Easysoft® Data Access
ODBC-Oracle Driver

Installation Guide and User Manual

Version 2.2.

This manual documents version 2.2 of the Easysoft ODBC-Oracle Driver.

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PREFACE

About this manual

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

Chapter Guide

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

Intended Audience

Sections written for the Microsoft Windows platforms require some familiarity with the use of buttons, menus, icons and text boxes, but should present no difficulties if you have any experience of Apple Macintosh computers, Microsoft Windows or the X Window System.

The Unix-based sections require experience of using Unix shell commands and performing basic functions like editing a file.

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:

Unix	In Unix 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**

  Introduces the Easysoft ODBC-Oracle Driver

- **Installation**

  Explains how to install the Easysoft ODBC-Oracle Driver

- **Configuration**

  Explains how to configure the Easysoft ODBC-Oracle Driver

- **Technical Reference**

  Comprising a Technical Reference and Glossary.

Trademarks

Throughout this manual, *Windows* refers generically to Microsoft Windows 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*.

UNIX is a registered trademark of The Open Group

Oracle is a registered trademark of Oracle Corporation and/or its affiliates.

Easysoft and Easysoft Data Access are trademarks of Easysoft Limited.

INTRODUCTION

Introducing the Easysoft ODBC-Oracle Driver

The Easysoft ODBC-Oracle Driver provides ODBC 3.5 access to Oracle 8, 9 and 10g databases from any supported Windows or Unix variant.

Although ODBC access from Windows client devices is common, this driver extends the same functionality to applications hosted on Linux and Unix systems, and may be extended to other platforms in the future.

Chapter Guide

- **Product Status**
- **Product Dependencies**
- **Deployment**

Product Status

The Easysoft ODBC-Oracle Driver software is currently available on the following platforms:

- Windows x86

- Linux x86

- Solaris Sparc 32 bit and 64 bit

- Solaris Intel

- Compaq TRU-64

- AIX 32 bit and 64 bit

- HP-UX PA-RISC 32 bit and 64 bit

- HP-UX Itanium

Software problems can be reported to **support@easysoft.com** by users who have either purchased support or registered via the website at **http://www.easysoft.com** and are evaluating products with a view to subsequent purchase.

Client tools tested include ApplixWare, StarOffice, Open Office, Perl DBI and PHP4. Notes associated with these products are located in **"Application Specific Issues" on page 99**.

Remote access to the Easysoft ODBC-Oracle Driver has also been tested via the Easysoft ODBC-ODBC Bridge. Applications tested by this route including Microsoft Access and Microsoft Query.

Product Dependencies

The Easysoft ODBC-Oracle Driver requires the user to obtain and install a copy of the Oracle Client Software (see **"Oracle Client software" on page 92**).

Deployment

Several deployment options are available dependent upon the server platforms used and connectivity requirements.

The Easysoft ODBC-Oracle Driver can be located on any machine which has the Oracle client libraries. For platforms where the Oracle client libraries are not available or where you have many client machines, access may be provided with the addition of the Easysoft ODBC-ODBC Bridge. The addition of the Easysoft JDBC-ODBC Bridge also enables JDBC access from remote devices.

SCENARIO 1: LOCAL ACCESS TO A LOCAL ORACLE DATABASE

In this option Oracle client software will usually be already present on the host system.
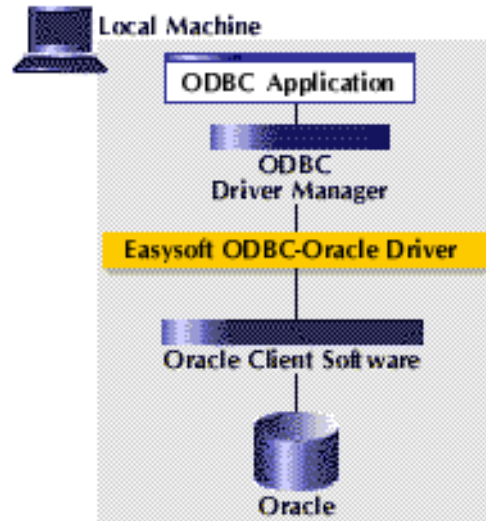
Figure 1: Local access to a local Oracle database

SCENARIO 2: SINGLE CLIENT ACCESS TO A REMOTE ORACLE DATABASE

This option uses Net8 as the communications protocol and therefore requires the installation of the Oracle client software on each client device.

If Oracle client software is not available for your platform you will need to use **"Scenario 3: Access to a remote Oracle database without Net8" on page 17**).
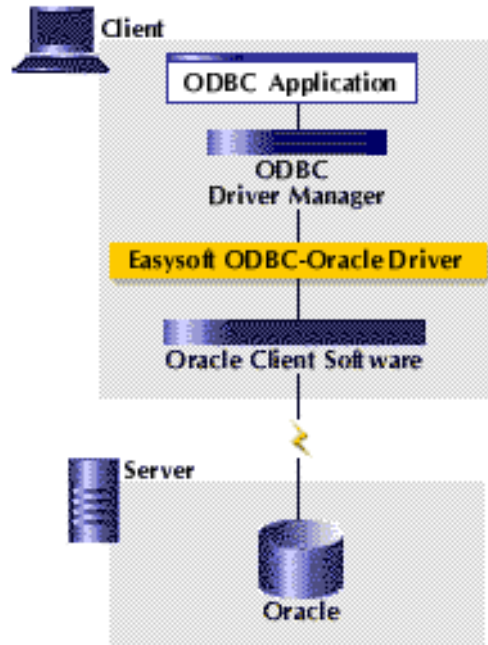
Figure 2: Single client access to a remote Oracle database

SCENARIO 3: ACCESS TO A REMOTE ORACLE DATABASE WITHOUT NET8

This option uses the Easysoft ODBC-ODBC Bridge and TCP/IP as the communications protocol.

This configuration does not require the installation of Oracle client software on each client device, making installation and management much simpler. This is appropriate if your client platform is supported by the Easysoft ODBC-ODBC Bridge, but Oracle client software is not available or you don't want to install the Oracle client on all client machines.
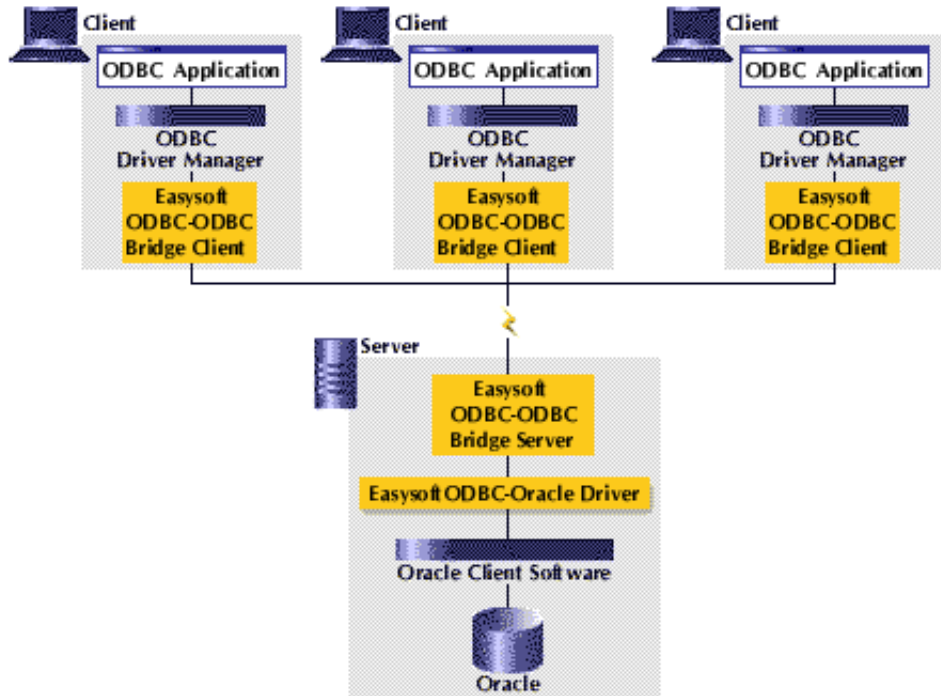
Figure 3: Access to a remote Oracle database without Net8

INSTALLATION

Installing the Easysoft ODBC-Oracle Driver

This section explains how to install, license and remove the Easysoft ODBC-Oracle Driver on supported Windows and Unix platforms.

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

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

Chapter Guide

- **Obtaining the Easysoft ODBC-Oracle Driver**

- **What to install**

- **Installing on Windows**

- **Licensing on Windows**

- **Uninstalling on Windows**

- **Installing on Unix**

- **Licensing on Unix**

- **Uninstalling on Unix**

Obtaining the Easysoft ODBC-Oracle Driver

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

- The Easysoft web site is available 24 hours a day at **http://www.easysoft.com** for downloads of definitive releases and documentation.

  Select **Download** from the Easysoft ODBC-Oracle Driver section of the website and then choose the platform release that you require.

  First time visitors must complete the new user form and click **Register**. Note that your personal Internet options may require you to login and click **Continue** if you have previously registered.

- The Easysoft FTP server is available 24 hours a day at **ftp://ftp.easysoft.com**, containing upgrades, documentation and beta releases of Easysoft products, as well as definitive releases.

  Change to the `pub/oracle` directory and then choose the platform release that you require.

- You can order Easysoft software on CD by email, telephone or post (see **Contact Details**).

What to install

The name of the Easysoft ODBC-Oracle Driver install file varies from platform to platform, but is of the form:

- `odbc-oracle-x_y_z-platform`.exe (Windows)

– OR –

- `odbc-oracle-x.y.z-platform`.tar (Unix)

where "`x`" is the major version number, "`y`" is the minor version number and `"z"` is the build index, which is incremented when fixes are applied to previous releases.

"`platform`" will vary depending on the operating system distribution you require and there are some variations of the form:

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

within specific Unix platforms, where "`variation`" refers to alternative versions available for a single platform.

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

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

NB	If you download a Unix file in Windows, the browser may alter the filename. For example, if you download a `.gz` file it may not be obvious that the file is "`gzipped`". Use "`file` *filename*" to find out the file type of the downloaded file.

You can now download a file and begin the installation process.

Caution!

> As long as you stop all running applications (under Windows), or any software either from Easysoft or using Easysoft drivers (under Unix), it is safe to reinstall or upgrade the Easysoft ODBC-Oracle 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).

Refer to the section relevant to your platform to continue:

- **"Installing on Windows" on page 23**
- **"Uninstalling on Windows" on page 35**
- **"Installing on Unix" on page 37**
- **"Uninstalling on Unix" on page 51**

Installing on Windows

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

Caution! | Please shut down other Windows programs before installing. In particular, Microsoft Outlook can cause the installation routine to pause for several minutes when you start it.

There will be a short delay while setup prepares the wizard to guide you through the rest of the install procedure before the **Welcome** dialog box is displayed:

Figure 4: The Welcome dialog box

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

The **Information** dialogue box is displayed:
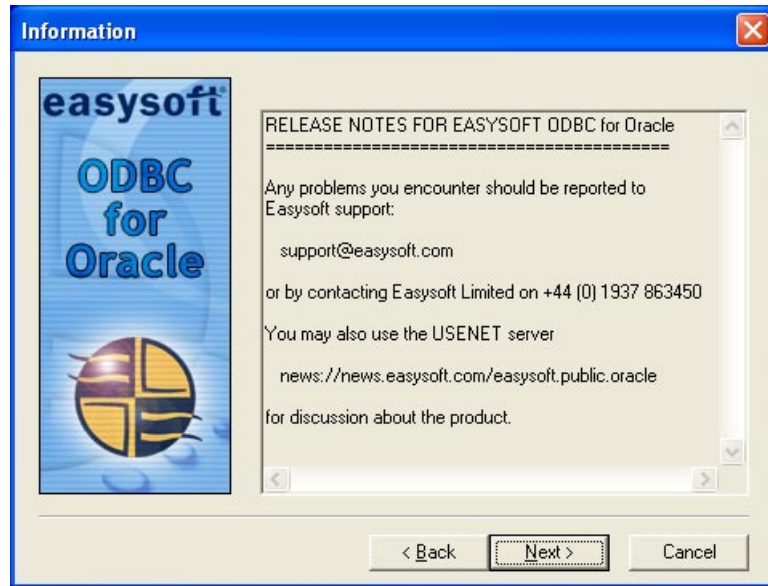
Figure 5: The Information dialog box

3. Click Next to continue

    The **User Information** dialog box is displayed:
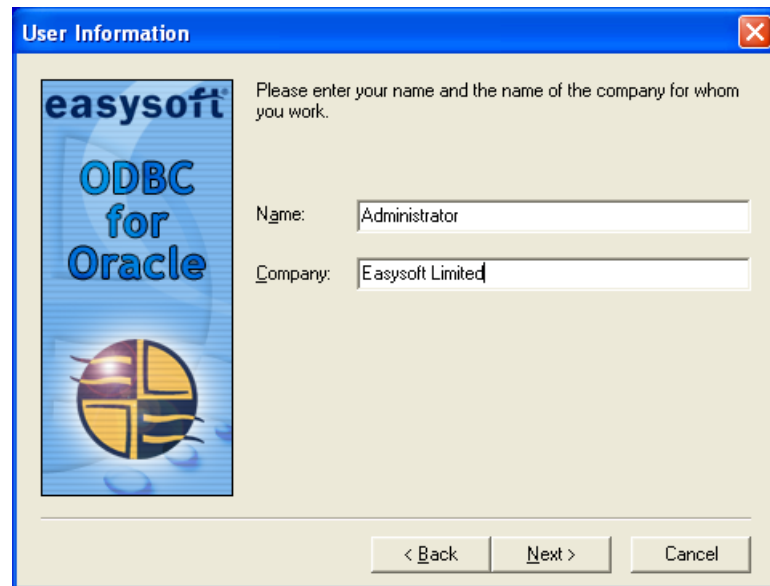
Figure 6: The User Information dialog box

4. Enter your name and the name of your company. Then click **Next** to continue.

> **NB** The name and company that you enter here will become the defaults in the License Manager later on.

The **Choose Destination Location** dialog box is displayed, where you are asked to choose where to install the Easysoft ODBC-Oracle Driver files:
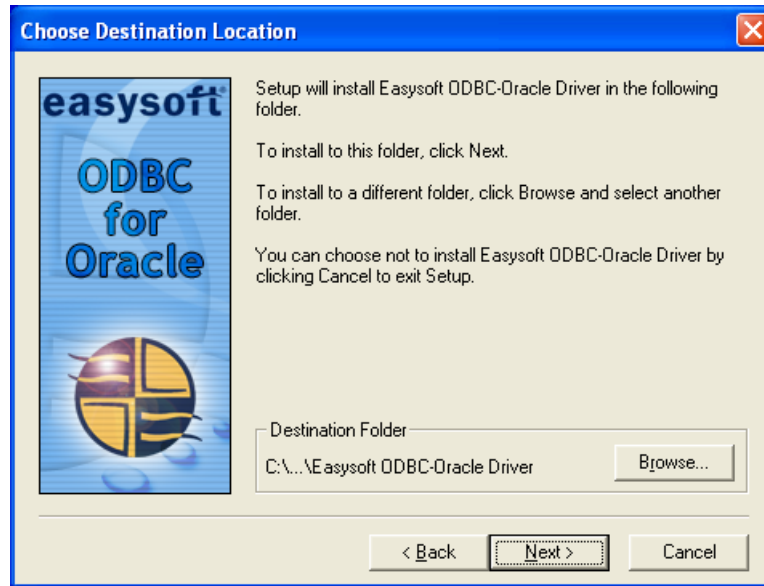
Figure 7: The Choose Destination Location dialog box

5. Click **Next** to install the application into the default directory location:

    ```
    C:\Program Files\Easysoft\Easysoft ODBC-Oracle
    Driver.
    ```

    – OR –

    Click **Browse** and select an alternative directory location for the installation, before clicking **Next**.

    The Easysoft End User licensing details are displayed in the **Software License Agreement** dialog box:
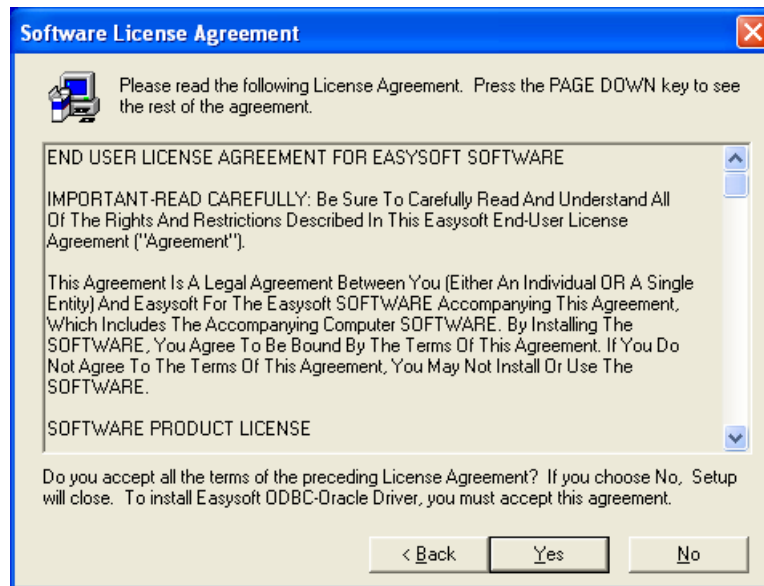
Figure 8: The License Agreement dialog box

You are required to accept the terms of the License Agreement before continuing.

6. Click **Next** to continue.

The **Start Copying Files** dialog box is displayed, containing a summary of the settings you have chosen:
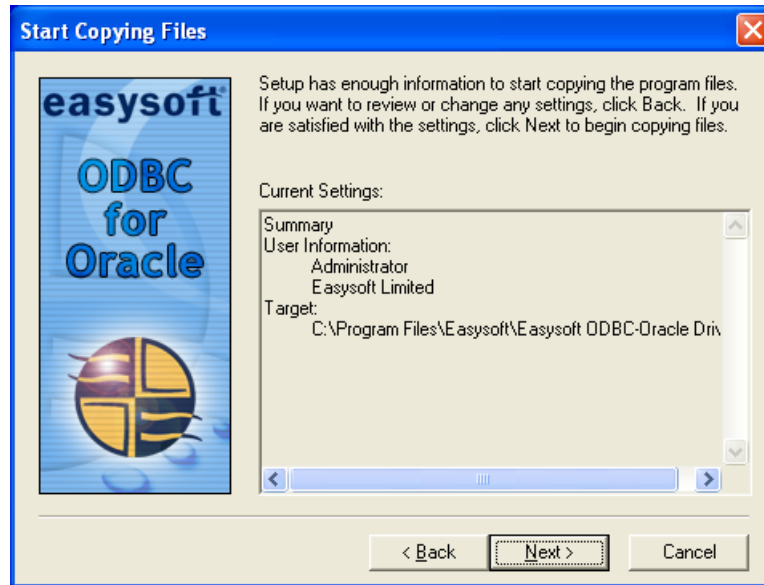
Figure 9: The Start Copying Files dialog box

7. Click **Next**.

There is now a short wait while the relevant Easysoft ODBC-Oracle Driver components are copied and configured.

Licensing on Windows

The install program now starts the Easysoft License Manager (explained fully in the **Licensing Guide**).

Figure 10: The License Manager dialog box

The following types of license are available:

- a *free time-limited trial license* which gives you free and unrestricted use of the product for a limited period (usually 30 days).

- a *full license* if you have purchased the product. On purchasing the product you are given an authorization code which you should have to hand.

8. Enter your contact details.

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

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

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

9. Click **Request License**.

    You are asked for a license type:
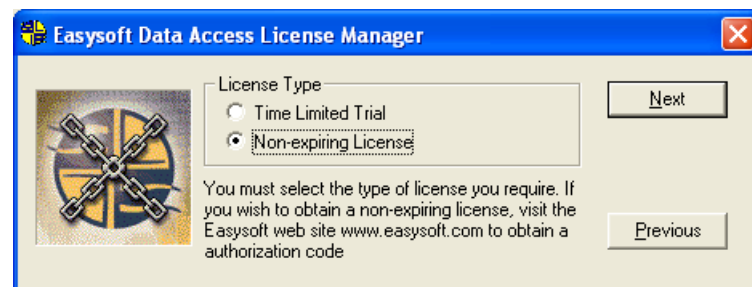
Figure 11: The License Type dialog box

The next step depends on the type of license you want.

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

The License Manager asks what software you are licensing:
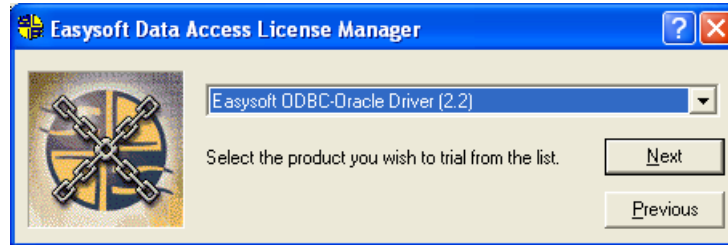
Figure 12: Select the product you are licensing

Select the **Easysoft ODBC-Oracle Driver** from the drop-down list and then click **Next**.

– OR –

If you have obtained an authorization code for a purchased license, select **Non-expiring License** and then click **Next**. The License Manager requests your authorization code.
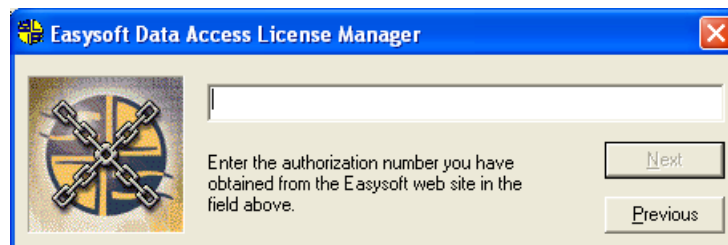
Figure 13: The Authorization Number dialog box

Enter the authorization code and then click **Next**.

11. The License Manager displays a summary of your details and allows you to choose the method of applying for your license:

Figure 14: The License Application dialog box

Choose **On-line Request** if your machine has a connection to the internet.

The License Manager then sends a request to the Easysoft license server to activate your license key automatically. This is the quickest method and results in your details being entered immediately into our support database. The whole process is automatic so you can proceed to **step 12 on page 33**.

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

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

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

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

To use this method, click **View Request** to display your site number, then go to **http://www.easysoft.com/sales/autolicense.phtml** in a web browser. Choose the type of license you require, enter your site number, click **Continue** and the license key will be emailed to you.

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

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

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

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

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

13. Click **Finish** in the License Manager to return to the install.

The **Setup Complete** dialog box is displayed:
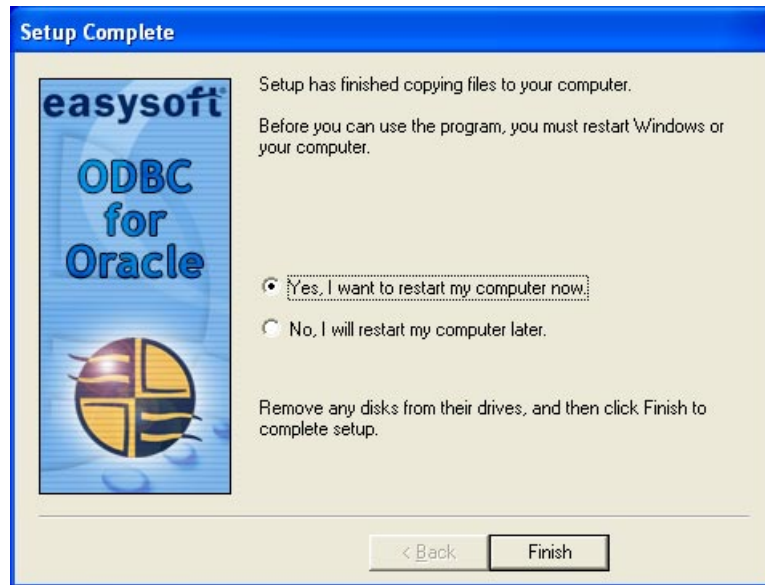
Figure 15: The Setup Wizard Complete dialog box

14. If InstallShield couldn't replace shared Easysoft .dll or .exe files because they were in use, you will be prompted whether you want to restart your PC. If this happens, you must restart your PC before using the Easysoft ODBC-Oracle Driver.

15. Click **Finish**.

The installation is complete.

You should have a new Easysoft ODBC-Oracle Driver program group with a link to this user guide.

Uninstalling on Windows

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

   A list is displayed of applications that can be automatically removed.

2. Select **Easysoft ODBC-Oracle Driver** and click **Add/Remove** or **Change/Remove**).

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

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

NB	The Windows install/uninstall procedure incorporates a mechanism in the registry to determine whether or not shared files are still required by other programs. Sometimes this database can become out-of-date if a user deletes an application directly without using **Add/Remove Programs** or if the registry is 'repaired' after a system crash.

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

   – OR –

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

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

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

6. The uninstall process is complete.

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

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

Installing on Unix

Although this section covers a range of platforms and the precise output may vary from system to system, the installation process is essentially the same.

INSTALLATION REQUIREMENTS

The Unix installation routine has the following requirements:

- The Bourne shell (or BASH) must either be named (or linked to) /bin/sh or the first line of the install file updated to the correct location.

- Various common Unix commands such as grep, awk, cut, ps, sed, cat, wc, uname, tr and find.

  If any of these commands are missing they can be obtained from the Free Software Foundation (**http://www.fsf.org**).

- Depending on the platform, you will need up to 3Mb of free disk space for the installed programs and up to 3Mb temporary space for the installation files themselves.

PREPARATION

1. Log on to your Unix machine as the root user.

2. Download the Easysoft ODBC-Oracle Driver (see **"Obtaining the Easysoft ODBC-Oracle Driver" on page 20**).

3. Place the distribution file in a temporary directory on your Unix machine.

EXTRACTING THE INSTALLATION FILES

4. Change to the directory in which the distribution file resides.

5. Uncompress the installation files from the distribution file:

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

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

    – OR –

    If the distribution file has been `bzip2`ed (i.e. the filename ends in `.bz2`), then use:

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

    – OR –

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

    ```
    uncompress odbc-oracle-x.y.z-platform.tar.Z
    ```

6. You should now have an uncompressed tar file ending in a .tar extension and this is now ready for extraction:

    ```
    tar -xvf odbc-oracle-x.y.z-platform.tar
    ```

    The `tar` program creates a directory of the same name as the `tar` file (without the final `.tar`) containing further archives, checksum files, a script called `install` and a text file called `INSTALL.txt`.

It also contains a versioned directory to ensure that any shared components already installed by other Easysoft products are only overwritten if those included in this distribution are newer.

> **NB** If you do not wish to keep the original downloaded distribution file you can now delete it safely.

Change into the newly-created `odbc-oracle-x.y.z-platform` directory.

> **Caution!** Check through the `INSTALL.txt` file before continuing. It gives full installation instructions for the Unix-literate, and if you are confident in the use and administration of your system, you can follow the instructions in the `INSTALL.txt` file instead of working through the remainder of this section.

7. There are copies of the license agreement file provided in the archive.

> **Caution!** You must read and accept the terms of the license to use the software. The license text can be found in the file `license.txt,` be sure to understand the terms before continuing.

B EGINNING THE I NSTALLATION

8. Type:

    ```
    ./install
    ```

> **NB**
>
> During the installation, you are asked to answer some questions. The default reponse is displayed in square brackets [], which you can press *<Enter>* to accept or you can choose any of the alternative responses shown in round brackets () by typing the required response and then pressing *<Enter>*.
>
> Occasionally, the install program pauses to give you time to read the information displayed on screen. Press *<Enter>* to continue when you have read the current screen of information.

9. If the installation locates a program which can display the license (e.g. your **PAGER** environment variable is set or 'more' or 'less' is found) then the license will be displayed and you will need to page to the end and quit the pager program. Once you have read and agree to the **Easysoft License Agreement**, type `yes` and then press *<Enter>* to continue.

> **NB**   You must type `yes`, not `y`, to continue.

10. The script pauses to allow you to read its output so far. Up to this point it has checked the following:

    • that you have the minimum set of Unix programs it requires

    • the platform you are running

    • any platform-specific components, such as the version of the C runtime library

11. Press *<Enter>* to continue.

     The script checks the archive package, with three possible outcomes:

     • The files are checked and they pass

     • The files are checked and they fail

     • The files are not checked because some component required for the check is not found

12. If the check failed because of missing components, enter y to continue regardless or n to quit and investigate the missing components.

     – OR –

     If the check was carried out and the files failed then the files have been damaged.

     Either:

     • return to **"Obtaining the Easysoft ODBC-Oracle Driver" on page 20** and download the install archive again

     – OR –

     call the Easysoft support team (see **Contact Details** for more information).

     If the files passed the check or you continued then you are next asked for a directory in which to place the easysoft installation directory tree.

13. Specify the directory into which the Easysoft ODBC-Oracle Driver is to be installed.

     The default is /usr/local, which would be the normal location to install software for system-wide use.

If you wish to install the software in another directory then specify an alternative path here.

If you have any other Easysoft products already installed, then choose the same directory that you chose for the other Easysoft product(s).

The installation script will create a directory called `easysoft` under the directory you specify here, into which all Easysoft ODBC-Oracle Driver files will be placed

For example, if you accept the default path of `/usr/local`, the files are installed into `/usr/local/easysoft`.

NB	The installation script can accept a path to a directory that does not exist, provided a parent directory exists. For example, if the directory `/usr/local` exists on your machine, the script can accept the non-existent directory `/usr/local/odbc` and will create it, but will not create `/usr/local/odbc/odbc-oracle`. The script always creates an `easysoft` directory beneath the specified path.

14. The script now creates the `easysoft` directory under the directory you specified. If your chosen directory does not exist, you will be asked whether or not the script should create it. Enter `y` or `n`.

Caution!	If you are upgrading to a later major or minor release the installation will warn you that you will need a new license to use this release. If you have not got a license or authorisation code which matches this distribution you should abort the installation until you have obtained them.

If the chosen directory already contains an `easysoft` directory, the script warns that you may be installing over a previous Easysoft ODBC-Oracle Driver installation (this can also arise if you have another Easysoft product installed).

Normally you should continue with the installation to install into the existing `easysoft` directory. Enter `y` or `n`.

If you chose a directory other than `/usr/local` the script creates a symbolic link `/usr/local/easysoft`, pointing to the `easysoft` directory in the path you specified, in order to ensure that licensing will work.

15. Press `<Enter>` to continue.

INSTALLING UNIXODBC

The Easysoft ODBC-Oracle Driver requires unixODBC to be installed and if unixODBC is not already present, the script offers to install the copy of the unixODBC driver manager contained in the Easysoft ODBC-Oracle Driver distribution.

NB	The entire unixODBC source distribution may also be downloaded from **ftp://ftp.easysoft.com/pub/unixODBC** and installed independently.

The unixODBC driver manager enables an ODBC application to load whichever driver is required to access the data source at runtime.

> **NB** unixODBC is an open source project sponsored by Easysoft and other industry members. It is rapidly becoming the standard driver manager across the Unix data access community. Comprehensive documentation can be found at **http://www.unixodbc.org**.

If unixODBC is already installed, the installation script can use your existing unixODBC, but you should bare in mind the following possible complications of doing this:

- If there are multiple copies of unixODBC on your system already you will have to choose one of them. If you pick the wrong one (i.e. not the one your applications are linked with, or not the one your run-time linker uses) the Easysoft ODBC-Oracle Driver will not be visible to your applications until this is corrected.

- If you have built unixODBC yourself from sources you must make sure it has been configured correctly for use with your applications.

Easysoft ODBC-Oracle Driver distributions contain matched builds of unixODBC and the Easysoft ODBC-Oracle Driver, so installing the incorporated unixODBC build is often the safest policy.

16. Press *<Enter>* to continue and then choose whether to install unixODBC.

17. If you do not wish to install the version of unixODBC included with this distribution, enter `y` and `skip to` **"Licensing on Unix" on page 45**.

    – OR –

If you wish to install unixODBC, enter n at the prompt.

18. The script pauses at this point. Press *<Enter>* to continue.

    The script extracts the unixODBC files.

NB	Depending on your platform this installation of the unixODBC driver manager may not contain the GUI components of unixODBC.

Licensing on Unix

19. You are now asked if you want to obtain a license. Accept the default [y] to start the licensing procedure.

    A menu of options is displayed.

20. Choose the option to license the Easysoft ODBC-Oracle Driver.

    You will then be asked to provide some contact information.

21. Enter your **Name**.

22. Enter your **Company Name**.

23. Enter at least one of **Email**, **Phone** and **Fax** (preferably all three). If you are obtaining a license automatically over the internet then you must supply the email address you used to register on the **Easysoft web site**.

24. At the **Ref** prompt, do either of the following:

    • If you want a trial license, leave it blank and press *<Enter>*.

    • If you want to install a purchased license, enter your authorization code and press *<Enter>*.

25. The License Manager displays a menu of licensing options.

If you have an internet connection you should select `1`, `Automatic` (this is the quickest and easiest method unless your firewall prevents the message from getting through).

– OR –

If you do not have an internet connection, or the `Automatic` option fails, select option `2` to write the required information to a text file in the current working directory called `license_request.txt`, which you will then need to view to obtain a license.

26. The License Manager displays the menu again. Select 0 to exit.

NB	The View Existing Licenses option will not display any license you obtained during this License Manager session. You must quit the License Manager and allow the install script to finish applying the license.

If you chose the automatic licensing method and licenses are retrieved, the licensing script outputs them to a file called `licenses.out`.

If the install script detects possible new licenses in the file `licenses.out` it asks whether you want to add them to the license database.

27. If you obtained licenses and you want to add them now, enter `y`.

– OR –

If you did not obtain licenses, enter `n`.

– OR –

If you do not see this message, then read on. You will need to complete the offline licensing procedure as explained in .

CONFIGURING THE EASYSOFT ODBC-ORACLE DRIVER IN UNIXODBC

If unixODBC was installed as part of this installation, or unixODBC was found to be already installed, the script will offer to configure the Easysoft ODBC-Oracle Driver under unixODBC.

This allows any ODBC application which uses the unixODBC driver manager to connect to data sources using the Easysoft ODBC-Oracle Driver.

You are asked to the enter the details needed to create a data source for the Easysoft ODBC-Oracle Driver.

28. Enter an Oracle database name.

29. Enter a user name and password.

30. The installation needs unixODBC's `odbcinst` to install the Easysoft ODBC-Oracle Driver and data source.

    If the `odbcinst` program is not in its expected location, you are asked to provide the directory into which unixODBC was installed.

    If you do not know the answer, enter q to abandon the attempt to configure unixODBC and skip to .

    – OR –

    If known, supply the unixODBC install path.

31. The script checks whether the Easysoft ODBC-Oracle Driver has already been defined under unixODBC. If the unixODBC driver manager has already been configured for the Easysoft ODBC-Oracle Driver then a warning is given.

Caution!

> If unixODBC has been previously configured with the Easysoft ODBC-Oracle Driver then it will continue to access the Easysoft ODBC-Oracle Driver software from the directory in which it was originally installed.
>
> If the current install directory is different then unixODBC will pick up the old version of the Easysoft ODBC-Oracle Driver, resulting in incorrect behavior.

32. The script now offers to install the ODBC data source you provided details for into unixODBC as a system data source. Enter y to install this data source and unixODBC's `odbcinst` will be used to add the data source.

NB

> The messages `"Target directory is /usr/lib"` and `"added to ODBC.INI"` displayed whilst the `odbcinst` script is running are inaccurate and should be ignored.

– OR –

enter n to skip and add your data source yourself.

33. If the installation fails to install the Easysoft ODBC-Oracle Driver or the data source into unixODBC, refer to the unixODBC documentation for details of how to manually reconfigure the driver manager.

REF

> Comprehensive unixODBC documentation can be found at **http://www.unixodbc.org**.
>
> The settings that the install script attempted to set can be found in the file `unixODBC.template`.

34. A message informs you that the Easysoft ODBC-Oracle Driver has been installed.

Cₒₘₚₗₑₜᵢₙ𝘨 ₜₕₑ ₒ𝒇𝒇ₗᵢₙₑ ₗᵢ𝒸ₑₙₛᵢₙ𝘨 ₚᵣₒ𝒸ₑ𝒹ᵤᵣₑ

If at **step 25 on page 45** you chose to write the licensing information to a file, you still need to complete the licensing procedure before the Easysoft ODBC-Oracle Driver can be used.

The licensing information is written to the `license_request.txt` file, which contains information including a site number (a number unique to your machine) that Easysoft requires before you can be issued with a license key.

1. Do any one of the following:

   - Display the `license_request.txt` file (e.g. using `cat license_request.txt`) and note the site number. Now run a web browser and go to **http://www.easysoft.com/sales/autolicense.phtml**. Log in to Easysoft's web site. On the License Generator screen, choose the type of license you want, then enter your site number and click **Continue**. You can now close the web browser. You will shortly receive your license key(s) via email.

   - Email the file `license_request.txt` to **autolicense@easysoft.com**. Your license key(s) will be emailed to you automatically.

   - Email the file `license_request.txt` to **license@easysoft.com**. A member of the Licensing Department will email the license keys(s) to you.

2. When you receive your license key(s), append them to the file `/usr/local/easysoft/license/licenses`, removing any `LIC:` prefixes.

NB	The Easysoft license responder puts an attachment in its outgoing emails that allows Windows users to activate their licenses with a double-click. If you read your email in Windows, this attachment will be visible but it will not work for licensing Unix versions of the software.

The Easysoft ODBC-Oracle Driver is now licensed and you can begin using it.

If you need further information about licensing, please refer to the **Licensing Guide**.

Uninstalling on Unix

To uninstall the Easysoft ODBC-Oracle Driver under Unix:

- If unixODBC is installed, the Easysoft ODBC-Oracle Driver driver must be removed from its database.

- If the system has a dynamic linker (such as `ld.so` on Linux), the Easysoft ODBC-Oracle Driver directories must be removed from the dynamic linker search path (this may require `root` access, depending on the mechanism used by the platform).

- The Easysoft ODBC-Oracle Driver install directory tree must be removed (this requires the same privileges as the user who performed the installation, which is normally `root`).

A step-by-step guide follows:

1. Log in as `root`.

R EMOVING FROM UNIX ODBC

2. Check whether the Easysoft ODBC-Oracle Driver is configured under unixODBC by typing:

```
odbcinst -q -d
```

3. If "`ORACLE`" is returned in the output then remove the Easysoft ODBC-Oracle Driver entry by typing:

```
odbcinst -u -d -n ORACLE
```

If a message is displayed about a reduced usage count, repeat this step until `odbcinst` states that the Easysoft ODBC-Oracle Driver has been removed.

NB	If unixODBC is no longer required then the `odbcinst.ini` and `odbc.ini` files can be removed.

REMOVING FROM THE DYNAMIC LINKER

Notify the dynamic linker that the shared objects are no longer available.

NB	This information only applies to systems with the `ld.so` dynamic linker (normally only Linux).

4. If the file `/etc/ld.so.conf` file exists, make a backup copy and open it.

5. Remove the path to the Easysoft ODBC-Oracle Driver shared objects:

   `<InstallDir>/easysoft/oracle`

6. If no other Easysoft software is in use then remove the path to the common Easysoft shared objects:

   `<InstallDir>/easysoft/lib`

7. If unixODBC is no longer required then remove the reference:

   `<InstallDir>/easysoft/unixODBC`

8. Run `/sbin/ldconfig` so that the dynamic linker re-reads the file and will no longer search the removed paths.

DELETING THE SOFTWARE

Finally, remove the software from the system hard drive.

9. Change directory to:

   `<InstallDir>/easysoft/`

   `pwd`

   The system displays the current directory.

Double-check that this is the directory under which you installed the Easysoft ODBC-Oracle Driver.

Caution!

> Be very careful issuing the `rm -r` command as `root`. `rmdir` will not remove directories that contain files, but `rm -r` will remove all subdirectories along with their contents. It is possible to destroy your system and/or lose all user files by removing the wrong directory.

10. Remove the Easysoft ODBC-Oracle Driver installation directory:

    ```
    ls
    ```

    Check that you are in the right directory.

    ```
    rm -r oracle
    ```

    The system may ask you to confirm deletion for some files. You can confirm these as long as you are sure you are in the correct directory.

    ```
    ls
    ```

11. If you have no other Easysoft products on your system and you are not using any copy of unixODBC that may be in this directory, then you can delete the `easysoft` directory too.

    ```
    cd ..
    ```

    ```
    rm -r easysoft
    ```

    – OR –

    If there are other files in the directory tree (i.e. you have other Easysoft products installed) then you must not remove the `easysoft` directory, because it will contain your license keys and other important files.

12. If you left the Easysoft ODBC-Oracle Driver distribution file on your system then you may wish to remove it at this point.

The uninstall process is complete.

Any licenses you obtain for the Easysoft ODBC-Oracle Driver and other Easysoft products are stored in the `<InstallDir>/easysoft/license/licenses` file.

After uninstalling the Easysoft ODBC-Oracle Driver, unless you have deleted this file, you will not need to relicense the product when you reinstall or upgrade.

However, for security purposes you may want to make a copy of `<InstallDir>/easysoft/license/licenses` before uninstalling.

CONFIGURATION

3

Configuring the Easysoft ODBC-Oracle Driver

The Easysoft ODBC-Oracle Driver is usually installed on the machines where your applications are running. ODBC applications access ODBC drivers through the ODBC driver manager and a data source which tells the driver manager which ODBC driver to load, which database to connect to and how to connect to it. This chapter describes how you create data sources, use DSN-less connections and configure the Easysoft ODBC-Oracle Driver.

Before setting up a data source, the Easysoft ODBC-Oracle Driver must have been successfully installed on the machines where your ODBC application is running.

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

Chapter Guide

- **DSN-less connections**
- **OS Authentication**
- **Windows Setup**
- **Unix Setup**
- **Attribute Fields**

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={ORACLE};DB=pubs;UID=demo;PWD=easysoft;"...)
```

where *pubs* is the database name, *demo* is the user name with which to connect to the database, and *easysoft* is the password for the demo user.

Further Easysoft ODBC-Oracle Driver attribute settings, as described in this section, can also be added to the connection string using the same "PARAMETER=value;" format.

Refer to the section relevant to your platform to continue:

-
-

OS Authentication

The Easysoft ODBC-Oracle driver can be configured to connect to an Oracle database using OS Authentication. To do this, you must first ensure that the database and client are configured and working correctly. More details on the use of OS Authentication and its implications can be found in your Oracle documentation. To establish that the system is configured correctly, we recomend using a tool such as sqlplus, before attemping to configure your driver. Once the oracle software is configured, the driver can be set up by leaving the username and password fields empty.

Windows Setup

To connect an ODBC application on a Windows machine to an
Oracle database on a remote server:

1. Select **Start > Settings > Control Panel**, double-click
   Administrative Tools and then **Data Sources (ODBC)**.

9x	Select **Start > Settings > Control Panel** and double-click **ODBC Data Sources (32bit)**.
NT	Select **Start > Settings > Control Panel** and double-click **Data Sources (ODBC)**.

The **ODBC Data Source Administrator** dialog box is displayed:
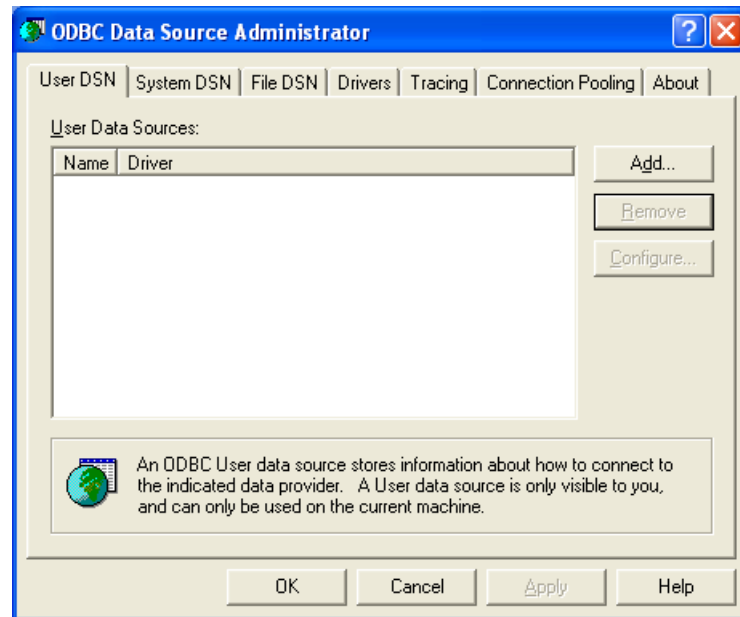
Figure 16: The ODBC Data Source Administrator

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

– OR –

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

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

The **Create New Data Source** dialog box displays a list of drivers:
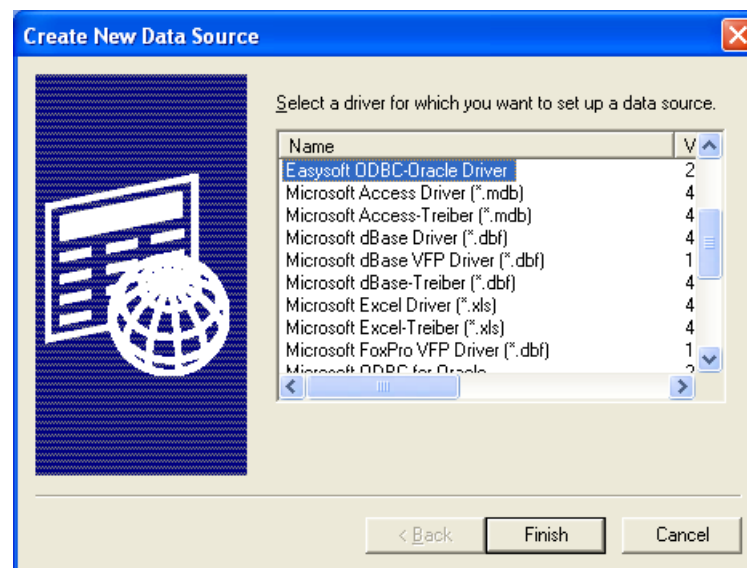
Figure 17: The Create New Data Source dialog box

4. Select `Easysoft ODBC-Oracle Driver` and click **Finish**.

The Easysoft ODBC-Oracle Driver DSN configuration dialog box is displayed.
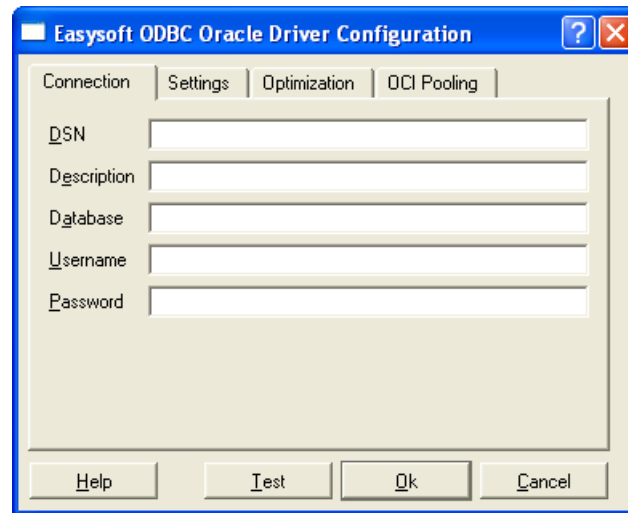
Figure 18: The DSN Setup dialog box - Connection tab

The attributes on this dialog box are split into four tabs, arranged by functionality, from left to right:

- **Connection**, how the data source appears to the driver manager and ODBC application

- **Settings**, ODBC driver specific features

- **Optimization**, ODBC driver performance settings

- **OCI Pooling**, OCI pooling options

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

C ONNECTION

5. In the **DSN** box enter a name for this data source.

Choose carefully because you will not be able to change this after pressing **OK**.

6. In the **Description** box enter something that would help a user faced with a choice of data sources.

7. In the **Database** box enter the logical name used to identify the Oracle target database. This is the local net service name defined in your tnsnames.ora file.

8. In the **Username** and **Password** boxes enter the user name and password of a valid account in the Oracle target database.

SETTINGS
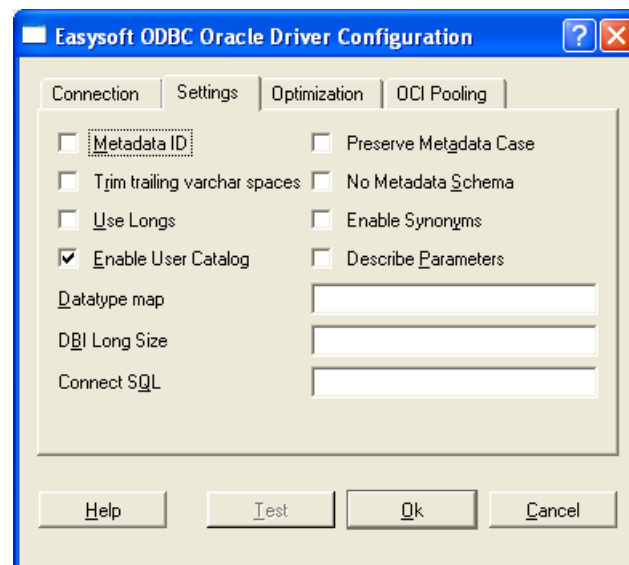
Figure 19: The DSN Setup dialog box - Settings tab

For details of the the attributes that can be set on this dialog box, see **"Attribute Fields" on page 74**
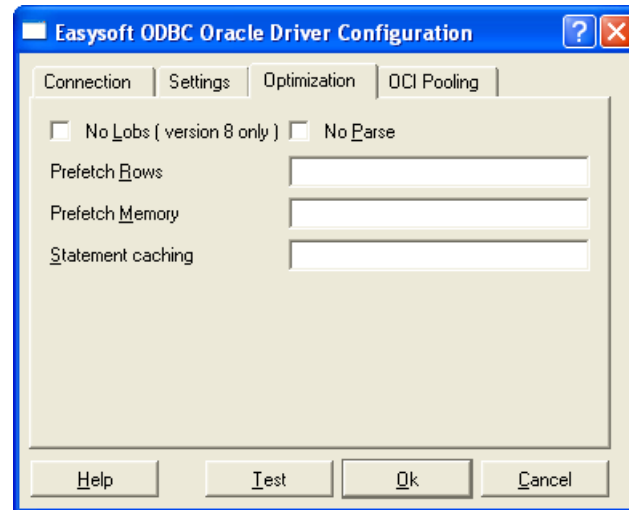
O PTIMIZATION

Figure 20: The DSN Setup dialog box - Optimization tab

For details of the the attributes that can be set on this dialog box, see **"Attribute Fields" on page 74**

OCI POOLING
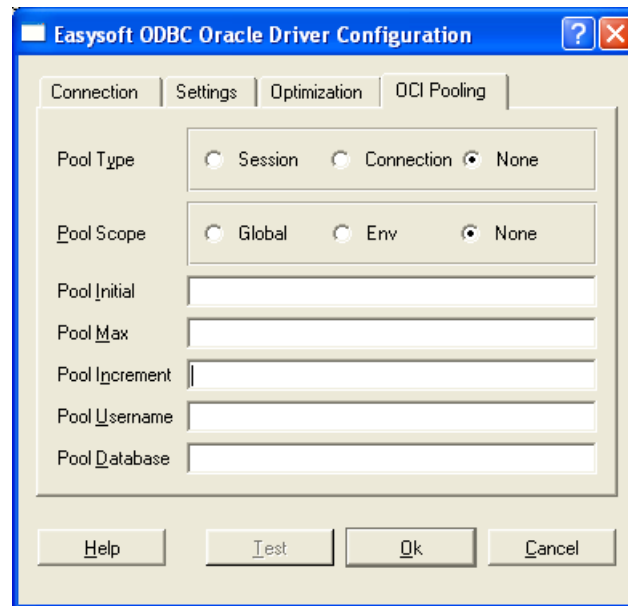
Figure 21: The DSN Setup dialog box - OCI Pooling tab

For details of the the attributes that can be set on this dialog box, see **"Attribute Fields" on page 74**

9. Now click **Test**.

    The Easysoft ODBC-Oracle Driver attempts to connect to the database and send an ODBC request, displaying the results in a window.

10. If an error message is displayed then check the entries in the DSN setup fields.

    If the target database can be successfully accessed by running SQL Plus from **Start > Programs > Oracle > Application Development**

> SQL Plus then the problem can be assumed to be on the client machine, rather than on the server machine.

– OR –

An information message will be displayed if you have successfully connected to the server:
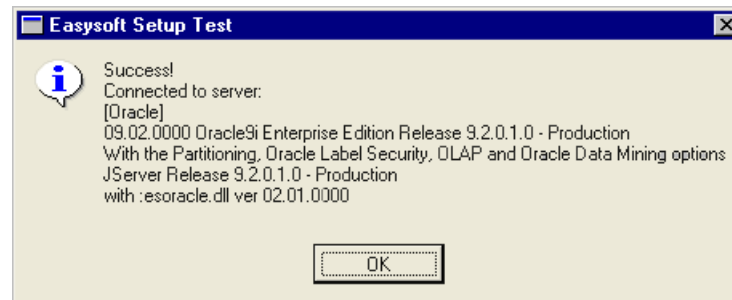
Figure 22: The Easysoft Setup Test DSN dialog box

11. Click **OK** in the **Easysoft Setup Test** dialog box and **OK** in the **Easysoft ODBC-Oracle Driver DSN Setup** dialog box.

The connection has been made.

CONNECTING A CLIENT APPLICATION

There is now a data source on the Windows machine that connects via the Easysoft ODBC-Oracle Driver to an Oracle database on a remote server machine.

An example ODBC application can now be connected to the local data source to demonstrate that the Easysoft ODBC-Oracle Driver is functioning correctly.

NB	This section requires access to Microsoft Access.

1. Start Microsoft Access (for example) and create a blank database.

2. Select **File > Get External Data > Link Tables**.

   The **Link** dialog box displays the existing databases on your system:
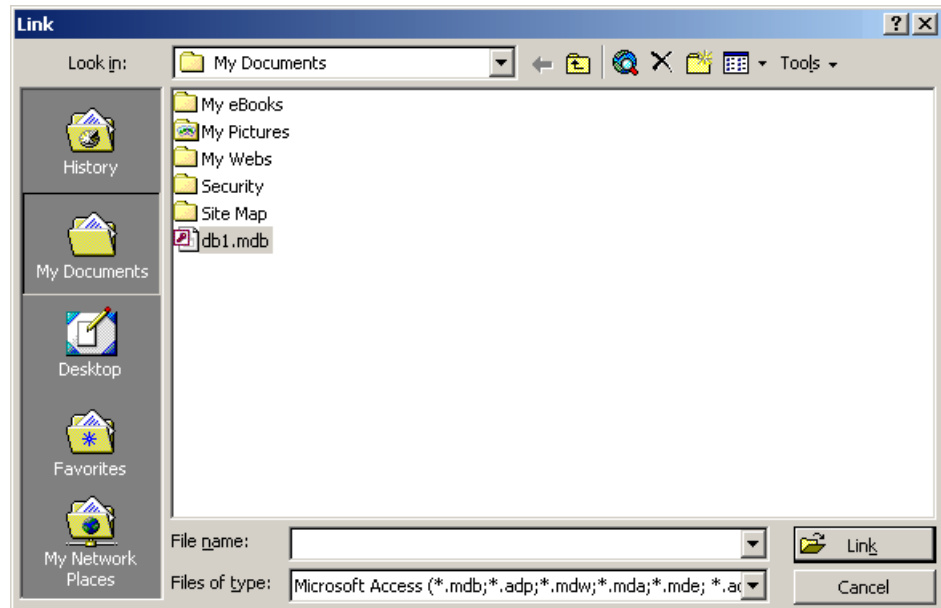
   Figure 23: The Link dialog box in Microsoft Access

3. From the **Files of type** drop-down list, choose **ODBC Databases**.

The **Select Data Source** dialog box displays the existing data sources on your system:
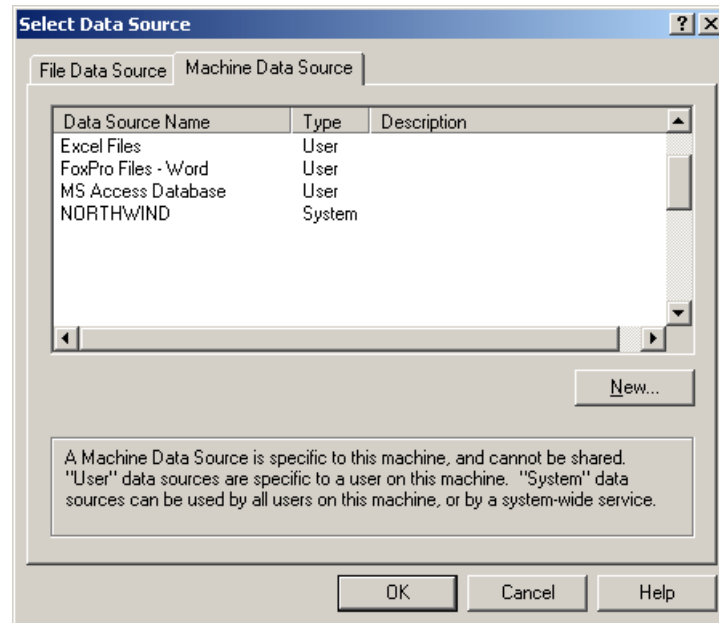
Figure 24: The Select Data Source dialog box Machine Data Source tab

4. Click the **Machine Data Source** tab and find the local data source you created in the list (note that your description of the data source is displayed beside it).

5. Select your data source and click **OK**.

   Microsoft Access connects (through the ODBC Driver Manager) to the Easysoft ODBC-Oracle driver and retrieves a list of available tables .

The **Link Tables** window is displayed, showing a list of available datasets:
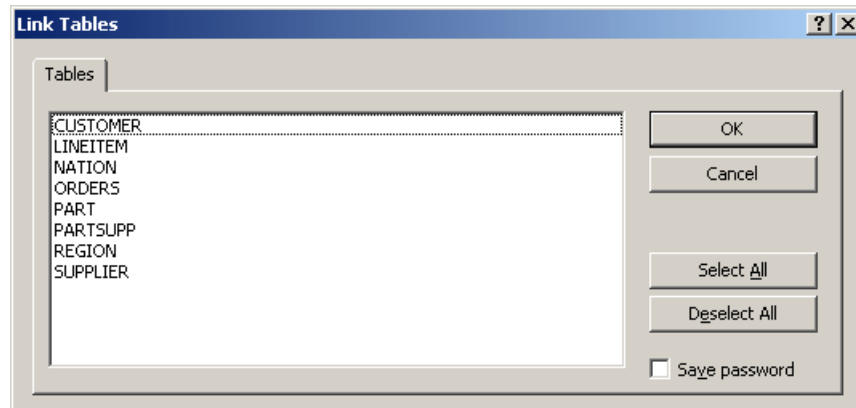
Figure 25: The Link Tables dialog box Tables tab

6. Click on a table and then click **OK**.

    After a short wait, you are returned to the **Database** window.

7. Double-click on one of the tables to open and browse it.

Unix Setup

DATA SOURCE ATTRIBUTES

There are two options when setting up a data source to your Oracle data:

• Create a system data source (which is available to anyone who logs onto this Unix machine)

– OR –

• Create a user data source (which is only available to the user who is currently logged into this Unix machine)

This is exactly the same mechanism as is used on the ODBC Data Source Administrator on Windows platforms (see **"Windows Setup" on page 58**).

NB	If you have user and system data sources with the same name the driver manager will use the user data source.

The default Easysoft ODBC-Oracle Driver installation will create a system DSN named `[ORACLE]`. If you are using unixODBC that came with this distribution the system odbc.ini file will be `/etc`.

If you have built unixODBC yourself, or installed it from some other source then 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`).

User data sources are stored in the file `.odbc.ini` in the current user's home directory (e.g. `$HOME/.odbc.ini`)..

NB	By default, you must be logged in as `root` to edit a system data source defined in `/etc/odbc.ini`.

NB	odbcinst -j will show you where the driver manager stores system and user data sources.

You may either change some of the initial configuration parameter values for the sample data source or add extra data sources.

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

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

For the addition of a data source, all the settings in the following example must be appended to the relevant `odbc.ini` file. The Driver attribute names the ODBC driver in the `odbcinst.ini` file to use for this data source. When the Easysoft ODBC-Oracle Driver is istalled into unixODBC it places an ORACLE entry into the odbcinst.ini file so you should always have Driver = ORACLE in your Easysoft ODBC-Oracle Driver data sources.

NB	More details of configuring data sources with unixODBC can be found at **www.unixodbc.org**.

To configure your Oracle DSN in your `odbc.ini` file, you will need to edit:

• the physical database name (`Database`)

• the Oracle database user name (`User`)

• the Oracle database password (`Password`)

```
e.g.

[ORACLE]

Driver = ORACLE

Description =

Database = test.server

User = system

Password = manager
```

Other optional attribute values may be set in the `odbc.ini` file, and are described in **"Attribute Fields" on page 74**.

DRIVER ATTRIBUTES

There are a number of driver attributes that are stored in the odbcinst.ini file. By default this file is installed in /etc. If you have built unixODBC yourself, then it will be whatever path you specified in the `sysconfdir=`*directory* configure option (if `sysconfdir` has not been specified then the path will default to `/usr/local/etc`).

NB	By default, you must be logged in as `root` to edit a system data source defined in `/etc/odbcinst.ini,`.

*   **Threaded**

    If the applications using the driver does not use threads, you can set Threads to be 0. This will provide a performance enhancement, by disabling thread safety in the driver.

ENVIRONMENT

For the Easysoft ODBC-Oracle Driver to function correctly the following environment variables **must** be created and given values specific to the directory structure on the target machine:

*   `ORACLE_HOME`

    This **must** be the Oracle Client software directory, except when using Oracle Instant Client.

    e.g.

    `ORACLE_HOME=/home/oracle/OraHome1`

    `export ORACLE_HOME`

- LD_LIBRARY_PATH

  This **must** always be set to the directory $ORACLE_HOME/lib:, except when using Oracle Instant client, when it is the location where the Instant Client is installed.

  e.g.

  LD_LIBRARY_PATH=$LD_LIBRARY_PATH/home/oracle/OraHome1/lib

  export LD_LIBRARY_PATH

The Easysoft ODBC-Oracle Driver must also be able to find the following shared objects which it installs:

- libodbcinst.so

  By default this will always be located in /usr/local/easysoft/unixODBC/lib/:

- libeslicshr_r.so or libeslicshr.so

  By default this will always be located in /usr/local/easysoft/lib/

- libessupp_r.so or libessupp.so

  By default this will always be located in /usr/local/easysoft/lib

It may be necessary to set up and export LD_LIBRARY_PATH, SHLIB_PATH or LIBPATH (depending on the operating system and run-time linker) to include the directories where libodbcinst.so, libeslicshr.so and libeslicshr.so are located.

NB	The shared object file extension (.so) varies across operating systems (.so, .a, or .sl).

ESTABLISHING A TEST CONNECTION

Run the `isql` query tool to prove that the Easysoft ODBC-Oracle Driver is working:

1. Change directory into

    `/usr/local/easysoft/unixODBC/bin`

2. Type `./isql -v` *DSN*

    where `[DSN]` is the name of the target data source

3. Enter SQL commands to query the database, such as:

    `SQL> select table_name from user_tables`

4. or enter 'help' to return a list of tables

    `SQL>help`

TROUBLE-SHOOTING A TEST CONNECTION

Some Easysoft ODBC-Oracle distributions contain our checksys diagnostic tool which can report configuration and environment problems and suggest corrective action. It can be found in the `/usr/local/easysoft/oracle` directory.

To run the tool

`cd /usr/local/easysoft/oracle`

`./checksys -d` *DSN*

Attribute Fields

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

- the label of the attribute on the Windows dialog box

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

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

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

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

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

For example, in the statement:

```
Data_Type_Map=0|1|2
```

the value entered may be "0", "1" or "2".

DSN

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

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

DESCRIPTION

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

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

DATABASE

The logical name used to identify the Oracle target database. This is the local net service name defined in your tnsnames.ora file.

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

USERNAME

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

If a value is specified in the connect string then any entry in the DSN will be ignored.

Interface	Value
DSN Dialog Box (Windows)	Username

Interface	Value
odbc.ini file (Unix)	User=value
Connect String	UID=value

PASSWORD

The password supplied to Oracle to authenticate the connection

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

If a value is specified in the connect string then any entry in the DSN will be ignored.

METADATA ID

When ON (i.e. set to 1 or checked), the default value of the Connection Attribute SQL_ATTR_METADATA_ID is set to SQL_TRUE (see **"StarOffice 5.2" on page 99**).

If SQL_TRUE, the string arguments of catalog functions are treated as identifiers. The case is not significant. For non-delimited strings, the driver removes any trailing spaces, and the string is folded to uppercase. For delimited strings, the driver removes leading and trailing spaces, and takes literally whatever is between the delimiters.

Note setting this can cause failures in applications which expect the default to be SQL_FALSE and do not check the attribute.

The default for METADATA_ID is off (0)

Interface	Value
DSN Dialog Box (Windows)	MetaData ID
odbc.ini file (Unix)	MetaData_ID=0|1
Connect String	METADATA_ID=0|1

PRESERVE METADATA CASE

When ON (i.e. set to 1 or checked), the case of the parameter values passed to metadata calls will not change.

The default for METADATA_DONT_CHANGE_CASE is off (0).

Interface	Value
DSN Dialog Box (Windows)	Preserve MetaData Case
odbc.ini file (Unix)	MetaData_Dont_Change_Case=0|1
Connect String	METADATA_DONT_CHANGE_CASE=0|1

TRIM TRAILING VARCHAR SPACES

When ON (i.e. set to 1 or checked), the driver trims trailing spaces from varchar types when passed as bound parameters. If VarcharTrimTrailingSpaces is set to 1 then trailing spaces are removed from the end of the data.

The default behaviour is to not trim spaces.

Interface	Value
DSN Dialog Box (Windows)	Trim Trailing Varchar Spaces

Interface	Value
odbc.ini file (Unix)	VarcharTrimTrailingSpaces=0|1
Connect String	VARCHARTRIMTRAILINGSPACES=0|1

N O M E T A T D A T A S C H E M A

When ON (i.e. set to 1 or checked), schema names are not returned by metadata calls. This works around some problem applications which do not handle SCHEMA names properly (see **"OpenOffice 1.0" on page 99**)..

Interface	Value
DSN Dialog Box (Windows)	No Metadata Schema
odbc.ini file (Unix)	Metadata_Dont_Do_Schema=0|1
Connect String	METADATA_DONT_DO_SCHEMA=0|1

U S E L O N G S

When ON (i.e. set to 1 or checked), information on `LONG` data types will be returned in the result set from the `SQLGetTypeInfo` function call.

Restrictions with `LONG` data types in Oracle databases (such as only permitting one column per table to be defined) often cause errors to occur, and this attribute can be used to include `LONG` within the list of valid data types which can be used by an application.

The default for `USE_LONGS` is off (0).

Interface	Value
DSN Dialog Box (Windows)	Use Longs

Interface	Value
odbc.ini file (Unix)	Use_Longs=0|1
Connect String	USE_LONGS=0|1

ENABLE SYNONYMS

When ON (i.e. set to 1 or checked), table name synonyms are returned in metadata result sets.

By default synonyms are not returned.

Interface	Value
DSN Dialog Box (Windows)	Enable Synonyms
odbc.ini file (Unix)	Enable_Synonyms=0|1
Connect String	ENABLE_SYNONYMS=0|1

ENABLE USER CATALOG

When ON (i.e. set to 1 or checked), this limits the driver to returning metadata (e.g. tables) for the current Oracle user.

 The default is to see metadata for all users.

Interface	Value
DSN Dialog Box (Windows)	Enable User Catalog
odbc.ini file (Unix)	Enable_User_Catalog=0|1
Connect String	ENABLE_USER_CATALOG=0|1

DESCRIBE PARAMETERS

Oracle does not support the describing of parameters, so the driver does not support the SQLDescribeParam ODBC call. However, if this ini setting is set to 1 (or checked) then the driver will describe any parameters as varchar.

The default for DESCRIBE_PARAM_AS_STRINGS is off (0).

Interface	Value
DSN Dialog Box (Windows)	Enable User Catalog
odbc.ini file (Unix)	Describe_Param_As_Strings=0|1
Connect String	DESCRIBE_PARAM_AS_STRINGS=0|1

DATATYPE MAP

The following values can be set in order to map Oracle data types onto ODBC data types:

Value	Oracle Data Type	ODBC Data Type
0	NUMBER <= 4 digits	SQL_SMALLINT
	NUMBER <= 9 digits	SQL_INTEGER
	NUMBER = n digits	SQL_NUMERIC
	NUMBER = n,m digits	SQL_NUMERIC
1	NUMBER <= 4 digits	SQL_SMALLINT
	NUMBER <= 9 digits	SQL_INTEGER
	NUMBER = n digits	SQL_DOUBLE
	NUMBER = n,m digits	SQL_DOUBLE

Value	Oracle Data Type	ODBC Data Type
2	NUMBER <= 4 digits	SQL_SMALLINT
	NUMBER = n digits	SQL_INTEGER Note: this mapping can cause problems fetching large numbers
	NUMBER n,m digits	SQL_DOUBLE

Interface	Value
DSN Dialog Box (Windows)	Datatype Map
odbc.ini file (Unix)	Datatype_Map=0|1|2
Connect String	DATATYPE_MAP=0|1|2

DBI LONG SIZE

Any value specified will override the maximum size of a LONG column (in bytes).

Perl DBI tries to allocate a buffer the size of a LONG column and, as this is rather large, it can cause problems which setting DBI_LONG_SIZE can resolve (see **"Perl DBI" on page 99**).

Interface	Value
DSN Dialog Box (Windows)	DBI Long Size
odbc.ini file (Unix)	DBI_Long_Size=value
Connect String	DBI_LONG_SIZE=value

C ONNECT SQL

This setting defines an Oracle SQL statement that will be run immediately after the driver has established a connection to the database.

Interface	Value
DSN Dialog Box (Windows)	Connect SQL
odbc.ini file (Unix)	Connect_SQL=value
Connect String	CONNECT_SQL=value

N O L OBS

When ON (i.e. set to 1 or checked), increases the performance of the Easysoft ODBC-Oracle Driver if there are no CLOB or BLOB data types in use. This is only applicable to Oracle verison 8.1.7.

The default is off (0).

Interface	Value
DSN Dialog Box (Windows)	No Lobs
odbc.ini file (Unix)	No_LOBS=0|1
Connect String	NO_LOBS=0|1

N O P ARSE

When ON (i.e. set to 1 or checked) this stops the Easysoft ODBC-Oracle Driver from preparsing the SQL (passed to SQLPrepare and SQLExecDirect) to convert ODBC escapes and parameter markers. Setting this option will provide a small speed increase but

will prevent your application from using ODBC escapes sequences and parameter markers.

Interface	Value
DSN Dialog Box (Windows)	No Parse
odbc.ini file (Unix)	No_Parse=0|1
Connect String	NO_PARSE=0|1

PREFETCH ROWS

Indicates the number of rows returned from a single "`fetch`" call made to the server.

For example, if the value of `OCI_ATTR_PREFETCH_ROWS` attribute is set to ten, then ten rows will be fetched from the database server and the next call to `SQLFetch` will not need to make a call to the server as the required row will be held by the client already. The default value is 10.

Interface	Value
DSN Dialog Box (Windows)	Prefetch Rows
odbc.ini file (Unix)	OCI_Attr_Prefetch_Rows=value
Connect String	OCI_ATTR_PREFETCH_ROWS=value

PREFETCH MEMORY

Indicates the number of bytes of memory used on the client to store records returned from a single `SQLFetch` call made to a driver.

This controls the number of records returned, which will be the total required in order to fill the allocated memory area.

For example, if the available memory can store two rows then the next call to `SQLFetch` will not need to make a call to the server, as the required row will be held by the client already.

Interface	Value
DSN Dialog Box (Windows)	Prefetch Memory
odbc.ini file (Unix)	OCI_Attr_Prefetch_Memory=value
Connect String	OCI_ATTR_PREFETCH_MEMORY=value

`OCI_ATTR_PREFETCH_ROWS` and `OCI_ATTR_PREFETCH_MEMORY` update the Oracle Statement attributes of the same name:

e.g.

```
OCI_ATTR_PREFETCH_ROWS    = 10
```

– OR –

```
OCI_ATTR_PREFETCH_MEMORY  = 100
```

By default, the Easysoft ODBC-Oracle Driver makes a call to the database server for every ten records returned.

These two settings allow a user to specify as an alternative either the number of rows to be fetched or the amount of memory to be used when fetching data.

NB	These attributes are different methods of specifying the quantity of data returned in one fetch. You should only set one but if you set both attributes OCI_ATTR_PREFETCH_ROWS will take precedence.

STATEMENT CACHING

This attribute enables Oracle Statement caching. To enable caching set this attribute to the size of the required cache. Setting the attribute to 0 will switch statement caching off. For more details on Oracle Statement Caching please consult you Oracle documentation.

The default is no statement caching.

Interface	Value
DSN Dialog Box (Windows)	Statement Caching
odbc.ini file (Unix)	Statement_Caching=value
Connect String	STATEMENT_CACHING=value

POOL TYPE

This is used to define the type of pooling required. This can be SESSION or CONNECTION.

Interface	Value
DSN Dialog Box (Windows)	Pool Type
odbc.ini file (Unix)	Pool_Type=Session|Connection
Connect String	POOL_TYPE=SESSION|CONNECTION

POOL SCOPE

This can be GLOBAL or ENV. This is used to associate the pool with the ODBC environment or make it a global resource.

Interface	Value
DSN Dialog Box (Windows)	Pool Scope
odbc.ini file (Unix)	Pool_Scope=Global|Env
Connect String	POOL_SCOPE=GLOBAL|ENV

POOL INITIAL

This is used to define the number of sessions or connections that are created when the pool is created.

Interface	Value
DSN Dialog Box (Windows)	Pool Initial
odbc.ini file (Unix)	Pool_Initial=value
Connect String	POOL_INITIAL=value

POOL MAX

This is used to specify the maximum number of sessions or connections that the pool can contain.

Interface	Value
DSN Dialog Box (Windows)	Pool Max
odbc.ini file (Unix)	Pool_Max=value
Connect String	POOL_MAX=value

POOL INCREMENT

This is the number that the session or connection count is incremented by when required.

Interface	Value
DSN Dialog Box (Windows)	Pool Increment
odbc.ini file (Unix)	Pool_Increment=value
Connect String	POOL_INCREMENT=value

POOL USERNAME

This is the database username that is to be used to authenticate the sessions or connections.

Interface	Value
DSN Dialog Box (Windows)	Pool Username
odbc.ini file (Unix)	Pool_Username=value
Connect String	POOL_USERNAME=value

POOL PASSWORD

This is the database password that is to be used to authenticate the sessions or connections.

Interface	Value
DSN Dialog Box (Windows)	Pool Password

Interface	Value
odbc.ini file (Unix)	Pool_Password=value
Connect String	POOL_PASSWORD=value

POOL DATABASE

This is the name of the database against which the pools are to be created.

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

XA_ENLIST

When ON (i.e. set to 1), the Easysoft ODBC-Oracle Driver uses the Oracle XA library to access Oracle. This makes the XA connection available for use by the Easysoft ODBC-Oracle Driver and any work done by the driver is under the control of the Transaction Manager. (Your ODBC application also needs to turn off the ODBC auto-commit mode by using `SQLSetConnectAttr` with the `SQL_ATTR_AUTOCOMMIT` attribute.)

If you want to use the Easysoft ODBC-Oracle Driver to connect to Oracle in the context of a distributed XA transaction, enable the `XA_Enlist` option. Otherwise, leave the option set to its default value OFF (0).

Interface	Value
DSN Dialog Box (Windows)	Not available
odbc.ini file (Unix)	XA_Enlist=0|1
Connect String	XA_ENLIST=0|1

XA_CONNECTION_STRING

The name of the database specified with the DB field in the `xa_open` string. For example, you specify a database named "payroll" with the following `xa_open` string clause:

```
DB=payroll
```

You also need to specify "payroll" as the value for the `XA_Connection_String` attribute field:

```
XA_Connection_String=payroll
```

`XA_Connection_String` is only necessary if you are using the Easysoft ODBC-Oracle Driver to connect to Oracle in the context of an XA transaction and the Transaction Manager specifies a named database in the `xa_open` string.

Interface	Value
DSN Dialog Box (Windows)	Not available
odbc.ini file (Unix)	XA_Connection_String=value
Connect String	XA_CONNECTION_STRING=value

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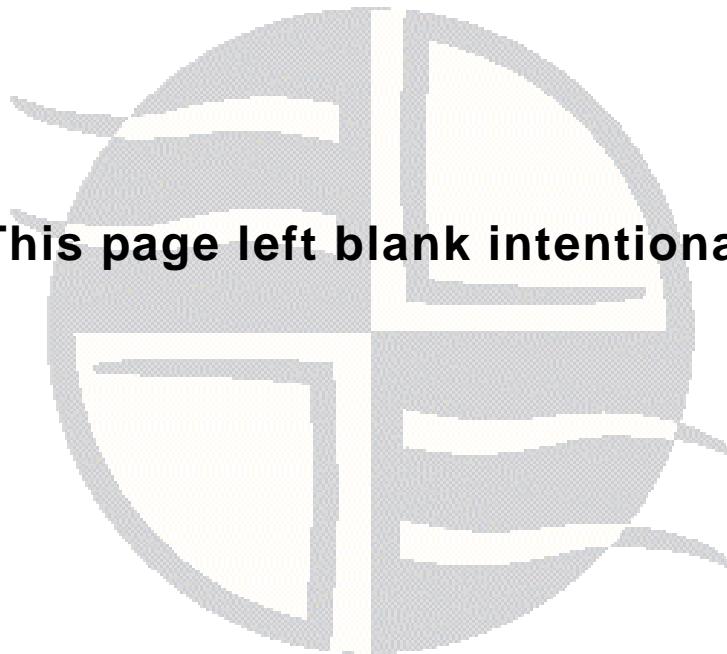
TECHNICAL REFERENCE

Technical Reference for the Easysoft ODBC-Oracle Driver

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

Appendix Guide

- **Oracle Client software**

- **ODBC Conformance**

- **Oracle 8, 9 and 10g**

- **Restrictions**

- **Supported Data Types**

- **Advanced Security**

- **RAC**

- **Network Protocols**

- **XA Support**

- **Application Specific Issues**

- **Threading**

- **Tracing**

Oracle Client software

OBTAINING THE ORACLE CLIENT SOFTWARE

Contact your Oracle Database Administrator if the Oracle Client software is not installed.

Alternatively, an Oracle distribution can be downloaded from **http://technet.oracle.com** (registration is required).

Caution! Easysoft advise that Oracle Client software is installed from a distribution CD if fast internet access is unavailable, as the download may require significant temporary disk space.

INSTALLING THE ORACLE CLIENT SOFTWARE

There are instructions on how to run the Oracle installer on the Oracle site (**http://technet.oracle.com**).

During the install choose the **client software** option and follow the instructions on the screen.

ODBC Conformance

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

- The driver conforms to all the Core Level requirements (with the exception of `SQLCopyDesc` function).

- The driver conforms to 101, 103, 104, 105, 108 and 109 of Level 1 requirements

- The driver conforms to 202 (See **"Describe Parameters" on page 80**), 203, 205 and 211 of Level 2 requirements

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

  `SQLBrowseConnect`

  `SQLBulkOperations`

  `SQLCopyDesc`

  `SQLDescribeParam` (not supported by default but see "Describe Parameters" on page 80)

  `SQLSetPos`

Cursor support in the Easysoft ODBC-Oracle Driver is restricted to FORWARD_ONLY and STATIC.

Oracle 8, 9 and 10g

The Easysoft ODBC-Oracle Driver will work with both 8i, 9i and 10g versions of Oracle.

No changes to the driver setup are required if upgrading the Oracle Client software.

Restrictions

The Easysoft ODBC-Oracle Driver will allow access to Oracle databases on version 8.1.7 and upwards.

Supported Data Types

The following Oracle data types are supported by the Easysoft ODBC-Oracle Driver:

- BLOB

- LONG RAW

- BFILE

- CLOB

- LONG

- NUMBER

NB	To control how NUMBER data types are mapped onto ODBC data types, use the DATATYPE_MAP parameter. For more information, see **"DataType Map" on page 80**.

- CHAR

- DOUBLE PRECISION

- DATE

- VARCHAR2

- TIMESTAMP

NB	The TIMESTAMP data type is not supported by Oracle 8 and the retrieval of TIMESTAMP data requires the installation of both Client and Server of version 9 or above.

Advanced Security

The Oracle Advanced Security option is an Oracle client or server add-on that combines network encryption, database encryption and strong authentication to protect sensitive data stored in Oracle databases. The Advanced Security option:

*   Guarantees data integrity by preventing it from being modified during transmission.

*   Encrypts data using encryption standards such as RSA or DES to ensure data privacy.

*   Supports third party authentication services such as Kerberos and RADIUS.

Oracle Advanced Security requires Net8 or Oracle Net to transmit data securely. The Easysoft ODBC-Oracle Driver uses the Oracle client which uses these protocols to communicate with the Oracle database server over the network. Applications that access Oracle by using the Easysoft ODBC-Oracle Driver can therefore take advantage of the Oracle Advanced Security option.

For information about configuring the Oracle client and server for use with the Oracle Advanced Security option, see the Oracle Advanced Security Administrator's Guide. No additional Easysoft ODBC-Oracle Driver configuration is necessary.

RAC

The Easysoft ODBC-Oracle Driver will allow access to Oracle RAC environments. The Oracle client must be configured correctly to take full advantage of the RAC features. Please consult you Oracle documentation for more details.

Network Protocols

The Easysoft ODBC-Oracle Driver supports both IPC and TCP/IP network protocols.

XA Support

The Easysoft ODBC-Oracle Driver can be configured to take part in a distributed XA transaction. To do this, add a data source that contains entries that correspond with the `xa_open` string used by the XA Transaction Manager to connect to the Oracle database server.

For example, the following sample `xa_open` string opens an XA connection to an Oracle database named "payroll." It also specifies the Net8 link and the username and password used to log onto the Oracle server.

```
Oracle_XA+sqlnet=ninetwo.oracle+SesTm=35+Acc=P/system/manager+Threads=true+DB=payroll
```

To make this XA connection available for use by the Easysoft ODBC-Oracle Driver, the data source used to access Oracle needs to contain the following corresponding entries.

```
[ORACLE-XA]

Driver                    = ORACLE

Database                  = ninetwo.oracle

User                      = system

Password                  = manager

XA_Enlist                 = 1

XA_Connection_String      = payroll
```

In addition, the `XA_Enlist` attribute must be set to 1. When this setting is present, the Easysoft ODBC-Oracle Driver accesses Oracle by using the Oracle XA library. Note that the data source can then only be used to access an Oracle database as an XA resource under the control of a Transaction Manager. If you need to access the same database with a non-XA connection, configure a separate data source without the `XA_Enlist` attribute.

The `XA_Connection_String` attribute is only required if the `DB` field is present in the `xa_open` string. The `XA_Connection_String` attribute value must be the same as that of the `DB` field.

A tutorial that provides more information about using the Easysoft ODBC-Oracle Driver in the context of an XA transaction is available from the Easysoft ODBC-Oracle Driver section of the Easysoft web site. The tutorial includes a code sample that shows the point at which an ODBC connection needs to be created and closed to participate in a distributed transaction.

Application Specific Issues

STAROFFICE 5.2

If problems occur with metadata, the `METADATA_ID` parameter needs to be set to 1 in the `odbc.ini` file.

OPENOFFICE 1.0

For Open Office 1.0 you need to check the No Metadata Schema check box in the dialogue or set METADATA_DONT_DO_SCHEMA to 1 in your odbc.ini file.

PHP4

PHP4 calls the `SQLDescribeParams` ODBC function when processing SQL statements that have parameters.

The Easysoft ODBC-Oracle Driver correctly reports that it does not support the `SQLDescribeParams` function, but PHP4 ignores this and continues with undefined results. See **"Describe Parameters" on page 80**.

PERL DBI

If attempting to fetch LONG data, set the `DBI_LONG_SIZE` to an appropriate value. See **"DBI Long Size" on page 81**.

Threading

The Easysoft ODBC-Oracle Driver is thread safe in accordance with the ODBC 3.5 specification and can be used behind threaded applications with confidence. Usually applications use one connection handle and multiple threads executing SQL statements on that connection.

Tracing

The ODBC calls an application makes can be traced:

- within the driver manager by an application

- from within the driver manager

- from within the Easysoft ODBC-Oracle Driver

WITHIN THE DRIVER MANAGER BY AN APPLICATION

An application can turn tracing on in the driver manager via the ODBC API `SQLSetConnectAttr` (...,`SQL_ATTR_TRACE`,...).

The trace filename may also be specified with the `SQLSetConnectAttr` attribute `SQL_ATTR_TRACEFILE`.

FROM WITHIN THE DRIVER MANAGER

Tracing in the driver manager is platform-specific:

- On Windows:

  Start the ODBC driver manager administration interface via **Start Menu > Control Panel > ODBC Data Sources**.

  Click on **Tracing**, ensure the specified filename is valid and click **Start Tracing Now**.

- On Unix:

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

  ```
  Trace = Yes|No

  TraceFile = /path/filename
  ```

e.g.

```
[ODBC]

Trace = Yes

TraceFile = /tmp/sql.log
```

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

FROM WITHIN THE EASYSOFT ODBC-ORACLE DRIVER

Tracing in the Easysoft ODBC-Oracle Driver is platform-specific:

- On Windows:

  Update the **Registry** by running `regedit` and edit the key:

  `HKEY_LOCAL_MACHINE\SOFTWARE\ODBC\ODBC.INI\`*DSN-NAME*

  where *DSN-NAME* is the name of the Easysoft ODBC-Oracle Driver data source.

  Add a `LOG` string value and set it to the path and file name of the log file (e.g. `\temp\oracle.log`).

- On Unix:

  Add a `LOG` attribute to the DSN section of the `odbc.ini` file.

e.g.

```
[ORACLE]

.

.

.

LOG = /tmp/oracle.log
```

The `LOG` value is the path and file name of the log file (e.g. `/tmp/oracle.log`).

GLOSSARY

B

Terms and definitions

API (Application Programmer Interface)

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

Application

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

Authorization code

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

Client

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

Client/Server

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

Column

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

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 105**) 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 106**.

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.

OCI

Oracle Call Interface - a set of low-level APIs (Application Programming Interface Calls) used to interact with Oracle databases. It allows the use of operations like logon, execute, parse, fetch, etc. OCI programs are normally written in C or C++, although they can be written in almost any programing language. Unlike with the Oracle Precompilers (like Pro*C and Pro*COBOL), OCI programs are not precompiled.

ORACLE_HOME

The environment variable which contains the path where Oracle software has been installed.

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.

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.

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