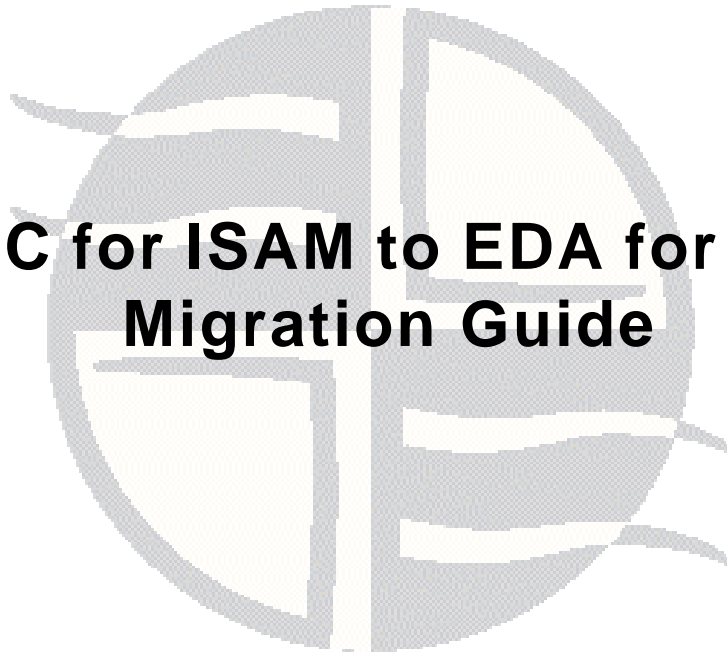


Easysoft Data Access

ODBC for ISAM to EDA for ISAM Migration Guide





Version 10.

This manual documents version 1.1.n of Easysoft Data Access for ISAM.

Publisher: Easysoft Limited

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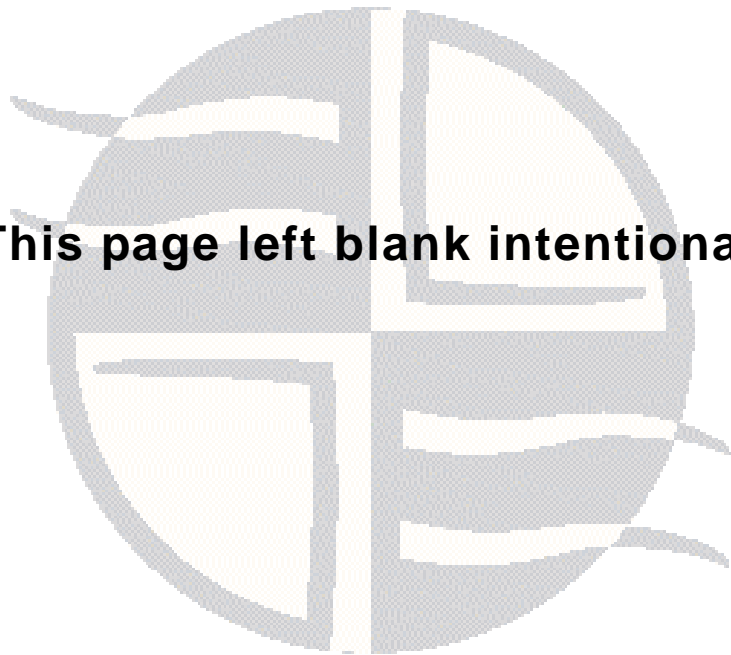
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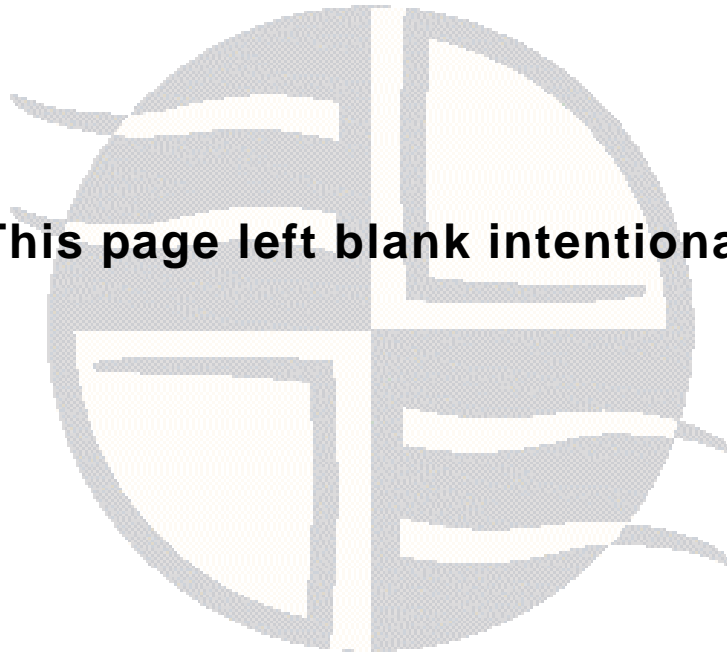


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PREFACE



About this manual

This manual is intended for use by anyone who is using version 1.4 or 1.5 of Easysoft ODBC for ISAM and wishes to migrate to Easysoft Data Access for ISAM.

Chapter Guide

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

PREFACE

About this manual

Intended Audience

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

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

Displaying the Manual

This manual is available in the following formats:

- Portable Document Format (PDF), which can be displayed and printed using the Acrobat Reader, available free from Adobe at <http://www.adobe.com>.
- HTML (the format Easysoft recommend for viewing onscreen).

Notational Conventions

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

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

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

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

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

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

Linux

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

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

Caution!

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

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

Typographical Conventions

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

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

Click **Next** to continue.

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

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

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

At the command prompt type `admin`.

- Keyboard Commands

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

Press *<F1>* for help.

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

Contents

- **Introduction**
Discusses Easysoft ODBC for ISAM and Easysoft Data Access for ISAM and the reasons for migrating from one to the other.
- **The Migration Process**
Explains the process of migrating to Easysoft Data Access for ISAM.
- **Converting Catalogs**
Explains the process of converting Easysoft ODBC for ISAM catalogs to Easysoft Data Access for ISAM.
- **Licensing**
Describes the differences in licensing between Easysoft ODBC for ISAM and Easysoft Data Access for ISAM.
- **Appendices**
Comprising FAQs and a Glossary.

PREFACE

About this manual

Trademarks

Throughout this manual, *Windows* refers generically to Microsoft Windows 95, 98, 2000, NT, XP, ME or 2003 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.

INTRODUCTION

A Comparison of ODBC for ISAM and EDA for ISAM

This section explains the differences between the Easysoft ODBC for ISAM (ODBC for ISAM) and Easysoft Data Access for ISAM (EDA for ISAM) architectures.

Chapter Guide

- **A review of Easysoft ODBC for ISAM**
- **EDA for ISAM architecture**
- **Why migrate?**
- **Deprecated features**

INTRODUCTION

A Comparison of ODBC for ISAM and EDA for ISAM

A review of Easysoft ODBC for ISAM

ODBC for ISAM (version 1.n) comprises of a client-end ODBC driver (for Windows only) and a server, which is installed on the computer where C/D ISAM files to be accessed are located.

The process of installing ODBC for ISAM requires the user to:

- Install the server on a machine where the ISAM files are located
- License the server
- Create a basic catalog
- Install the client ODBC driver on a Windows machine
- Create a data source in the ODBC administrator which points to the server machine and specify a login to the server, the transport to be used, a catalog and a catalog login
- Start the Easysoft Administrator, selecting the newly-created data source and defining the required fields
- Define additional catalog users and privileges

Once this process is complete, ODBC applications can access ISAM files through this data source.

The Easysoft Administrator is only required again if:

- The structure or location of the ISAM files changes
- Catalog user information needs to be changed
- Database or table privileges need to be changed

EDA for ISAM architecture

EDA for ISAM is a new solution providing ODBC access to either local or remote ISAM files and consists of:

- the Easysoft SQI-ISAM Driver
- the Easysoft ODBC-SQI SQL Engine
- the Easysoft ODBC-ODBC Bridge

A single package containing the Easysoft SQI-ISAM Driver and the Easysoft ODBC-SQI SQL Engine is available for download, making installation and configuration simple. The Easysoft ODBC-ODBC Bridge is also required in order to access remote ISAM files and is included in Unix distributions of EDA for ISAM.

NB

EDA for ISAM can also be combined with the Easysoft JDBC-ODBC Bridge to allow JDBC access to ISAM files or the Easysoft XML-ODBC Server for access via XML.

LOCAL ODBC ACCESS TO ISAM FILES

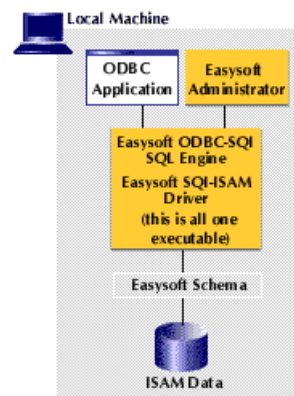


Figure 1: EDA for ISAM on a local machine

INTRODUCTION

A Comparison of ODBC for ISAM and EDA for ISAM

Note that:

- This is a simpler solution than Easysoft ODBC for ISAM, as there is no service to run on the server and there are no network communications required.
- It is possible to achieve ODBC access to ISAM files from non-Windows platforms.
- The Easysoft ODBC-SQI SQL Engine reduces complex queries to a common low level API, the Simple Query Interface which is handled by the Easysoft SQI-ISAM Driver.

REMOTE ODBC ACCESS TO ISAM FILES

If the ISAM files are located on a different machine to where the ODBC application is running, then the Easysoft ODBC-ODBC Bridge client (along with the Easysoft Administrator) should be installed on the machine where the ODBC application is running:

Machine where the ODBC application is running

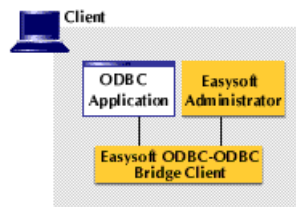


Figure 2: The EDA for ISAM client architecture

Then the same software as in **Figure 1 on page 17** should be installed on the machine where the ISAM files are located along with the Easysoft ODBC-ODBC Bridge server:

Machine where ISAM files are located

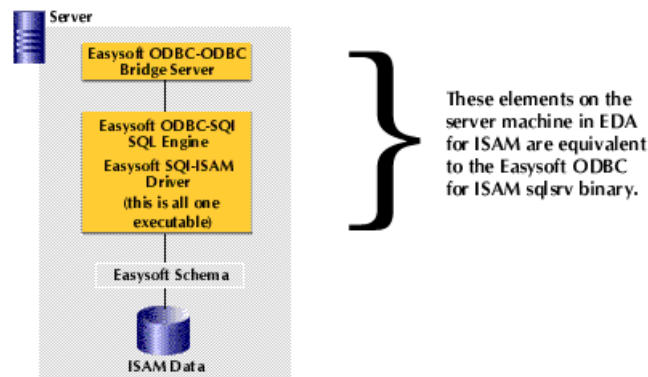


Figure 3: The EDA for ISAM server architecture

Note that:

- The Easysoft ODBC-ODBC Bridge client is an ODBC driver which can pass ODBC API calls from an application to the Easysoft ODBC-ODBC Bridge server and from there to an ODBC driver.
- The Easysoft ODBC-ODBC Bridge client and server talk to each other in much the same way as the Easysoft ODBC for ISAM client talks to the server, but as it is a generic ODBC solution, the Easysoft ODBC-ODBC Bridge can be used to connect to any ODBC driver on a remote machine.

INTRODUCTION

A Comparison of ODBC for ISAM and EDA for ISAM

Why migrate?

The following table lists the ways in which the functionality of Easysoft Data Access for ISAM supersedes that of Easysoft ODBC for ISAM:

ODBC for ISAM	EDA for ISAM
Development stopped at version 1.5.	Currently in development.
Only supports two C-ISAM lock modes.	Supports five C-ISAM lock modes.
Does not support D-ISAM transactions.	Supports D-ISAM transactions.
Only works client/server.	Native ODBC interface.
Only partly ODBC 2.0 conformant (see "ODBC 2 API Conformance levels" on page 47).	ODBC 3.5 conformant (see "ODBC 3 API Conformance levels" on page 49).
	SQL Conformant, including functions (see "SQL Conformance" on page 60).
	SQL can be used to create and drop tables, indexes and columns (see "SQL Conformance" on page 60). The ISAM files do not have to exist and new tables can be created as required using SQL.
	Supports Views (see "Core SQL Grammar" on page 61).
	Supports Grant and Revoke (see "Core SQL Grammar" on page 61).
	Larger selection of data types (see "SQL Conformance" on page 60).

INTRODUCTION

A Comparison of ODBC for ISAM and EDA for ISAM

ODBC for ISAM	EDA for ISAM
Tables must be configured using a CSV file.	Tables can be configured with SQL.
	Allows direct access to .dat files if fixed length and no key information specified (faster in most circumstances).
	Allows use of Web Administrator to maintain Users and Permissions.
Old Administrator.	New Easysoft Administrator, which can issue queries and retrieve results. Setup times are reduced by being able to see immediately the effect of schema changes on returned data.
QEP.	Engine table order.
	Pluggable data type packs (don't require re-installation).
	unixODBC (?).
	Non-Windows Client access using the Easysoft ODBC-ODBC Bridge.
	Allows JDBC access via the Easysoft JDBC-ODBC Bridge.
Client-based licensing.	Connection-based licensing.
	Concept of Nulls.
Proprietary system tables.	ISO standard way of accessing schema and system tables.

Figure 4: Improved functionality in EDA for ISAM

INTRODUCTION

A Comparison of ODBC for ISAM and EDA for ISAM

Deprecated features

The following items are included in Easysoft ODBC for ISAM, but are not supported in Easysoft Data Access for ISAM:

1. Criteria strings

These have been superseded by the use of the more flexible Views in EDA for ISAM, which are displayed by the Easysoft Administrator.

2. Special Columns (`ISAM_ROWID` etc.)

This facility allowed access by RowID and forced index selection in ODBC for ISAM. EDA for ISAM uses the Easysoft Administrator to specify which column is the RowID and does not need to force index selection, because the Easysoft ODBC-SQL SQL Engine selects the correct index automatically.

3. Catalog definition converters

EDA for ISAM includes a Powerhouse PDL converter, as in ODBC for ISAM, but no COBOL converter.

4. Column Visible flag

This has been superseded by the use of the more flexible Views in EDA for ISAM, which are maintained by using the Easysoft Administrator.

5. Column Updateable flag

ODBC for ISAM allowed the setting of column-level privileges which applied to all users, rather than specific users of a database.

EDA for ISAM does not allow the setting of column-level privileges, but does permit table-level privileges to be set for specific users via the Easysoft Administrator.

THE MIGRATION PROCESS

Migrating to Easysoft Data Access for ISAM

This section describes how to migrate from Easysoft ODBC for ISAM by installing Easysoft Data Access for ISAM and converting catalog data.

Chapter Guide

- **Configuration options**
- **Local ODBC access to ISAM files**
- **Remote ODBC access to ISAM files**
- **Understanding ODBC data sources**

Configuration options

There are two distinct configuration options for EDA for ISAM, as described in “**EDA for ISAM architecture**” on page 17.

There is a short "Getting Started Guide" for EDA ISAM at <http://www.easysoft.com/solutions/0107/started.phtml>, which contains additional information on how to configure remote access to ISAM files on a Unix machine from an ODBC application running on a Windows machine.

Local ODBC access to ISAM files

1. Install and license EDA for ISAM on the machine where the ISAM files are located.
2. Create an EDA for ISAM data source in the ODBC Data Source Administrator and set the "Default data path" and "Schema path" fields to the directory where the EDA for ISAM data and catalog will be stored.

NB

If there are multiple catalog directories to be imported from Easysoft ODBC for ISAM then multiple directories and data sources (one for each catalog directory) must be created to avoid table name clashes.

3. Convert the catalog files
 - Locate the directories where your Easysoft ODBC for ISAM catalogs are located
 - For each catalog to be converted, use the import function in the Easysoft Administrator or run the converter supplied with EDA for ISAM and then import them into EDA for ISAM with the Easysoft Administrator

Remote ODBC access to ISAM files

1. Install and license EDA for ISAM on the machine where the ISAM files are located.
2. Install the Easysoft ODBC-ODBC Bridge server on the machine where the ISAM files are located.

The Easysoft ODBC-ODBC Bridge server is included in the EDA for ISAM distribution and referenced under the installation question asking "Do you require remote ODBC access to your ISAM data?".

NB

Licensing EDA for ISAM also licenses the Easysoft ODBC-ODBC Bridge server (the client component does not require licensing).

3. Convert the catalog files:
 - Locate the directories on the server machine where the Easysoft ODBC for ISAM catalogs are located
 - For each catalog run the `convert.sh` shell script supplied with EDA for ISAM and then use the `easysql` utility to import the data (see `/usr/local/easysoft/isam/doc/convertimg.txt`)
4. Install the Easysoft ODBC-ODBC Bridge client on all machines requiring remote access to your ISAM files.

No license is required for the Easysoft ODBC-ODBC Bridge client.
5. Create an Easysoft ODBC-ODBC Bridge client data source on each client machine that points to the ODBC data source on the server machine (this is `EASYSOFT_ISAM` by default, but does not have to be).

Understanding ODBC data sources

This section describes the creation and use of ODBC data sources when an ODBC application is running on Windows and ISAM files are located on Unix (the typical scenario for Easysoft ODBC for ISAM users).

In Easysoft ODBC for ISAM there is only one ODBC driver (the Easysoft ODBC client), which communicates with the Easysoft ODBC server that accesses the ISAM files.

Each ODBC data source identifies the remote Unix machine, the catalog directory and the port where the Easysoft ODBC Server is listening, and provides server login, catalog login and transport information.

Some of these details are used to locate the server and some to locate the catalog.

EDA for ISAM provides an ODBC driver (in the form of the Easysoft ODBC-SQL SQL Engine and the Easysoft SQL-ISAM Driver) and the open source unixODBC driver manager (equivalent to the Windows ODBC driver manager).

This software must be installed on the Unix machine where the ISAM files are located.

The installation creates two ODBC data sources:

- **SAMPLE_ISAM** (see **“The SAMPLE_ISAM data source” on page 27**).
- **EASYSOFT_ISAM** (see **“The EASYSOFT_ISAM data source” on page 33**)

These are both System data sources, which are available to all users and defined in the `/etc/odbc.ini` file.

Unix data sources work in the same way as those on Windows, except that instead of being entered into a dialog box and stored in the `HKEY_LOCAL_MACHINE\SOFTWARE\ODBC\ODBC.INI` section of the Registry, values are typed directly into `/etc/odbc.ini`.

The `SAMPLE_ISAM DATA SOURCE`

An EDA for ISAM contains the following attributes:

```
[SAMPLE_ISAM]
driver          = EASYSOFT_ISAM
sqicount       = 1
target_string1 = Data Access for ISAM
target_driver1 =
/usr/local/easysoft/isam/lib/libesdisam_sqi.so
data_path      = /usr/local/easysoft/isam/demo/data/
schema_path    = /usr/local/easysoft/isam/demo/schema/
.
.
.
```

where

- `[SAMPLE_ISAM]` is the name of the data source
- `EASYSOFT_ISAM` is name of the ODBC driver used to access the data source and defined in `/etc/odbcinst.ini`
- `sqi_count` is the number of SQLs used by the data source
- `target_string1` is the SQL connection string
- `target_driver1` is the required SQL driver
- `data_path` is the location of the ISAM files
- `schema_path` is the location of the catalog

Consult the EDA for ISAM manual (<http://www.easysoft.com/products/2107/man/index.html>) for details of other attributes which are not illustrated.

When EDA for ISAM is installed it also copies some sample data into the directories on the target machine pointed to by the `data_path` and `schema_path` attributes, which can then be used to prove that the server installation has been successful.

EDA for ISAM also installs a small ODBC application called `sql` and a shell script called `demosql` in `/usr/local/easysoft/isam/bin` which can be used to issue SQL queries either on the sample data or on ISAM files belonging to the user.

e.g.

```
$ ./demosql
Easysoft Interactive SQL.
Copyright (c) 1993-2003 Easysoft Limited.
conn = :DSN=sample_isam;UID=dbo;PWD=easysoft;RELATIONAL_OPT=0;
IN_EXPANSION=0;SQICOUNT=1;SQITARGET1={Data Access for ISAM};
SQIDRIVER1=/usr/local/easysoft/isam/lib/libesdisam_sqi.so;;
> select * from info_schema.tables;
TABLE_CAT:TABLE_SCHEM:TABLE_NAME:TABLE_TYPE:REMARKS:
::CUSTOMER:BASE TABLE::
::LINEITEM:BASE TABLE::
::NATION:BASE TABLE::
::ORDERS:BASE TABLE::
::PART:BASE TABLE::
::PARTSUPP:BASE TABLE::
::REGION:BASE TABLE::
::SUPPLIER:BASE TABLE::
```

```
> select * from supplier;
S_SUPPKEY:S_NAME:S_ADDRESS:S_NATIONKEY:S_PHONE:S_ACCBAL:S_COMME
NT:
1:Supplier#000000001: N kD4on9OM Ipw3,gf0JBoQDd7tgrzrddZ:
17:27-918-335-1736:5755.94:
requests haggle carefully. accounts sublate finally. carefully
ironic pa:
```

This operation is directly equivalent to running an ODBC application on Windows accessing a data source called `SAMPLE_ISAM`.

REMOTE ODBC ACCESS

To access a remote ODBC data source on a Unix machine from a remote Windows machine the Easysoft ODBC-ODBC Bridge server (part of the EDA for ISAM installation procedure) must be installed on the Unix machine and the Easysoft ODBC-ODBC Bridge client must be installed on the Windows machine.

The Easysoft ODBC-ODBC Bridge client is an ODBC driver which is able to connect to any remote ODBC data source, not just those that use EDA for ISAM.

To access the `SAMPLE_ISAM` sample data, a data source must be created on the machine where the Easysoft ODBC-ODBC Bridge client is installed (and where the ODBC application is running) which points to the remote machine where the ODBC data source describing the sample data is located.

This is equivalent to defining an Easysoft ODBC for ISAM data source on a Windows machine, except that the name of the remote data source is defined, rather than the location of the catalog and schema.

THE MIGRATION PROCESS

Migrating to Easysoft Data Access for ISAM

On Windows a dialog box is used to enter these values (notice how similar these attributes are to an Easysoft ODBC for ISAM data source):

The screenshot shows the 'Easysoft ODBC-ODBC Bridge' dialog box. It is divided into several sections:

- Local DSN:** DSN: remote SAMPLE_ISAM; Description: (empty).
- Target Server:** Server: Unix machine; Transport: TCP/IP; Port: 8888; User: Valid Unix machine user name; Password: (masked).
- Target Database:** Target DSN: SAMPLE_ISAM; Target User: dbo; Target Auth: (masked).
- Special Attributes:** Block Fetch Size: 0; MetaDataBlockFetch: ; UseOOBDBAuth: .

Buttons on the right: OK, Cancel, Help, Test, OOB Settings. Logo: Data Access by easysoft.

Figure 5: The Easysoft ODBC-ODBC Bridge DSN dialog box

A typical Easysoft ODBC-ODBC Bridge data source to connect to a remote `SAMPLE_ISAM` data source must contain:

Attribute	Description
server	The name of the Unix machine where the ISAM files are located and where the OOB Server and the rest of EDA for ISAM are installed.
port	The port the OOB Server is listening on (this was 7777 for the Easysoft ODBC for ISAM server, but is 8888 for the OOB Server).
transport	<code>tcPIP</code> (the OOB Server only supports TCP/IP). If you were using <code>rexec</code> in Easysoft ODBC for ISAM data sources then you need to use TCP/IP with OOB.
logonuser	The name of a valid user on the server machine (equivalent to <code>Server Login Username</code> in Easysoft ODBC for ISAM).
logonauth	The password of the user name in <code>logonuser</code> (equivalent to <code>Server Login Password</code> in Easysoft ODBC for ISAM).
targetuser	The database user name to be used for access to your ISAM files (equivalent to <code>Catalog Login Username</code> in Easysoft ODBC for ISAM).
targetauth	The password for <code>targetuser</code> (equivalent to <code>Catalog Logon Password</code> in Easysoft ODBC for ISAM.)
targetdsn	The name of the data source on the server machine.

Figure 6: Easysoft ODBC-ODBC Bridge data source attributes

The Windows **Easysoft ODBC-ODBC Bridge** dialog box has a **Test** button which can be used to test connectivity to remote ISAM data sources.

If this runs successfully then ODBC access to remote ISAM files in the `SAMPLE_ISAM` data source has been proved.

THE MIGRATION PROCESS

Migrating to Easysoft Data Access for ISAM

The data source information which is entered is accessed at each stage of the process as required:

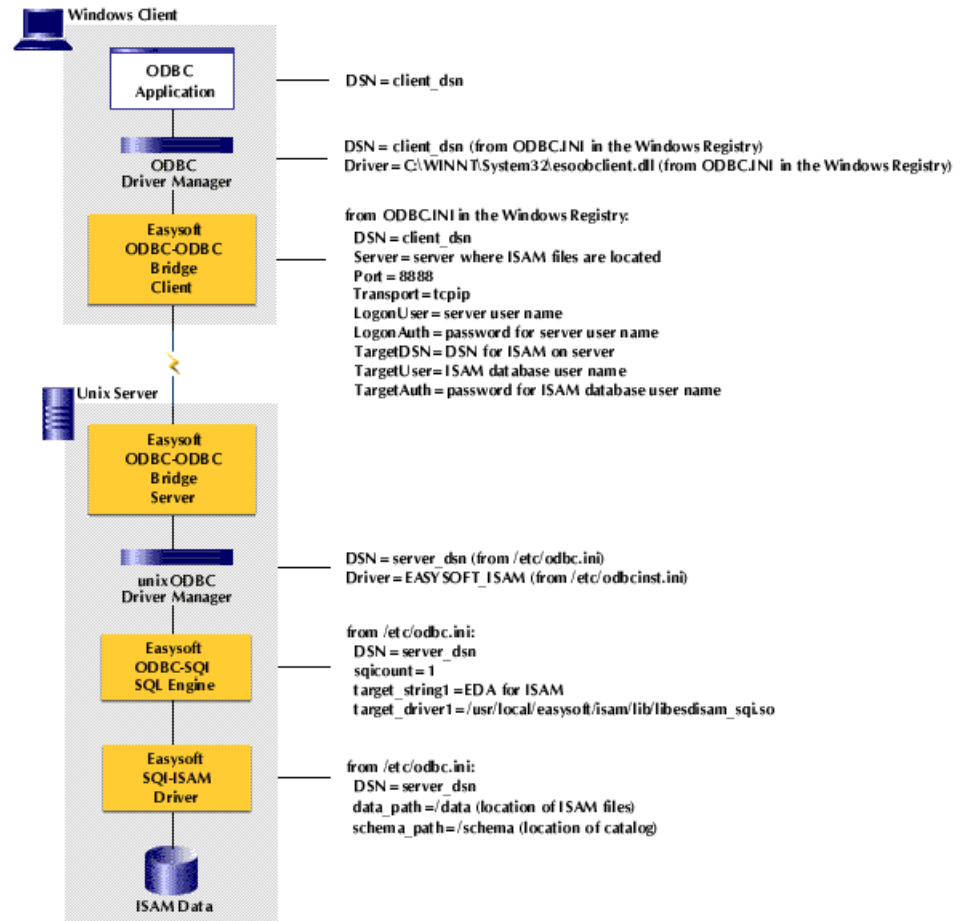


Figure 7: EDA for ISAM data source relationships

NB

Only attributes relevant to a basic EDA for ISAM Windows to Unix configuration are shown.

The `EASYSOFT_ISAM DATA SOURCE`

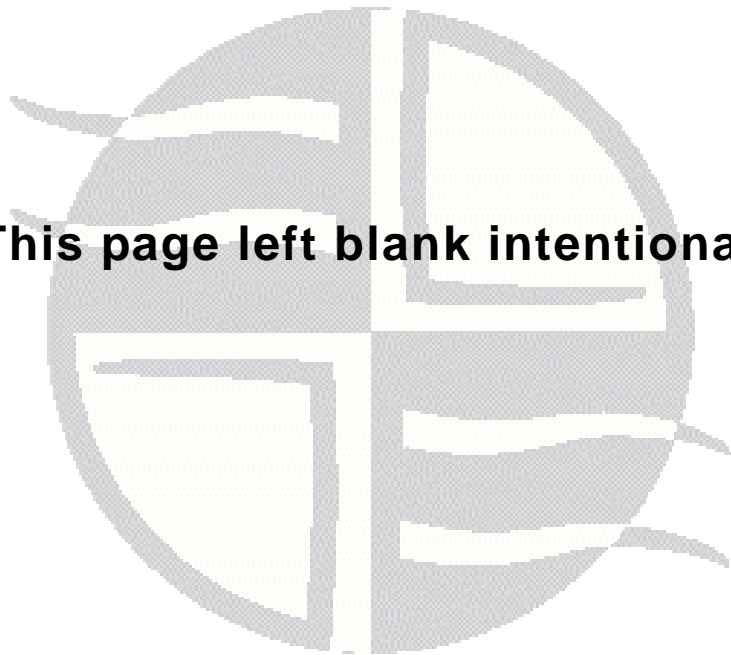
Each EDA for ISAM Unix installation also provides a second data source called `EASYSOFT_ISAM`, which can be used to import files from Easysoft ODBC for ISAM.

A script called `/usr/local/easysoft/isam/bin/easysql` can be used to directly query this data source.

Additional data sources can be created in the `/etc/odbc.ini` file by copying the `EASYSOFT_ISAM` data source entry and then amending the data source name, `data_path` and `schema_path` attributes.

The data source name in the `easysql` script can then be amended to match the new entry in `/etc/odbc.ini` and the script run against this alternative data.

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CONVERTING CATALOGS

Converting ODBC for ISAM data to EDA for ISAM

This section describes how catalogs are converted from Easysoft ODBC for ISAM data sources into Easysoft Data Access for ISAM format under Windows and Unix platforms.

Chapter Guide

- **The Conversion Process**
- **Using the Windows Administrator**
- **Using the Unix command line**
- **Editing catalog users and permissions**

The Conversion Process

EDA for ISAM is able to read the same data as Easysoft ODBC for ISAM by converting catalog definitions into a format that can be used to populate an alternative schema.

Easysoft ODBC for ISAM catalogs are converted into a CSV (Comma Separated Value) format file and then imported into a blank EDA for ISAM catalog which replicates the existing file definitions.

ENVIRONMENT VARIABLES

Unlike ODBC for ISAM, the EDA for ISAM catalog does not use environment variables and this must be taken into consideration during the conversion process.

For example:

The ODBC for ISAM data source on a Windows machine has the catalog field in the DSN set to `EASYSOFT_SQL_DEMO_CATALOG`, which refers to an environment variable.

On a Unix machine where ISAM files are located, the `SERVER` file (`/opt/easysql/SERVER`) contains shell commands which define and export the `EASYSOFT_SQL_DEMO_CATALOG` environment variable into a value that represents the full catalog path name.

NB The <code>SERVER</code> file may also define other environment variables that are used in your catalog.

When the `convert.sh` shell script is run on an ODBC for ISAM catalog, warnings will be displayed similar to the following:

```
could not find file LASER or EASYSOFT_SQL_DEMO_DATA/LASER
```

and although an output file will be created, the references to the environment variables will still exist.

To solve this problem, the output file can be edited to replace the environment variables or the `/opt/easysql/SERVER` file can be "sourced" before running `convert.sh`:

```
source /opt/easysql/SERVER
./convert.sh <arguments>
```

Using the Windows Administrator

To convert an ODBC for ISAM catalog located on Windows, use the Easysoft Administrator:

1. Select **Programs > Easysoft > Easysoft Administrator > Catalog Administrator** from the Start Menu to start the Easysoft Administrator and then expand "ODBC Drivers" in the tree view.
2. Select and then expand "Easysoft Data Access for ISAM" to get a list of EDA for ISAM data sources.

If there are no data sources visible then create a new data source for the "Easysoft Data Access for ISAM" ODBC driver using the ODBC Data Source Administrator.

3. Select the EDA for ISAM data source into which the catalog is to be imported.
4. Click **Import** and select "Easysoft ODBC for ISAM" as the source of the definitions.
5. Click **Next** and then use the browse button next to the "File Specification" field to locate the directory that contains the catalog to be imported.

6. Click Import.

If no error messages are displayed in the **Result** dialog box then the catalog has been imported successfully, its definitions can be viewed by clicking on the tables in the chosen EDA for ISAM data source and the ISAM files accessed by using this ODBC data source within an ODBC application.

Using the Unix command line

To convert an ISAM catalog located on Unix, use the `convert.sh` shell script in `/usr/local/easysoft/isam/bin`:

1. Locate the directories containing the Easysoft ODBC for ISAM catalogs and note them down.
2. Select the EDA for ISAM data source within `/etc/odbc.ini` into which the catalog is to be imported.

By default the Easysoft Data Access for ISAM installation creates an empty data source called `EASYSOFT_ISAM` with the `schema_path` variable set to `/usr/local/easysoft/isam/schema/`, which can be used for this purpose.

NB

If there are multiple catalog directories to be imported from Easysoft ODBC for ISAM then multiple directories and data sources (one for each catalog directory) must be created to avoid table name clashes.

3. Change directory into `/usr/local/easysoft/isam/bin`.
4. For each Easysoft ODBC for ISAM catalog directory:

```
./convert.sh -c path_to_catalog_dir_to_import -o export.sql
```

Type `./convert.sh` to display an example of the required syntax:

```
Version 1.4 Catalog Converter
=====
usage : convert -c [catalog] -o [output filename]
       -c Specify location of version 1.4 catalog to convert.
       -o Output file to receive resultant data definition statements.
       -drop Generate drop table statements as well as create.

example : convert -c /opt/easysql/democat -o output.sql -drop
```

Figure 8: The Easysoft ODBC for ISAM Catalog Converter

The example statement in **“The Easysoft ODBC for ISAM Catalog Converter” on page 39** will convert Easysoft ODBC for ISAM data located in `/opt/easysql/democat` and create an SQL file called `output.sql` containing the SQL data definition statements required to create the definitions within the new EDA for ISAM schema.

5. Run the `easysql` utility in `/usr/local/easysoft/isam/bin`. to load the data definition statement into the `EASYSOFT_ISAM` data source within EDA for ISAM:

```
easysql -f export.sql
```

– OR –

To import into other data sources, use:

```
./sql -d "DSN=<datasource>;UID=<dbuser>;PWD=<dbpass>;" -f
export.sql
```

where:

`datasource` is the data source into which to import the catalog.

`dbuser` is the data source catalog administrator (initially "dbo").

`dbpass` is the data source catalog administrator password (initially "easysoft").

CONVERTING CATALOGS

Converting ODBC for ISAM data to EDA for ISAM

- The Easysoft ODBC for ISAM data files should now be accessible within Easysoft Data Access for ISAM and it should be possible to query the data by running either the `./easysql` or `./sql` command (without any parameters) and entering any valid SQL statement.

For example:

```
$ cd /usr/local/easysoft/isam/bin
$ ./easysql
conn = :DSN=easysoft_isam;UID=dbo;PWD=easysoft;...
> select * from info_schema.tables; (Press Return)
```

will display a list of all tables within the new schema.

- Press **<Return>** on a blank line within `./easysql` or `./sql` to exit back to the shell prompt.

Easysoft ODBC for ISAM table definitions are imported into a data source named `EASYSOFT_ISAM` on the Unix machine and may be accessed through a data source created on a remote machine.

For further details, see the separate Easysoft Administrator manual.

Editing catalog users and permissions

Once a catalog has been converted to EDA for ISAM, the Easysoft Administrator can be used under Windows to add, remove or change users and to change public and user access rights.

Alternatively, on Unix run the Web Administrator with a browser (see <http://www.easysoft.com/products/2107/man/webadmin.html> in the Easysoft Data Access for ISAM User Manual).

NB	The Web Administrator is NOT the same software as the Easysoft Administrator and cannot be used to import and export file definitions or define schema layouts.
-----------	---

LICENSING

Licensing Easysoft Data access for ISAM

This section describes the differences in licensing between Easysoft ODBC for ISAM and Easysoft Data Access for ISAM.

Chapter Guide

- [Licensing methods](#)

Licensing methods

Easysoft ODBC for ISAM and Easysoft Data Access for ISAM licensing methods are substantially different:

EASYSOFT ODBC FOR ISAM

In Easysoft ODBC for ISAM a license containing a user count is purchased for the server and the name of the user which is logging on from each client machine is stored by the server as a connection is made.

Other licensing methods include a CPU license which allows unlimited users and site licenses which are effectively CPU licenses on many machines at the same location.

Once the purchased number of users has been reached, no new users are allowed a connection and the administration program installed with Easysoft ODBC for ISAM must be used to remove users from the current list in order to allow new ones to connect.

EASYSOFT DATA ACCESS FOR ISAM

In Easysoft Data Access for ISAM a license is purchased to run EDA for ISAM which usually includes a license to run the Easysoft ODBC-ODBC Bridge server (this does not apply to Windows platforms).

Each license contains a maximum concurrent connection count and the licensing software monitors the number of connections that are active at any one time, rather than the identity of those that are connected. An unlimited license means that an unlimited number of concurrent connections are allowed.

As the licensing does not care who the clients are, any users can log on and off the server machine as often as they like, so long as the concurrent connection count at the server is not exceeded.

EDA for ISAM licenses are sold in three multiples: 5 connection, 25 connection and unlimited connections (part of the reason for having a minimum of a 5 connection license is that some applications open multiple concurrent connections).

The fundamental difference between licensing in ODBC for ISAM and EDA for ISAM is the idea of "users". EDA for ISAM does not care who is connecting to ISAM or from where, only how many connections are active.

TYPICAL LICENSING SCENARIOS

Here are three typical scenarios:

1. Easysoft ODBC for ISAM is being used with a single user license.

NB

A single user ODBC for ISAM license allows ISAM files to be opened multiple times simultaneously (in Microsoft Access and Microsoft Excel, for example).

This means that the first user to connect to ISAM data is stored by the server and no other users can then connect unless the current user is removed with the license administrator (which is inconvenient).

The principle user runs Microsoft Access to work on the ISAM data, but occasionally a second user needs access, which requires either the purchase of a two user license or the deleting of the first user every time the other user needed access.

In EDA for ISAM the entry level 5 concurrent connection license would suffice for both users accessing the ISAM files simultaneously (Microsoft Access opens two connections when initially linking tables, but only uses a single connection after that). In addition, five different users could use Microsoft Access to access ISAM files at the same time once the tables have been linked.

LICENSING

Licensing Easysoft Data access for ISAM

It is not necessary to keep track of specifically which clients are using EDA for ISAM, because it does not matter who they are. If one user leaves or changes machine, no action is required.

2. Easysoft ODBC for ISAM is being used with a single CPU license and there are many clients connecting occasionally to the ISAM files for short periods of time.

With EDA for ISAM, an unlimited connection license would allow unlimited concurrent connections, but it is likely that a much lower connection license would be sufficient, because the clients are not all connecting simultaneously.

3. Easysoft ODBC for ISAM is being used to connect a web server to the ISAM files with a single user license.

Since the web server opens multiple simultaneous connections to the file server depending on the amount of web site traffic and is the only machine in the network that ever needs access to the ISAM files, a single user license is sufficient, but further licenses would be required in order to access to the ISAM files from another machine.

With EDA for ISAM, the maximum number of connections that will be made concurrently between the web server and the file server must be determined.

For example, if the web server runs a maximum of 25 web processes to handle the web site, then at least a 25 connection license would be required when the site is at its busiest (this assumes each one of the web servers opens a maximum of one database connection at a time).

COMPARISON



ODBC and SQL enhancements in EDA for ISAM

This section explains the differences in ODBC and SQL conformance between the Easysoft ODBC for ISAM (ODBC for ISAM) and Easysoft Data Access for ISAM (EDA for ISAM).

Appendix Guide

- [Overview](#)
- [API Conformance](#)
- [Function Conformance](#)
- [SQL Conformance](#)

COMPARISON

ODBC and SQL enhancements in EDA for ISAM

Overview

Both the new Easysoft Data Access for ISAM and the older ODBC for ISAM products provide a relational view of non-relational data stored in C/D ISAM files.

This document details the different capabilities of the two products, old and new, in the context of the standard ODBC conformance levels.

While the ODBC for ISAM was mainly conformant to ODBC 2 standards, the current ODBC standard is now ODBC 3.5 and above, so this document will discuss the details from the perspective of a programmer expecting their application to function with a driver.

Whilst many of the differences between ODBC 2 and ODBC 3 drivers are handled transparently by the driver manager and applications often adjust their operation to match the conformance of the driver, in many cases full operation of the application and peak performance can only be obtained by the use of the modern ODBC standards.

API Conformance

ODBC consists of a programming interface, and as such the only way to use ODBC is via this interface. The specification details all the entry points that applications can call and also the expected operation.

Whilst ODBC was originally created by Microsoft and drew on existing standards for data access, the ODBC specification has been aligned to the X-Open Data Access API with the introduction of ODBC 3 (mainly through the introduction of descriptors).

The following lists show both the ODBC 2 and ODBC 3 conformance levels, and describe the level of conformance (or lack of) that applies to the ODBC for ISAM and EDA for ISAM products.

ODBC 2 API CONFORMANCE LEVELS

Core API

Operation	ODBC for ISAM	EDA for ISAM
Allocate and free environment, connections and statement handles.	Yes	Yes
Connect to data source. Use multiple statements on a connection.	Yes	Yes
Prepare and execute SQL statements. Execute SQL Statements immediately.	Yes	Yes
Assign storage for parameters in an SQL Statement and results column.	Yes	Yes
Retrieve data from a result set. Retrieve information about a result set.	Yes	Yes
Commit or roll back transactions.	No	Yes ¹
Retrieve error information.	Yes	Yes

Figure 9: ODBC 2 Core API

Level 1 API

Operation	ODBC for ISAM	EDA for ISAM
Core API functionality.	No ²	Yes
Connect to data source with driver-specific dialog boxes.	Yes	Yes

COMPARISON

ODBC and SQL enhancements in EDA for ISAM

Operation	ODBC for ISAM	EDA for ISAM
Set and inquire values of statement and connection options.	Yes	Yes
Send part or all of a parameter value (useful for long data).	Yes	Yes
Retrieve catalog information (columns, special columns, statistics and tables).	Yes	Yes
Retrieve information about driver and data source capabilities, such as supported data types, scalar functions and ODBC functions.	Yes	Yes

Figure 10: ODBC 2 Level 1 API

Level 2 API

Operation	ODBC for ISAM	EDA for ISAM
Core and level 1 API functionality.	No ²	Yes
Browse connection information and list available data sources.	No	Yes
Send arrays of parameter values, retrieve arrays of result column values.	No ³	Yes
Retrieve the number of parameters and describe individual parameters.	Yes	Yes
Use a scrollable cursor.	No	Yes
Retrieve the native form of a SQL statement.	No	Yes
Retrieve catalog information (privileges, keys and procedures).	Yes	Yes
Call a translation DLL.	No	No

Figure 11: ODBC 2 Level 2 API

ODBC 3 API CONFORMANCE LEVELS

Core Interface Conformance

Reference	Operation	ODBC for ISAM	EDA for ISAM
1	Allocate and free all types of handles by calling SQLAllocHandle and SQLFreeHandle .	No ⁴	Yes
2	Use all forms of the SQLFreeStmt function.	Yes	Yes
3	Bind result set columns by calling SQLBindCol .	Yes	Yes
4	Handle dynamic parameters, including arrays of parameters, in the input direction only, by calling SQLBindParameter and SQLNumParams (see Reference 203 in "Level 2 Interface Conformance" on page 54 for parameters in the output direction).	No ³	Yes
5	Specify a bind offset.	No	Yes
6	Use the data-at-execution dialog box, involving calls to SQLParamData and SQLPutData .	Yes	Yes
7	Manage cursors and cursor names, by calling SQLCloseCursor , SQLGetCursorName and SQLSetCursorName .	Yes	Yes
8	Gain access to the description (metadata) of result sets by calling SQLColAttribute , SQLDescribeCol , SQLNumResultCols and SQLRowCount (see Reference 204 in "Level 2 Interface Conformance" on page 54 for the use of these functions on column number 0 to retrieve bookmark metadata).	Yes	Yes

COMPARISON

ODBC and SQL enhancements in EDA for ISAM

Reference	Operation	ODBC for ISAM	EDA for ISAM
9	Query the data dictionary by calling the catalog functions SQLColumns , SQLGetTypeInfo , SQLStatistics and SQLTables . The driver is not required to support multipart names of database tables and views. For more information, see Reference 101 in "Level 1 Interface Conformance" on page 52 and Reference 201 in "Level 2 Interface Conformance" on page 54 . However, certain features of the SQL-92 specification, such as column qualification and names of indexes, are not intended to introduce new optionality into these aspects of SQL-92.	Yes	Yes
10	Manage data sources and connections by calling SQLConnect , SQLDataSources , SQLDisconnect and SQLDriverConnect . Obtain information on drivers, no matter which ODBC level they support, by calling SQLDrivers .	Yes	Yes
11	Prepare and execute statements by calling SQLExecDirect , SQLExecute and SQLPrepare .	Yes	Yes
12	Fetch one row of a result set or multiple rows, in the forward direction only, by calling SQLFetch , or by calling SQLFetchScroll with the <i>FetchOrientation</i> argument set to <code>SQL_FETCH_NEXT</code> .	Yes ⁵	Yes
13	Obtain a unbound column in parts by calling SQLGetData .	Yes	Yes

COMPARISON

ODBC and SQL enhancements in EDA for ISAM

Reference	Operation	ODBC for ISAM	EDA for ISAM
14	Obtain current values of all attributes by calling SQLGetConnectAttr , SQLGetEnvAttr and SQLGetStmtAttr . Set all attributes to their default values and set certain attributes to their non-default values by calling SQLSetConnectAttr , SQLSetEnvAttr and SQLSetStmtAttr .	Yes	Yes
15	Manipulate certain fields of descriptors by calling SQLCopyDesc , SQLGetDescField , SQLGetDescRec , SQLSetDescField and SQLSetDescRec .	No	Yes
16	Obtain diagnostic information by calling SQLGetDiagField and SQLGetDiagRec .	Yes ⁶	Yes
17	Detect driver capabilities by calling SQLGetFunctions and SQLGetInfo . Also detect the result of any text substitutions made to a SQL statement before it is sent to the data source by calling SQLNativeSQL .	No	Yes
18	Use the syntax of SQLEndTran to commit a transaction. A Core level driver need not support true transactions, so the application cannot specify SQL_ROLLBACK or SQL_AUTOCOMMIT_OFF for the SQL_ATTR_AUTOCOMMIT connection attribute (for more information, see Reference 109 in "Level 1 Interface Conformance" on page 54).	Yes	Yes

COMPARISON

ODBC and SQL enhancements in EDA for ISAM

Reference	Operation	ODBC for ISAM	EDA for ISAM
19	Call SQLCancel to cancel the data-at-execution dialog box and in multithreaded environments to cancel a ODBC function executing in another thread. Core-level interface conformance does not mandate support for asynchronous execution of functions nor the use of SQLCancel to cancel an ODBC function executing asynchronously. Neither the platform nor the ODBC driver need to be multithreaded for the driver to conduct independent activities at the same time. However, in multithreaded environments the ODBC driver must not be thread-safe. Serialization of requests from the application is a conformant way to implement this specification, even though it may create serious performance problems.	Yes	Yes
20	Obtain the SQL_BEST_ROWID row-identifying column of tables by calling SQLSpecialColumns (see Reference 208 in " Level 2 Interface Conformance " on page 55 for support for SQL_ROWVER).	Yes	Yes

Figure 12: ODBC 3 Core Interface Conformance

Level 1 Interface Conformance

Reference	Operation	ODBC for ISAM	EDA for ISAM
101	Specify the schema of database tables and views using two-part naming (for information on three-part naming, see Reference 201 in " Level 2 Interface Conformance " on page 54).	Yes	Yes

COMPARISON

ODBC and SQL enhancements in EDA for ISAM

Reference	Operation	ODBC for ISAM	EDA for ISAM
102	Invoke true asynchronous execution of ODBC functions, where applicable ODBC functions are all synchronous or asynchronous on a given connection.	No	Yes ^Z
103	Use scrollable cursors (and therefore achieve access to a result set in methods other than forward-only) by calling SQLFetchScroll with the <i>FetchOrientation</i> argument other than SQL_FETCH_NEXT. The SQL_FETCH_BOOKMARK <i>FetchOrientation</i> is in Reference 204 in "Level 2 Interface Conformance" on page 54).	No	Yes
104	Obtain primary keys of tables by calling SQLPrimarykeys .	Yes	Yes
105	Use stored procedures (through the ODBC escape sequence for procedure calls) and query the data dictionary regarding stored procedures by calling SQLProcedureColumns and SQLProcedures (the process by which procedures are created and stored on the data source is outside the scope of this document).	No	No
106	Connect to a data source by calling SQLBrowseConnect to interactively browse the available servers.	No	Yes
107	Use ODBC functions instead of SQL statements to perform certain database operations: SQLSetPos .	No	Yes
108	Gain access to the contents of multiple result sets generated by batches and stored procedures by calling SQLMoreResults .	No	Yes

COMPARISON

ODBC and SQL enhancements in EDA for ISAM

Reference	Operation	ODBC for ISAM	EDA for ISAM
109	Delimit transactions spanning several ODBC functions, with true atomicity and the ability to specify SQL_ROLLBACK in SQLEndTran .	No	Yes ¹

Figure 13: ODBC 3 Level 1 Interface Conformance

Level 2 Interface Conformance

Reference	Operation	ODBC for ISAM	EDA for ISAM
201	Use three-part names of database tables and views (for information on two-part naming, see Reference 101 in "Level 1 Interface Conformance" on page 52).	No	Yes
202	Describe dynamic parameters by calling SQLDescribeParam .	Yes	Yes
203	Use not only input parameters, but also output parameters, input/output parameters and the result value of stored procedures.	No	No
204	Use bookmarks, including retrieving bookmarks, by calling SQLDescribeCol and SQLColAttribute on column number 0, fetching based on a bookmark by calling SQLFetchScroll with the <i>FetchOrientation</i> argument set to SQL_FETCH_BOOKMARK; and update, delete, and fetch by bookmark operations by calling SQLBulkOperations with the <i>Operation</i> argument set to SQL_UPDATE_BY_BOOKMARK, SQL_DELETE_BY_BOOKMARK or SQL_FETCH_BY_BOOKMARK.	No	Yes ⁸

COMPARISON

ODBC and SQL enhancements in EDA for ISAM

Reference	Operation	ODBC for ISAM	EDA for ISAM
205	Retrieve advanced information on the data dictionary by calling SQLColumnPrivileges , SQLForeignKeys and SQLTablePrivileges .	No	Yes
206	Use ODBC functions instead of SQL statements to perform additional database operations by calling SQLBulkOperations with SQL_ADD or SQLSetPos with SQL_DELETE or SQL_UPDATE. Support for calls to SQLSetPos with the <i>LockType</i> argument set to SQL_LOCK_EXCLUSIVE or SQL_LOCK_UNLOCK is not a part of the conformance levels, but is an optional feature.	No	Yes ⁸
207	Enable asynchronous execution of ODBC functions for specified individual statements.	No	Yes
208	Obtain the SQL_ROWVER row-identifying column of tables by calling SQLSpecialColumns (for information on the support for SQLSpecialColumns with the IdentifierType argument set to SQL_BEST_ROWID, see Reference 20 in "Core Interface Conformance" on page 52).	No	No ⁹
209	Set the SQL_ATTR_CONCURRENCY statement attribute to at least one value other than SQL_CONCUR_READ_ONLY.	No	Yes
210	The ability to time out login requests and SQL Queries (SQL_ATTR_LOGIN_TIMEOUT and SQL_ATTR_QUERY_TIMEOUT).	No	No ¹⁰
211	The ability to change the default isolation level and to execute transactions with the "serializable" level of isolation.	No	Yes

Figure 14: ODBC 3 Level 2 Interface Conformance

COMPARISON

ODBC and SQL enhancements in EDA for ISAM

NOTES

1. If transactions are enabled in the ISAM configuration, supports **COMMIT** and **ROLLBACK** and the API transaction interface. However ISAM does apply some restrictions that are covered elsewhere in the documentation.
2. Core API requires transaction support.
3. Arrays of parameters not supported.
4. Calls are translated by the driver manager; descriptors are not supported.
5. **SQLFetchScroll** translated to **SQLExtendedFetch** by the driver manager.
6. Mapped into **SQLError** calls by the driver manager.
7. If the database platform supports multithreading.
8. **SQLBulkOperations** not currently supported.
9. Cannot be implemented when using ISAM, as the row-version information is not available.
10. Query timeout supported; login timeout not supported.

Function Conformance

This is a list of ODBC 3 API entry points.

In some cases, ODBC for ISAM implements the ODBC 2 equivalent call and relies on the driver manager to map the application calls.

Function	Conformance Level	ODBC for ISAM	EDA for ISAM
SQLAllocHandle	Core	Yes	Yes
SQLBindCol	Core	Yes	Yes
SQLBindParameter	Core	Yes	Yes
SQLBrowseConnect	Level 1	Yes	Yes
SQLBulkOperations	Level 1	Yes	Yes
SQLCancel	Core	Yes	Yes
SQLCloseCursor	Core	Yes	Yes
SQLColAttribute	Core	Yes	Yes
SQLColumnPrivileges	Level 2	Yes	Yes
SQLColumns	Core	Yes	Yes
SQLConnect	Core	Yes	Yes
SQLCopyDesc	Core	No	Yes
SQLDataSources	Core	Yes	Yes
SQLDescribeCol	Core	Yes	Yes
SQLDescribeParam	Level 1	Yes	Yes
SQLDisconnect	Core	Yes	Yes
SQLDriverConnect	Core	Yes	Yes
SQLDrivers	Core	Yes	Yes

COMPARISON*ODBC and SQL enhancements in EDA for ISAM*

Function	Conformance Level	ODBC for ISAM	EDA for ISAM
SQLEndTran	Core	No	Yes
SQLExecDirect	Core	Yes	Yes
SQLExecute	Core	Yes	Yes
SQLFetch	Core	Yes	Yes
SQLFetchScroll	Core	No	Yes
SQLForeignKeys	Level 2	No	Yes
SQLFreeHandle	Core	No	Yes
SQLFreeStmt	Core	Yes	Yes
SQLGetConnectAttr	Core	No	Yes
SQLGetCursorName	Core	Yes	Yes
SQLGetData	Core	Yes	Yes
SQLGetDescField	Core	No	Yes
SQLGetDescRec	Core	No	Yes
SQLGetDiagField	Core	No	Yes
SQLGetDiagRec	Core	No	Yes
SQLGetEnvAttr	Core	No	Yes
SQLGetFunctions	Core	Yes	Yes
SQLGetInfo	Core	Yes	Yes
SQLGetStmtAttr	Core	No	Yes
SQLGetTypeInfo	Core	Yes	Yes
SQLMoreResults	Level 1	No ¹	Yes
SQLNativeSQL	Core	No ¹	Yes
SQLNumParams	Core	Yes	Yes

COMPARISON

ODBC and SQL enhancements in EDA for ISAM

Function	Conformance Level	ODBC for ISAM	EDA for ISAM
SQLNumResultCols	Core	Yes	Yes
SQLParamData	Core	Yes	Yes
SQLPrepare	Core	Yes	Yes
SQLPrimaryKeys	Level 1	Yes	Yes
SQLProcedureColumns	Level 1	No	No
SQLProcedures	Level 1	No	No
SQLPutData	Core	Yes	Yes
SQLRowCount	Core	Yes	Yes
SQLSetConnectAttr	Core	No	Yes
SQLSetCursorName	Core	Yes	Yes
SQLSetDescField	Core	No	Yes
SQLSetDescRec	Core	No	Yes
SQLSetEnvAttr	Core	No	Yes
SQLSetPos	Level 1	No	Yes
SQLSetStmtAttr	Core	No	Yes
SQLSpecialColumns	Core	Yes	Yes
SQLStatistics	Core	Yes	Yes
SQLTablePrivileges	Level 2	Yes	Yes
SQLTables	Core	Yes	Yes

Figure 15: Function Conformance

NOTES

1. Entry point present in driver, but some or all functionality missing.

COMPARISON

ODBC and SQL enhancements in EDA for ISAM

SQL Conformance

ODBC LEVELS

Whilst ODBC 2 defined its own set of SQL conformance levels, based on the X/Open and SQL Access Group CAE specification, ODBC 3 uses the SQL Access Group SQL CAE specification (1992) standard as its reference.

However, both standards cover the following levels of conformance:

Minimum SQL Grammar

Requirement	ODBC for ISAM	EDA for ISAM
Data Definition Language (DDL): CREATE TABLE and DROP TABLE .	No	Yes
Data Manipulation Language (DML): simple SELECT , INSERT , UPDATE SEARCHED and DELETE SEARCHED .	Yes	Yes
Expressions: simple (such as $A > B + C$).	Yes	Yes
Data Types: CHAR, VARCHAR or LONG VARCHAR.	Yes	Yes

Figure 16: Minimum SQL Grammar

Core SQL Grammar

Requirement	ODBC for ISAM	EDA for ISAM
Minimum SQL grammar and data types.	No	Yes
DDL: ALTER TABLE, CREATE INDEX, DROP INDEX, CREATE VIEW, DROP VIEW, GRANT and REVOKE.	No	Yes
DML: full SELECT.	No	Yes
Expressions: subquery, set functions such as SUM and MIN.	No	Yes
Data types: DECIMAL, NUMERIC, SMALLINT, INTEGER, REAL, FLOAT, DOUBLE PRECISION.	Yes	Yes

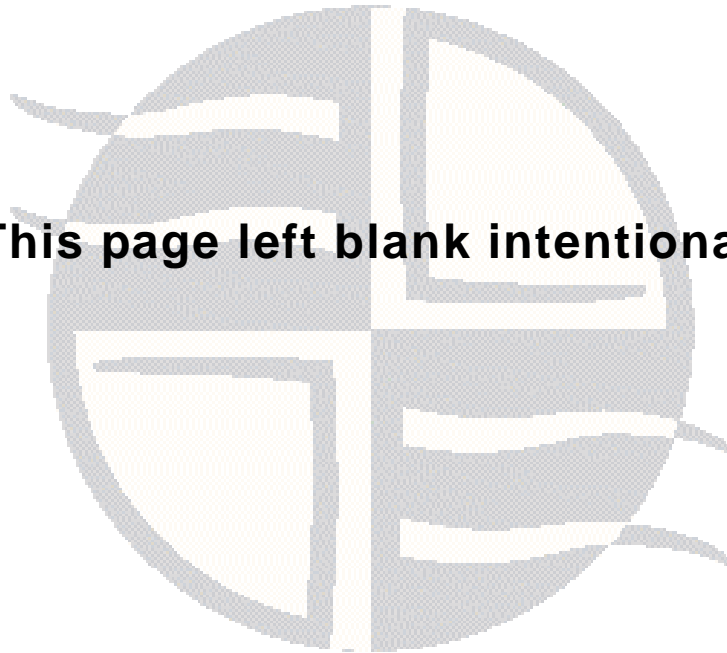
Figure 17: Core SQL Grammar

Extended SQL Grammar

Requirement	ODBC for ISAM	EDA for ISAM
Minimum and Core SQL grammar and data types.	No	Yes
DML: outer joins, positioned UPDATE , positioned DELETE , SELECT FOR UPDATE and unions.	No	Yes
Expressions: scalar functions such as SUBSTRING and ABS , date, time, and timestamp literals.	Yes	Yes
Data types: BIT, TINYINT, BIGINT, BINARY, VARBINARY, LONG VARBINARY, DATE, TIME and TIMESTAMP.	Yes	Yes
Batch SQL Statements.	No	Yes
Procedure calls.	No	No

Figure 18: Extended SQL Grammar

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FAQs

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FAQs on migrating from ODBC for ISAM to EDA for ISAM

This section documents some frequently asked questions on migrating and importing data from Easysoft ODBC for ISAM data sources into Easysoft Data Access for ISAM data format.

Appendix Guide

- [Frequently Asked Questions](#)

Frequently Asked Questions

IS THERE A QUICK WAY TO CREATE EASYSOFT ODBC-ODBC BRIDGE DATA SOURCES FOR MULTIPLE CLIENT MACHINES ACCESSING REMOTE ISAM FILES WITH EASYSOFT ODBC FOR ISAM?

Yes. You can use File DSNs. The ODBC driver manager has a default directory to store file DSNs (often C:\Program Files\Common Files\ODBC\Data Sources).

You can create the various data sources you need and simply copy them into this directory on each machine.

A typical Easysoft ODBC-ODBC Bridge file DSN looks like this:

```
[ODBC]
Driver=Easysoft ODBC-ODBC Bridge
server = unix_machine
port = 8888
transport = tcpip
logonuser = valid_username_on_unix_machine
logonauth = password_for_logonuser
targetdsn = SAMPLE_ISAM
targetuser = dbo
targetauth = easysoft
BlockFetchSize = 10
```

Place each file DSN in a separate file and then distribute those files across your client machines.

CAN I SAFELY INSTALL EDA FOR ISAM ON THE SAME MACHINE AS I HAVE EASYSOFT ODBC FOR ISAM INSTALLED?

Yes. EDA for ISAM is installed in a different location to the recommended location for Easysoft ODBC for ISAM.

CAN I USE EASYSOFT ODBC FOR ISAM AFTER INSTALLING EDA FOR ISAM?

Yes. It is just like running multiple applications to your ISAM files.

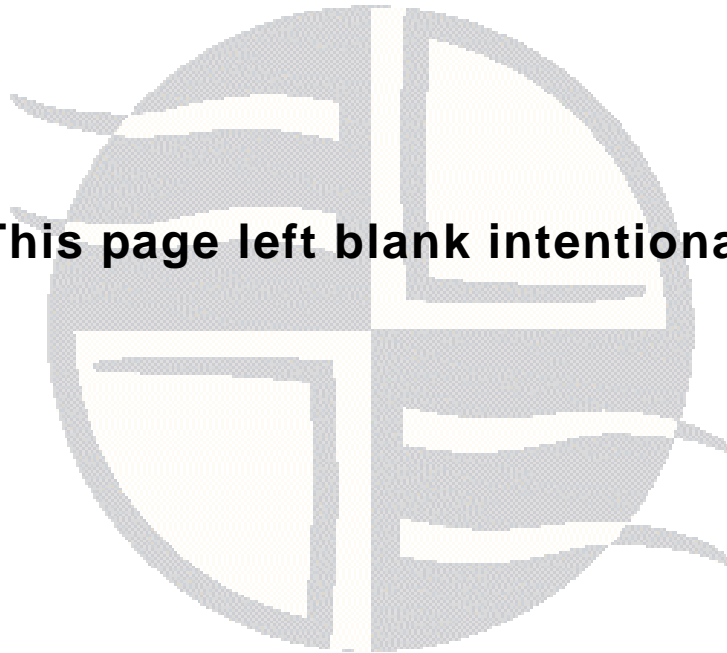
CAN I USE THE EXISTING ADMINISTRATOR WITH EDA FOR ISAM?

No. The Administrator for Easysoft ODBC for ISAM reads and writes your catalog using special system tables which do not exist in EDA for ISAM. You should use the new EDA Administrator with EDA for ISAM data sources.

DO I NEED A NEW LICENSE KEY TO USE EDA FOR ISAM?

Yes. EDA for ISAM is a totally new product with many new features not available in Easysoft ODBC for ISAM.

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GLOSSARY



Terms and definitions

API (Application Programmer Interface)

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

Application

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

Authorization code

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

Client

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

Client/Server

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

Column

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

Database

A collection of data files.

Data source

In ODBC terms, a data source is a database or other data repository coupled with an ODBC Driver, which has been given a Data Source Name (see "**DSN**" on page 69) to identify it to the ODBC Driver Manager.

Data type

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

DBMS

Database Management System. Software that handles access to a database.

Download

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

Driver

See "**ODBC driver**" on page 70.

Driver Manager

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

DSN

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

Field

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

FTP

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

Host

A computer visible on the network.

HTTP

HyperText Transfer Protocol. The means of transferring web pages.

Middleware

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

License key

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

ODBC

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

ODBC driver

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

Row

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

Schema

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

Server

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

OR

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

SQL

Structured Query Language. An international standard text language for querying and manipulating databases.

System data source

In the context of ODBC under Microsoft Windows, a data source which can be accessed by any user on a given system. See also **"User data source" on page 71**.

Table

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

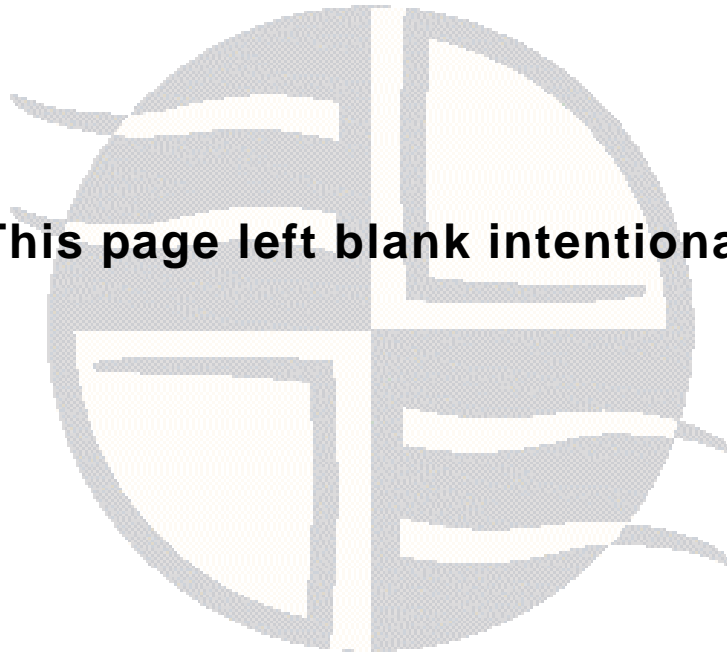
TCP/IP

Transmission Control Protocol/Internet Protocol. A standard method of accessing data on different machines.

User data source

In the context of ODBC under Microsoft Windows, a data source which can only be accessed by a specific user on a given system. See also **"System data source" on page 71**.

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