribute	Description
<p><code>mdbfile = value</code></p>	<p>The path to the Access database file (.mdb or .accdb) on the machine where the Easysoft ODBC-Access Driver is installed. If the database file is stored on a Windows machine, you need to share the directory where the file is located and then mount the Windows share from the Easysoft ODBC-Access Driver machine. Specify the mounted share's path with <code>mdbfile</code>, along with the remote database file name. For example:</p> <pre># Local Unix path to .mdb file stored on # Windows. /mnt/access_windows is local mount # point for a remote Windows share. mdbfile = /mnt/access_windows/Northwind.mdb.</pre> <p>If the database file is stored on the same machine as the Easysoft ODBC-Access Driver, specify the database file path. For example:</p> <pre># Local Unix path to .accdb file stored on # Easysoft ODBC-Access Driver machine. mdbfile = /home/myuser/ms_access/Northwind 2007.accdb.</pre> <p>If the database file is located in a remote Samba share, you need to mount the share from the Easysoft ODBC-Access Driver machine. Specify the mounted share's path with <code>mdbfile</code>, along with the remote database file name. For example:</p> <pre># Local Unix path to .mdb file located in # remote Samba share. /mnt/access_samba is the # local mount point for the remote share. mdbfile = /mnt/access_samba/Northwind.mdb.</pre> <p>For more information about loading a database file from a shared directory, see "Connecting to a Shared Access Database" on page 61.</p>

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Easysoft ODBC-Access Driver

Attribute	Description
smbpath = <i>value</i>	<p>The SMB URL for the database file. This attribute (along with <code>smblib</code>, <code>smbuser</code> and <code>smbauth</code>) is required when you load a database file from a shared directory.</p> <p>Important When you specify a SMB URL, the Easysoft ODBC-Access Driver uses the SMB client library to manage concurrent access to the database file. Without this mechanism, there is the potential for database file corruption when multiple users are working with the database specified by <code>mdbfile</code>.</p> <p>Use this syntax for the SMB URL:</p> <pre>smb://host/share/path/filename</pre> <p>where:</p> <p><i>host</i> is the name or IP address of the machine on which the share is located.</p> <p><i>share</i> is the share name.</p> <p><i>path</i> specifies any subdirectories under <i>share</i>.</p> <p><i>filename</i> is the database file name, which should be the same one as specified by the <code>mdbfile</code> attribute.</p> <p>For example:</p> <pre># SMB URL for a .mdb file loaded from a Windows # share. smbpath = smb://mswin_box/accounts/access/Northwind.mdb</pre> <pre># SMB URL for a .accdb file loaded from a # remote Samba share on Unix. smbpath = smb://unix_box/sales/access/Northwind 2007.accdb</pre> <p>Note that SMB URLs for Samba shares are case sensitive; SMB URLs for Windows shares are not case sensitive.</p>

Attribute	Description
<p><code>smblib = <i>value</i></code></p>	<p>The path to the SMB client library on the machine where the Easysoft ODBC-Access Driver is installed. For example:</p> <pre>smblib = /usr/lib/libsmclient.so</pre> <p>libsmclient is part of the Samba suite. When testing the Easysoft ODBC-Access Driver on Ubuntu, we installed the libsmclient package included with the Linux distribution.</p>
<p><code>smbuser = <i>value</i></code></p>	<p>The name of a user who can access the share where the database file is located.</p> <p>If the database file is stored in a Samba share on Unix, specify a Samba user who has either read or read-write access to the share. If the Samba user only has read access to the share, set the <code>readonly</code> data source attribute to <code>yes</code>.</p> <p>If the database file is stored in a Windows share, specify a Windows user who has either read or read and write permissions for the share. If the Windows user only has read permission, set the <code>readonly</code> data source attribute to <code>yes</code>.</p>
<p><code>smbauth = <i>value</i></code></p>	<p>The password for <code>smbuser</code>.</p>

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Attribute	Description
<code>lockfile = value</code>	<p>By default, when you open a database file for shared access, the Easysoft ODBC-Access Driver uses a locking information file named <code>dbfiledir/dbfilename.ldb</code>. For example, if you open a database named <code>Nwind.mdb</code>, the Easysoft ODBC-Access Driver expects a locking information file named <code>Nwind.ldb</code> in the same directory as <code>Nwind.mdb</code>.</p> <p>Use the <code>lockfile</code> attribute to specify an alternative <code>.ldb</code> file path if directory permissions prevent the Easysoft ODBC-Access Driver from manipulating a <code>.ldb</code> file in the default directory. Specify a directory where all users who connect to this data source have write access to. For example:</p> <pre>lockfile = /var/lock/Nwind.ldb</pre> <p>Do not use the <code>lockfile</code> attribute if users may access the database file from Windows at your site. Windows applications access database files through the Jet/Access database engine, which expects the <code>dbfiledir/dbfilename.ldb</code> convention for lock files. There must only be one lock file per database file.</p>
<code>readonly = yes no</code>	<p>To open the database file for read-only access, set <code>readonly</code> to <code>yes</code>. When opened for read-only access, you can view the Access database, but not edit it.</p> <p>By default, the Easysoft ODBC-Access Driver opens database files for read-write access.</p>
<code>exclusive = yes no</code>	<p>To open the database file for exclusive access, set <code>exclusive</code> to <code>yes</code>. When you open an Access database in exclusive mode, you prevent others from opening the database.</p> <p>By default, the Easysoft ODBC-Access Driver opens database files for shared access.</p>

Attribute	Description
ignore_rel = yes no	<p>Whether the Easysoft ODBC-Access Driver takes into account any relationships defined for a particular table when doing INSERTs, UPDATES or DELETES. For example, with ignore_rel set to yes, the Easysoft ODBC-Access Driver would prevent a record from being deleted if one of its columns was a foreign key for another table.</p> <p>By default, ignore_rel is OFF (set to yes).</p>

Figure 3: Easysoft ODBC-Access Driver data source settings.

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Easysoft ODBC-Access Driver

ENVIRONMENT

The Easysoft ODBC-Access Driver must be able to find the following shared objects, which are installed during the Easysoft ODBC-Access Driver installation:

- `libodbcinst.so`

By default, this is located in

`/usr/local/easysoft/unixODBC/lib.`

- `libeslicshr.so`

By default, this is located in `/usr/local/easysoft/lib.`

- `libessupp.so`

By default, this is located in `/usr/local/easysoft/lib.`

- `libstdscrypt.so`

By default, this is located in `/usr/local/easysoft/lib.`

You may need to set and export `LD_LIBRARY_PATH`, `SHLIB_PATH` or `LIBPATH` (depending on your operating system and run-time linker) to include the directories where `libodbcinst.so`, `libeslicshr.so` and `libessupp.so` are located.

Note

The shared object file extension (`.so`) may vary depending on the operating system (`.so`, `.a` or `.sl`).

ESTABLISHING A TEST CONNECTION

The `isql` query tool lets you test your Easysoft ODBC-Access Driver data sources.

To test the Easysoft ODBC-Access Driver connection

1. Change directory into `/usr/local/easysoft/unixODBC/bin`.
2. Type `./isql -v data_source`, where `data_source` is the name of the Easysoft ODBC-Access Driver data source.

If you are unable to connect, see **["Troubleshooting Database Connection Problems" on page 72](#)** for help on solving some common connection problems.

3. At the prompt, type an SQL query. For example:

```
SQL> select * from mytable;
```

– OR –

Type `help` to return a list of tables:

```
SQL> help
```

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 (... "DRIVER={Easysoft ODBC-ACCESS};  
                    MDBFILE=path;" ...)
```

where *path* is the path to the database file on the Easysoft ODBC-Access Driver machine.

Other Easysoft ODBC-Access Driver attribute settings, as described in **"Setting Up Data Sources" on page 49**, can be added to the connection string using the same `PARAMETER=value; format`. For example:

```
"DRIVER={Easysoft ODBC-ACCESS};MDBFILE=/home/myuser/ms_access/Northwind.mdb;"
```

Connecting to a Shared Access Database

The Easysoft ODBC-Access Driver can load a database file (.mdb or .accdb) from a shared folder on Windows or a Samba share on Unix.

PREREQUISITE SOFTWARE

The Easysoft ODBC-Access Driver uses the SMB client library (libsmbclient) to manage concurrent access to the database file. For example, the Easysoft ODBC-Access Driver relies on the SMB client library to:

- Open a database file for exclusive access.
- Prevent a database file being opened if another user has the file for exclusive access.
- Use a locking information file (.ldb) to determine which records in the database are locked and by whom.
- Use a locking information file to let other applications know which records in the database are locked by a Easysoft ODBC-Access Driver user.

libsmbclient must be installed on the same machine as the Easysoft ODBC-Access Driver.

libsmbclient is part of the Samba suite.

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Easysoft ODBC-Access Driver

MY DATABASE IS LOCATED IN A WINDOWS SHARE

To load a database file from a Windows share with the Easysoft ODBC-Access Driver:

1. Attach the share from the machine where the Easysoft ODBC-Access Driver is installed.

For more information, see ["Mounting A Windows Share From Unix" on page 65](#).

2. Configure the Easysoft ODBC-Access Driver data source.

Example data sources:

```
# This Easysoft ODBC-Access Driver data source opens an Access
# database that is stored in a Windows share. The data source
# opens the database for shared read/write access; other users can
# open the database therefore.
```

```
[ACCESS_SAMPLE_WINDOWS_SHARE]
```

```
Driver = Easysoft ODBC-ACCESS
```

```
# The Windows share (accounts) has been attached under /mnt on the
# Easysoft ODBC-Access Driver machine.
```

```
mdbfile = /mnt/accounts/access/Northwind.mdb
```

```
# The smb* attributes allow the Easysoft ODBC-Access Driver to
# manage concurrent access to the database.
```

```
# The SMB URL for the database in the Windows share.
smbpath = smb://mswin_machine/accounts/access/Northwind.mdb
# The path to the SMB client library on the
# Easysoft ODBC-Access Driver machine
smblib = /usr/lib/libsmbclient.so

# The user name and password of a Windows user who has read and
# write privileges to the share.
smbuser = mywindows_user
smbauth = mywindows_password

# Opens the database for shared read/write access.
readonly = no
exclusive = no

      - OR -

# This data source opens the same Access database for exclusive
# access; the Easysoft ODBC-Access Driver will prevent other
# users from accessing the database, therefore.
[ACCESS_SAMPLE_WINDOWS_SHARE]
Driver = Easysoft ODBC-ACCESS
mdbfile = /mnt/accounts/access/Northwind.mdb
smbpath = smb://mswin_machine/accounts/access/Northwind.mdb
smblib = /usr/lib/libsmbclient.so
```

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```
# The user name and password of a Windows user who can access the
# share and who has read and write privileges to the .mdb file.
```

```
smbuser = mywindows_user
```

```
smbauth = mywindows_password
```

```
# Opens the database for exclusive read/write access.
```

```
readonly = no
```

```
exclusive = yes
```

– OR –

```
# This data source opens the same Access database for read-only
# access; the Easysoft ODBC-Access Driver will prevent its users
# from making updates to the database, therefore.
```

```
[ACCESS_SAMPLE_WINDOWS_SHARE]
```

```
Driver = Easysoft ODBC-ACCESS
```

```
mdbfile = /mnt/accounts/access/Northwind.mdb
```

```
smbpath = smb://mswin_machine/accounts/access/Northwind.mdb
```

```
smblib = /usr/lib/libsmclient.so
```

```
# The user name and password of a Windows user who has read
# privilege to the share.
```

```
smbuser = mywindows_user
```

```
smbauth = mywindows_password
```

```
# Opens the database for read-only access.  
readonly = yes  
exclusive = no
```

For more information about Easysoft ODBC-Access Driver data source attributes, see "[Attribute Fields](#)" on page 52.

Mounting A Windows Share From Unix

Server Message Block (SMB) and Common Internet File System (CIFS) are file sharing protocols that are widely used on Windows platforms. Applications such as Samba implement SMB and CIFS on Unix platforms, allowing Unix users to access shared Windows resources by using the `mount` command and Samba client tools such as `smbmount`.

On Unix and more recent Linux platforms, the `cifs` file system can be used to mount SMB shares. Specify `cifs` as the file system type when attaching the share with tools such as `mount` and `smbmount`.

On Linux platforms, the `smbfs` file system can also be used to mount SMB shares. Specify `smbfs` as the file system type when attaching the share with tools such as `mount` and `smbmount`.

Important You must specify the `directio` option when attaching the share. For example:

```
# mount.cifs //mywindowsmachine/myshare /myunixmountpoint -o  
user=mywindowsuser,directio
```

– OR –

```
# smbmount //mywindowsmachine/myshare /myunixmountpoint -o  
username=mywindowsuser,rw,directio
```

CONFIGURATION

Easysoft ODBC-Access Driver

Check the documentation for the program that you are using to attach the share to see whether the program supports the `directio` option. Specifying `directio` turns off inode data caching on files opened on the mount. The Easysoft ODBC-Access Driver relies on the functionality when managing concurrent access to the database file.

Permissions

When mounting the share, you need to supply the user name and password of a Windows user who has read, write, create and delete privileges for the share. When testing the Easysoft ODBC-Access Driver with a database file located in a Windows Vista share, this requirement equated to these Windows permissions:

Share permissions	Shared folder permissions
Change Read	Modify Read Write

Figure 4: Windows Vista permissions needed by mount user.

These permissions allow the Easysoft ODBC-Access Driver to write to or create a locking information file (.ldb).

MY DATABASE IS LOCATED IN A SAMBA SHARE ON UNIX

To load a database file from a Samba share with the Easysoft ODBC-Access Driver:

1. If the Samba share is not located on the Easysoft ODBC-Access Driver machine, attach the share.

For more information, see "[Mounting a Samba Share From Unix](#)" on page 70.

2. Configure the Easysoft ODBC-Access Driver data source.

Example data sources:

```
# This Easysoft ODBC-Access Driver data source opens an Access
# database that is stored in a Samba share. The data source
# opens the database for shared read/write access; other users can
# open the database therefore.
```

```
[ACCESS_SAMPLE_SAMBA_SHARE]
```

```
Driver = Easysoft ODBC-ACCESS
```

```
# This remote Samba share (Sales) has been attached under /mnt on
# the Easysoft ODBC-Access Driver machine.
```

```
mdbfile = /mnt/sales/access/Northwind.mdb
```

```
# The smb* attributes allow the Easysoft ODBC-Access Driver to
# manage concurrent access to the database.
```

```
# The SMB URL for the database in the Samba share.
```

```
smbpath = smb://samba_server/sales/access/Northwind.mdb
```

```
# The path to the SMB client library on the
```

```
# Easysoft ODBC-Access Driver machine
```

```
smblib = /usr/lib/libsmclient.so
```

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Easysoft ODBC-Access Driver

```
# The user name and password of a Samba user who has read/write  
# access to the share.
```

```
smbuser = my_samba_share_valid_user
```

```
smbauth = my_samba_share_valid_password
```

```
# Opens the database for shared read/write access.
```

```
readonly = no
```

```
exclusive = no
```

- OR -

```
# This data source opens the same Access database for exclusive  
# access; the Easysoft ODBC-Access Driver will prevent other  
# users from accessing the database, therefore.
```

```
[ACCESS_SAMPLE_SAMBA_SHARE]
```

```
Driver = Easysoft ODBC-ACCESS
```

```
mdbfile = /mnt/sales/access/Northwind.mdb
```

```
smbpath = smb://samba_server/sales/access/Northwind.mdb
```

```
smblib = /usr/lib/libsmclient.so
```

```
# The user name and password of a Samba user who has read/write  
# access to the share.
```

```
smbuser = my_samba_share_valid_user
```

```
smbauth = my_samba_share_valid_password
```

```
# Opens the database for exclusive read/write access.
```

```
readonly = no
```

```
exclusive = yes
```

– OR –

```
# This data source opens the same Access database for read-only  
# access; the Easysoft ODBC-Access Driver will prevent its users  
# from making updates to the database, therefore.
```

```
[ACCESS_SAMPLE_SAMBA_SHARE]
```

```
Driver = Easysoft ODBC-ACCESS
```

```
mdbfile = /mnt/sales/access/Northwind.mdb
```

```
smbpath = smb://samba_server/sales/access/Northwind.mdb
```

```
smblib = /usr/lib/libsmclient.so
```

```
# The user name and password of a Samba user who has read  
# access to the share.
```

```
smbuser = my_samba_share_valid_user
```

```
smbauth = my_samba_share_valid_password
```

```
# Opens the database for read-only access.
```

```
readonly = yes
```

```
exclusive = no
```

Configuring the Samba Share

The Easysoft ODBC-Access Driver requires the following Samba configuration options to be set for the share in which the database file is located.

Option	Value
oplocks	yes This is the default setting.
posix locking	yes This is the default setting.
blocking locks	yes This is the default setting.
veto oplock files	/* .mdb/* .MDB/* .ldb/* .LDB/* .accdb/* .ACCDB

Figure 5: smb.conf settings for the Access database file share.

Mounting a Samba Share From Unix

On Unix and more recent Linux platforms, the `cifs` file system can be used to mount shares offered by Samba servers. Specify `cifs` as the file system type when attaching the share with tools such as `mount` and `smbmount`.

On Linux platforms, the `smbfs` file system can also be used to mount SMB shares. Specify `smbfs` as the file system type when attaching the share with tools such as `mount` and `smbmount`.

Important You must specify the `directio` option when attaching the share. For example:

```
# mount.cifs //myunixmachine/myshare /myunixmountpoint -o  
user=mysambauser, directio
```

– OR –

```
# smbmount //myunixmachine/myshare /myunixmountpoint -o  
username=mysambauser, rw, directio
```

Check the documentation for the program that you are using to attach the share to see whether the program supports the `directio` option. Specifying `directio` turns off inode data caching on files opened on the mount. The Easysoft ODBC-Access Driver relies on the functionality when managing concurrent access to the database file.

Permissions

When mounting the share, you need to supply the user name and password of a Samba user who has read-write access to the share.

Troubleshooting Database Connection Problems

This section lists some common connection problems and their solutions.

- **Failed to open MDB file**
- **Failed to open SMB channel**
- **Could not open/create lock file, check sharing permissions**

Failed to open MDB file

The Easysoft ODBC-Access Driver can load either a local or remote Access database file (.mdb or .accdb). The path to the database file is specified in the Easysoft ODBC-Access Driver data source in `/etc/odbc.ini`.

In the Easysoft ODBC-Access Driver data source, check the `mdbfile` attribute value.

Use `ls` to check that the `mdbfile` attribute in your data source specifies a valid path and that the directory is accessible.

If the `ls` command output contains "permission denied", contact your administrator. The directory containing the database file needs to be accessible (execute permission set) to you.

If the path is not valid, check with your administrator whether the database file is located on another machine. (The Easysoft ODBC-Access Driver can load a database file from either a share on Windows or a Samba share on Unix.) If the database file is remote, use the `mount` command to check whether the share has been attached on the Easysoft ODBC-Access Driver machine. There should be an entry in the `mount` command output that corresponds with the directory specified with `mdbfile`. For example:

```

$ mount
/dev/sda3 on / type ext3 (rw,errors=remount-ro)
proc on /proc type proc (rw,noexec,nosuid,nodev)
/sys on /sys type sysfs (rw,noexec,nosuid,nodev)
.
.
.
//mywindowmachine/myshare on /mnt/myshare type smbfs (rw)
$ grep mdbfile /etc/odbc.ini
mdbfile = /mnt/myshare/Northwind.mdb

```

If the `mount` command does not show the mount point specified in the `mdbfile` attribute, consult with your administrator. The share in which the database file is located needs to be mounted. (For more information, see ["Connecting to a Shared Access Database" on page 61.](#))

If the database file is in a Windows share, the user specified when mounting the share needs to have read, write, create and delete permissions for the share. When testing the Easysoft ODBC-Access Driver with a database file located in a Windows Vista share, this requirement equated to these Windows permissions:

Share permissions	Shared folder permissions
Change	Modify
Read	Read
	Write

CONFIGURATION

Easysoft ODBC-Access Driver

If the database file is located in a Samba share, the Samba user specified when mounting the share needs to have read-write access to the share. For example, the following `smb.conf` extract shows a share for an accounting department. Members of the `accounts` group have read access to the share; members of the `accounts_managers` group have read-write access to the share.

```
[accounting]
comment = Accounting Department Directory
valid users = @accounts @accounts_managers
writable = no
write list = @accounts_managers
path = /home/samba/accounting
```

To mount the accounting share for use with the Easysoft ODBC-Access Driver, the user name and password of an accounts manager would need to be specified:

```
smbmount //myunixmachine/accounting /mnt -o
"username=myaccountsmanager,directio"
```

If the database file is located on Unix, the Easysoft ODBC-Access Driver will also return a "Failed to open MDB file" if:

1. The user running the application that is connecting to the data source only has read access to a local database file.

– OR –

The user specified by `smbuser` only has read access to a database file located in Samba share.

2. The `readonly` attribute in the data source is set to `yes`. (Change this attribute's value to `no` and try again.)

Failed to open SMB channel

The Easysoft ODBC-Access Driver uses the SMB client library, which is part of the Samba suite, to manage concurrent access to the Access database file (.mdb or .accdb). To configure the driver for use with the SMB client library you use the `smb*` attributes in the driver data source.

If the "Failed to open SMB channel" error contains "file not found", check the `smbpath` attribute in the data source. The `smbpath` attribute needs to specify the SMB URL for the database file specified with `mdbfile`. The SMB URL has the format `smb://host/share/path/filename`.

In the following example, a remote Access database named `Northwind.mdb` is located on the Easysoft ODBC-Access Driver machine in `/mnt/myshare_mountdir`. The `mount` command shows that `/mnt/myshare_mountdir` is the mount point for a share named `myshare` on a machine named `myremotemachine`.

```
$ grep mdbfile /etc/odbc.ini
```

```
mdbfile = /mnt/myshare_mountdir/Northwind.mdb
```

```
$ mount
```

```
//myremotemachine/myshare on /mnt/myshare_mountdir type smbfs (rw)
```

The SMB URL for the database file would therefore be:

```
smb://myremotemachine/myshare/Northwind.mdb
```

If the "Failed to open SMB channel" error contains "errno=13", check the `smbuser` and `smbauth` attributes in the data source.

CONFIGURATION

Easysoft ODBC-Access Driver

If the database file is located in a Samba share on Unix, the `smbuser` and `smbauth` attributes need to specify the user name and password for a Samba user (created with Samba tools such as `smbpasswd`) who has read access to the share. To open a database file for read-write access (`readonly` data source attribute set to `no`), the Samba user also needs write access to the share).

If the database file is located in a Windows share, the `smbuser` and `smbauth` attributes need to specify the user name and password for a Windows user who can access the share. If `smbuser` only has read privilege to the database file (as opposed to read and write), the `readonly` attribute in the data source needs to be set to `yes`. Otherwise, an "errno=13" error will be returned.

Could not open/create lock file, check sharing permissions

To help manage concurrent access to an Access database file (.mdb or .accdb), the Easysoft ODBC-Access Driver uses a locking information file (.ldb). The driver uses a .ldb file to:

- Determine which records in the database are locked and by whom.
- Let other applications know which records in the database are locked by a Easysoft ODBC-Access Driver user.

The Easysoft ODBC-Access Driver may have to create and delete a .ldb file as well as write to it. If directory permissions prevent the Easysoft ODBC-Access Driver from writing to/creating a .ldb file, the driver may return a "Could not open/create lock file, check sharing permissions" error.

If you get this error when loading a database file that **no other users require access** to, set the `exclusive` data source attribute to `yes`.

Note that you are using this attribute here as a workaround (to stop the driver from using a .ldb file) rather than for its intended purpose (to open the database file in exclusive mode, preventing other users from loading it).

(If other users require access to the database file, the data source must be configured to allow the Easysoft ODBC-Access Driver to manage shared access (using the `smb*` attributes). For more information, see, **"Attribute Fields" on page 52** and **"Connecting to a Shared Access Database" on page 61.**)

If you get this error when loading a database file from a Samba share on Unix, specify an alternative .ldb file directory with the `lockfile` data source attribute. Specify a directory where you and other users who connect to the data source have write access to. For example:

```
lockfile = /var/lock/Nwind.ldb
```

CONFIGURATION

Easysoft ODBC-Access Driver

Permissions Summary

This table lists the various permissions that may need to be set to allow the Easysoft ODBC-Access Driver to load your Access database file (.mdb or .accdb).

Permission	Applies to	Type	Notes
execute write	database file directory	Local Unix permissions on Easysoft ODBC-Access Driver machine	The local directory from which the database file is loaded must be accessible (execute permission set) by the user who is connecting to the data source. The local directory must also be writeable by the user who is connecting to the data source if the database file is opened for shared access (exclusive data source attribute set to no).
read write	database file	Local Unix permissions on Easysoft ODBC-Access Driver machine	The database file must be readable (read permission set) by the user who is connecting to the data source. If the database file is opened for read/write access (readonly data source attribute set to no), the database file must also be writeable (write permission set) by this user.

CONFIGURATION

Easysoft ODBC-Access Driver

Permission	Applies to	Type	Notes
read write	Samba share containing database file	Samba	<p>These permissions are only applicable if the database file is located in a Samba share on Unix.</p> <p>The Samba user whose authentication details are supplied when mounting the share needs to have read-write access to the share.</p>
read write	Samba share containing database file	Samba	<p>These permissions are only applicable if the database file is located in a Samba share on Unix.</p> <p>The Samba user specified by the <code>smbuser</code> data source attribute needs to have read access to the share. If the database file is opened for read/write access (<code>readonly</code> data source attribute set to <code>no</code>), this user must also have write access to the share.</p>

CONFIGURATION

Easysoft ODBC-Access Driver

Permission	Applies to	Type	Notes
read write create delete	Windows share containing database file	Windows	<p>These permissions are only applicable if the database file is located in a Windows share.</p> <p>The Windows user whose authentication details are supplied when mounting the share needs to have read, write, create and delete privileges on the share the share. Note that on some versions of Windows, the create and delete privileges may be replaced by the modify privilege.</p>
read write	Windows share containing database file	Windows	<p>These permissions are only applicable if the database file is located in a Windows share.</p> <p>The Windows user specified by the <code>smbuser</code> data source attribute needs to have read privilege on the share. If the database file is opened for read/write access (<code>readonly</code> data source attribute set to <code>no</code>), this user must also have write privilege.</p>

Figure 6: Access database file and directory permissions.

APPENDIX A TECHNICAL REFERENCE

Technical Reference for the Easysoft ODBC-Access Driver

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

Appendix Guide

- [ODBC Conformance](#)
- [Supported Data Types](#)
- [Threading](#)
- [Tracing](#)

ODBC Conformance

The Easysoft ODBC-Access Driver complies with the ODBC 3.51 specification.

The Easysoft ODBC-Access Driver is Level 1 compliant.

ODBC API SUPPORT

All ODBC 3.51 calls are fully supported apart from.

- SQLBrowseConnect
- SQLBulkOperations
- SQLColumnPrivileges
- SQLTablePrivileges

Supported Data Types

The Easysoft ODBC-Access Driver supports the following Access data types:

- BINARY
VARBINARY
- BIT
- TINYINT
BYTE
- COUNTER
- CURRENCY

- DATETIME
DATE
TIME
- REAL
- FLOAT
DOUBLE
- SMALLINT
- INTEGER
INT
- DECIMAL
NUMERIC
DEC
- TEXT
LONGCHAR
MEMO
- IMAGE

Threading

The Easysoft ODBC-Access Driver is thread safe in accordance with the ODBC specification and can safely be used behind threaded applications.

Tracing

The ODBC calls an application makes can be traced:

- Within the Driver Manager by an application.
- From within the Driver Manager.

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 DRIVER MANAGER

For the unixODBC Driver Manager, add two attributes to the [ODBC] section (create one if none exists) in `odbcinst.ini`.

```
Trace = Yes
```

```
TraceFile = logfile
```

For example:

```
[ODBC]
```

```
Trace = Yes
```

```
TraceFile = /tmp/unixodbc.log
```

Ensure that the user who is running the application to be traced has write permission to the log file (and to the directory containing it), or no tracing information will be produced.

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.

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 86**) 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.

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.



GLOSSARY

Easysoft ODBC-Access Driver

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.

License key

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

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.

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