

Easysoft JDBC-ODBC Bridge User's Guide

This manual documents version 1.7.n of the Easysoft JDBC-ODBC Bridge.

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Getting started

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Overview

The Easysoft JDBC-ODBC Bridge allows Java applications to connect to any datastore for which an ODBC driver is available.

The Easysoft JDBC-ODBC Bridge is a client/server application. Use the Easysoft JDBC-ODBC Bridge client (EJOB.jar) in your Java application to connect to the Easysoft JDBC-ODBC Bridge server, which then connects to the target ODBC driver.

Installing the Easysoft JDBC-ODBC Bridge

The Easysoft JDBC-ODBC Bridge installer lets you install both the client and server components of the product.

Install the Easysoft JDBC-ODBC Bridge client on the same computer as your Java application. Install the Easysoft JDBC-ODBC Bridge server on the same computer as your target ODBC driver. If the Java application and ODBC driver are located on the same computer, install both the client and server on this computer.

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- [Uninstalling on Windows](#)
- [Installing on Linux or UNIX](#)
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Installing on Windows

The Windows installation can be done by anyone with local administrator privileges.

1. [Download the Easysoft JDBC-ODBC Bridge installer.](#)
2. Follow the onscreen instructions to progress through the installation wizard.

If you installed the Easysoft JDBC-ODBC Bridge server, the **Initial Server Configuration** dialog box displays.

JDBC Port defines the port where the Easysoft JDBC-ODBC Bridge server listens for Easysoft JDBC-ODBC Bridge client connections

Note	If you change the port, you'll need to specify it in the JDBC URL used by your application.
-------------	---

HTTP Port defines the port on which the Easysoft JDBC-ODBC Bridge web administrator listens for HTTP requests. Accept the default values unless you have a port conflict.

In the **User Name** box, enter the login name of an existing Windows user account. This is the account that you'll use to make changes in the Easysoft JDBC-ODBC Bridge web administrator.

To allow anyone to have access to the web administrator, leave the **User Name** field blank. Alternatively, click to clear **Enable Admin User**, which remove the requirement to log in using the web administrator.

Updating files that are in use

To avoid rebooting your computer, the Easysoft JDBC-ODBC Bridge installer prompts you when files that it needs to update are in use by another application or service. This frees the locked files and allows the installation to complete without a system restart. The installer uses the **Restart Manager** to locate the applications that are using files that need updating. These applications are displayed in the **Files in Use** dialog box. To avoid a system restart, choose **Automatically close applications and attempt to restart them after setup is complete**. The Easysoft JDBC-ODBC Bridge installer then uses **Restart Manager** to try to stop and restart each application or service in the list. If possible, **Restart Manager** restores applications to the same state that they were in before it shut them down.

Licensing

By default, the installer starts the Easysoft License Manager, because you can't use the Easysoft JDBC-ODBC Bridge until you have a license. If you choose not to run Easysoft License Manager as part of the installation process, run License Manager from the **Easysoft** group in the Windows

Start menu when you're ready to license the Easysoft JDBC-ODBC Bridge. These types of license are available:

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

To license the Easysoft JDBC-ODBC Bridge:

1. In License Manager, enter your contact details.

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

The e-mail address **must** be the same as the one used to register at the Easysoft web site. Otherwise, you won't be able to obtain a trial license.

2. Choose **Request License**.

You're prompted to choose a license type.

3. Do one of the following:

- For a trial license, choose **Time Limited Trial**, and then choose **Next**.

-Or-

- For a purchased license, choose **Non-expiring License**, and then choose **Next**.

4. Choose your product from the drop-down list when prompted, and then choose **Next**.

5. For a purchased license, enter your authorization code when prompted, and then choose **Next**.

6. Choose how to get your license when prompted.

7. Do one of the following:

- Choose **On-line Request** if your machine is connected to the internet and can make outgoing connections to port 8884.

With this method, License Manager automatically requests and then applies your license.

-Or-

- Choose **View Request**. Then open a web browser and go to https://www.easysoft.com/support/licensing/trial_license.html or https://www.easysoft.com/support/licensing/full_license.html, as appropriate. In the web page, enter your machine number (labelled **Number** in the license request). For purchased licenses, you also need to enter your authorization code (labelled **Ref** in the license request).

We'll automatically email your license to the email address you supplied in License Manager.

-Or-

- Choose **Email Request** to email your license request to our licensing team.

Once we've processed your request, we'll email your license to the email address you supplied in License Manager.

8. Close the License Manager windows and then choose **Finish**.

If you chose either **View Request** or **Email Request**, apply your license by double-clicking the email attachment when you get the license email from us. Alternatively, start License Manager from the **Easysoft** folder in the Windows **Start** menu. Then choose **Enter License** and paste the license in the space provided.

Once you've licensed the Easysoft JDBC-ODBC Bridge, the installation is complete.

Repairing the installation

The installer can repair a broken Easysoft JDBC-ODBC Bridge installation. For example, you can use the installer to restore missing Easysoft JDBC-ODBC Bridge files or registry keys. To do this:

1. In the Windows **Taskbar**, enter Add or remove programs in the Windows **Search** box.
2. Select Easysoft JDBC-ODBC Bridge in the list, and then choose **Repair**.

Uninstalling on Windows

This section explains how to remove the Easysoft JDBC-ODBC Bridge from your system.

Removing the Easysoft JDBC-ODBC Bridge

1. In the Windows **Taskbar**, enter Add or remove programs in the Windows **Search** box.
2. Select Easysoft JDBC-ODBC Bridge in the list, and then choose **Uninstall**.

Note Easysoft product licenses are stored 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 Linux or UNIX

The installation can be done by anyone with root access.

1. [Download the Easysoft JDBC-ODBC Bridge distribution for your client application platform](#).
If your target ODBC driver is 64-bit, choose the 64-bit distribution from the **Platforms** list. If your target ODBC driver is 32-bit, choose the 32-bit distribution from the **Platforms** list.
2. Copy the distribution to a temporary directory on the machine where the application you want to connect to JDBC-ODBC Bridge is installed.
3. Unpack the distribution and cd into the resultant directory.
4. As root, run:

```
./install
```

5. Follow the onscreen instructions to progress through the installation.

Starting the Easysoft JDBC-ODBC Bridge server

As root:

1. # cd *installation_path*/easysoft/job
2. # ./startjob

The output should be similar to:

```
Starting HTTP Server
The port is set to 8031 in this installation.
```

Stopping the Easysoft JDBC-ODBC Bridge server

As root:

- # ./stopjob

Further information

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- [What you can install](#)
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Preinstallation requirements

To install the Easysoft JDBC-ODBC Bridge you need:

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

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

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

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

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

- Install the Easysoft JDBC-ODBC Bridge elsewhere and set the EASYSOFT_ROOT environment variable. For more information about setting the EASYSOFT_ROOT environment variable, refer to [Post installation steps for non-root installations](#).
- An ODBC Driver Manager.

Easysoft JDBC-ODBC Bridge distributions include the unixODBC Driver Manager.

- You do not have to be the root user to install, but you will need permission to create a directory in the chosen installation path. Also, if you are not the root user, it may not be possible for the installation to:
 1. Register the Easysoft JDBC-ODBC Bridge with unixODBC.
 2. Create the example data source in the SYSTEM odbc.ini file.
 3. Update the dynamic linker entries (some platforms only).

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

We recommend that you install all components as the root user.

What you can install

This distribution contains:

- The Easysoft JDBC-ODBC Bridge.
- The unixODBC Driver Manager.

You need an ODBC Driver Manager to use the Easysoft JDBC-ODBC Bridge from your applications. The distribution therefore contains the unixODBC Driver Manager. Most (if not all) UNIX and Linux applications support the unixODBC Driver Manager. For example, Perl DBD::ODBC, PHP, Python, and so on.

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

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

Where to install

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

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

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

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

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

Changes made to your system

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

1. If you choose to install the Easysoft JDBC-ODBC Bridge into unixODBC, unixODBC's `odbcinst` command will be run to add an entry to your `odbcinst.ini` file. You can locate this file with `odbcinst -j`. (`odbcinst` is in `installation_path/easysoft/unixODBC/bin`, if you are using the unixODBC included with this distribution.)
2. The installation script installs an example data source into unixODBC. This data source will be added to your `SYSTEM` `odbc.ini` file. You can locate your `SYSTEM` `odbc.ini` file by using `odbcinst -j`.
3. Dynamic linker. On operating systems where the dynamic linker has a file listing locations for shared objects (Linux and FreeBSD), the installation script will attempt to add paths under the path you provided at the start of the installation to the end of this list:
 - On Linux, this is usually the file `/etc/ld.so.conf`.
 - On FreeBSD this is usually the file `/etc/defaults/rc.conf`.

Installing alongside other existing Easysoft product installations

Each Easysoft distribution contains common files shared between Easysoft products. These

shared objects are placed in *installation_path/easysoft/lib*. When you run the installation script, the dates and versions of these files are compared with the same files in the distribution. The files are only updated if the files being installed are newer or have a later version number.

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

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

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

Gathering information required during the installation

During the installation, you're prompted for various pieces of information. Before installing, you need to find out whether you have unixODBC already installed and where it is installed. The installation script searches standard places like /usr and /usr/local.

However, if you installed the Driver Manager in a non-standard place and you do not install the included unixODBC, you will need to know the location.

Unpacking the distribution

The distribution for UNIX and Linux platforms is a tar file. To extract the installation files from the tar file, use:

```
tar -xvf jdbc-odbc-bridge-1.7.0-linux-x86-64.tar
```

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

Change into the directory created by unpacking the tar file to run the installation script. For example:

```
# cd jdbc-odbc-bridge-1.7.0-linux-x86-64
```

License to use

The end-user license agreement (EULA) is in the file license.txt. Be sure to understand the terms of the agreement before continuing, as you're required to accept the license terms at the start of the installation.

Answering questions during the installation

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

For example:

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

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

press Enter is n.

Running the installer

If you are considering running the installation as a non-root user, we suggest you review this carefully as you will have to get a root user to manually complete some parts of the installation afterwards. We recommend installing as the root user. (If you're concerned about the changes that will be made to your system, refer to [Changes made to your system.](#))

To start the installation, run:

```
./install
```

You need to:

- Confirm your acceptance of the license agreement by typing "yes" or "no". For more information about the license agreement, refer to [License to use](#).
- Supply the location where the software is to be installed.

We recommend accepting the default installation path.

For more information, refer to [Where to install](#).

Locating or installing unixODBC

We strongly recommend you use the unixODBC Driver Manager because:

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

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

1. If the installation script finds unixODBC, the following message displays:

```
Found unixODBC under path and it is version n.n.n
```

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

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

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

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

The unixODBC in the Easysoft JDBC-ODBC Bridge distribution is not built with the default options in unixODBC's `configure` line.

Option	Description
<code>--prefix=/etc</code>	This means the default SYSTEM <code>odbc.ini</code> file where SYSTEM data sources are located is <code>/etc/odbc.ini</code> .
<code>--enable-drivers=no</code>	This means other ODBC drivers that come with <code>unixODBC</code> are not installed.
<code>--enable-iconv=no</code>	This means <code>unixODBC</code> does not look for <code>libiconv</code> . Warnings about not finding an <code>iconv</code> library were confusing our customers.
<code>--enable-stats=no</code>	Turns off <code>unixODBC</code> statistics, which use system semaphores to keep track of used handles. Many systems do not have sufficient semaphore resources to keep track of used handles.
<code>--enable-readline=no</code>	This turns off readline support in <code>isql</code> . We did this because it ties <code>isql</code> to the version of <code>libreadline</code> on the system we build on. We build on as old a version of the operating system as we can for forward compatibility. Many newer Linux systems no longer include the older readline libraries and so turning on readline support makes <code>isql</code> unusable on these systems.
<code>--prefix=/usr/local/easysoft/unixODBC</code>	This installs <code>unixODBC</code> into <code>/usr/local/easysoft/unixODBC</code> .

Installing the Easysoft ODBC driver

The Easysoft JDBC-ODBC Bridge installation script:

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

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

- Creates an example Easysoft JDBC-ODBC Bridge data source. If `unixODBC` is installed and you registered the Easysoft JDBC-ODBC Bridge with `unixODBC`, the installation script adds example data source to your `odbc.ini` file.

Licensing

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

Licenses are stored in `installation_path/easysoft/license/licenses`.

Important After obtaining a license, you should make a backup copy of this file.

The installation script asks you if you want to request an Easysoft JDBC-ODBC Bridge license:

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

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

If you answer `y`, the installation runs the `licshell` script.

To obtain a license automatically, you need to be connected to the Internet and allow outgoing connections to `license.easysoft.com` on port 8884. If you're not connected to the Internet or don't allow outgoing connections on port 8884, the License Client can create a license request file that you can email to us.

When you start the License Client, the following menu displays:

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

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

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

- Your full name.
- Your company name.
- An email contact address. This must be the email address that you used when you registered on the Easysoft web site.
- A reference number (also referred to as an authorization code). When applying for a trial license, press Enter when prompted for a reference number. This field only applies to full (paid) licenses.

You're then asked to choose how you want to obtain the license.

The choices are:

- [1] Automatically by contacting the Easysoft License Daemon
This requires a connection to the Internet and the ability to support an outgoing TCP/IP connection to `license.easysoft.com` on port 8884.
- [2] Write information to file
The license request is output to `license_request.txt`.
- [3] Cancel this operation

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

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

Post installation steps for non-root installations

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

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

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

2. No example data sources can be added into unixODBC if you do not have write permission to the `SYSTEM odbc.ini` file. Run `odbcinst -j` to find out the location of the `SYSTEM DATA SOURCES` file then add your data sources to this file.
3. On systems where the dynamic linker has a configuration file defining the locations where it looks for shared objects (Linux and FreeBSD), you need to add:

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

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

4. If you didn't install the Easysoft JDBC-ODBC Bridge in the default location, you need to do one of the following:

- Link `/usr/local/easysoft` to the `easysoft` directory in your chosen installation path.

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

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

- Set and export the `EASYSOFT_ROOT` environment variable to `installation_path/easysoft`.
5. If your system doesn't have a dynamic linker configuration file, you need to add the paths listed in step 3 to whatever environment path the dynamic linker uses to locate shared objects. You may want to add these paths to a system file run whenever someone logs. For example, `/etc/profile`.

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

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


Uninstalling on Linux or UNIX

There is no automated way to remove the Easysoft JDBC-ODBC Bridge in this release. However, removal is quite simple. To do this:

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

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

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

1. If you created any Easysoft JDBC-ODBC Bridge data sources under unixODBC, you may want to delete these. To do this, first use odbcinst -j to locate USER and SYSTEM odbc.ini files. Then check those files for data sources that have the driver attribute set to.
2. Remove the install.info for the Easysoft JDBC-ODBC Bridge from the /usr/local/easysoft directory.

Configuring the Easysoft JDBC-ODBC Bridge

Use the web administrator to configure the Easysoft JDBC-ODBC Bridge.

To access the web administrator, got to:

`http://serverhost:8031/`

where *serverhost* is the host name computer on which the Easysoft JDBC-ODBC Bridge server is running.

The web administrator contains these pages:

- [Statistics](#)
- [Configuration](#)
- [Security](#)
- [Information](#)
- [Client Hosts](#)

The Statistics page

The **Statistics** page displays runtime statistics for the latest run of the server and lets you access other pages.

This page contains the following fields:

Field	Description
Server up time	The time in days, hours, minutes, and seconds since the Easysoft JDBC-ODBC Bridge server was started.
Server CPU time (s)	<p>This field is only visible if the ShowProcessTime flag is turned on.</p> <p>One or more values will be shown:</p> <ul style="list-style-type: none"> • If only one value is shown, it is the total CPU time consumed by the Easysoft JDBC-ODBC Bridge server. • If two times are shown, the first is user time and the second is kernel time. <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>When the Easysoft JDBC-ODBC Bridge server is running multi-threaded, any of the CPU times shown include CPU time consumed by the ODBC driver manager, any ODBC drivers loaded and any child processes or threads. The process time is only updated when the Easysoft JDBC-ODBC Bridge server is idle. If the Easysoft JDBC-ODBC Bridge server is extremely busy servicing incoming connections, the process time will not be updated.</p> </div>
Total Connections	<p>The total number of connections (or attempted connections) to the Easysoft JDBC-ODBC Bridge server.</p> <p>This includes connections dropped due to no license or insufficient license slots, port scanners, or anyone using telnet to access the Easysoft JDBC-ODBC Bridge server port.</p>

Field	Description
Total Threads/Processes	<p>The total number of threads or processes that the Easysoft JDBC-ODBC Bridge server has created during its execution.</p> <p>Connections denied access because of an access control rule or MaxThreadCount or MaxClientConnect being exceeded are not included, because the Easysoft JDBC-ODBC Bridge server does not start a thread or process for these.</p>
Active Threads/Processes	<p>The total number of active threads or processes the Easysoft JDBC-ODBC Bridge server has created to handle connections.</p> <p>This number may exceed the actual active count as the Easysoft JDBC-ODBC Bridge server only looks for exited threads and processes when five seconds has elapsed without any connections. (This is done to give preference to incoming connections.)</p> <p>Note that if MaxThreadCount or MaxClientConnect is set to anything other than 0, the Easysoft JDBC-ODBC Bridge server has to reap exited threads and processes every time a new connection arrives.</p> <p>Also note that this is not a limit and may therefore exceed your maximum licensed connection slots.</p>
Peak concurrent Threads/Processes	The highest value ever seen in the Active Threads/Processes count.
Last Connection time	The time the last connection occurred.
Last Disconnect time	The time the last disconnection occurred.
Number of different client hosts	<p>The number of different client machines that have connected to the Easysoft JDBC-ODBC Bridge server (where a client machine is identified by its IP address).</p> <p>Click on this link to get a list of IP addresses or machine names. Machine names are only displayed if you have ReverseLookup enabled.</p>

Field	Description
Changing the refresh frequency	<p>The Web Administrator uses a set of template files into which the dynamic data is inserted before sending it back to your browser.</p> <p>The template file for the Statistics screen is index.html, which is located in the admin subdirectory under wherever you installed the Easysoft JDBC-ODBC Bridge server.</p> <p>Open index.html in a text editor, and near the top you'll find: meta http-equiv="refresh" content="60"; URL=/index.html</p> <p>Change 60 (the refresh time in seconds) to your new refresh time.</p> <div> <p>Note</p> <p>Note that setting the refresh time to a very low value will increase the workload on the Easysoft JDBC-ODBC Bridge server process which handles HTTP requests. As this may reduce the response time to the Easysoft JDBC-ODBC Bridge server thread, times much less than 60 seconds are not recommended.</p> </div>

The Configuration page

To change settings in this page, use the user name that you specified for this purpose during Easysoft JDBC-ODBC Bridge setup. (Unless you chose to turn off web administrator authentication, in which case no user name is needed.)

This page contains the following fields:

Field	Description
Port	<p>The port on which the Easysoft JDBC-ODBC Bridge server listens for incoming client connections.</p> <p>The default port number is 8831, but it may be any port number not in use on your Easysoft JDBC-ODBC Bridge server machine.</p>
HTTPPort	<p>The port on which the Easysoft JDBC-ODBC Bridge server listens for HTTP (web administrator) requests.</p> <p>The default port number is 8031, but it may be any port number not in use on your Easysoft JDBC-ODBC Bridge server machine.</p> <p>If the Flags bitmask has the second bit set (HTTP_Server), the Easysoft JDBC-ODBC Bridge server starts listening on the specified port for HTTP requests in addition to acting in its normal role, serving client requests.</p>

Field	Description
Timeout	<p>The inactivity timeout in seconds (the default is 7200, two hours).</p> <p>The Easysoft JDBC-ODBC Bridge server starts a new thread (or process) for each client that connects and if there has been no communication in Timeout seconds, the thread or process exits.</p> <p>This ensures clients that fail to close down properly don't cause increasing resource usage on the server.</p> <p>To turn off the timeout, set it to 0.</p>
MaxThreadCount	<p>The maximum number of threads or processes the Easysoft JDBC-ODBC Bridge server allows at any one time.</p> <p>One thread or process is created for every ODBC connection. If MaxThreadCount is set to 0, there is no limit. The default is 100.</p> <p>Use this parameter to prevent too many simultaneous connections swamping your server.</p>
RetryCount	The number of times the Easysoft JDBC-ODBC Bridge server attempts to create a thread or process to handle a connection, or the number of times the server attempts to obtain a license slot for a new connection.
RetryPause	The time in seconds between each retry attempt.
SingleStatement	<p>By default, the Easysoft JDBC-ODBC Bridge attempts to pool statement handles in the ODBC driver and opens new connections to support multiple concurrent statements, even if the ODBC driver does not support this behaviour.</p> <p>If you don't need this feature (that is, you ensure that there is only a single result set open at any one time) set this to Y.</p>
HTTPAdmin	<p>The user name of the person allowed to make changes to the Easysoft JDBC-ODBC Bridge server by using the web administrator.</p> <p>This must be a valid user name in the operating system the server is running on. If set to the disabled, web server authentication is not required.</p> <p>The value is case-sensitive.</p>
Path	<p>The installation path of the Easysoft JDBC-ODBC Bridge.</p> <p>This is a read-only parameter for information only.</p>
Logging	<p>A bitmask telling the Easysoft JDBC-ODBC Bridge server what sorts of event to record in the log file.</p> <p>This should only be used as directed by Easysoft support and slows the Easysoft JDBC-ODBC Bridge down considerably if set. You may specify the number as decimal or hexadecimal. For example, 2047 or 0x7ff.</p>

Field	Description
LogDir	<p>The directory where Easysoft JDBC-ODBC Bridge log files are created.</p> <p>It defaults to <i>drive:\Program Files\Easysoft\Easysoft JDBC-ODBC Bridge\Logs\</i> on Windows and <i>/tmp</i> on Linux and UNIX.</p>
Flags	<p>A bitmask of operational flags.</p> <p>The bitmasks are split into check boxes, one for each bit:</p> <ul style="list-style-type: none"> • Authentication_Disabled (0x1) If set, Easysoft JDBC-ODBC Bridge server authentication is turned off . Setting this parameter should be considered as a security risk. However, in controlled environments where you do not need to authenticate the connections, this can save a considerable amount of time during connections. The default is off. • HTTP_Server (0x2) If set, the Easysoft JDBC-ODBC Bridge server listens for HTTP connections to the web administrator. The default is on. • MultiProcess (0x4) If set, the Easysoft JDBC-ODBC Bridge server starts a new process rather than a new thread for each incoming connection. Use this setting for an ODBC driver that's not thread-safe or is leaking memory. On Linux and UNIX, the MultiProcess flag can't be updated, as the server is not multi-threaded and therefore always starts new processes. The default is off. • HideSensitive (0x10) If set, the web administrator hides sensitive parameters on the Configuration page. The HTTPAdmin and Authentication_Disabled parameters are hidden when HideSensitive is set. All parameters are always shown in full on the Change Configurable Parameters page as this page is password protected. The default is off. • ReverseLookup (0x20) If set the Easysoft JDBC-ODBC Bridge server calls gethostbyaddr() on the connecting client's IP address to obtain the client's machine name. On machines where DNS is not set up properly, this can cause problems and in any case adds time to the connection. ReverseLookup currently only affects the number of different clients shown on the Statistics page, where "unknown" will be displayed instead of the machine name for the machine names of connecting clients if ReverseLookup is off. The default is off. • AuditODBCAccess (0x40) If set the Easysoft JDBC-ODBC Bridge server audits all connections to a log file, which can be examined in the web administrator. The audit file is written to the LogDir directory as esjob_access.log. The default is off. • ShowProcessTime (0x100) If set user and kernel CPU times for the main Easysoft JDBC-ODBC Bridge server process are displayed on the Statistics page. Values are updated every five seconds. The default is off.

The Security page

This page lets you view or change the computers that are allowed to connect to the Easysoft JDBC-ODBC Bridge.

Easysoft JDBC-ODBC Bridge security splits IP addresses up into two lists: allowed and denied. When a computer attempts to connect to the Easysoft JDBC-ODBC Bridge server, access is only

granted if:

- The allowed list is empty and the IP address is not in the denied list.
- Or-
- The IP address is in the allowed list.

Addresses must be entered using the IP dot notation. Entries that consist of fewer than four fields represent all addresses that match the defined fields. For example:

163.141.23. (note the trailing dot) matches all IP addresses from:

163.141.23.0

to

163.141.23.255

The Information page

The page contains:

- A list of links to Easysoft support resources

The Client Hosts page

The page lists the clients that have connected to the Easysoft JDBC-ODBC Bridge server. These connection attempts may not have been fully successful (for example, not authenticated or denied access).

The page contains the following fields:

Field	Description
IP Address	The IP addresses of connecting clients.
FQDN	The fully qualified domain name of connecting clients, which are displayed as "unknown", unless ReverseLookup is turned on.

Connecting to your ODBC data source

Configure an ODBC data source

If you have not done so already, create a system ODBC data source that connects to the datastore you want to access from your Java application. Create the ODBC data source on the same computer as the one on which you installed the Easysoft JDBC-ODBC Bridge server.

You create system data sources in the **System DSN** tab in **ODBC Data Source Administrator** (Windows) or `/etc/odbc.ini` (Linux and UNIX).

Registering the Easysoft JDBC-ODBC Bridge

To register the Easysoft JDBC-ODBC Bridge JDBC driver, your Java application must specify the class `easysoft.sql.jobDriver`. For example:

```
Class.forName("easysoft.sql.jobDriver");
```

To make this class available, add the Easysoft JDBC-ODBC Bridge client (`EJOB.jar`) to the system-wide classpath or copy the client to a directory that's already on the system-wide classpath or your application's internal classpath.

The connection URL

When the Easysoft JDBC-ODBC Bridge JDBC driver is registered, you can establish a connection by using a connection URL and the `getConnection` method of the `DriverManager` class. For example:

```
String connectionUrl = "jdbc:easysoft:my_host/my_system_dsn_name";  
Connection con = DriverManager.getConnection(connectionUrl);
```

Further information

- [Easysoft JDBC-ODBC Bridge programming guide](#)

Tracing

From the Easysoft JDBC-ODBC Bridge client

Use these Driver Manager methods:

```
// JDBC 1.x
DriverManager.setLogStream(java.io.PrintStream(java.io.PrintStream out))
```

-Or-

```
// JDBC 2.x+
DriverManager(java.io.PrintWriter out)
```

in your Java code to direct tracing output to a specified file.

It's also possible to direct tracing to the standard output (Java console) by adding :trace=on to the Easysoft JDBC-ODBC Bridge JDBC URL.

Set the clearText=on to turn off encrypted transmission of connection information, which makes some tracing output unreadable.

For multi-threaded applications, set the :multi=on attribute, so that each trace line is prefixed with an indication of the thread that produced that line.

For example:

```
jdbc:easysoft://myhost/mydsn:trace=on:multi=on
```

From the Easysoft JDBC-ODBC Bridge server

Use ODBC tracing on the computer where the Easysoft JDBC-ODBC Bridge server is installed.

To do this on Windows, in **ODBC Data Source Administrator**, click the **Tracing** tab. Enter a trace file name in the space provided. Choose **Machine-wide tracing for all user identities**, and then choose **Start tracing now**.

To do this on Linux and UNIX, add this section to the start of odbcinst.ini (usually located in /etc/odbcinst.ini):

```
[ODBC]
Trace = Yes
TraceFile = /path/filename
```

For example:

```
[ODBC]
Trace = Yes
TraceFile = /tmp/sql.log
```

The user who is running the application to be traced must have write permission to TraceFile (and to the directory containing it).

About the Easysoft JDBC-ODBC Bridge

The Easysoft JDBC-ODBC Bridge allows Java applications to connect to any datastore for which an ODBC driver is available.

- [JRE requirements](#)
- [JDBC support](#)
- [ODBC support](#)
- [Supported data types](#)
- [Classpath](#)
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- [Firewalls](#)
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JRE requirements

You need to install the Java Runtime Environment (JRE) on the computer where the Easysoft JDBC-ODBC Bridge client is installed.

JDBC support

The Easysoft JDBC-ODBC Bridge supports all JDBC 1.22 methods. The Easysoft JDBC-ODBC Bridge also supports all JDBC 2.1 functions (such as batch updates, scrollable results sets, programmatic inserts, deletes, and updates). The Easysoft JDBC-ODBC Bridge doesn't support SQL 3 data types.

ODBC support

The Easysoft JDBC-ODBC Bridge server supports both ODBC 2.x and ODBC 3.x drivers

Supported data types

All the standard JDBC data types are supported.

Classpath

By default, the Easysoft JDBC-ODBC Bridge driver classes are in:

C:\Program Files\Easysoft\Easysoft JDBC-ODBC Bridge\Jars\EJOB.jar

-Or-

/usr/local/easysoft/job/EJOB.jar

Unicode support

To turn on Unicode support, include `:unicode=on` in the JDBC URL.

Use one of the two `getString` methods in the `ResultSet` class to read Unicode data. Use the `setString` method in the `PreparedStatement` class to write Unicode data.

Read and write statements to metadata table, row, and column names containing Unicode characters are not supported, unless those names are restricted to ASCII characters only.

The `executeQuery` method in the `Statement` class does **not** support SQL containing Unicode character strings.

Note

Unicode data can also be read by using one of the two `getUnicodeStream` methods in the `ResultSet` class and written by using the `setUnicodeStream` method in the `PreparedStatement` class.

Firewalls

Easysoft JDBC-ODBC Bridge server connections are made through the port designated in the connection URL and any firewall must allow TCP protocol traffic to pass through this port.

Threading

Easysoft JDBC-ODBC Bridge client

The Easysoft JDBC-ODBC Bridge client is safe to use in multi-threaded applications. It fully meets the requirements of the ODBC 3.5 specification as regards threading, with the proviso that the target ODBC driver must support asynchronous statement execution.

All operations on `java.sql` and `javax.sql` objects are required to be thread safe. This allows several threads to simultaneously call the same object.

In other words, a statement execution in one thread should not block an execution in another thread.

An example of a specific use of multi-threading is the way a long-running statement can be cancelled. This is done by using one thread to execute the statement and a second one to cancel it with `Statement.cancel`.

Although in practice most JDBC objects are accessed in a single-threaded way, there needs to be support for multi-threading.

Some database APIs, such as ODBC, provide mechanisms for allowing SQL statements to execute asynchronously. This allows an application to start up a database operation in the background and then handle other work (such as managing a user interface) while waiting for the operation to complete.

As Java is a multi-threaded environment, there is no need to provide support for asynchronous statement execution. Java programmers can easily create a separate thread if they want to execute statements asynchronously with respect to their main thread.

Some ODBC drivers may allow more concurrent execution than others, but developers should be able to assume fully concurrent execution. If the driver requires some form of synchronization, then the driver should provide it. In this situation, the only visible difference to the developer should be that applications run with reduced concurrency.

For example, two `Statement` objects on the same connection can be executed concurrently, and their result sets can be processed concurrently (from the perspective of the developer). Some ODBC drivers provide this full concurrency, while others may execute one statement and wait until it completes before sending another one.

Easysoft JDBC-ODBC Bridge server

Under Windows, the Easysoft JDBC-ODBC Bridge server may run in either multi-threaded or multi-process mode:

- In the default multi-threaded mode, the Easysoft JDBC-ODBC Bridge server creates a thread for each connection from a Easysoft JDBC-ODBC Bridge client.
- In multi-process mode, the Easysoft JDBC-ODBC Bridge server creates a process for each connection from a Easysoft JDBC-ODBC Bridge client.

If the ODBC driver you're using is not thread-safe (for example, drivers based on Microsoft Access Jet versions prior to 4.0), run the Easysoft JDBC-ODBC Bridge server in multi-process mode.

On Linux and UNIX platforms, the Easysoft JDBC-ODBC Bridge server is not required to be thread-safe, because a new process is started to handle each connection, either by the Easysoft JDBC-ODBC Bridge server running in standalone mode (without `inetd`) or by `inetd` itself (if the server is started as an `inet` service). There can only be one thread of execution in these circumstances.

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