EDB Postgres Advanced Server ODBC Connector Guide

Version 12.2.0.2

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1 What's New

The following features are added to create the EDB ODBC Connector `12.02.0000.02`:

- Support for EDB Postgres Advanced Server 13.
- Support for Ubuntu 20.04 LTS platform.

2 Requirements Overview

Supported Versions

The EDB ODBC Connector is certified with Advanced Server version 9.5 and above.

Supported Platforms

The EDB ODBC Connector native packages are supported on the following platforms:

64 bit Linux:

- Red Hat Enterprise Linux (x86_64) 8.x and 7.x
- CentOS (x86_64) 8.x and 7.x
- OEL Linux 8.x and 7.x
- PPC-LE 8 running RHEL or CentOS 7.x
- SLES 12.x
- Debian 10.x and 9.x
- Ubuntu 20.04 and 18.04 LTS

The EDB ODBC Connector graphical installers are supported on the following Windows platforms:

64-bit Windows:

- Windows Server 2019
- Windows Server 2016
- Windows Server 2012 R2
- Windows 10
- Windows 8.1

32-bit Windows:

- Windows 10
- Windows 8.1

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3 EDB-ODBC Overview

EDB ODBC is an interface that allows an ODBC compliant client application to connect to an Advanced Server database. The EDB-ODBC connector allows an application that was designed to work with other databases to run on Advanced Server; EDB ODBC provides a way for the client application to establish a connection, send queries and retrieve results from Advanced Server.

While EDB ODBC provides a level of application portability, it should be noted that the portability is limited; EDB ODBC provides a connection, but does not guarantee command compatibility. Commands that are acceptable in another database, may not work in Advanced Server.

The major components in a typical ODBC application are:

- The client application - written in a language that has a binding for ODBC
- The ODBC Administrator - handles named connections for Windows or Linux
- The database specific ODBC driver - EDB ODBC
- The ODBC compliant server - EDB Postgres Advanced Server

Client applications can be written in any language that has a binding for ODBC; C, MS-Access, and C++ are just a few.

3.1 Installing EDB-ODBC

The EDB ODBC Connector is distributed and installed with the EDB Postgres Advanced Server graphical or RPM installer.

Installing the Connector with an RPM Package

You can install the ODBC Connector using an RPM package on the following platforms:

- RHEL 7
- RHEL 8
- CentOS 7
- CentOS 8

On RHEL 7

Before installing the ODBC Connector, you must install the following prerequisite packages, and request credentials from EDB:

Install the `epel-release` package:

```
yum -y install https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm
```

Enable the optional, extras, and HA repositories:

```
subscription-manager repos --enable "rhel-*-optional-rpms" --enable "rhel-*-extras-rpms"  --enable "rhel-
```

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```
ha-for-rhel-*-server-rpms"
```

You must also have credentials that allow access to the EDB repository. For information about requesting credentials, visit:

```
https://info.enterprisedb.com/rs/069-ALB-339/../images/Repository%20Access%2004-09-2019.pdf
```

After receiving your repository credentials you can:

1. Create the repository configuration file.
2. Modify the file, providing your user name and password.
3. Install `edb-odbc`.

Creating a Repository Configuration File

To create the repository configuration file, assume superuser privileges, and invoke the following command:

```
yum -y install https://yum.enterprisedb.com/edbrepos/edb-repo-latest.noarch.rpm
```

The repository configuration file is named `edb.repo`. The file resides in `/etc/yum.repos.d`.

Modifying the file, providing your user name and password

After creating the `edb.repo` file, use your choice of editor to ensure that the value of the `enabled` parameter is `1`, and replace the `username` and `password` placeholders in the `baseurl` specification with the name and password of a registered EDB user.

```
[edb]
name=EnterpriseDB RPMs $releasever - $basearch
baseurl=https://<username>:<password>@yum.enterprisedb.com/edb/redhat/rhel-$releasever-
$basearch
enabled=1
gpgcheck=1
gpgkey=file:///etc/pki/rpm-gpg/ENTERPRISEDB-GPG-KEY
```

Installing ODBC Connector

After saving your changes to the configuration file, use the following commands to install the ODBC Connector:

```
yum install edb-odbc

yum install edb-odbc-devel
```

When you install an RPM package that is signed by a source that is not recognized by your system, yum may ask for your permission to import the key to your local server. If prompted, and you are satisfied that the packages come from a trustworthy source, enter `y`, and press `Return` to continue.

During the installation, yum may encounter a dependency that it cannot resolve. If it does, it will provide a list of the required dependencies that you must manually resolve.

On RHEL 8

Before installing the ODBC Connector, you must install the following prerequisite packages, and request credentials from EDB:

Install the `epel-release` package:

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```
dnf -y install https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm
```

Enable the `codeready-builder-for-rhel-8-\*-rpms` repository:

```
ARCH=$( /bin/arch )
subscription-manager repos --enable "codeready-builder-for-rhel-8-${ARCH}-rpms"
```

You must also have credentials that allow access to the EDB repository. For information about requesting credentials, visit:

https://info.enterprisedb.com/rs/069-ALB-339/../images/Repository%20Access%2004-09-2019.pdf

After receiving your repository credentials you can:

1. Create the repository configuration file.
2. Modify the file, providing your user name and password.
3. Install `edb-odbc`.

Creating a Repository Configuration File

To create the repository configuration file, assume superuser privileges, and invoke the following command:

```
dnf -y https://yum.enterprisedb.com/edbrepos/edb-repo-latest.noarch.rpm
```

The repository configuration file is named `edb.repo`. The file resides in `/etc/yum.repos.d`.

Modifying the file, providing your user name and password

After creating the `edb.repo` file, use your choice of editor to ensure that the value of the `enabled` parameter is `1`, and replace the `username` and `password` placeholders in the `baseurl` specification with the name and password of a registered EDB user.

```
[edb]
name=EnterpriseDB RPMs $releasever - $basearch
baseurl=https://<username>:<password>@yum.enterprisedb.com/edb/redhat/rhel-$releasever-
$basearch
enabled=1
gpgcheck=1
gpgkey=file:///etc/pki/rpm-gpg/ENTERPRISEDB-GPG-KEY
```

Installing ODBC Connector

After saving your changes to the configuration file, use the below command to install the ODBC Connector:

```
dnf install edb-odbc

dnf install edb-odbc-devel
```

When you install an RPM package that is signed by a source that is not recognized by your system, yum may ask for your permission to import the key to your local server. If prompted, and you are satisfied that the packages come from a trustworthy source, enter `y`, and press `Return` to continue.

During the installation, yum may encounter a dependency that it cannot resolve. If it does, it will provide a list of the required dependencies that you must manually resolve.

On CentOS 7

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Before installing the ODBC Connector, you must install the following prerequisite packages, and request credentials from EDB:

Install the `epel-release` package:

```
yum -y install https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm
```

Note

You may need to enable the `[extras]` repository definition in the `CentOS-Base.repo` file (located in `/etc/yum.repos.d`).

You must also have credentials that allow access to the EDB repository. For information about requesting credentials, visit:

```
https://info.enterprisedb.com/rs/069-ALB-339/../images/Repository%20Access%2004-09-2019.pdf
```

After receiving your repository credentials you can:

1. Create the repository configuration file.
2. Modify the file, providing your user name and password.
3. Install `edb-odbc`.

Creating a Repository Configuration File

To create the repository configuration file, assume superuser privileges, and invoke the following command:

```
yum -y install https://yum.enterprisedb.com/edbrepos/edb-repo-latest.noarch.rpm
```

The repository configuration file is named `edb.repo`. The file resides in `/etc/yum.repos.d`.

Modifying the file, providing your user name and password

After creating the `edb.repo` file, use your choice of editor to ensure that the value of the `enabled` parameter is `1`, and replace the `username` and `password` placeholders in the `baseurl` specification with the name and password of a registered EDB user.

```
[edb]
name=EnterpriseDB RPMs $releasever - $basearch
baseurl=https://<username>:<password>@yum.enterprisedb.com/edb/redhat/rhel-$releasever-
$basearch
enabled=1
gpgcheck=1
gpgkey=file:///etc/pki/rpm-gpg/ENTERPRISEDB-GPG-KEY
```

Installing ODBC Connector

After saving your changes to the configuration file, use the following command to install the ODBC Connector:

```
yum install edb-odbc

yum install edb-odbc-devel
```

When you install an RPM package that is signed by a source that is not recognized by your system, yum may ask for your permission to import the key to your local server. If prompted, and you are satisfied that the packages come from a trustworthy source, enter `y`, and press `Return` to continue.

During the installation, yum may encounter a dependency that it cannot resolve. If it does, it will provide a list of

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the required dependencies that you must manually resolve.

On CentOS 8

Before installing the ODBC Connector, you must install the following prerequisite packages, and request credentials from EDB:

Install the `epel-release` package:

```
dnf -y install https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm
```

Enable the `PowerTools` repository:

```
dnf config-manager --set-enabled PowerTools
```

You must also have credentials that allow access to the EDB repository. For information about requesting credentials, visit:

```
https://info.enterprisedb.com/rs/069-ALB-339/../images/Repository%20Access%2004-09-2019.pdf
```

After receiving your repository credentials you can:

1. Create the repository configuration file.
2. Modify the file, providing your user name and password.
3. Install `edb-odbc`.

Creating a Repository Configuration File

To create the repository configuration file, assume superuser privileges, and invoke the following command:

```
dnf -y install https://yum.enterprisedb.com/edbrepos/edb-repo-latest.noarch.rpm
```

The repository configuration file is named `edb.repo`. The file resides in `/etc/yum.repos.d`.

Modifying the file, providing your user name and password

After creating the `edb.repo` file, use your choice of editor to ensure that the value of the `enabled` parameter is `1`, and replace the `username` and `password` placeholders in the `baseurl` specification with the name and password of a registered EDB user.

```
[edb]
name=EnterpriseDB RPMs $releasever - $basearch
baseurl=https://<username>:<password>@yum.enterprisedb.com/edb/redhat/rhel-$releasever-
$basearch
enabled=1
gpgcheck=1
gpgkey=file:///etc/pki/rpm-gpg/ENTERPRISEDB-GPG-KEY
```

Installing ODBC Connector

After saving your changes to the configuration file, use the following command to install the ODBC Connector:

```
dnf install edb-odbc

dnf install edb-odbc-devel
```

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When you install an RPM package that is signed by a source that is not recognized by your system, yum may ask for your permission to import the key to your local server. If prompted, and you are satisfied that the packages come from a trustworthy source, enter `y`, and press `Return` to continue.

During the installation, yum may encounter a dependency that it cannot resolve. If it does, it will provide a list of the required dependencies that you must manually resolve.

Updating an RPM Installation

If you have an existing EDB ODBC connector RPM installation, you can use yum or dnf to upgrade your repository configuration file and update to a more recent product version. To update the `edb.repo` file, assume superuser privileges and enter:

- On RHEL or CentOS 7:

```
yum upgrade edb-repo
```

- On RHEL or CentOS 8:

```
dnf upgrade edb-repo
```

yum or dnf will update the `edb.repo` file to enable access to the current EDB repository, configured to connect with the credentials specified in your `edb.repo` file. Then, you can use yum or dnf to upgrade any installed packages:

- On RHEL or CentOS 7:

```
yum upgrade edb-odbc
```

```
yum upgrade edb-odbc-devel
```

- On RHEL or CentOS 8:

```
dnf upgrade edb-odbc
```

```
dnf upgrade edb-odbc-devel
```

Installing the Connector on an SLES 12 Host

You can use the zypper package manager to install the connector on an SLES 12 host. zypper will attempt to satisfy package dependencies as it installs a package, but requires access to specific repositories that are not hosted at EDB. Before installing the connector, use the following commands to add EDB repository configuration files to your SLES host:

```
zypper addrepo https://zypp.enterprisedb.com/suse/edb-sles.repo
```

After creating the repository configuration files, use the `zypper refresh` command to refresh the metadata on your SLES host to include the EDB repositories.

When prompted for a `User Name` and `Password`, provide your connection credentials for the EDB repository. To request credentials for the repository, visit the EDB website.

Before installing EDB Postgres Advanced Server or supporting components, you must also add SUSEConnect and the SUSE Package Hub extension to the SLES host, and register the host with SUSE, allowing access to SUSE repositories. Use the commands:

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```
zypper install SUSEConnect
SUSEConnect -r 'REGISTRATION  CODE' -e 'EMAIL'
SUSEConnect -p PackageHub/12.4/x86_64
SUSEConnect -p sle-sdk/12.4/x86_64
```

For detailed information about registering a SUSE host, visit the SUSE website.

Then, you can use the zypper utility to install the connector:

```
zypper install edb-odbc
```

```
zypper install edb-odbc-devel
```

Installing the Connector on a Debian or Ubuntu Host

To install a DEB package on a Debian or Ubuntu host, you must have credentials that allow access to the EDB repository. To request credentials for the repository, visit the EDB website.

The following steps will walk you through on using the EDB apt repository to install a DEB package. When using the commands, replace the `username` and `password` with the credentials provided by EDB.

1. Assume superuser privileges:

   ```
   sudo su –
   ```

2. Configure the EDB repository:

   On Debian 9:

   ```
   sh -c 'echo "deb https://username:password@apt.enterprisedb.com/$(lsb_release -cs)-edb/
   $(lsb_release -cs) main" > /etc/apt/sources.list.d/edb-$(lsb_release -cs).list'
   ```

   On Debian 10:

   1. Set up the EDB repository:

   ```
   -c 'echo "deb [arch=amd64] https://apt.enterprisedb.com/$(lsb_release -cs)-edb/ $(lsb_release -cs)
   main" > /etc/apt/sources.list.d/edb-$(lsb_release -cs).list'
   ```

   1. Substitute your EDB credentials for the `username` and `password` in the following command:

   ```
   -c 'echo "machine apt.enterprisedb.com login <username> password <password>" >
   /etc/apt/auth.conf.d/edb.conf'
   ```

3. Add support to your system for secure APT repositories:

   ```
   apt-get install apt-transport-https
   ```

4. Add the EDB signing key:

   ```
   wget -q -O - https://<username>:<password>@apt.enterprisedb.com/edb-deb.gpg.key | apt-key add -
   ```

5. Update the repository metadata:

   ```
   apt-get update
   ```

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6. Install DEB package:

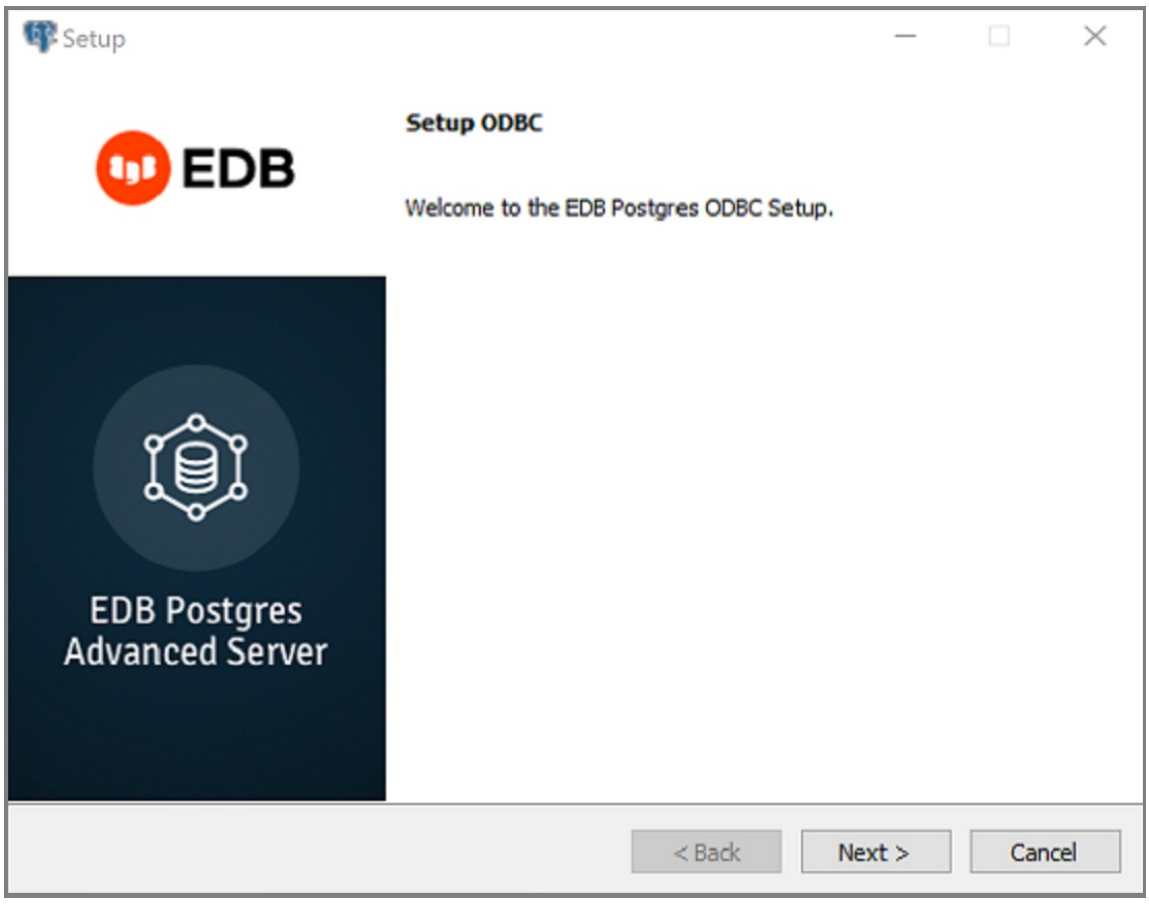
```
apt-get install edb-odbc
apt-get install edb-odbc-dev
```

Using the Graphical Installer to Install the Connector

You can use the EDB Connectors Installation wizard to add the ODBC connector to your system; the wizard is available at the EDB website.

Download the installer, and then, right-click on the installer icon, and select Run As Administrator from the context menu.

When the Language Selection popup opens, select an installation language and click OK to continue to the Setup window (shown in Figure below).



Click Next to continue.

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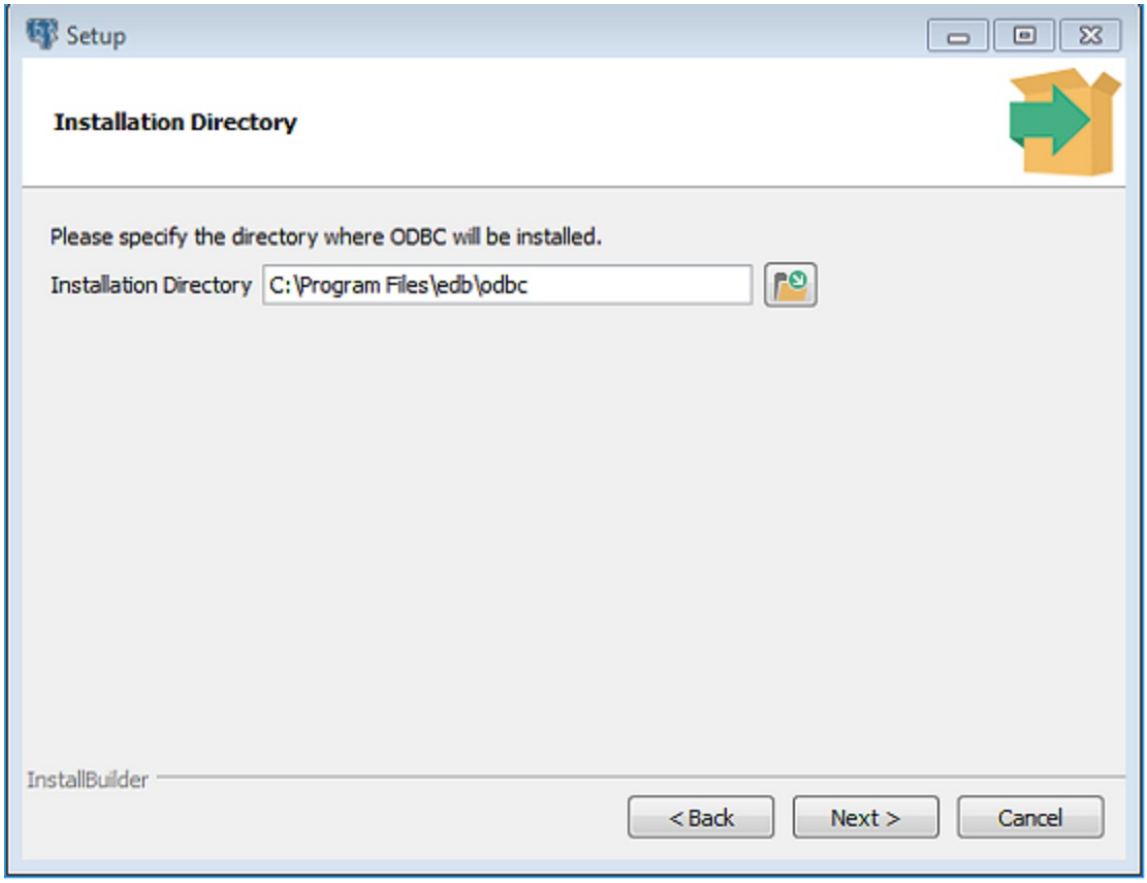
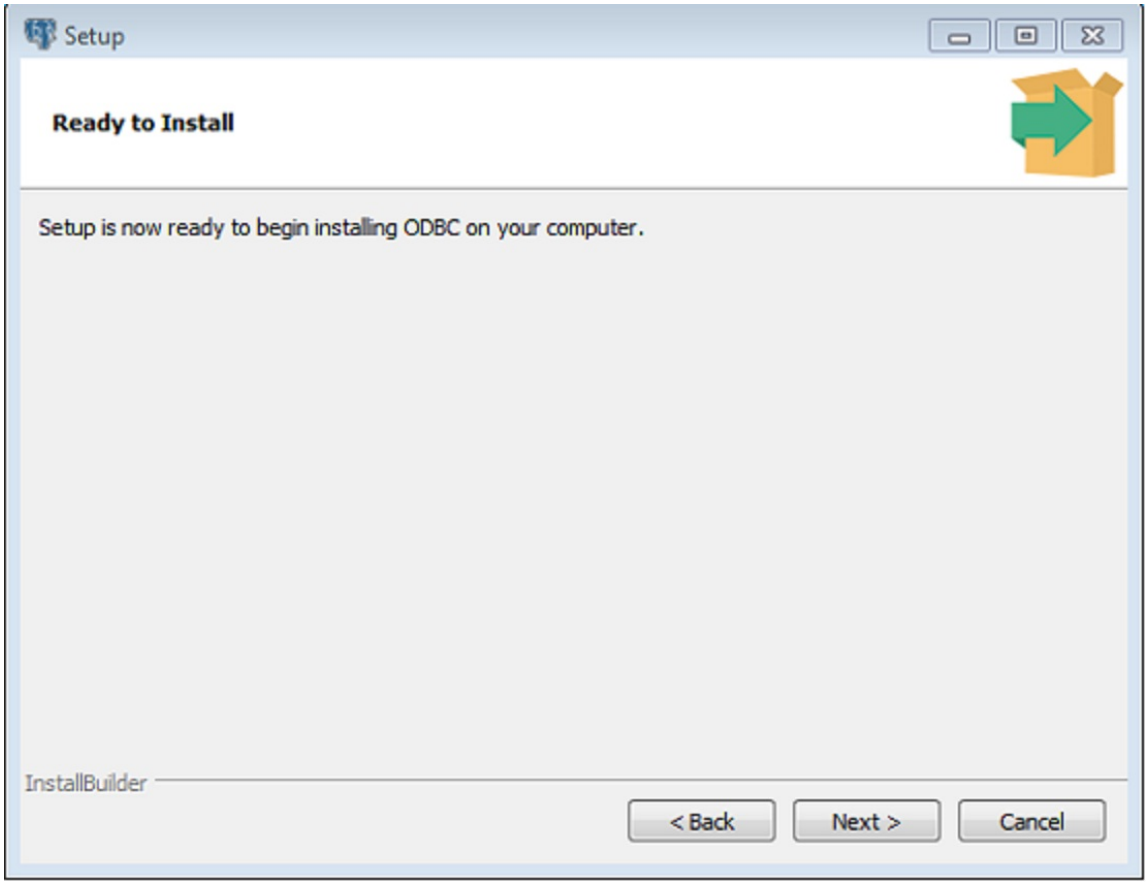


Use the Installation Directory dialog to specify the directory in which the connector will be installed, and click Next to continue.



Click Next on the Ready to Install dialog to start the installation; popup dialogs confirm the progress of the installation wizard.

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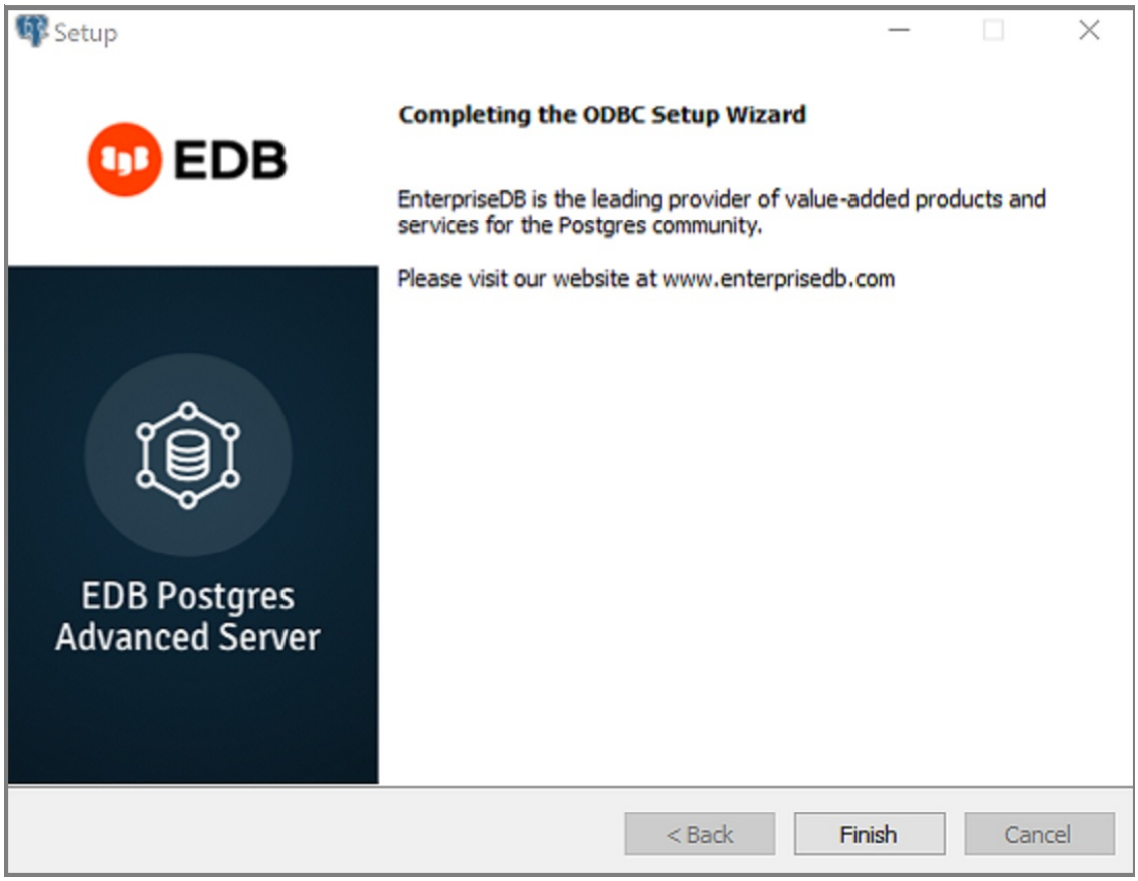
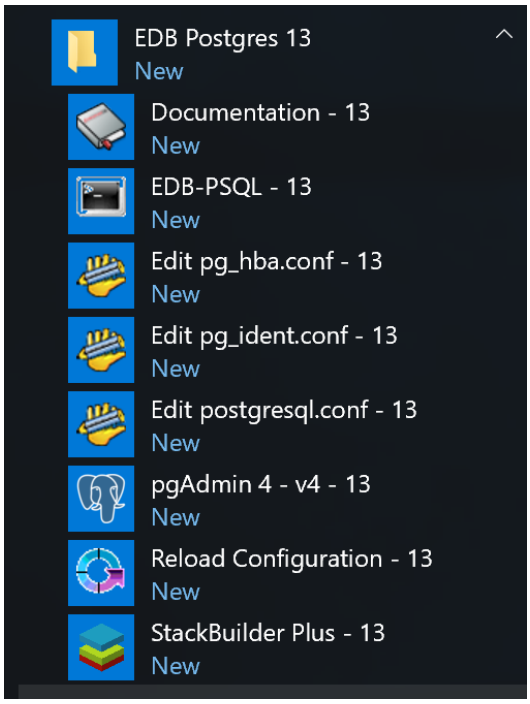


When the wizard informs you that it has completed the setup, click the Finish button to exit the dialog.

You can also use StackBuilder Plus to add or update the connector on an existing Advanced Server installation; to open StackBuilder Plus, select StackBuilder Plus from the Windows Apps menu.



When StackBuilder Plus opens, follow the onscreen instructions. Select the EnterpriseDB ODBC Connector option from the Database Drivers node of the tree control.

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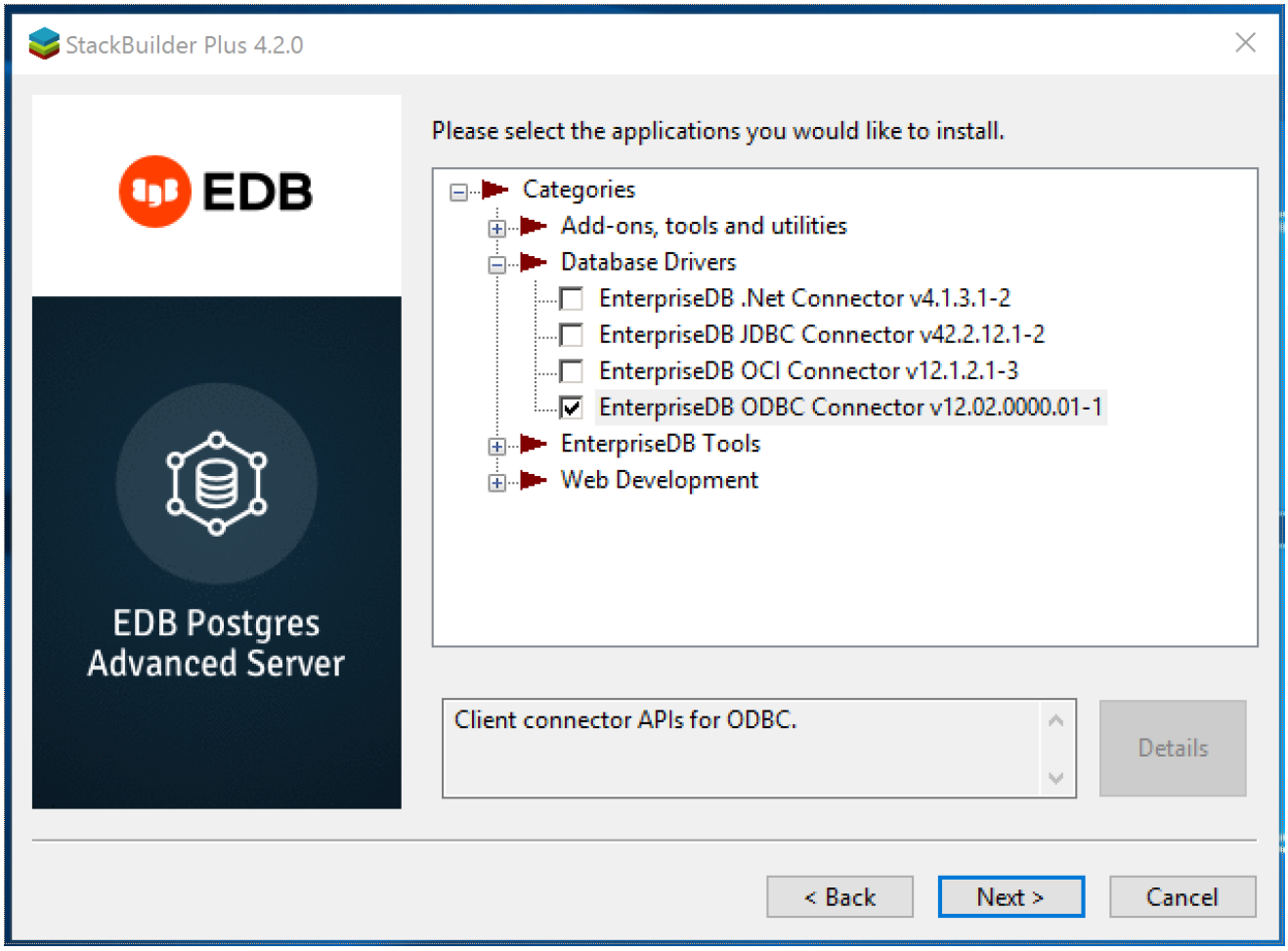

Follow the directions of the onscreen wizard to add or update an installation of the EDB Connectors.

4 Creating a Data Source

When a client application tries to establish a connection with a server, it typically provides a data source name (also known as a "DSN"). The driver manager looks through the ODBC configuration database for a data source whose name matches the DSN provided by the application.

On a Linux or Unix host, data sources are defined in a file; that file is usually named /etc/odbc.ini, but the name (and location) may vary. Use the following command to find out where unixODBC is searching for data source definitions:

```
$ odbc_config --odbcini --odbcinstini
```

On a Windows host, data sources are typically defined in the Windows registry.

You can also store a data source definition (called a "File DSN") in a plain-text file of your choice. A typical data source definition for the EDB-ODBC driver looks like this:

```
$ cat /etc/odbc.ini
[EnterpriseDB]
Description = EnterpriseDB DSN
Driver = EnterpriseDB
```

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```
Trace = yes
TraceFile = /tmp/odbc.log
Database = edb
Servername = localhost
UserName = enterprisedb
Password = manager
Port = 5444
```

The first line in the data source is the data source name. The name is a unique identifier, enclosed in square brackets. The data source name is followed by a series of 'keyword=value' pairs that identify individual connection properties that make up the data source.

The ODBC administrator utility creates named data sources for ODBC connections. In most cases, an ODBC administrator utility is distributed with the operating system (if you're using Windows or unixODBC, the tool is called the ODBC Data Source Administrator). If your operating system doesn't include an ODBC administrator, third-party options are available online.

Sections Adding a Data Source Definition in Windows and Adding a Data Source Definition in Linux walk you through adding a data source in Windows and Linux using the graphical tools available for each operating system. During the process of defining a data source, you'll be asked to specify a set of connection properties. Section EDB-ODBC Connection Properties contains information about optional data source connection properties; you can specify connection properties with graphical tools or edit the odbc.ini file with a text editor.

5 EDB-ODBC Connection Properties

The following table describes the connection properties that you can specify through the dialogs in the graphical connection manager tools, or in the odbc.ini file that defines a named data source. The columns identify the connection property (as it appears in the ODBC Administrator dialogs), the corresponding keyword (as it appears in the odbc.ini file), the default value of the property, and a description of the connection property.

Property	Keyword name	Default value	Description
Database	Database	None	The name of the database to which you are connecting.
Driver	Driver	EDB-ODBC	The name of the ODBC driver.
Server	Servername	Localhost	The name or IP address of the server that you are connecting to.
dbms_name Description User Name Password	dbms_name Description Username Password	EnterpriseDB	Database system. Either EnterpriseDB or PostgreSQL. Descriptive name of the data source. The name of the user that this data source uses to connect to the server. The password of the user associated with this named data source.
CPTimeout	CPTimeout	0	Number of seconds before a connection times out (in a connection pooling environment).
Port	Port	5444	The TCP port that the postmaster is listening on.
Protocol	Protocol	7.4	If specified, forces the driver to use the given protocol version.

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Property	Keyword name	Default value	Description
Level of Rollback on Errors	Use the Protocol option to specify rollback behavior.	Transaction Level	Specifies how the driver handles errors: 0 - Don't rollback 1 - Rollback the transaction 2 - Rollback the statement
Usage Count	UsageCount	1	The number of installations using this driver.
Read Only	ReadOnly	No	Specifies that the connection is READONLY.
Show System Tables	ShowSystemTables	No	If enabled, the driver reports system tables in the result set of the SQLTables() function.
OID Options: Show Column	ShowOidColumn	No	If enabled, the SQLColumns() function reports the OID column.
OID Options: Fake Index	FakeOidIndex	No	If enabled, the SQLStatistics() function reports that a unique index exists on each OID column.
Keyset Query Optimization	Ksqo	On	If enabled, enforces server-side support for keyset queries (generated by the MS Jet database engine).
Recognize Unique Indexes	UniqueIndex	On	If enabled, the SQLStatistics() function will report unique indexes. If not enabled, the SQLStatistics() function reports that indexes allow duplicate values.
Use Declare/Fetch	UseDeclareFetch	Off	If enabled, the driver will use server-side cursors. To enable UseDeclareFetch, specify a value of 1; to disable UseDeclareFetch, specify a value of 0.
CommLog	CommLog	Off	If enabled, records all client/server traffic in a log file.
Parse Statements	Parse	Off	If enabled, the driver parses simple SELECT statements when you call the SQLNumResultCols(), SQLDescribeCol() or SQLColAttributes() functions.
Cancel as FreeStmt	CancelAsFreeStmt	Off	If enabled, the SQLCancel() function will call SQLFreeStmt(SQL_Close) on your behalf.
MyLog	Debug	Off	If enabled, the driver records its work in a log file. On Windows, the file name is C:mylog<process-id>; and on Linux the file name is /tmp/mylog<username><process-id>.log.
Unknown Sizes	UnknownSizes	Maximum	Determines how the SQLDescribeCol() and SQLColAttributes() functions compute the size of a column. Specify 0 to force the driver to report the maximum size allowed for the type; specify 1 to force the driver to report an unknown length or 2 to force the driver to search the result set to find the longest value. Do not specify 2 if you have enabled UseDeclareFetch.
Text as LongVarchar	TextAsLongVarChar	8190	If enabled, the driver treats TEXT columns as if they are of type SQL_LONGVARCHAR. If disabled, the driver treats TEXT columns as SQL_VARCHAR values.
Unknown as Long Varchar	LongVarChar	False	If enabled, the driver treats values of unknown type as SQL_LONGVARCHAR values. If unchecked, the driver will treat values of unknown type as SQL_VARCHAR values. By default, values of unknown type are treated as Y values.

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Property	Keyword name	Default value	Description
Bools as Char	BoolsAsChar	On	If enabled, the driver treats BOOL columns as SQL_CHAR values. If disabled, BOOL columns are treated as SQL_BIT values.
Max Varchar	MaxVarcharSize	255	If enabled, the driver treats VARCHAR and BPCHAR values longer than MaxVarCharSize as SQL_LONGVARCHAR values
Max Long Varchar Size	MaxLongVarcharSize	8190	If TextAsLongVarChar is on, the driver reports TEXT values are MaxLongVarcharSize bytes long. If UnknownAsLongVarChar is on, columns of unknown type are MaxLongVarcharSize bytes long; otherwise, they are reported to be MaxVarcharSize bytes in length.
Cache Size	Fetch	100	Determines the number of rows fetched by the driver when UseDeclareFetch is enabled.
SysTable Prefixes	ExtraSysTablePrefixes	dd;	Use the SysTablePrefixes field to specify a semi-colon delimited list of prefixes that indicate that a table is a system table. By default, the list contains dd;.
Cumulative Row Count for Insert	MapSqlParcNoBatch	Off/0	If enabled, the SQLRowCount() function will return a single, cumulative row count for the entire array of parameter settings for an INSERT statement. If disabled, an individual row count will be returned for each parameter setting. By default, this option is disabled.
LF<-> CR/LF conversion	LFConversion	System Dependent	The LF<->CR/LF conversion option instructs the driver to convert line-feed characters to carriage-return/line-feed pairs when fetching character values from the server and convert carriage-return/line-feed pairs back to line-feed characters when sending character values to the server. By default, this option is enabled.
Updatable Cursors	UpdatableCursors	Off	Permits positioned UPDATE and DELETE operations using the SQLSetPos() or SQLBulkOperations() functions.
Bytea as Long VarBinary	ByteaAsLongVarBinary	Off	If enabled, the driver treats BYTEA values as if they are of type SQL_LONGVARBINARY. If disabled, BYTEA values are treated as SQL_VARBINARY values.
Bytea as LO	ByteaAsLO	False	If enabled, the driver treats BYTEA values as if they are large objects.
Row versioning	RowVersioning	Off	The Row Versioning option specifies if the driver should include the xmin column when reporting the columns in a table. The xmin value is the ID of the transaction that created the row. You must use row versioning if you plan to create cursors where SQL_CONCURRENCY = SQL_CONCUR_ROWVER.
Disallow Premature	DisallowPremature	No/0	Determines driver behavior if you try to retrieve information about a query without executing the query. If Yes, the driver declares a cursor for the query and fetches the meta-data from the cursor. If No, the driver executes the command as soon as you request any meta-data.

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Property	Keyword name	Default value	Description
True is -1	TrueIsMinus1	Off/0	TrueIsMinus1 tells the driver to return BOOL values of TRUE as -1. If this option is not enabled, the driver will return BOOL values of TRUE as 1. The driver always returns BOOL values of FALSE as 0.
Server side prepare	UseServerSidePrepare	No/0	If enabled, the driver uses the PREPARE and EXECUTE commands to implement the Prepare/Execute model.
Use GSSAPI for GSS request	GssAuthUseGSS	False/0	If set to True/1, the driver will send a GSSAPI authentication request to the server. Windows only.
Int8 As	BI	0	The value of BI determines how the driver treats BIGINT values: If -5 as a SQL_BIGINT, If 2 as a SQL_NUMERIC, If 8 as a SQL_DOUBLE, If 4 as a SQL_INTEGER, If 12 as a SQL_VARCHAR, If 0 (on an MS Jet client), as a SQL_NUMERIC, If 0 on any other client, as a SQL_BIGINT.
Extra options Connect Settings	AB ConnSettings	0x0	0x1 - Forces the output of short-length formatted connection strings. Specify this option if you are using the MFC CDatabase class. 0x2 - Allows MS Access to recognize PostgreSQL's serial type as AutoNumber type. 0x4 - Return ANSI character types for the inquiries from applications. Specify this option for applications that have difficulty handling Unicode data. 0x8 - If set, NULL dates are reported as empty strings and empty strings are interpreted as NULL dates on input. 0x10 - Determines if SQLGetInfo returns information about all tables, or only accessible tables. If set, only information is returned for accessible tables. 0x20 - If set, each SQL command is processed in a separate network round-trip, otherwise, SQL commands are grouped into as few round-trips as possible to reduce network latency. Contains a semicolon-delimited list of SQL commands that are executed when the driver connects to the server.
	Socket	4096	Specifies the buffer size that the driver uses to connect to the client.

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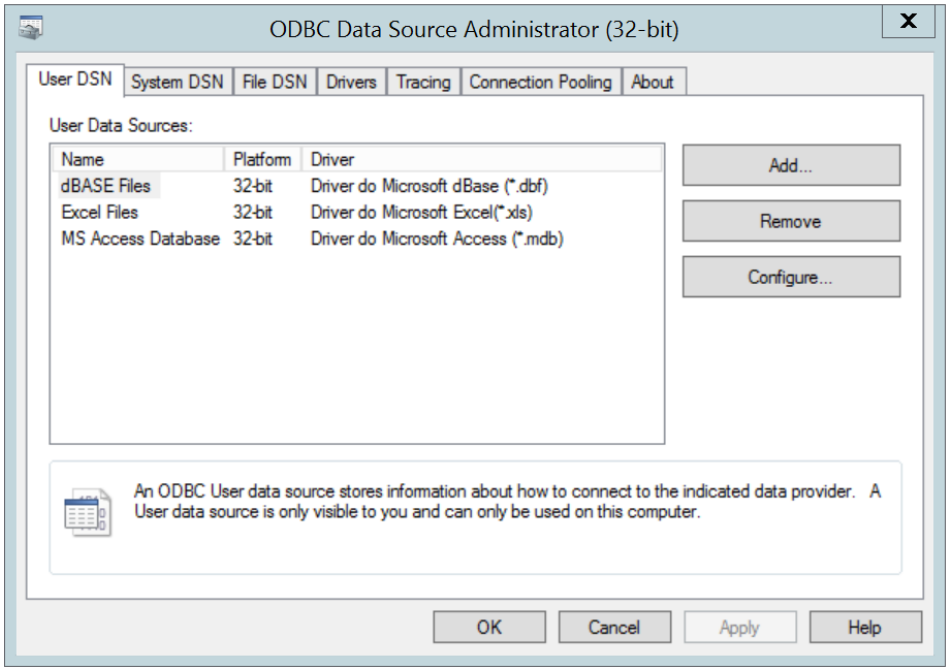
Property	Keyword name	Default value	Description
	Lie	Off	If enabled, the driver claims to support unsupported ODBC features.
Lowercase Identifier	LowerCaseIdentifier	Off	If enabled, the driver translates identifiers to lowercase.
Disable Genetic Optimizer	Optimizer	Yes/1	Disables the genetic query optimizer.
Allow Keyset	UpdatableCursors	Yes/1	Allow Keyset driven cursors
SSL mode	SSLMode	Disabled	If libpq (and its dependencies) are installed in the same directory as the EDB-ODBC driver, enabling SSL Mode allows you to use SSL and other utilities.
Force Abbreviated Connection String	CX	No/0	Enables the option to force abbreviation of connection string.
Fake MSS	FakeOidIndex	No/0	Impersonates MS SQL Server enabling MS Access to recognize PostgreSQL's serial type as AutoNumber type.
BDE Environment	BDE	No/0	Enabling this option tunes EDB-ODBC to cater to Borland Database Engine compliant output (related to Unicode).
XA_Opt	INI_XAOPT	Yes/1	If enabled, calls to SQL_TABLES only include user-accessible tables.

Adding a Data Source Definition in Windows

The Windows ODBC Data Source Administrator is a graphical interface that creates named data sources. You can open the ODBC Data Source Administrator by navigating to the Control Panel, opening the Administrative Tools menu, and double-clicking the appropriate ODBC Data Sources icon (32- or 64- bit).



Click the Add button to open the Create New Data Source dialog. Choose EnterpriseDB (ANSI) or EnterpriseDB (UNICODE) from the list of drivers and click Finish.

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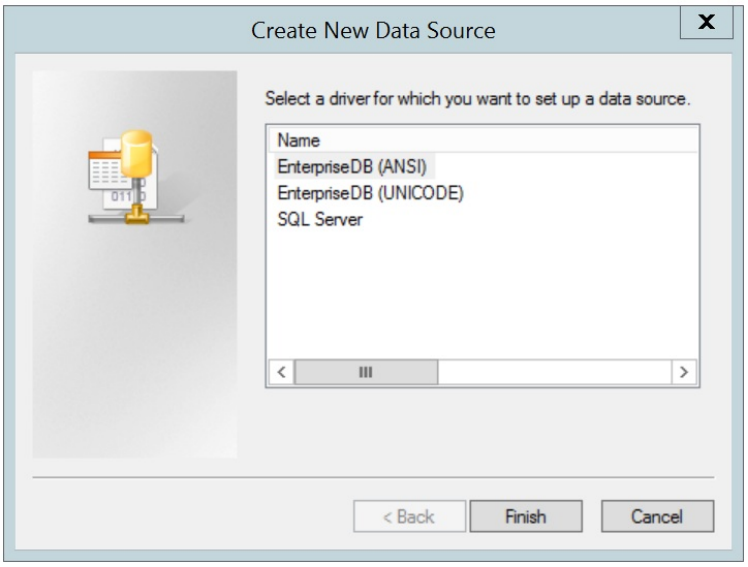
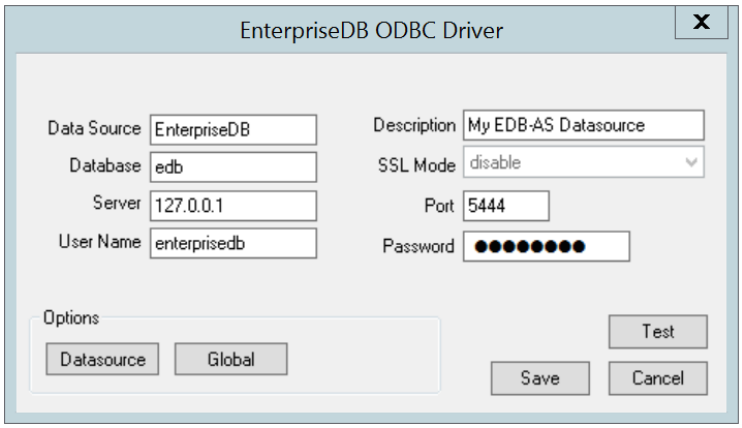


The EnterpriseDB ODBC Driver dialog opens.



Use the fields on the dialog to define the named data source:

- Enter the Database name in the Database field.
- Enter the host name or IP address of Advanced Server in the Server field.
- Enter the name of a user in the User Name field.
- Enter a descriptive name for the named data source in the Description field.
- If libpq is installed in the same directory as the EDB-ODBC driver, the drop-down listbox next to the SSL Mode label will be active, allowing you to use SSL and other Advanced Server utilities.
- Accept the default port number (5444), or enter an alternative number in the Port field.
- Enter the password of the user in the Password field.

Use the Datasource button (located in the Options box) to open the Advanced Options dialog and specify connection properties.

The Global button opens a dialog on which you can specify logging options for the EDB-ODBC driver (not the data source, but the driver itself).

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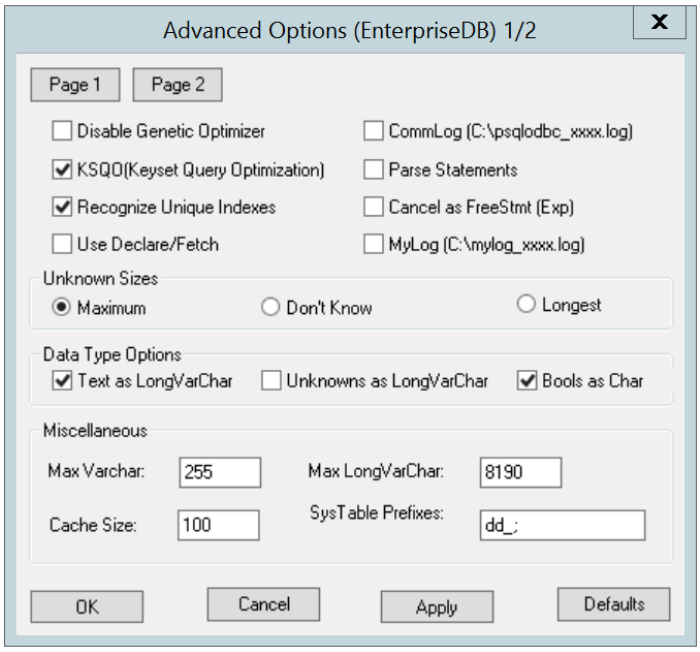

- Check the box next to Disable Genetic Optimizer to disable the genetic query optimizer. By default, the query optimizer is on.
- Check the box next to KSQO (Keyset Query Optimization) to enable server-side support for keyset queries. By default, Keyset Query Optimization is on.
- Check the box next to Recognize Unique Indexes to force the SQLStatistics() function to report unique indexes; if the option is not checked, the SQLStatistics() function will report that all indexes allow duplicate values. By default, Recognize Unique Indexes is on.
- Check the box next to Use Declare/Fetch to specify that the driver should use server-side cursors whenever your application executes a SELECT command. By default, Use Declare/Fetch is off.
- Check the box next to CommLog (C:\psqlodbc_xxxx.log) to record all client/server traffic in a log file. By default, logging is off.
- Check the box next to Parse Statements to specify that the driver (rather than the server) should attempt to parse simple SELECT statements when you call the SQLNumResultCols(), SQLDescribeCol(), or SQLColAttributes() function. By default, this option is off.
- Check the box next to Cancel as FreeStmt (Exp) to specify that the SQLCancel() function should call SQLFreeStmt(SQLClose) on your behalf. By default, this option is off.
- Check the box next to MyLog (C:\mylog_xxxx.log) to record a detailed record of driver activity in a log file. The log file is named c:\mylog_\ *process-id*.log. By default, logging is off.

The radio buttons in the Unknown Sizes box specify how the SQLDescribeCol() and SQLColAttributes() functions compute the size of a column of unknown type (see Section Supported Data Types for a list of known data types).

- Choose the button next to Maximum to specify that the driver report the maximum size allowed for a VARCHAR or LONGVARCHAR (dependent on the Unknowns as LongVarChar setting). If Unknowns as LongVarChar is enabled, the driver returns the maximum size of a LONGVARCHAR (specified in the Max LongVarChar field in the Miscellaneous box). If Unknowns as LongVarChar is not enabled, the driver returns the size specified in the Max VarChar field (in the Miscellaneous box).
- Choose the button next to Don't know to specify that the driver report a length of "unknown".
- Choose the button next to Longest to specify that the driver search the result set and report the longest value found. (Note: you should not specify Longest if UseDeclareFetch is enabled.)

The properties in the Data Type Options box determine how the driver treats columns of specific types:

- Check the box next to Text as LongVarChar to treat TEXT values as if they are of type SQL_LONGVARCHAR. If the box is not checked, the driver will treat TEXT values as SQL_VARCHAR values. By default, TEXT values are treated as SQL_LONGVARCHAR values.
- Check the box next to Unknowns as LongVarChar to specify that the driver treat values of unknown type as SQL_LONGVARCHAR values. If unchecked, the driver will treat values of unknown type as SQL_VARCHAR values. By default, values of unknown type are treated as SQL_VARCHAR values.

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- Check the box next to Bools as Char to specify that the driver treat BOOL values as SQL_CHAR values. If unchecked, BOOL values are treated as SQL_BIT values. By default, BOOL values are treated as SQL_CHAR values.

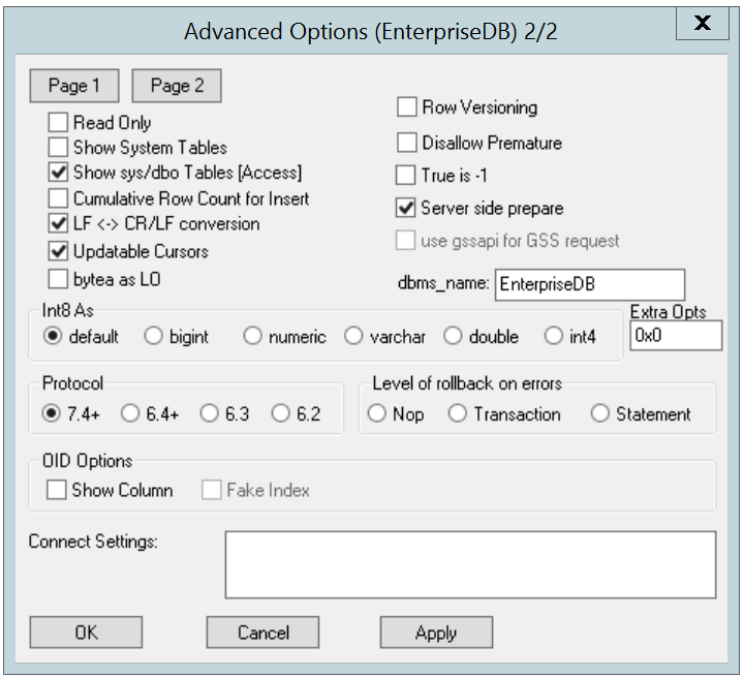
You can specify values for some of the properties associated with the named data source in the fields in the Miscellaneous box:

- Indicate the maximum length allowed for a VARCHAR value in the Max VarChar field. By default, this value is set to 255.
- Enter the maximum length allowed for a LONGVARCHAR value in the Max LongVarChar field. By default, this value is set to 8190.
- Specify the number of rows fetched by the driver (when UseDeclareFetch is enabled) in the Cache Size field. The default value is 100.
- Use the SysTablePrefixes field to specify a semi-colon delimited list of prefixes that indicate that a table is a system table. By default, the list contains dd_;.

You can reset the values on this dialog to their default settings by choosing the Defaults button.

Click the Apply button to apply any changes to the data source properties, or the Cancel button to exit the dialog without applying any changes. Choose the OK button to apply any changes to the dialog and exit.

Select the Page 2 button (in the upper-left hand corner of the Advanced Options dialog) to access a second set of advanced options.



- Check the box next to Read Only to prevent the driver from executing the following commands: INSERT, UPDATE, DELETE, CREATE, ALTER, DROP, GRANT, REVOKE or LOCK. Invoking the Read Only option also prevents any calls that use ODBC's procedure call escape syntax (call=procedure-name?). By default, this option is off.
- Check the box next to Show System Tables to include system tables in the result set of the SQLTables() function. If the option is enabled, the driver will include any table whose name starts with pg_ or any of the prefixes listed in the SysTablePrefixes field of Page 1 of the Advanced Options dialog. By default, this option is off.
- Check the box next to Show sys/dbo Tables [Access] to access objects in the sys schema and dbo schema through the ODBC data source. By default, this option is enabled (checked).
- Check the box next to Cumulative Row Count for Insert to cause a single, cumulative row count to be returned for the entire array of parameter settings for an INSERT statement when a call to the SQLRowCount() method is performed. If this option is not enabled (the box is not checked), then an individual row count is available for each parameter setting in the array, and thus, a call to SQLRowCount() returns the count for the last inserted row.

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- Check the box next to LF<->CR/LF conversion to instruct the driver to convert line-feed characters to carriage-return/line-feed pairs when fetching character values from the server and convert carriage-return/line-feed pairs back to line-feed characters when sending character values to the server. By default, this option is enabled.
- Check the box next to Updatable Cursors to specify that the driver should permit positioned UPDATE and DELETE operations with the SQLSetPos() or SQLBulkOperations() functions. By default, this option is enabled.
- Check the box next to bytea as LO to specify that the driver should treat BYTEA values as if they are SQL_LONGVARBINARY values. If the box is not checked, EDB-ODBC will treat BYTEA values as if they are SQL_VARBINARY values. By default, BYTEA values are treated as SQL_VARBINARY values.
- Check the box next to Row Versioning to include the xmin column when reporting the columns in a table. The xmin column is the ID of the transaction that created the row. You must use row versioning if you plan to create cursors where SQL_CONCURRENCY = SQL_CONCUR_ROWVER. By default, Row Versioning is off.
- Check the box next to Disallow Premature to specify that the driver should retrieve meta-data about a query (i.e., the number of columns in a result set, or the column types) without actually executing the query. If this option is not specified, the driver executes the query when you request meta-data about the query. By default, Disallow Premature is off.
- Check the box next to True is -1 to tell the driver to return BOOL values of True as a -1. If this option is not enabled, the driver will return BOOL values of True as 1. The driver always returns BOOL values of False as 0.
- Check the box next to Server side prepare to tell the driver to use the PREPARE and EXECUTE commands to implement the Prepare/Execute model. By default, this box is checked.
- Check the box next to use gssapi for GSS request to instruct the driver to send a GSSAPI connection request to the server.
- Enter the database system (either EnterpriseDB or PostgreSQL) in the dbms name field. The value entered here is returned in the SQL_DBMS_NAME argument when the SQLGetInfo() function is called. The default is EnterpriseDB.

Use the radio buttons in the Int8 As box to specify how the driver should return BIGINT values to the client. Select the radio button next to default to specify the default type of NUMERIC if the client is MS Jet, BIGINT if the client is any other ODBC client. You can optionally specify that the driver return BIGINT values as a bigint (SQL_BIGINT), numeric (SQL_NUMERIC), varchar (SQL_VARCHAR), double (SQL_DOUBLE), or int4 (SQL_INTEGER).

The default value of the Extra Opts field is 0x0. Extra Opts may be:

Option	Specifies
0x1	Forces the output of short-length formatted connection string. Select this option when you are using the MFC CDatabase class.
0x2	Allows MS Access to recognize PostgreSQL's serial type as AutoNumber type.
0x4	Return ANSI character types for the inquiries from applications. Select this option for applications that have difficulty handling Unicode data.
0x8	If set, NULL dates are reported as empty strings and empty strings are interpreted as NULL dates on input.
0x10	Determines if SQLGetInfo returns information about all tables, or only accessible tables. If set, only information is returned for accessible tables.
0x20	If set, each SQL command is processed in a separate network round-trip, otherwise, SQL commands are grouped into as few round-trips as possible to reduce network latency.

The Protocol box contains radio buttons that tell the driver to interact with the server using a specific front-end/back-end protocol version. By default, the Protocol selected is 7.4+; you can optionally select from versions 6.4+, 6.3 or 6.2.

The Level of Rollback on errors box contains radio buttons that specify how the driver handles error handling:

Option	Specifies

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Option	Specifies
Transaction	If the driver encounters an error, it will rollback the current transaction.
Statement	If the driver encounters an error, it will rollback the current statement.
Nop	If the driver encounters an error, you must manually rollback the current transaction before the application can continue.

The OID Options box contains options that control the way the driver exposes the OID column contained in some tables:

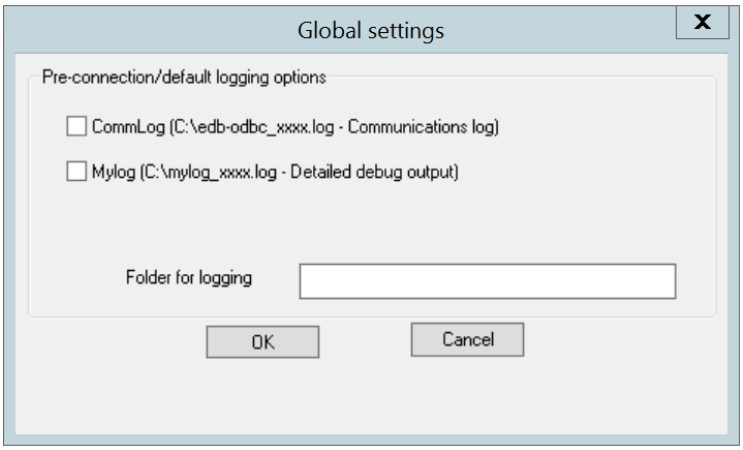
- Check the box next to Show Column to include the OID column in the result set of the SQLColumns() function. If this box is not checked, the OID column is hidden from SQLColumns().
- Check the box next to Fake Columns to specify that the SQLStatistics() function should report that a unique index exists on each OID column.

Use the Connect Settings field to specify a list of parameter assignments that the driver will use when opening this connection. Any configuration parameter that you can modify with a SET statement can be included in the semi-colon delimited list. For example:

```
set search_path to company1,public;
```

When you've defined the connection properties for the named data source, click the Apply button to apply the options; you can optionally exit without saving any options by choosing Cancel. Select the OK button to save the options and exit.

Choose the Global button (on the EnterpriseDB ODBC Driver dialog) to open the Global Settings dialog. The options on this dialog control logging options for the EDB-ODBC driver. Use this dialog to enforce logging when the driver is used without a named data source, or for logging driver operations that occur before the connection string is parsed.



- Check the box next to the CommLog field to record all client/server traffic in a log file. The logfile is named C:\psqlodbc_process-id where process-id is the name of the process in use.
- Check the box next to the Mylog field to keep a logfile of the driver's activity. The logfile is named c:\mylog_process-id where process-id is the name of the process in use.
- Specify a location for the logfiles in the Folder for logging field.

When you've entered the connection information for the named data source, click the Test button to verify that the driver manager can connect to the defined data source.

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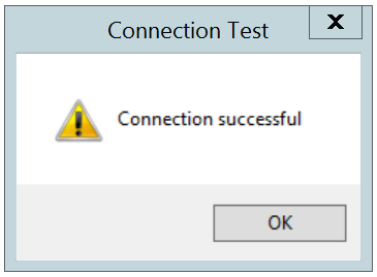


Click the OK button to exit Connection Test dialog. If the connection is successful, click the Save button to save the named data source. If there are problems establishing a connection, adjust the parameters and test again.

Adding a Data Source Definition in Linux

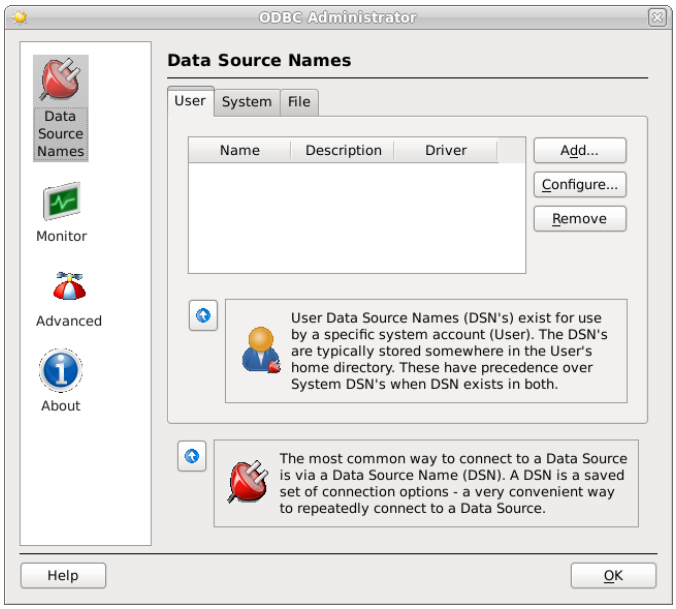
The Linux ODBC Administrator is a graphical tool that is distributed with unixODBC; you can use the ODBC Administrator to manage ODBC drivers and named resources. To add the ODBC Administrator to your system, open a terminal window, assume superuser privileges, and enter:

```
yum install unixODBC
```

followed by:

```
yum install unixODBC-kde
```

To invoke the ODBC Administrator, open a terminal window and enter ODBCConfig.



When you install the Advanced Server Connectors component, the EDB-ODBC driver is added to the list of drivers in the ODBC Administrator. Click Advanced, and then select the Drivers tab to verify that the enterprisedb driver appears in the list.

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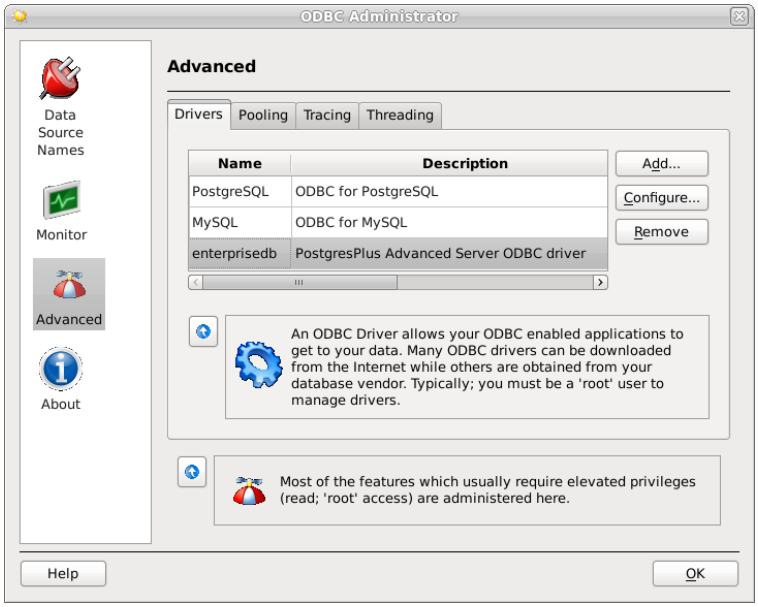
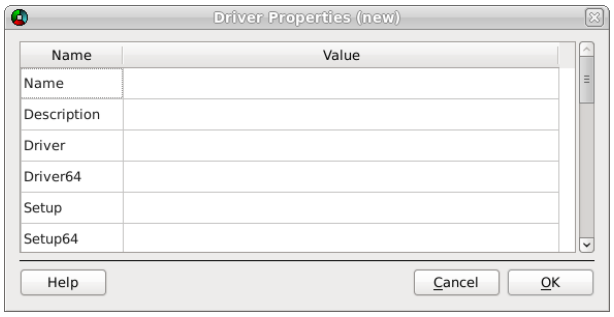


If the EDB-ODBC driver does not appear in the list of drivers, you can add it using the ODBC Administrator. To add a driver definition, select the Drivers tab, and click Add. The Driver Properties (new) window opens, as shown below:



Complete the Driver Properties window to register the EDB-ODBC driver with the driver manager:

- Add a unique name for the driver to the Name field.
- Add a driver description to the Description field.
- Add the path to the location of the EDB-ODBC driver in the Driver field. By default, the complete path to the driver is:

  /usr/edb/odbc/lib/edb-odbc.so

- Add the path to the location of the EDB-ODBC driver setup file in the Setup field. By default, the complete path to the driver setup file is:

  /usr/edb/odbc/lib/libodbcedbS.so

When you've described the driver properties for the EDB-ODBC driver, click OK. The ODBC Data Source Administrator window now includes the EDB-ODBC driver in the list of available ODBC drivers.

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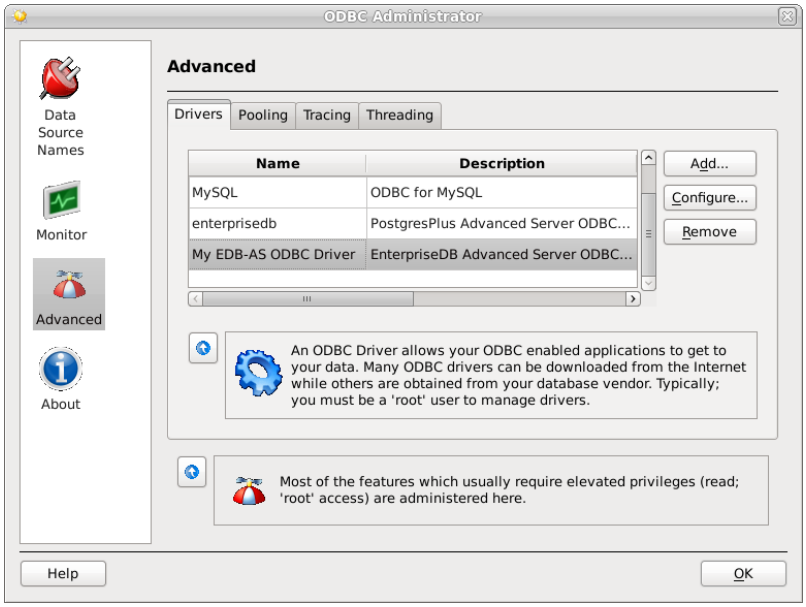
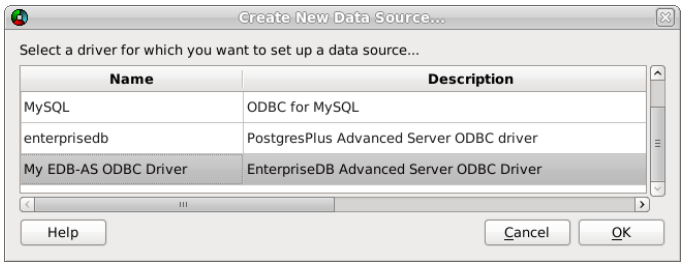


With the EDB-ODBC driver available to the driver manager, you can add a data source. Click the Data Source Names option in the left panel, and then choose the appropriate DSN tab for the type of data source name you would like to add:

- Choose the User tab to add a named data source that is available only to the current user (the data source will be stored in /user/.odbc.ini).
- Choose the System tab add a named data source that is available to all users. All system data sources are stored in a single file (usually /etc/odbc.ini).
- Choose the File tab to add a named data source that is available to all users, but that is stored in a file of your choosing.

Select the appropriate tab and click Add. The Create a New Data Source… window opens, as shown below:



Select the EDB-ODBC driver from the list, and click OK to open the Data Source Properties window.

Complete the Data Source Properties (new) window, specifying the connection properties for the EDB-ODBC driver.

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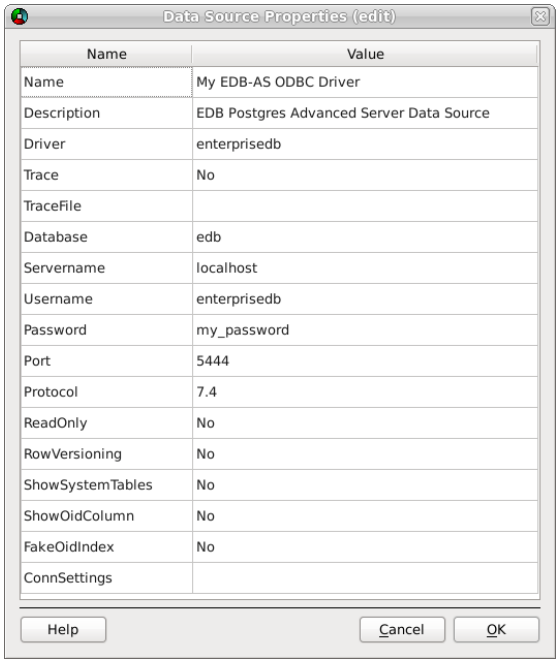

- Enter the data source name in the `Name` field.
- Enter a description of the named data source in the `Description` field.
- The unixODBC driver includes a trace utility that records the sequence of calls made an ODBC application to a log file. Specify `Yes` in the `Trace` field to turn the trace utility on. Note that using the trace utility can slow down an application.
- Use the `TraceFile` field to specify a file to receive information returned by the `Trace` utility.
- Enter the name of the Advanced Server database in the `Database` field.
- Enter the host name or IP address of Advanced Server in the `Servername` field.
- Enter the name of a user in the `Username` field.
- Enter the password for the user in the `Password` field.
- Enter a port number (or accept the default value of `5444`) in the `Port` field.
- Use the `Protocol` field to specify a front-end/back-end protocol version; the default value is `7.4`. You can optionally select from protocol versions `7.4`, `6.4`, `6.3` or `6.2`.
- Use the `ReadOnly` field to specify `Yes` to prevent the driver from executing the following commands: `INSERT`, `UPDATE`, `DELETE`, `CREATE`, `ALTER`, `DROP`, `GRANT`, `REVOKE` or `LOCK`. Enabling the `Read Only` option also prevents any calls that use the ODBC procedure call escape syntax (`call=procedure-name?`). By default, `ReadOnly` is set to `No`.
- Use the `RowVersioning` field to specify `Yes` if the driver should include the `xmin` column when reporting the columns in a table. The `xmin` column is the ID of the transaction that created the row. You must use row versioning if you plan to create cursors where `SQL_CONCURRENCY = SQL_CONCUR_ROWVER`. By default, `Row Versioning` is set to `No`.
- Use the `ShowSystemTables` field to specify `Yes` if the driver should include system tables in the result set of the `SQLTables()` function. By default, this field is set to `No`.
- Use the `ShowOidColumn` field to specify `Yes` if the driver should include the `OID` column in the result set of the `SQLColumns()` function. If `ShowOidColumn` is set to `No`, the `OID` column is hidden from `SQLColumns()`. By default, this option is set to `No`.
- Use the `FakeOidIndex` field to specify Yes if the `SQLStatistics()` function should report that a unique index exists on each `OID` column. This is useful when your application needs a unique identifier and your table doesn't include one. The default value is `No`.
- Use the `ConnSettings` field to specify a list of parameter assignments that the driver will use when opening this connection.

When you've defined the connection properties, click `OK`.

The new data source is added to the list of data source names:

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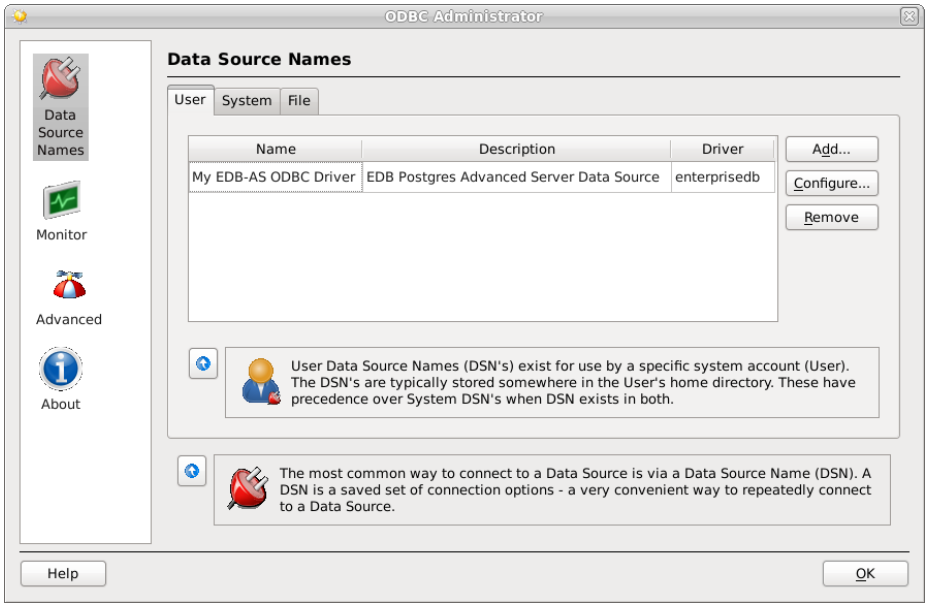

6 EDB-ODBC Driver Functionality

You can use ODBC functions to query ODBC for specific information about the various attributes of the connection between EDB-ODBC and the server.

- SQLGetInfo() returns information about the EDB-ODBC driver and Advanced Server.
- SQLGetEnvAttr() returns information about ODBC environment attributes.
- SQLGetConnectAttr() returns information about attributes specific to an individual connection.
- SQLGetStmtAttr() returns information about the attributes specific to an individual statement.

You can also use ODBC functions to set various attributes of the objects that you use to interface with ODBC:

- Use the SQLSetConnectAttr() function to set connection attributes.
- Use the SQLSetEnvAttr() function to set environment attributes.
- Use the SQLSetStmtAttr() function to set statement attributes.

SQLGetInfo()

The ODBC SQLGetInfo() function returns information about the EDB-ODBC driver and Advanced Server. You must have an open connection to call SQLGetInfo(), unless you specify SQL_ODBC_VER as the info_type. The signature for SQLGetInfo() is:

```
SQLRETURN SQLGetInfo
(
    SQLHDBC  conn_handle , // Input
    SQLUSMALLINT  info_type , // Input
    SQLPOINTER  info_pointer , // Output
    SQLSMALLINT  buffer_len , // Input
    SQLSMALLINT *  string_length_pointer  // Output
);
```

- conn_handle The connection handle.

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- info_type The type of information SQLGetInfo() is retrieving.
- info_pointer A pointer to a memory buffer that will hold the retrieved value.

  If the info_type argument is SQL_DRIVER_HDESC or SQL_DRIVER_HSTMT, the info_pointer argument is both Input and Output.
- buffer_len is the length of the allocated memory buffer pointed to by info_pointer. If info_pointer is NULL, buffer_len is ignored. If the returned value is a fixed size, buffer_len is ignored. buffer_len is only used if the requested value is returned in the form of a character string.
- string_length_pointer is a pointer to an SQLSMALLINT value. SQLGetInfo() writes the size of the requested value in this integer.

A typical usage is to call SQLGetInfo() with a NULL info_pointer to obtain the length of the requested value, allocate the required number of bytes, and then call SQLGetInfo() again (providing the address of the newly allocated buffer) to obtain the actual value. The first call retrieves the number of bytes required to hold the value; the second call retrieves the value.

If the size of the returned value exceeds buffer_len, the information is truncated and NULL terminated. If the returned value is a fixed size, string_length is ignored (and the size of the requested value is not provided by SQLGetInfo()).

SQLGetInfo() writes information in one of the following formats:

- a SQLUINTEGER bitmask
- a SQLUINTEGER flag
- a SQLUINTEGER binary value
- a SQLUSMALLINT value
- a NULL terminated character string

SQLGetInfo() returns SQL_SUCCESS, SQL_SUCCESS_WITH_INFO, SQL_ERROR, or SQL_INVALID_HANDLE.

The following table lists the information returned by EDB-ODBC about the Advanced Server connection:

SQL info_type Argument and Description	EDB_ODBC/Advanced Server Returns:
SQL_ACCESSIBLE_PROCEDURES: Indicates if procedures returned by SQLProcedures()can be executed by the application.	Returns N. Some procedures executed by the SQLProcedures() function may be executed by the application.
SQL_ACCESSIBLE_TABLES: Indicates if the user has SELECT privileges on all table names returned by SQLTables().	Returns N. The user may not have select privileges on one or more tables returned by the SQLTables() function.
SQL_ACTIVE_CONNECTIONS prev. SQL_MAX_DRIVER_CONNECTIONS: Indicates the maximum number of connections EDB-ODBC can support.	Returns 0. There is no specified limit to the number of connections allowed.
SQL_ACTIVE_ENVIRONMENTS: The number of active environments EDB-ODBC can support.	Returns 0. There is no specified limit to the number of environments allowed.
SQL_ACTIVE_STATEMENTS prev. SQL_MAX_CONCURRENT_ACTIVITIES: Indicates the maximum number of active statements EDB-ODBC can support.	Returns 0. There is no specified limit to the number of active statements allowed.
SQL_AGGREGATE_FUNCTION: Identifies the aggregate functions supported by the server and driver.	Returns SQL_AF_ALL

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SQL info_type Argument and Description	EDB_ODBC/Advanced Server Returns:
SQL_ALTER_DOMAIN: Identifies the ALTER DOMAIN clauses supported by the server.	Returns 0. ALTER DOMAIN clauses are not supported.
SQL_ALTER_TABLE: Identifies the ALTER TABLE clauses supported by the server.	Returns SQL_AT_ADD_COLUMN, SQL_AT_DROP_TABLE_CONSTRAINT_CASCADE, SQL_AT_DROP_TABLE_CONSTRAINT, SQL_AT_CONSTRAINT_INITIALLY_DEFERRED, SQL_AT_CONSTRAINT_INITIALLY_IMMEDIATE, SQL_AT_CONSTRAINT_DEFERRABLE
SQL_ASYNC_MODE: Level of Asynchronous Mode Supported by EDB-ODBC.	Returns SQL_AM_NONE. Asynchronous mode is not supported.
SQL_BATCH_ROW_COUNT: Indicates how the driver returns row counts.	Returns SQL_BRC_EXPLICIT. Row Counts are available when executed by calling SQLExecute or SQLExecDirect.
SQL_BATCH_SUPPORT: Indicates support for batch statement execution.	Returns: SQL_BS_SELECT_EXPLICIT, SQL_BS_ROW_COUNT_EXPLICIT. The driver supports explicit batches with result set and row count generating statements.
SQL_BOOKMARK_PERSISTENCE: Indicates level of support for bookmarks.	Returns: SQL_BP_DELETE, SQL_BP_TRANSACTION, SQL_BP_UPDATE, SQL_BP_SCROLL.
SQL_CATALOG_LOCATION Now SQL_QUALIFIER_LOCATION: Indicates the position of the catalog in a qualified table name.	Returns SQL_CL_START. The catalog portion of a qualified table name is at the beginning of the name.
SQL_CATALOG_NAME Now SQL_QUALIFIER_NAME: Indicates support for catalog names.	Returns Y. The server supports catalog names.
SQL_CATALOG_NAME_SEPARATOR Now SQL_QUALIFIER_NAME_SEPARATOR: Character separating the catalog name from the adjacent name element.	Returns '.' The server expects a '.' character between the qualifier and the table name.
SQL_CATALOG_TERM Now SQL_QUALIFIER_TERM: The term used to describe a catalog.	Returns catalog.
SQL_CATALOG_USAGE Now SQL_QUALIFIER_USAGE: Indicates the SQL statements that may refer to catalogs.	Returns SQL_CU_DML_STATEMENTS. Catalog names can be used in SELECT, INSERT, UPDATE, DELETE, SELECT FOR UPDATE and positioned UPDATE and DELETE statements.
SQL_COLLATION_SEQ: Returns the name of the Collation Sequence.	Returns an empty string. The name of the default collation is unknown.
SQL_COLUMN_ALIAS: Indicates server support for column aliases.	Returns Y. The server supports column aliases.
SQL_CONCAT_NULL_BEHAVIOR: Indicates how the server handles concatenation of NULL values.	Returns SQL_CB_NON_NULL. Concatenation of a NULL value and a non NULL value will result in a NULL value.
SQL_CONVERT_BIGINT: Indicates conversion support from the BIGINT type using the CONVERT function.	Returns 0. The server does not support conversion.
SQL_CONVERT_BINARY: Indicates conversion support from the BINARY type using the CONVERT function.	Returns 0. The server does not support conversion.
SQL_CONVERT_BIT: Indicates conversion support from the BIT type using the CONVERT function.	Returns: SQL_CVT_INTEGER, SQL_CVT_BIT.

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SQL info_type Argument and Description	EDB_ODBC/Advanced Server Returns:
SQL_CONVERT_CHAR: Indicates conversion support from the CHAR type using the CONVERT function.	Returns 0. The server does not support conversion.
SQL_CONVERT_DATE: Indicates conversion support from the DATE type using the CONVERT function.	Returns 0. The server does not support conversion.
SQL_CONVERT_DECIMAL: Indicates conversion support from the DECIMAL type using the CONVERT function.	Returns 0. The server does not support conversion.
SQL_CONVERT_DOUBLE: Indicates conversion support from the DOUBLE type using the CONVERT function.	Returns 0. The server does not support conversion.
SQL_CONVERT_FLOAT: Indicates conversion support from the FLOAT type using the CONVERT function.	Returns 0. The server does not support conversion.
SQL_CONVERT_FUNCTIONS: Lists the scalar conversion functions supported by the server and driver using the CONVERT function.	Returns: SQL_FN_CVT_CONVERT.
SQL_CONVERT_INTEGER: Lists the conversion support from the INTEGER type using the CONVERT function.	Returns: SQL_CVT_INTEGER, SQL_CVT_BIT.
SQL_CONVERT_INTERVAL_DAY_TIME: Indicates conversion support from the INTERVAL_DAY_TIME type using the CONVERT function.	This info_type is not currently supported.
SQL_CONVERT_INTERVAL_YEAR_MONTH: Indicates conversion support from the INTERVAL_YEAR_MONTH type using the CONVERT function.	This info_type is not currently supported.
SQL_CONVERT_LONGVARBINARY: Indicates conversion support for the LONG_VARBINARY type using the CONVERT function.	Returns 0. The server does not support conversion.
SQL_CONVERT_LONGVARCHAR: Indicates conversion support for the LONGVARCHAR type using the CONVERT function.	Returns 0. The server does not support conversion.
SQL_CONVERT_NUMERIC: Indicates conversion support for the NUMERIC type using the CONVERT function.	Returns 0. The server does not support conversion.
SQL_CONVERT_REAL: Indicates conversion support for the REAL type using the CONVERT function	Returns 0. The server does not support conversion.
SQL_CONVERT_SMALLINT: Indicates conversion support for the SMALLINT type using the CONVERT function.	Returns: SQL_CVT_INTEGER, SQL_CVT_BIT.
SQL_CONVERT_TIME: Indicates conversion support for TIME type using the CONVERT function.	Returns 0. The server does not support conversion.
SQL_CVT_TIMESTAMP: Indicates conversion support for TIMESTAMP type using the CONVERT function.	Returns 0. The server does not support conversion.
SQL_CONVERT_TINYINT: Indicates conversion support for the TINYINT type using the CONVERT function.	Returns: SQL_CVT_INTEGER, SQL_CVT_BIT.
SQL_CONVERT_VARBINARY: Indicates conversion support for the VARBINARY type using the CONVERT function.	Returns 0. The server does not support conversion.

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SQL info_type Argument and Description	EDB_ODBC/Advanced Server Returns:
SQL_CONVERT_VARCHAR: Indicates conversion support for VARCHAR type using the CONVERT function.	Returns: SQL_CVT_INTEGER, SQL_CVT_BIT.
SQL_CONVERT_WCHAR: Indicates conversion support for the WCHAR type using the CONVERT function.	This info_type is valid only when using the Unicode driver. Returns 0. The server does not support conversion.
SQL_CONVERT_WLONGVARCHAR: Indicates conversion support for the WLONGVARCHAR type using the CONVERT function.	This info_type is valid only when using the Unicode driver. Returns 0. The server does not support conversion.
SQL_CONVERT_WVARCHAR: Indicates conversion support for the WVARCHAR type using the CONVERT function.	This info_type is valid only when using the Unicode driver. Returns 0. The server does not support conversion.
SQL_CORRELATION_NAME: Indicates server support for correlation names.	Returns SQL_CN_ANY. Correlation names are supported and can be any valid name.
SQL_CREATE_ASSERTION: Indicates support for the CREATE ASSERTION statement.	Returns 0. The CREATE ASSERTION statement is not supported.
SQL_CREATE_CHARACTER_SET: Indicates support for CREATE CHARACTER statement.	Returns 0. The CREATE CHARACTER statement is not supported.
SQL_CREATE_COLLATION: Indicates support for the CREATE COLLATION.	Returns 0. The CREATE COLLATION statement is not supported.
SQL_CREATE_DOMAIN: Indicates support for the CREATE DOMAIN statement.	Returns 0. The CREATE DOMAIN statement is not supported.
SQL_CREATE_SCHEMA: Indicates support for the CREATE SCHEMA statement.	Returns: SQL_CS_CREATE_SCHEMA, SQL_CS_AUTHORIZATION.
SQL_CREATE_TABLE: Indicates support for the CREATE TABLE statement.	Returns: SQL_CT_CREATE_TABLE, SQL_CT_GLOBAL_TEMPORARY, SQL_CT_CONSTRAINT_INITIALLY_DEFERRED, SQL_CT_CONSTRAINT_INITIALLY_IMMEDIATE, SQL_CT_CONSTRAINT_DEFERRABLE, SQL_CT_COLUMN_CONSTRAINT, SQL_CT_COLUMN_DEFAULT, SQL_CT_TABLE_CONSTRAINT, SQL_CT_CONSTRAINT_NAME_DEFINITION
SQL_CREATE_TRANSLATION: Indicates support for the CREATE TRANSLATION statement.	Returns 0. The CREATE TRANSLATION statement is not supported.
SQL_CREATE_VIEW: Indicates support for the CREATE VIEW statement.	Returns SQL_CV_CREATE_VIEW.
SQL_CURSOR_COMMIT_BEHAVIOR: Indicates how a COMMIT operation affects the cursor.	Returns SQL_CB_PRESERVE. Cursors are unchanged, and can continue to fetch data.
SQL_CURSOR_ROLLBACK_BEHAVIOR: Indicates the server behavior after a ROLLBACK operation.	Returns SQL_CB_PRESERVE. Cursors are unchanged, and can continue to fetch data.
SQL_CURSOR_SENSITIVITY:Indicates how the server synchronizes changes to a result set.	This info_type is not currently supported.
SQL_DATA_SOURCE_NAME: Returns the server name used during connection.	The value returned is determined by the connection properties.
SQL_DATA_SOURCE_READ_ONLY: Indicates if the connection is in READ ONLY mode.	The value returned is determined by the connection properties.
SQL_DATABASE_NAME: Returns the name of the database.	The value returned is determined by the connection properties.
SQL_DATETIME_LITERALS: Indicates the DATETIME LITERALS supported by the server.	This info_type is not supported.

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SQL info_type Argument and Description	EDB_ODBC/Advanced Server Returns:
SQL_DBMS_NAME: Returns the name of the DBMS system.	Returns the value given by the dbms_name parameter from the odbc.ini file on Linux or the dbms_name field of page 2 of the Advanced Options dialog box when defining a data source in Windows. The default is EnterpriseDB.
SQL_DBMS_VER: Returns the server version.	Determined by the server.
SQL_DDL_INDEX: Indicates support for creating and dropping indexes.	Returns: SQL_DI_CREATE_INDEX, SQL_DI_DROP_INDEX.
SQL_DEFAULT_TXN_ISOLATION: Indicates support for transaction isolation by the server.	Returns TXN_READ_COMMITTED. Non-repeatable or phantom reads are possible; Dirty reads are not.
SQL_DESCRIBE_PARAMETER: Indicates support for the DESCRIBE INPUT statement.	Returns N. The DESCRIBE INPUT statement is not supported.
SQL_DM_VER: The version of the Driver Manager.	Determined by driver manager.
SQL_DRIVER_HDBC: The Driver's connection handle.	Returns an SQLULEN value that contains the driver’s connection handle.
SQL_DRIVER_HDESC: The Driver descriptor handle.	Returns an SQLULEN value that contains driver’s descriptor handle.
SQL_DRIVER_HENV: The Driver's environment handle.	Returns an SQLULEN value that contains the driver’s environment handle.
SQL_DRIVER_HLIB: The Driver handle.	Returns an SQLULEN value that contains the library handle (returned to the ODBC driver manager when the manager loaded the driver).
SQL_DRIVER_HSTMT: The Driver's statement handle.	Returns an SQLULEN value that contains the driver’s statement handle.
SQL_DRIVER_NAME: The name of the driver.	Returns EDB-ODBC.DLL
SQL_DRIVER_ODBC_VER: Identifies the ODBC version that the driver supports.	Returns 03.50
SQL_DRIVER_VER: Identifies the driver version.	Returns 9.0.0.6
SQL_DROP_ASSERTION: Lists the DROP ASSERTION clauses supported by the server.	Returns 0
SQL_DROP_CHARACTER_SET: Lists the DROP CHARACTER clauses supported by the server.	Returns 0
SQL_DROP_COLLATION: Lists the DROP COLLATION clauses supported by the server.	Returns 0
SQL_DROP_DOMAIN: Lists the DROP DOMAIN clauses supported by the server.	Returns 0
SQL_DROP_SCHEMA: Lists the DROP SCHEMA clauses supported by the server.	Returns: SQL_DS_DROP_SCHEMA, SQL_DS_RESTRICT, SQL_DS_CASCADE.
SQL_DROP_TABLE: Lists the DROP TABLE clauses supported by the server.	Returns: SQL_DT_DROP_TABLE, SQL_DS_RESTRICT, SQL_DS_CASCADE.
SQL_DROP_TRANSLATION: Lists the DROP TRANSLATION clauses supported by the server.	Returns 0.
SQL_DROP_VIEW: Lists the DROP VIEW clauses supported by the server.	Returns: SQL_DV_DROP_VIEW, SQL_DS_RESTRICT, SQL_DS_CASCADE.
SQL_DYNAMIC_CURSOR_ATTRIBUTES1: Describes the first set of dynamic cursor attributes supported by the driver.	Returns 0
SQL_DYNAMIC_CURSOR_ATTRIBUTES2: Describes the second set of dynamic cursor attributes supported by the driver.	Returns 0

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SQL info_type Argument and Description	EDB_ODBC/Advanced Server Returns:
SQL_EXPRESSIONS_IN_ORDERBY: Indicates server support for ORDER BY.	Returns Y.
SQL_FETCH_DIRECTION: Indicates FETCH order options (deprecated in ODBC 3.0).	Returns: SQL_FD_FETCH_NEXT, SQL_FD_FETCH_FIRS, SQL_FD_FETCH_LAST, SQL_FD_FETCH_PRIOR, SQL_FD_FETCH_ABSOLUTE, SQL_FD_FETCH_RELATIVE, SQL_FD_FETCH_BOOKMARK.
SQL_FILE_USAGE: Indicates how a single-tier driver treats files on the server.	Returns SQL_FILE_NOT_SUPPORTED. The driver is not a single-tier file.
SQL_FORWARD_ONLY_CURSOR_ATTRIBUTES1: Describes the forward-only cursor attributes supported by the driver.	Returns SQL_CA1_NEXT.
SQL_FORWARD_ONLY_CURSOR_ATTRIBUTES2: Describes extended attributes for the forward-only cursor designated by SQL_FORWARD_ONLY_CURSOR_ATTRIBUTES1.	Returns: SQL_CA2_READ_ONLY_CONCURRENCY, SQL_CA2_CRC_EXACT.
SQL_GETDATA_EXTENSIONS: Lists supported extensions to SQLGetData.	Returns: SQL_GD_ANY_COLUMN, SQL_GD_ANY_ORDER, SQL_GD_BLOCK, SQL_GD_BOUND.
SQL_GROUP_BY: Indicates the relationship between a GROUP BY clause and columns in the SELECT list.	Returns SQL_GB_GROUP_BY_EQUALS_SELECT.
SQL_IDENTIFIER_CASE: Indicates case-sensitivity and case-storage of SQL identifiers.	Returns SQL_IC_LOWER.
SQL_INDEX_KEYWORDS: Indicates support for the CREATE INDEX statement.	Returns SQL_IK_NONE.
SQL_INFO_SCHEMA_VIEWS: Lists the views supported in the INFORMATION_SCHEMA.	Returns 0.
SQL_INTEGRITY Prev. SQL_ODBC_SQL_OPT_IEF: Indicates server support for referential integrity syntax checking.	Returns N.
SQL_INSERT_STATEMENT: Indicates level of support for the INSERT statement.	Returns: SQL_IS_INSERT_LITERALS, SQL_IS_INSERT_SEARCHED, SQL_IS_SELECT_INTO.
SQL_KEYSET_CURSOR_ATTRIBUTES1: Describes the first set of keyset cursor attributes supported by the driver.	Returns: SQL_CA1_NEXT, SQL_CA1_ABSOLUTE, SQL_CA1_RELATIVE, SQL_CA1_BOOKMARK, SQL_CA1_LOCK_NO_CHANGE, SQL_CA1_POS_POSITION, SQL_CA1_POS_UPDATE, SQL_CA1_POS_DELETE, SQL_CA1_POS_REFRESH, SQL_CA1_BULK_ADD, SQL_CA1_BULK_UPDATE_BY_BOOKMARK, SQL_CA1_BULK_DELETE_BY_BOOKMARK, SQL_CA1_BULK_FETCH_BY_BOOKMARK.
SQL_KEYSET_CURSOR_ATTRIBUTES2: Describes the second set of keyset cursor attributes supported by the driver.	Returns: SQL_CA2_READ_ONLY_CONCURRENCY, SQL_CA2_OPT_ROWVER_CONCURRENCY, SQL_CA2_SENSITIVITY_ADDITIONS, SQL_CA2_SENSITIVITY_DELETIONS, SQL_CA2_SENSITIVITY_UPDATES, SQL_CA2_CRC_EXACT.
SQL_KEYWORDS: Identifies the server specific reserved keywords.	Returns “”. There are no server specific reserved keywords.

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SQL info_type Argument and Description	EDB_ODBC/Advanced Server Returns:
SQL_LIKE_ESCAPE_CLAUSE: Indicates support for an escape character in LIKE predicates.	Returns N. Advanced Server does not support escape characters in LIKE predicates.
SQL_LOCK_TYPES: Lists supported lock types (deprecated in ODBC 3.0).	Returns SQL_LCK_NO_CHANGE.
SQL_MAX_ASYNC_CONCURRENT_STATEMENTS: The number of active concurrent statements that the driver can support.	This info_type is currently unsupported.
SQL_MAX_BINARY_LITERAL_LEN: The maximum length of a binary literal.	Returns 0. The maximum length is unspecified.
SQL_MAX_CATALOG_NAME_LEN: The maximum length of a catalog name on the server.	Returns 0. The maximum length is unspecified.
SQL_MAX_QUALIFIER_NAME_LEN: The maximum length of a qualifier.	Returns 0. The maximum length is unspecified.
SQL_MAX_CHAR_LITERAL_LEN: The maximum number of characters in a character string.	Returns 0. The maximum length is unspecified.
SQL_MAX_COLUMN_NAME_LEN: The maximum length of a column name.	Returns 64. Column names cannot exceed 64 characters in length.
SQL_MAX_COLUMNS_IN_GROUP_BY: The maximum number of columns allowed in a GROUP BY clause.	Returns 0. The maximum length is unspecified.
SQL_MAX_COLUMNS_IN_INDEX: The maximum number of columns allowed in an index.	Returns 0. The maximum length is unspecified.
SQL_MAX_COLUMNS_IN_ORDER_BY: The maximum number of columns allowed in an ORDER BY clause.	Returns 0. The maximum length is unspecified.
SQL_MAX_COLUMNS_IN_SELECT: The maximum number of columns allowed in a SELECT list.	Returns 0. The maximum length is unspecified.
SQL_MAX_COLUMNS_IN_TABLE: The maximum number of columns allowed in a table.	Returns 0. The maximum length is unspecified.
SQL_MAX_CONCURRENT_ACTIVITIES prev. SQL_MAX_ACTIVE_STATEMENTS: The maximum number of active SQL statements that the driver can support.	Returns 0. The maximum length is unspecified.
SQL_MAX_CURSOR_NAME_LEN: The maximum length of a cursor name.	Returns 32. A cursor name cannot exceed 32 characters in length.
SQL_MAX_DRIVER_CONNECTIONS prev. SQL_ACTIVE_CONNECTIONS: The maximum number of active connections the driver can support.	Returns 0. There is no specified limit to the number of connections supported.
SQL_MAX_IDENTIFIER_LEN: The maximum identifier length allowed by the server.	Returns 64. Identifiers cannot exceed 64 characters in length.
SQL_MAX_INDEX_SIZE: The maximum number of bytes allowed in the (combined) fields of an index.	Returns 0. The maximum size is unspecified.
SQL_MAX_OWNER_NAME_LEN Now SQL_MAX_SCHEMA_NAME_LEN: The maximum length of an owner name allowed by the server.	Returns 64. The maximum length of an owner name is 64 characters.
SQL_MAX_PROCEDURE_NAME_LEN: The maximum length of a procedure name allowed by the server.	Returns 0. The maximum length is unspecified.
SQL_MAX_QUALIFIER_NAME_LEN Now SQL_MAX_CATALOG_NAME_LEN: The maximum length of a qualifier name allowed by the server.	Returns 0. The maximum length of a qualifier is unspecified.

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SQL info_type Argument and Description	EDB_ODBC/Advanced Server Returns:
SQL_MAX_ROW_SIZE: The maximum length of a row.	Returns 0. The maximum row length is unspecified.
SQL_MAX_ROW_SIZE_INCLUDES_LONG: Indicates whether the SQL_MAX_ROW_SIZE includes the length of any LONGVARCHAR or LONGVARBINARY columns in the row.	Returns Y. SQL_MAX_ROW_SIZE includes the length of any LONGVARCHAR or LONGVARBINARY columns in the row.
SQL_MAX_SCHEMA_NAME_LEN: The maximum length of a schema name allowed by the server.	Returns 64. The maximum length of a schema name is 64 characters.
SQL_MAX_STATEMENT_LEN: The maximum length of a SQL statement.	Returns 0. Maximum statement length is limited by available memory.
SQL_MAX_TABLE_NAME_LEN: The maximum length of a table name allowed by the server.	Returns 64. The maximum length of a table name is 64 characters.
SQL_MAX_TABLES_IN_SELECT: The maximum number of tables allowed in the FROM clause of a SELECT statement.	Returns 0. The maximum number of tables allowed is unspecified.
SQL_MAX_USER_NAME_LEN: The maximum length of the user name allowed by the server.	Returns 0. The maximum length of a user name is unspecified.
SQL_MULT_RESULT_SETS: Indicates server support for multiple result sets.	Returns Y. Advanced Server supports multiple result sets.
SQL_MULTIPLE_ACTIVE_TXN: Indicates if the server supports multiple active transactions.	Returns Y. Advanced Server supports multiple active transactions.
SQL_NEED_LONG_DATA_LEN: Indicates if the server needs the length of a LONG data value before receiving the value.	Returns N. Advanced Server does not need the length of a LONG data value before receiving the value.
SQL_NON_NULLABLE_COLUMNS: Indicates if the server supports NOT NULL values in columns.	Returns SQL_NNC_NON_NULL. Advanced Server does support NOT NULL values in columns.
SQL_NULL_COLLATION: Indicates where NULL values are located in a result set.	Returns SQL_NC_HIGH. The location of NULL values in a data set is determined by the ASC and DESC keywords; NULL values are sorted to the high end of the data set.
SQL_NUMERIC_FUNCTIONS: Lists the numeric functions supported by the driver and the server.	Returns: SQL_FN_NUM_ABS, SQL_FN_NUM_ATAN, SQL_FN_NUM_CEILING, SQL_FN_NUM_COS, SQL_FN_NUM_EXP, SQL_FN_NUM_FLOOR, SQL_FN_NUM_LOG, SQL_FN_NUM_MOD, SQL_FN_NUM_SIGN, SQL_FN_NUM_SIN, SQL_FN_NUM_SQRT, SQL_FN_NUM_TAN, SQL_FN_NUM_RAND, SQL_FN_NUM_POWER, SQL_FN_NUM_ROUND.
SQL_ODBC_API_CONFORMANCE: Indicates the ODBC 3.0 compliance level	Returns SQL_OAC_LEVEL1. The driver conforms to ODBC Level 1 interface.
SQL_ODBC_INTERFACE_CONFORMANCE: Indicates the ODBC interface that the driver adheres to.	Returns SQL_OIC_CORE.
SQL_ODBC_SAG_CLI_CONFORMANCE: Indicates the SQL Access Group compliance level that the driver adheres to.	Returns SQL_OSCC_NOT_COMPLIANT. The driver is not SAG CLI compliant.
SQL_ODBC_SQL_CONFORMANCE: Indicates the SQL grammar level that the driver conforms to.	Returns SQL_OSC_CORE. The driver conforms to the core grammar level.
SQL_ODBC_SQL_OPT_IEF Now SQL_INTEGRITY: Indicates server support for referential integrity syntax checking.	Returns N. The server does not support referential integrity syntax checking.
SQL_ODBC_VER: The ODBC version supported by the driver manager	Returns 03.52.0000.

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SQL info_type Argument and Description	EDB_ODBC/Advanced Server Returns:
SQL_OJ_CAPABILITIES: Identifies the outer joins that are supported by the server.	Returns: SQL_OJ_LEFT, SQL_OJ_RIGHT, SQL_OJ_FULL, SQL_OJ_NESTED, SQL_OJ_NOT_ORDERED, SQL_OJ_INNER, SQL_OJ_ALL_COMPARISON_OPS.
SQL_OUTER_JOINS: Indicates support for outer joins and the outer join escape sequence.	Returns Y. Outer joins are supported.
SQL_OWNER_TERM prev. SQL_SCHEMA_TERM: The term used to describe a schema.	Returns schema.
SQL_ORDER_BY_COLUMNS_IN_SELECT: Indicates if the columns in an ORDER BY clause must be included in the SELECT list.	Returns N. Columns in an ORDER BY clause do not have to be in the SELECT list.
SQL_OWNER_USAGE prev. SQL_SCHEMA_USAGE: Returns a string that indicates which statements support schema qualifiers.	Returns: SQL_OU_DML_STATEMENTS, SQL_OU_TABLE_DEFINITION, SQL_OU_INDEX_DEFINITION, SQL_OU_PRIVILEGE_DEFINITION.
SQL_PARAM_ARRAY_ROW_COUNTS: Indicates if the server will return a single row count or separate row counts for each element in an array when executing a parameterized statement with at least one parameter bound to the array.	Returns SQL_PARC_BATCH, if separate row counts are available for each element in an array. SQL_PARC_NO_BATCH if a single, cumulative row count is available for the entire array.
SQL_PARAM_ARRAY_SELECTS: Indicates if the server will return one result set or a separate result set for each element in an array (or if the driver does not allow this feature) when executing a parameterized statement with at least one parameter bound to the array.	Returns SQL_PAS_BATCH. One data set is available for each element in an array.
SQL_POS_OPERATION: Lists the options supported by SQLSetPos().	Returns: SQL_POS_POSITION, SQL_POS_REFRESH, SQL_POS_UPDATE, SQL_POS_DELETE, SQL_POS_ADD.
SQL_POSITIONED_STATEMENTS: Lists the supported positioned SQL statements.	Returns: SQL_PS_POSITIONED_DELETE, SQL_PS_POSITIONED_UPDATE, SQL_PS_SELECT_FOR_UPDATE.
SQL_PROCEDURE_TERM: The term used to describe a procedure.	Returns procedure.
SQL_PROCEDURES: Indicates if the server and the driver support SQL procedures and procedure invocation syntax.	Returns Y. The server and driver support procedures and procedure invocation syntax.
SQL_QUALIFIER_LOCATION prev. SQL_CATALOG_LOCATION: Indicates the position of the schema name in a qualified table name.	Returns SQL_CL_START. The catalog portion of a qualified table name is at the beginning of the name.
SQL_QUALIFIER_NAME prev. SQL_CATALOG_NAME: Indicates server support for catalog names.	Returns Y. The server supports catalog names.
SQL_QUALIFIER_NAME_SEPARATOR prev. SQL_CATALOG_NAME_SEPARATOR: Character separating the qualifier name from the adjacent name element.	Returns '.'. The server expects a '.' character between the qualifier and the table name.
SQL_QUALIFIER_TERM prev. SQL_CATALOG_TERM: The term used to describe a qualifier.	Returns catalog.
SQL_QUALIFIER_USAGE prev. SQL_CATALOG_USAGE: Indicates the SQL statements that may refer to qualifiers.	Returns SQL_CU_DML_STATEMENTS. Catalog names can be used in SELECT, INSERT, UPDATE, DELETE, SELECT FOR UPDATE and positioned UPDATE and DELETE statements.

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SQL info_type Argument and Description	EDB_ODBC/Advanced Server Returns:
SQL_QUALIFIER_USAGE Now SQL_CATALOG_USAGE: Identifies DML statements that support qualifier names.	Returns SQL_CU_DML_STATEMENTS. Qualifiers can be used in all DML statements (SELECT, INSERT, UPDATE, DELETE, SELECT FOR UPDATE).
SQL_QUOTED_IDENTIFIER_CASE: Indicates case sensitivity of quoted identifiers.	Returns SQL_IC_SENSITIVE. Quoted identifiers are case sensitive.
SQL_QUALIFIER_NAME_SEPARATOR Now SQL CATALOG_NAME_SEPARATOR: The character that separates the name qualifier from the name element.	Returns . The '.' character is used as a separator in qualified names.
SQL_QUALIFIER_TERM: The term used to describe a qualifier.	Returns catalog
SQL_QUALIFIER_LOCATION: The position of the qualifier in a qualified table name.	Returns SQL_CL_START. The qualifier precedes the table name in a qualified table name.
SQL_ROW_UPDATES: Indicates if keyset-driven or mixed cursors maintain row versions or values.	Returns Y. Cursors maintain values for all fetched rows and can detect updates to the row values.
SQL_SCHEMA_TERM: The term used to describe a schema.	Returns schema
SQL_SCHEMA_USAGE: Indicates the SQL statements that may refer to schemas.	Returns: SQL_OU_DML_STATEMENTS, SQL_OU_TABLE_DEFINITION, SQL_OU_INDEX_DEFINITION, SQL_OU_PRIVILEGE_DEFINITION.
SQL_SCROLL_CONCURRENCY: Indicates the cursor concurrency control options supported by the server.	Returns: SQL_SCCO_READ_ONLY, SQL_SCCO_OPT_ROWVER.
SQL_SCROLL_OPTIONS: Indicates the cursor scroll options supported by the server.	Returns: SQL_SO_FORWARD_ONLY, SQL_SO_KEYSET_DRIVEN, SQL_SO_STATIC.
SQL_SEARCH_PATTERN_ESCAPE: The escape character that allows use of the wildcard characters % and _ in search patterns.	Returns . The '' character is used as an escape character for the '%' and '_' characters in search patterns.
SQL_SERVER_NAME: Indicates the name of the host.	The returned value is determined by connection properties.
SQL_SPECIAL_CHARACTERS: Indicates any special characters allowed in identifier names.	Returns _. The underscore character is allowed in identifier names.
SQL_SQL_CONFORMANCE: Indicates the level of SQL-92 compliance.	Returns SQL_SC_SQL92_ENTRY. The driver is SQL92 Entry level compliant.
SQL_SQL92_DATETIME_FUNCTIONS: Lists the datetime functions supported by the server.	Returns: SQL_SDF_CURRENT_DATE, SQL_SDF_CURRENT_TIME, SQL_SDF_CURRENT_TIMESTAMP.
SQL_SQL92_FOREIGN_KEY_DELETE_RULE: Indicates the server-enforced rules for using a foreign key in a DELETE statement.	Returns: SQL_SFKD_CASCADE, SQL_SFKD_NO_ACTION, SQL_SFKD_SET_DEFAULT, SQL_SFKD_SET_NULL.
SQL_SQL92_FOREIGN_KEY_UPDATE_RULE: Indicates the server-enforced rules for using a foreign key in an UPDATE statement.	Returns: SQL_SFKU_CASCADE, SQL_SFKU_NO_ACTION, SQL_SFKU_SET_DEFAULT, SQL_SFKU_SET_NULL.
SQL_SQL92_GRANT: Indicates the supported GRANT statement clauses.	Returns: SQL_SG_DELETE_TABLE, SQL_SG_INSERT_TABLE, SQL_SG_REFERENCES_TABLE, SQL_SG_SELECT_TABLE, SQL_SG_UPDATE_TABLE.

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SQL info_type Argument and Description	EDB_ODBC/Advanced Server Returns:
SQL_SQL92_NUMERIC_VALUE_FUNCTIONS: Lists the scalar numeric functions supported by the server and driver.	Returns: SQL_SNVF_BIT_LENGTH, SQL_SNVF_CHAR_LENGTH, SQL_SNVF_CHARACTER_LENGTH, SQL_SNVF_EXTRACT, SQL_SNVF_OCTET_LENGTH, SQL_SNVF_POSITION.
SQL_SQL92_PREDICATES, Identifies the predicates of a SELECT statement supported by the server.	Returns: SQL_SP_EXISTS, SQL_SP_ISNOTNULL, SQL_SP_ISNULL, SQL_SP_OVERLAPS, SQL_SP_LIKE, SQL_SP_IN, SQL_SP_BETWEEN, SQL_SP_COMPARISON, SQL_SP_QUANTIFIED_COMPARISON.
SQL_SQL92_RELATIONAL_JOIN_OPERATORS: Identifies the relational join operators supported by the server.	Returns: SQL_SRJO_CROSS_JOIN, SQL_SRJO_EXCEPT_JOIN, SQL_SRJO_FULL_OUTER_JOIN, SQL_SRJO_INNER_JOIN, SQL_SRJO_INTERSECT_JOIN, SQL_SRJO_LEFT_OUTER_JOIN, SQL_SRJO_NATURAL_JOIN, SQL_SRJO_RIGHT_OUTER_JOIN, SQL_SRJO_UNION_JOIN.
SQL_SQL92_REVOKE: Identifies the clauses in a REVOKE statement that are supported by the server.	Returns: SQL_SR_DELETE_TABLE, SQL_SR_INSERT_TABLE, SQL_SR_REFERENCES_TABLE, SQL_SR_SELECT_TABLE, SQL_SR_UPDATE_TABLE.
SQL_SQL92_ROW_VALUE_CONSTRUCTOR: Indicates the row value constructor expressions in a SELECT statement that are supported by the server.	Returns: SQL_SRVC_VALUE_EXPRESSION, SQL_SRVC_NULL.
SQL_SQL92_STRING_FUNCTIONS: Lists the string scalar functions supported by the server and driver.	Returns: SQL_SSF_CONVERT, SQL_SSF_LOWER, SQL_SSF_UPPER, SQL_SSF_SUBSTRING, SQL_SSF_TRANSLATE, SQL_SSF_TRIM_BOTH, SQL_SSF_TRIM_LEADING, SQL_SSF_TRIM_TRAILING.
SQL_SQL92_VALUE_EXPRESSIONS: Indicates the value expressions supported by the server.	Returns: SQL_SVE_CASE, SQL_SVE_CAST, SQL_SVE_COALESCE, SQL_SVE_NULLIF.
SQL_STANDARD_CLI_CONFORMANCE: Indicates the CLI standard the driver conforms to.	This info_type is currently unsupported.
SQL_STATIC_CURSOR_ATTRIBUTES1: Describes the first set of static cursor attributes supported by the driver.	Returns: SQL_CA1_NEXT, SQL_CA1_ABSOLUTE, SQL_CA1_RELATIVE, SQL_CA1_BOOKMARK, SQL_CA1_LOCK_NO_CHANGE, SQL_CA1_POS_POSITION, SQL_CA1_POS_UPDATE, SQL_CA1_POS_DELETE, SQL_CA1_POS_REFRESH, SQL_CA1_BULK_ADD, SQL_CA1_BULK_UPDATE_BY_BOOKMARK, SQL_CA1_BULK_DELETE_BY_BOOKMARK, SQL_CA1_BULK_FETCH_BY_BOOKMARK.
SQL_STATIC_CURSOR_ATTRIBUTES2: Describes the second set of static cursor attributes supported by the driver.	Returns: SQL_CA2_READ_ONLY_CONCURRENCY, SQL_CA2_OPT_ROWVER_CONCURRENCY, SQL_CA2_SENSITIVITY_ADDITIONS, SQL_CA2_SENSITIVITY_DELETIONS, SQL_CA2_SENSITIVITY_UPDATES, SQL_CA2_CRC_EXACT.

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SQL info_type Argument and Description	EDB_ODBC/Advanced Server Returns:
SQL_STATIC_SENSITIVITY: Indicates whether changes made to a static cursor by SQLSetPos() or UPDATE or DELETE statements are detected by the application.	Returns: SQL_SS_ADDITIONS, SQL_SS_DELETIONS, SQL_SS_UPDATES.
SQL_STRING_FUNCTIONS: Lists the scalar string functions supported by the server and driver.	Returns: SQL_FN_STR_CONCAT, SQL_FN_STR_LTRIM, SQL_FN_STR_LENGTH, SQL_FN_STR_LOCATE, SQL_FN_STR_LCASE, SQL_FN_STR_RTRIM, SQL_FN_STR_SUBSTRING, SQL_FN_STR_UCASE.
SQL_SUBQUERIES: Identifies the subquery predicates to a SELECT statement supported by the server.	Returns: SQL_SQ_COMPARISON, SQL_SQ_EXISTS, SQL_SQ_IN, SQL_SQ_QUANTIFIED.
SQL_SYSTEM_FUNCTIONS: Lists the scalar system functions supported by the server and driver.	Returns 0.
SQL_TABLE_TERM: The term used to describe a table.	Returns table.
SQL_TIMEDATE_ADD_INTERVALS: Indicates the timestamp intervals supported by the server for the TIMESTAMPADD scalar function.	Returns 0.
SQL_TIMEDATE_DIFF_INTERVALS: Indicates the timestamp intervals supported by the server for the TIMESTAMPDIFF scalar function.	Returns 0
SQL_TIMEDATE_FUNCTIONS: Indicates the date and time functions supported by the server.	Returns: SQL_FN_TD_NOW, SQL_FN_TD_CURDATE, SQL_FN_TD_CURTIME.
SQL_TXN_CAPABLE: Identifies the transaction support offered by the server and driver.	Returns SQL_TC_ALL. Transactions can contain both DML and DDL statements.
SQL_TXN_ISOLATION_OPTION: Indicates the transaction isolation level supported by the server.	Returns: SQL_TXN_READ_COMMITTED, SQL_TXN_SERIALIZABLE.
SQL_UNION: Indicates server support for the UNION clause.	Returns: SQL_U_UNION, SQL_U_UNION_ALL.
SQL_USER_NAME: Identifies the name of the user connected to a database; may be different than the login name.	This value is determined by the connection properties.
SQL_XOPEN_CLI_YEAR: The publication year of the X/Open specification that the driver manager complies with.	This info_type is currently unsupported.

EDB_ODBC

Connection Attributes

You can use the ODBC `SQLGetConnectAttr()` and `SQLSetConnectAttr()` functions to retrieve or set the value of a connection attribute.

SQLGetConnectAttr()

The `SQLGetConnectAttr()` function returns the current value of a connection attribute. The signature is:

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```
SQLRETURN SQLGetConnectAttr
(
   SQLHDBC  conn_handle,  //Input
   SQLINTEGER  attribute,  //Input
   SQLPOINTER  value_pointer,  //Output
   SQLINTEGER  buffer_length,  //Input
   SQLINTEGER *  string_length_pointer  //Output
);
```

- `conn_handle` The connection handle.
- `attribute` identifies the attribute whose value you wish to retrieve.
- `value_pointer` A pointer to the location in memory that will receive the `attribute` value.
- `buffer_length` If `attribute` is defined by ODBC and `value_pointer` points to a character string or binary buffer, `buffer_length` is the length of `value_pointer`. If `value_pointer` points to a fixed-size value (such as an integer), `buffer_length` is ignored.

  If EDB-ODBC defines the attribute, `SQLGetConnectAttr()` sets the `buffer_length` parameter. `buffer_length` can be:

Value type	Meaning
Character string	The length of the character string
Binary buffer	The result of SQL_LEN_BINARY_ATTR(length)
Fixed length data type	SQL_IS_INTEGER or SQL_IS_UINTEGER
Any other type	SQL_IS_POINTER

- `string_length_pointer` A pointer to a `SQLINTEGER` that receives the number of bytes available to return in `value_pointer`. If `value_pointer` is `NULL`, `string_length_pointer` is not returned.

This function returns `SQL_SUCCESS`, `SQL_SUCCESS_WITH_INFO`, `SQL_NO_DATA`, `SQL_ERROR` or `SQL_INVALID_HANDLE`.

The following table lists the connection attributes supported by EDB-ODBC.

Attribute	Supported?	Notes
SQL_ATTR_ACCESS_MODE	NO	SQL_MODE_READ_WRITE
SQL_ATTR_ASYNC_ENABLE	NO	SQL_ASYNC_ENABLE_OFF
SQL_ATTR_AUTO_IPD	NO	
SQL_ATTR_AUTOCOMMIT	YES	SQL_AUTOCOMMIT, SQL_AUTOCOMMIT_ON, SQL_AUTOCOMMIT_OFF
SQL_ATTR_CONNECTION_TIMEOUT	NO	
SQL_ATTR_CURRENT_CATALOG	NO	
SQL_ATTR_DISCONNECT_BEHAVIOR	NO	
SQL_ATTR_ENLIST_IN_DTC	YES	For win32 and with conditional compilation
SQL_ATTR_ENLIST_IN_XA	NO	
SQL_ATTR_LOGIN_TIMEOUT	NO	SQL_LOGIN_TIMEOUT
SQL_ATTR_ODBC_CURSORS	NO	
SQL_ATTR_PACKET_SIZE	NO	
SQL_ATTR_QUIET_MODE	NO	
SQL_ATTR_TRACE	NO	

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Attribute	Supported?	Notes
SQL_ATTR_TRACEFILE	NO	
SQL_ATTR_TRANSLATE_LIB	NO	
SQL_ATTR_TRANSLATE_OPTION	NO	
SQL_ATTR_TXN_ISOLATION	YES	SQL_TXN_ISOLATION, SQL_DEFAULT_TXN_ISOLATION

SQLSetConnectAttr()

You can use the ODBC `SQLSetConnectAttr()` function to set the values of connection attributes. The signature of the function is:

```
SQLRETURN SQLSetConnectAttr
(
   SQLHDBC  conn_handle , // Input
   SQLINTEGER  attribute , // Input
   SQLPOINTER  value_pointer , // Input
   SQLINTEGER  string_length , // Input
);
```

`conn_handle`

The connection handle

`attribute`

`attribute` identifies the attribute whose value you wish to set

`value_pointer`

A pointer to the value that the `attribute` will assume.

`string_length`

If `attribute` is defined by ODBC and `value_pointer` points to a binary buffer or character string, `string_length` is the length of `value_pointer`. If `value_pointer` points to a fixed-length value (such as an integer), `string_length` is ignored.

If EDB-ODBC defines the attribute, the application sets the `string_length` parameter. Possible `string_length` values are:

Value Type	Meaning
Character string	The length of the character string or SQL_NTS
Binary buffer	The result of SQL_LEN_BINARY_ATTR(length)
Fixed length data type	SQL_IS_INTEGER or SQL_IS_UINTEGER
Any other type	SQL_IS_POINTER

`SQLSetConnectAttr()` returns `SQL_SUCCESS`, `SQL_SUCCESS_WITH_INFO`, `SQL_ERROR`, `SQL_STILL_EXECUTING` or `SQL_INVALID_HANDLE`.

You can call `SQLSetConnectAttr()` any time after the connection handle is allocated, until the time that the connection is closed with a call to `SQLFreeHandle()`. All attributes set by the call persist until the call to `SQLFreeHandle()`.

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Connection attributes have a specific time frame in which they can be set. Some attributes must be set before the connection is established, while others can only be set after a connection is established.

The following table lists the connection attributes and the time frame in which they can be set:

Attribute	Set Before or After establishing a connection?
SQL_ATTR_ACCESS_MODE	Before or After
SQL_ATTR_ASYNC_ENABLE	Before or After
SQL_ATTR_AUTO_IPD	Before or After
SQL_ATTR_AUTOCOMMIT	Before or After
SQL_ATTR_CONNECTION_TIMEOUT	Before or After
SQL_ATTR_CURRENT_CATALOG	Before or After
SQL_ATTR_ENLIST_IN_DTC	After
SQL_ATTR_ENLIST_IN_XA	After
SQL_ATTR_LOGIN_TIMEOUT	Before
SQL_ATTR_ODBC_CURSORS	Before
SQL_ATTR_PACKET_SIZE	Before
SQL_ATTR_QUIET_MODE	Before or After
SQL_ATTR_TRACE	Before or After
SQL_ATTR_TRACEFILE	Before or After
SQL_ATTR_TRANSLATE_LIB	After
SQL_ATTR_TRANSLATE_OPTION	After
SQL_ATTR_TXN_ISOLATION	Before or After

Environment Attributes

You can use the ODBC `SQLGetEnvAttr()` and `SQLSetEnvAttr()` functions to retrieve or set the value of an environment attribute.

SQLGetEnvAttr()

Use the `SQLGetEnvAttr()` function to find the current value of environment attributes on your system. The signature of the function is:

```
SQLRETURN SQLGetConnectAttr
(
    SQLHDBC env_handle, // Input
    SQLINTEGER attribute, // Input
    SQLPOINTER value_ptr, // Output
    SQLINTEGER buffer_length, // Input
    SQLINTEGER * string_length_pointer // Output
);
```

`env_handle`

The environment handle.

`attribute`

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attribute identifies the attribute whose value you wish to retrieve.

value_pointer

A pointer to the location in memory that will receive the attribute value.

buffer_length

If the attribute is a character string, buffer_length is the length of value_ptr. If the value of the attribute is not a character string, buffer_length is unused.

string_length_pointer

A pointer to a SQLINTEGER that receives the number of bytes available to return in value_pointer. If value_pointer is NULL, string_length_pointer is not returned.

This function returns SQL_SUCCESS, SQL_SUCCESS_WITH_INFO , SQL_NO_DATA, SQL_ERROR or SQL_INVALID_HANDLE.

The following table lists the environment attributes supported by EDB-ODBC.

Attribute	Supported?	Restrictions?
SQL_ATTR_CONNECTION_POOLING	SQL_CP_ONE_PER_DRIVER or SQL_CP_OFF	Determined by connection properties
SQL_ATTR_ODBC_VERSION	(SQL_OV_ODBC3)	

(SQL_OV_ODBC2) | NONE | | SQL_ATTR_OUTPUT_NTS | SQL_SUCCESS | NONE |

SQLSetEnvAttr()

You can use the SQLSetEnvAttr() function to set the values of environment attributes. The signature of the function is:

```
SQLRETURN SQLSetEnvAttr
(
   SQLHENV  env_handle , //Input
   SQLINTEGER  attribute , //Input
   SQLPOINTER  value_pointer , //Input
   SQLINTEGER  string_length  //Input
);
```

- env_handle The environment handle.
- attribute identifies the attribute whose value you wish to set.
- value_pointer A pointer to the value assigned to the attribute.
- The value will be a NULL terminated character string or a 32 bit integer value depending on the specified attribute.
- string_length If value_pointer is a pointer to a binary buffer or character string, string_length is the length of value_pointer. If the value being assigned to the attribute is a character, string_length is the length of that character string. If value_pointer is NULL, string_length is not returned. If value_pointer is an integer, string_length is ignored.

SQLSetEnvAttr() returns SQL_SUCCESS, SQL_INVALID_HANDLE, SQL_ERROR or SQL_SUCCESS_WITH_INFO. The application must call SQLSetEnvAttr() before allocating a connection handle; all values applied to environment attributes will persist until SQLFreeHandle() is called for the connection. ODBC version 3.x allows you to allocate multiple environment handles simultaneously.

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The following table lists the environment attributes you can set with `SQLSetAttr()`.

Attribute	Value_pointer type	Restrictions?
SQL_ATTR_ODBC_VERSION	32 bit Integer	Set this attribute before the application calls any function that includes an SQLHENV argument.
SQL_ATTR_OUTPUT_NTS	32-bit Integer	Defaults to SQL_TRUE. Calls that set this attribute to SQL_FALSE return SQL_ERROR/SQLSTATEHYC00 (feature not implemented).

Statement Attributes

You can use the ODBC `SQLGetStmtAttr()` and `SQLSetStmtAttr()` functions to retrieve and set the value of a statement attribute.

SQLGetStmtAttr()

The `SQLGetStmtAttr()` function returns the current value of statement attribute. The signature is:

```
SQLRETURN SQLGetConnectAttr
(
   SQLHDBC  stmt_handle,  //Input
   SQLINTEGER  attribute,  //Input
   SQLPOINTER  value_ptr,  //Output
   SQLINTEGER  buffer_length,  //Input
   SQLINTEGER *  string_length_pointer  //Output
);
```

- `stmt_handle` The statement handle
- `attribute` is the attribute value
- `value_pointer` A pointer to the location in memory that will receive the `attribute` value.
- `buffer_length` If the attribute is defined by ODBC, `buffer_length` is the length of `value_pointer` (if `value_pointer` points to a character string or binary buffer). If `value_pointer` points to an integer, `buffer_length` is ignored.

  If EDB-ODBC defines the attribute, the application sets the `buffer_length` parameter. `buffer_length` can be:

Value Type	Meaning
Character string	The length of the character string
Binary buffer	The result of SQL_LEN_BINARY_ATTR(length)
Fixed length data type	SQL_IS_INTEGER or SQL_IS_UINTEGER
Any other type	SQL_IS_POINTER

- `string_length_pointer` A pointer to an `SQLINTEGER` that receives the number of bytes required to hold the requested value. If `value_pointer` is NULL, `string_length_pointer` is not returned.

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This function returns `SQL_SUCCESS`, `SQL_SUCCESS_WITH_INFO`, `SQL_ERROR` or `SQL_INVALID_HANDLE`.

Attribute	Supported?	Restrictions?
SQL_ATTR_APP_PARAM_DESC	YES	
SQL_ATTR_APP_ROW_DESC	YES	
SQL_ATTR_ASYNC_ENABLE	NO	
SQL_ATTR_CONCURRENCY	YES	SQL_CONCUR_READ_ONLY
SQL_ATTR_CURSOR_SCROLLABLE	YES	
SQL_ATTR_CURSOR_TYPE	YES	SQL_CURSOR_FORWARD_ONLY
SQL_ATTR_CURSOR_SENSITIVITY	YES	SQL_INSENSITIVE
SQL_ATTR_ENABLE_AUTO_IPD	NO	
SQL_ATTR_FETCH_BOOKMARK_PTR	YES	
SQL_ATTR_IMP_PARAM_DESC	YES	
SQL_ATTR_IMP_ROW_DESC	YES	
SQL_ATTR_KEYSET_SIZE	NO	
SQL_ATTR_MAX_LENGTH	NO	
SQL_ATTR_MAX_ROWS	NO	
SQL_ATTR_METADATA_ID	YES	
SQL_ATTR_NOSCAN	NO	
SQL_ATTR_PARAM_BIND_OFFSET_PTR	YES	ODBC V2.0
SQL_ATTR_PARAM_BIND_TYPE	YES	
SQL_ATTR_PARAM_OPERATION_PTR	YES	
SQL_ATTR_PARAM_STATUS_PTR	YES	
SQL_ATTR_PARAMS_PROCESSED_PTR	YES	
SQL_ATTR_PARAMSET_SIZE	YES	
SQL_ATTR_QUERY_TIMEOUT	NO	
SQL_ATTR_RETRIEVE_DATA	NO	
SQL_ATTR_ROW_BIND_OFFSET_PTR	YES	
SQL_ATTR_ROW_BIND_TYPE	NO	
SQL_ATTR_ROW_NUMBER	YES	
SQL_ATTR_ROW_OPERATION_PTR	YES	
SQL_ATTR_ROW_STATUS_PTR	YES	
SQL_ATTR_ROWS_FETCHED_PTR	YES	
SQL_ATTR_ROW_ARRAY_SIZE	YES	
SQL_ATTR_SIMULATE_CURSOR	NO	
SQL_ATTR_USE_BOOKMARKS	YES	
SQL_ROWSET_SIZE	YES	

SQLSetStmtAttr()

You can use the `SQLSetStmtAttr()` function to set the values of environment attributes. The signature is:

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```
SQLRETURN SQLSetStmtAttr
(
   SQLHENV  stmt_handle , //Input
   SQLINTEGER  attribute , //Input
   SQLPOINTER  value_pointer , //Input
   SQLINTEGER  string_length  //Input
);
```

- `stmt_handle` is the environment handle.
- `attribute` identifies the statement attribute whose value you wish to set.
- `value_pointer` is a pointer to the location in memory that holds the value that will be assigned to the attribute. `value_pointer` can be a pointer to:
    - A null-terminated character string
    - A binary buffer
    - A value defined by the driver
    - A value of the type `SQLLEN`, `SQLULEN` or `SQLUSMALLINT`

      Value-pointer can also optionally hold one of the following values:
    - An ODBC descriptor handle
    - A `SQLUINTEGER` value
    - A `SQLULEN` value
    - A signed INTEGER (if attribute is a driver-specific value)
- `string_length` If `attribute` is defined by ODBC and `value_pointer` points to a binary buffer or character string, `string_length` is the length of `value_pointer`. If `value_pointer` points to an integer, `string_length` is ignored. If EDB-ODBC defines the attribute, the application sets the `string_length` parameter. Possible `string_length` values are:

Value Type	Meaning
Character string	The length of the character string or SQL_NTS
Binary buffer	The result of SQL_LEN_BINARY_ATTR(length)
Fixed length data type	SQL_IS_INTEGER or SQL_IS_UINTEGER
Any other type	SQL_IS_POINTER

Error Handling

Diagnostic information for the ODBC functions mentioned in this guide can be retrieved via the ODBC `SQLGetDiagRec()` function.

SQLGetDiagRec()

The `SQLGetDiagRec()` function returns status and error information from a diagnostic record written by the ODBC functions that retrieve or set attribute values. The signature is:

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```
SQLRETURN SQLGetDiagRec
(
   SQLSMALLINT handle_type, // Input
   SQLHANDLE handle, // Input
   SQLSMALLINT record_number, // Input
   SQLCHAR *SQLState_pointer, // Output
   SQLINTEGER *native_error_pointer, // Output
   SQLCHAR *error_text_pointer, // Output
   SQLSMALLINT buffer_length, // Input
   SQLSMALLINT *text_length_pointer // Output
);
```

- `handle_type` The handle type of the `handle` argument. `handle_type` must be one of the following:
  - `SQL_HANDLE_ENV` specifies an environment handle.
  - `SQL_HANDLE_STMT` specifies a statement handle.
  - `SQL_HANDLE_DBC` specifies a connection handle.
  - `SQL_HANDLE_DESC` specifies a descriptor handle.
- `handle` The handle associated with the attribute error message.
- `record_number` The status record that the application is seeking information from (must be greater than or equal to 1).
- `SQLState_pointer` Pointer to a memory buffer that receives the `SQLState` error code from the record.
- `native_error_pointer` Pointer to a buffer that receives the native error message for the data source (contained in the `SQL_DIAG_NATIVE` field).
- `error_text_pointer` Pointer to a memory buffer that receives the error text (contained in the `SQL_DIAG_MESSAGE_TEXT` field)
- `buffer_length` The length of the `error_text` buffer.
- `text_length_pointer` Pointer to the buffer that receives the size (in characters) of the `error_text_pointer` field. If the number of characters in the `error_text_pointer` parameter exceeds the number available (in `buffer_length`), `error_text_pointer` will be truncated.

`SQLGetDiagRec()` returns `SQL_SUCCESS`, `SQL_ERROR`, `SQL_INVALID_HANDLE`, `SQL_SUCCESS_WITH_DATA` or `SQL_NO_DATA`.

Supported ODBC API Functions

The following table lists the ODBC API functions; the right column specifies `Yes` if the API is supported by the EDB-ODBC driver. Use the ODBC `SQLGetFunctions()` function (specifying a function ID of `SQL_API_ODBC3_ALL_FUNCTIONS`) to return a current version of this list.

ODBC API Function Name	Supported by EDB-ODBC?
SQLAllocConnect()	Yes
SQLAllocEnv()	Yes
SQLAllocStmt()	Yes
SQLBindCol()	Yes
SQLCancel()	Yes
SQLColAttributes()	Yes

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ODBC API Function Name	Supported by EDB-ODBC?
SQLConnect()	Yes
SQLDescribeCol()	Yes
SQLDisconnect()	Yes
SQLError()	Yes
SQLExecDirect()	Yes
SQLExecute()	Yes
SQLFetch()	Yes
SQLFreeConnect()	Yes
SQLFreeEnv()	Yes
SQLFreeStmt()	Yes
SQLGetCursorName()	Yes
SQLNumResultCols()	Yes
SQLPrepare()	Yes
SQLRowCount()	Yes
SQLSetCursorName()	Yes
SQLSetParam()	Yes
SQLTransact()	Yes
SQLColumns()	Yes
SQLDriverConnect()	Yes
SQLGetConnectOption()	Yes
SQLGetData()	Yes
SQLGetFunctions()	Yes
SQLGetInfo()	Yes
SQLGetStmtOption()	Yes
SQLGetTypeInfo()	Yes
SQLParamData()	Yes
SQLPutData()	Yes
SQLSetConnectOption()	Yes
SQLSetStmtOption()	Yes
SQLSpecialColumns()	Yes
SQLStatistics()	Yes
SQLTables()	Yes
SQLBrowseConnect()	No
SQLColumnPrivileges()	No
SQLDataSources()	Yes
SQLDescribeParam()	No
SQLExtendedFetch()	Yes
SQLForeignKeys()	Yes
SQLMoreResults()	Yes
SQLNativeSQL()	Yes
SQLNumParams()	Yes
SQLParamOptions()	Yes
SQLPrimaryKeys()	Yes
SQLProcedureColumns()	Yes
SQLProcedures()	Yes
SQLSetPos()	Yes

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ODBC API Function Name	Supported by EDB-ODBC?
SQLSetScrollOptions()	No
SQLTablePrivileges()	Yes
SQLDrivers()	Yes
SQLBindParameter()	Yes
SQLAllocHandle()	Yes
SQLBindParam()	Yes
SQLCloseCursor()	Yes
SQLColAttribute()	Yes
SQLCopyDesc()	Yes
SQLendTran()	Yes
SQLFetchScroll()	Yes
SQLFreeHandle()	Yes
SQLGetConnectAttr()	Yes
SQLGetDescField()	Yes
SQLGetDescRec()	Yes
SQLGetDiagField()	Yes
SQLGetDiagRec()	Yes
SQLGetEnvAttr()	Yes
SQLGetStmtAttr()	Yes
SQLSetConnectAttr()	Yes
SQLSetDescField()	Yes
SQLSetDescRec()	No
SQLSetEnvAttr()	Yes
SQLSetStmtAttr()	Yes
SQLBulkOperations()	Yes

Supported Data Types

EDB-ODBC supports the following ODBC data types:

ODBC Data Type	Corresponding Advanced Server Data Type
SQL_BIGINT	PG_TYPE_INT8
SQL_BINARY	PG_TYPE_BYTEA
SQL_BIT	PG_TYPE_BOOL or PG_TYPE_CHAR
SQL_CHAR	PG_TYPE_BPCHAR
SQL_TYPE_DATE	PG_TYPE_DATE
SQL_DECIMAL	PG_TYPE_NUMERIC
SQL_DOUBLE	PG_TYPE_FLOAT8
SQL_FLOAT	PG_TYPE_FLOAT8
SQL_INTEGER	PG_TYPE_INT4
SQL_LONGVARBINARY	PG_TYPE_BYTEA
SQL_LONGVARCHAR	PG_TYPE_VARCHAR or PG_TYPE_TEXT
SQL_NUMERIC	PG_TYPE_NUMERIC
SQL_NUMERIC	PG_TYPE_NUMERIC

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ODBC Data Type	Corresponding Advanced Server Data Type
SQL_REAL	PG_TYPE_FLOAT4
SQL_SMALLINT	PG_TYPE_INT2
SQL_TYPE_TIME	PG_TYPE_TIME
SQL_TYPE_TIMESTAMP	PG_TYPE_DATETIME
SQL_TINYINT	PG_TYPE_INT2
SQL_VARBINARY	PG_TYPE_BYTEA
SQL_VARCHAR	PG_TYPE_VARCHAR

Thread Safety

EDB-ODBC is thread safe.

7 Security and Encryption

7.1 Scram Compatibility

The EDB ODBC Connector provides SCRAM-SHA-256 support for Advanced Server versions 10 and above. This support is available from EDB ODBC 10.01.0000.01 release onwards.

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