



**ENTERPRISE ARCHITECT**

User Guide Series

# Server Based Repositories

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## Server Based Repositories



As an Enterprise Architect repository becomes larger, or the number of concurrent users increases, or as organizational policy dictates, it might be more appropriate to use a database management system (DBMS) to store the repository. A file-based repository can be created and used in any edition of Enterprise Architect; however, if you decide to use a DBMS-based repository you will need to use the Corporate, Unified or Ultimate editions. If you have started modeling with a file-based repository, Enterprise Architect has a function to transfer your repository from that to a server-based one, helping you to get started quickly. The same user interface is used for both file- and server-based repositories so the applications will, for all intents and purposes, appear the same.

**Transfer Type**

☐ File to File
 ☐ DBMS to File
 ☒ File to DBMS
 ☐ DBMS to DBMS

**Source and Target Projects**

Source Project: C:\Users\Stephen Maguire\Documents\Corporate Files\Enterprise Model.eapx ...

Target Project: DBType=-1;Connect=Provider=MSDASQL.1;Persist Security Info=False;User ID=Master;Data Source=Enterprise Repository; ...

**Logfile**

☒ Logfile ...

Caution: The Target Project will be erased prior to transfer. Please ensure you have backed up target if necessary

Transfer Close Help

Progress:

The performance of the repository as experienced by end users will depend very much on the quality, power, size and performance of the server computer and the network infrastructure on which the DBMS and user are located. Using a DBMS over a very high latency (10ms or higher) network can result in significant delays and visibly inferior performance. When network latency is an issue, Sparx Systems recommends using a Cloud-based server as the interactions are optimized to reduce the effect of network latency.

Also it is important to note that each repository is different and although Sparx Systems does its best to maximize performance based on what is expected to be held in a repository, very occasionally this won't be optimal. In these rare cases a review of the database indexes would be good practice to maximize data retrieval and access. This will ensure that end users receive the best possible performance even when models contain millions of constructs.

### Set up a Project on a DBMS Repository

To set up your project on a DBMS repository, you work through these stages:

1. Set up your DBMS software and create a database.
2. Create the required tables in your database, by running a script supplied on the Sparx Systems website.
3. (For certain DBMS products, and if you are not using the Enterprise Architect Native Connection to access the database) Set up an ODBC driver to enable connection to the repository.
4. Transfer the project from the source file to the DBMS repository; the source file can be:
  - a .QEA, .EAP or .FEAP base model, to begin a new project from scratch, or
  - a previously-developed project file, to move an existing project into the DBMS repository
5. Connect to your repository; we recommend using the Enterprise Architect Native Connection for this.

## DBMS Products You can Use

You can set up your project on a repository in:

- Firebird from v2
- MySQL from v5
- MariaDB
- Microsoft SQL Server from 2005, all editions including Express and Azure SQL Database
- Microsoft Access from 2007
- Oracle from 9i (all editions)
- PostgreSQL from v8

For information on creating a project on a specific DBMS from this list, see *Learn more*.

## Notes

- You cannot move a model from a source .eap file of an Enterprise Architect version earlier than 3.5.0 without updating it first
- Before proceeding, you must have MDAC 2.6 or higher installed on your system
- (Optional, but recommended) before actually transferring the project structure from the file to the repository, perform a Project Data Integrity Check on the file

# Create a Project in a MariaDB Database

To create a project in a MariaDB repository, you work through these stages:

- Stage 1: Create a database and tables
- Stage 2: Set up a connection to the database
- Stage 3: Load initial data

## Prerequisites

- A machine with MariaDB server version 10.1.2 or higher installed and running

## 1. Create a MariaDB database and tables

Step	Action
1.1	Create a new empty database and configure it to your preferences, making sure to configure the correct character set and collation. The exact method you use to create the database is not important to this discussion, therefore use the most convenient or familiar method.  For example the MariaDB SQL command to create a new database called 'ea1558' is:  > create schema `ea1558`;
1.2	Open your SQL management console of choice (such as HeidiSQL) and connect to the new database.
1.3	Download <b>EASchema_1558_MySQL.sql</b> from the Sparx Systems <a href="#">website</a> and open it in your SQL management console of choice.
1.4	Run EASchema_1558_MySQL.sql to create the required database tables.

## 2. Set up Connection to MariaDB repository

From Enterprise Architect version 16 there are now two different ways that Enterprise Architect can connect to MariaDB repositories:

- via a Native connection (see [Native Connection to MariaDB repository](#) for details), or
- via an ADO/ODBC connection (see [ODBC Connection to MariaDB repository](#) for details)

Note: Sparx Systems recommend Native connections as they are much simpler and don't require any other software installed or configured.

## 3. Load Initial Data

Enterprise Architect repositories require a basic amount of reference data to function correctly.

You can load this initial data in one of two different ways:

- Transfer the entire contents of an existing model into the new database, or

- Run initial data SQL Script

### 3.1. Load Initial Data - Transfer Existing Model

If you choose to set up your new database with the contents of an existing model, then Sparx Systems recommend that a Project Integrity check is performed on the existing model to ensure it is 'clean' and free from data-related errors before being copied into the new database.

The Enterprise Architect installation provides a model called EABase.qea, which is copied into the installation folder specifically for the purpose of providing basic data for a new model. However, if you have customized the various drop-down lists in another model then you might prefer to use that. Regardless of what model you choose to use, the process is the same and is outlined here.

Step	Action
3.1.1	In Enterprise Architect, open the existing repository and select the 'Settings > Model > Integrity > Project Integrity' ribbon option.
3.1.2	In the 'Action' panel select the 'Report Only' radio button, and in the 'Checks to Run' panel select all checkboxes. Click on the Go button.
3.1.3	If Enterprise Architect detects that the existing model contains integrity issues, they will be listed in the main panel at the bottom of the dialog. These issues should be resolved before continuing with the project transfer.
3.1.4	With Enterprise Architect open, ensure that there is no project loaded, by clicking on the  button and selecting 'Close Project'.
3.1.5	Select the 'Settings > Model > Transfer > Full Project Transfer via Connection' ribbon option. The 'Project Transfer' dialog displays.
3.1.6	In the 'Transfer Type' panel, select 'File to DBMS'.
3.1.7	In the 'Source Project' field, click on the  button and browse for the name of the project file to copy to the repository. If the .QEA file has Replication enabled, this must be removed before performing the transfer.
3.1.8	At the right of the 'Target Project' field, click on the  button and select either: <ul style="list-style-type: none"> <li>• 'Native Connection' - the 'Open Server Connection' dialog displays (see the <a href="#">Native Connection to MariaDB repository</a> Help topic for details), or</li> <li>• 'ODBC Connection Wizard' - The 'Datalink Properties' dialog displays (see the <a href="#">ODBC Connection to MariaDB repository</a> Help topic for details, in particular step <i>Connect to the Repository</i>)</li> </ul>
3.1.9	If required, select the 'Logfile' checkbox and type a path and filename for the data transfer log file.
3.1.10	Click on the Transfer button to begin the data transfer process.
3.1.11	When the process is complete, you have created a project on a MariaDB database and can now connect to it and open it from Enterprise Architect.

### 3.2. Load Initial Data - SQL Script

The Sparx Systems website provides a SQL Script that contains a series of INSERT statements that will load an empty database with all the data needed by Enterprise Architect.

Step	Action
3.2.1	Open your SQL management console of choice (such as HeidiSQL) and connect to the new database.
3.2.2	Download the EABase_1558_MySQL.sql file from the Sparx Systems <a href="#">website</a> and open it in your SQL management console.
3.2.3	Run EABase_1558_MySQL.sql to load the required initial data.


# Native Connection to MariaDB repository

In most installations users will be able to create native connections to MariaDB database without the need to install or configure any other software.

## Prerequisites

- A MariaDB database server
- An Enterprise Architect repository defined in the MariaDB database server
- You know the database user credentials that have SELECT, INSERT, UPDATE, DELETE, EXECUTE and SHOW VIEW access permissions to the Enterprise Architect repository

## Access

Keyboard Shortcuts	Ctrl+O : Connect to Server
Other	Start Page   Server Connection (direct to 'Open Server Connection' dialog)    Open Project : Connect to Server Start Page : Manage Projects : Connect to Server

## Connect to Repository

Step	Action
1	In Enterprise Architect, open the 'Open Server Connection' screen ('Project list   Open Project : Connect to Server' ribbon option).
2	Select the MariaDB option
3	Fill in the details of the database, including Server Name, Port, Database Name, Database User and Password
4	Click the [Test] button. A "Connection Successful" popup message should be displayed, including a summary of the server's version details.  If the connection is not successful, the message should include a hint or reason why it failed, the reason(s) listed will need to be corrected before continuing.
5	Once step 4 succeeds the OK button will be enabled, click [OK] to open the repository.

## Notes



- Connecting to DBMS based Repositories is available in the Corporate, Unified and Ultimate Editions of Enterprise Architect

## ODBC Connection to MariaDB repository

In order for an Enterprise Architect client to open a MariaDB repository using an ODBC connection, the client machine must have the MySQL ODBC driver installed and an ODBC DSN defined for the same architecture (32 or 64 bit) that Enterprise Architect uses.

For example, if you are using the 64 bit version of Enterprise Architect, then the client machine will need a 64 bit ODBC driver and 64 bit ODBC DSN, but if you are using the 32 bit version of Enterprise Architect then a 32 ODBC driver and DSN will be required.

### Install the ODBC Driver

The ODBC driver will only need to be install once on each client machine, therefore if your machine already has the appropriate MySQL ODBC driver installed you can skip to the next step.

Step	Action
1	<p>Download the appropriate MySQL ODBC driver for your operating system and architecture (32 or 64 bit) of Enterprise Architect from the MySQL <a href="#">website</a>.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• Not all versions of MySQL ODBC driver function correctly with Enterprise Architect, our experience has determined that versions between 5.2.4 &amp; 5.3.4 and 8.0.16 onwards have been the most stable (see more details in the notes section below).</li><li>• Sparx Systems recommends the MySQL ODBC driver (instead of the MariaDB driver) because it has better performance.</li></ul>
2	Run the MySQL ODBC driver installer, accepting the default values.

### Prerequisites

- A MariaDB database server
- An Enterprise Architect repository defined in the MariaDB database server
- You know the database user credentials that have SELECT, INSERT, UPDATE, DELETE, EXECUTE and SHOW VIEW access permissions to the Enterprise Architect repository
- You know the architecture (32 or 64 bit) of your installed Enterprise Architect application

### Install the ODBC Driver

The ODBC driver will only need to be install once on each client machine, therefore if your machine already has the appropriate MySQL ODBC driver installed you can skip to the next step.

Step	Action
1	<p>Download the appropriate MySQL ODBC driver for your operating system and architecture (32 or 64 bit) of Enterprise Architect from the MySQL <a href="#">website</a>.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• Not all versions of MySQL ODBC driver function correctly with Enterprise Architect, see the <a href="#">Driver Issues</a> page for details of the versions that cause problems.</li></ul>

	<ul style="list-style-type: none"> <li>Sparx Systems recommends the MySQL ODBC driver (instead of the MariaDB driver) because it has better performance.</li> </ul>
2	Run the MySQL ODBC driver installer, accepting the default values.

## Create ODBC DSN

A separate ODBC DSN must be created for each MariaDB repository that the client wants to connect to.


An ODBC DSN is simply the details of a database (server and database names, Port and user credentials), stored in the registry and given a unique name that allows applications (like Enterprise Architect) to easily connect to databases.

Step	Action
1	The Windows Operating System includes 2 different versions of the ODBC administrative tool, one for 32 bit and the other for 64 bit applications. Therefore you need to open the 'Open Data Source Administrator' that corresponds to the architecture of your Enterprise Architect application. The easiest way to achieve this is to use Enterprise Architect's build-in ribbon option: 'Settings > User Tools > ODBC Data Sources'. The ODBC Data Source Administrator window displays.
2	The DSN can be saved as either a User or System DSN, if you have administrator privileges on the local machine then we would suggest saving the DSN as a System DSN, otherwise your only option is to create a User DSN.
3	Click on the Add button. The 'Create New Data Source' dialog displays, enabling you to add a new DSN.
4	Select the appropriate MySQL ODBC Driver (usually 'MySQL ODBC x.x Unicode Driver') from the list.
5	Click on the Finish button. The 'MySQL Connector/ODBC' dialog displays.
6	Enter these configuration details: <ul style="list-style-type: none"> <li><b>Data Source Name:</b> (DSN), a unique name for the connection</li> <li><b>Description:</b> (optional) description of the DSN</li> <li><b>TCP/IP Server:</b> The host name or IP address of the MariaDB server</li> <li><b>Port:</b> The Port that the MariaDB server is listening to</li> <li><b>User and Password:</b> database user credentials</li> <li><b>Database:</b> The database name on the selected server</li> </ul>
7	To set the advanced options, click on the Details>> button.
8	Select these checkboxes (where provided): <ul style="list-style-type: none"> <li>'Return matched rows instead of affected rows' ('Connection' or 'Cursors/Results' tab)</li> <li>'Allow big result sets' ('Connection' tab)</li> </ul>
9	Click on the Test Connection button to confirm that the details are correct.
10	If the test succeeds, click on the OK button to complete the configuration.

	If the test does not succeed, review your settings.
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## Connect to the Repository

Once the ODBC driver is installed and ODBC DSN defined on an individual machine the Enterprise Architect client can open the repository using these steps:

Step	Action
1	Open the 'Data Link Properties' dialog using one of these methods: <ul style="list-style-type: none"><li>• Keyboard Shortcut: Ctrl+O : Connect to Server</li><li>• Start Page   Server Connection (direct to 'Open Server Connection' dialog)</li><li>•    Open Project : Connect to Server</li><li>• Start Page : Manage Projects : Connect to Server</li></ul>
2	On the Provider tab select 'Microsoft OLE DB Provider for ODBC Drivers', click [Next >>]
3	Select the ODBC DSN in the ' <i>Use data source name</i> ' combo, click Test Connection.
4	Once step 3 is successful, click [OK] to open the repository. If the test does not succeed, review your settings.

## Notes

- Connecting to DBMS based Repositories is available in the Enterprise Architect Corporate, Unified and Ultimate Editions

# Create a Project in a MySQL Database

To create a project in a MySQL repository, you work through these stages:

- Stage 1: Create a database and tables
- Stage 2: Set up a connection to the database
- Stage 3: Load initial data

## Prerequisites

- A machine with MySQL server version 5 or higher installed and running

## 1. Create a MySQL Database and tables

MySQL supports two different storage engines - InnoDB and MyISAM. In older versions of MySQL, MyISAM was the default storage engine, but from MySQL v5.5 onwards InnoDB is the default. As of Enterprise Architect v13, Sparx Systems will no longer provide updates to the MyISAM script and we recommend all users to choose InnoDB, as it supports transactions and UTF8.

Note: MySQL has a setting (*max\_allowed\_packet*) that sets a limit on the amount of data that can be returned by the database server. To avoid issues in the future this value needs to be larger than the largest record in your repository. How large will the largest record be? We can't advise on that - it depends on how you use Enterprise Architect. Typically the largest element items are embedded documents and images, or baselines of large Packages. It is not unusual for customers to require a *max\_allowed\_packet* of 128M or, in some environments, even larger than that.

Step	Action
1.1	Create a new empty database and configure it to your preferences, making sure to configure the correct character set and collation. The exact method you use to create the database is not important to this discussion, therefore use the most convenient or familiar method.  For example the MySQL SQL command to create a new database called 'ea1558' is: <pre>&gt; create schema `ea1558`;</pre>
1.2	Open your SQL management console of choice (such as MySQL Workbench) and connect to the new database.
1.3	Download <b>EASchema_1558_MySQL.sql</b> from the Sparx Systems <a href="#">website</a> and open it in your SQL management console of choice.
1.4	Run EASchema_1558_MySQL.sql to create the required database tables.

## 2. Set up Connection to MySQL repository

From Enterprise Architect version 16 there are now two different ways that Enterprise Architect can connect to MySQL repositories:

- via a Native connection (see [Native Connection to MySQL repository](#) for details), or
- via an ADO/ODBC connection (see [ODBC Connection to MySQL repository](#) for details)

Note: Sparx Systems recommend Native connections as they are much simpler and don't require any other software installed or configured.

### 3. Set up Initial Data

Enterprise Architect repositories require a basic amount of reference data to function correctly.




You can load this initial data in one of two different ways:

- Transfer the entire contents of an existing model into the new database, or
- Run initial data SQL Script

#### 3.1 Load Initial Data - Transfer Existing Model

If you choose to set up your new database with the contents of an existing model, then Sparx Systems recommend that a Project Integrity check is performed on the existing model to ensure it is 'clean' and free from data-related errors before being copied into the new database.

The Enterprise Architect installation provides a model called EABase.qea, which is copied into the installation folder specifically for the purpose of providing basic data for a new model. However, if you have customized the various drop-down lists in another model then you might prefer to use that. Regardless of what model you choose to use, the process is the same and is outlined here.

Step	Action
3.1.1	In Enterprise Architect, open the existing repository and select the 'Settings > Model > Integrity > Project Integrity' ribbon option.
3.1.2	In the 'Action' panel, select the 'Report Only' radio button, and in the 'Checks to Run' panel select all checkboxes. Click on the Go button.
3.1.3	If Enterprise Architect detects that the existing model contains integrity issues, they will be listed in the main panel at the bottom of the dialog. These issues should be resolved before continuing with the project transfer.
3.1.4	With Enterprise Architect open ensure that there is no project loaded, by clicking on the  button and selecting 'Close Project'.
3.1.5	Select the 'Settings > Model > Transfer > Full Project Transfer via Connection' ribbon option. The 'Project Transfer' dialog displays.
3.1.6	In the 'Transfer Type' panel, select 'File to DBMS'.
3.1.7	In the 'Source Project' field, click on the  button and browse for the name of the project file to copy to the repository. If the file has Replication enabled, this must be removed before performing the transfer.
3.1.8	At the right of the 'Target Project' field, click on the  button and select either: <ul style="list-style-type: none"> <li>• 'Native Connection' - the 'Open Server Connection' dialog displays (see the <a href="#">Native Connection to MySQL repository</a> Help topic for details), or</li> <li>• 'ODBC Connection Wizard' - The 'Datalink Properties' dialog displays (see the <a href="#">ODBC Connection to</a></li> </ul>

	<a href="#">MySQL repository</a> Help topic for details, in particular step <i>Connect to the Repository</i> )
3.1.9	If required, select the 'Logfile' checkbox and type a path and filename for the data transfer log file.
3.1.10	Click on the Transfer button to begin the data transfer process.
3.1.11	When the process is complete, you have created a project on a MySQL database and can now connect to it and open it from Enterprise Architect.

## 3.2 Load Initial Data - SQL Script

The Sparx Systems website provides a SQL Script that contains a series of INSERT statements that will load an empty database with all the data needed by Enterprise Architect.

Step	Action
3.2.1	Open your SQL management console of choice (such as MySQL Workbench), and connect to the new database.
3.2.2	Download the EABase_1558_MySQL.sql file from the Sparx Systems <a href="#">website</a> and open it in your SQL management console.
3.2.3	Run EABase_1558_MySQL.sql to load the required initial data.


## Native Connection to MySQL repository

In most installations users will be able to create native connections to MySQL database without the need to install or configure any other software.

### Prerequisites

- A MySQL database server
- An Enterprise Architect repository defined in the MySQL database server
- You know the database user credentials that have SELECT, INSERT, UPDATE, DELETE, EXECUTE and SHOW VIEW access permissions to the Enterprise Architect repository

### Access

Keyboard Shortcuts	Ctrl+O : Connect to Server
Other	Start Page   Server Connection (direct to 'Open Server Connection' dialog)    Open Project : Connect to Server Start Page : Manage Projects : Connect to Server

### Connect to Repository

1	In Enterprise Architect, open the 'Open Server Connection' screen ('Project list   Open Project : Connect to Server' ribbon option).
2	Select the MySQL option
3	Fill in the details of the database, including Server Name, Port, Database Name, Database User and Password
4	Click the [Test] button. A "Connection Successful" popup message should be displayed, including a summary of the server's version details.  If the connection is not successful, the message should include a hint or reason why it failed, the reason(s) listed will need to be corrected before continuing.
5	Once step 4 succeeds the OK button will be enabled, click [OK] to open the repository.

### Notes



- Connecting to DBMS based Repositories is available in the Corporate, Unified and Ultimate Editions of Enterprise Architect

# ODBC Connection to MySQL repository

In order for an Enterprise Architect client to open a MySQL repository using an ODBC connection, the client machine must have the MySQL ODBC driver installed and an ODBC DSN defined for the same architecture (32 or 64 bit) that Enterprise Architect uses.

For example, if you are using the 64 bit version of Enterprise Architect, then the client machine will need a 64 bit ODBC driver and 64 bit ODBC DSN, but if you are using the 32 bit version of Enterprise Architect then a 32 bit ODBC driver and DSN will be required.

## Prerequisites

- A MySQL database server
- An Enterprise Architect repository defined in the MySQL database server
- You know the database user credentials that have SELECT, INSERT, UPDATE, DELETE, EXECUTE and SHOW VIEW access permissions to the Enterprise Architect repository
- You know the architecture (32 or 64 bit) of your installed Enterprise Architect application

## Install the ODBC Driver

The ODBC driver will only need to be install once on each client machine, therefore if your machine already has the appropriate MySQL ODBC driver installed you can skip to the next step.

Step	Action
1	<p>Download the appropriate MySQL ODBC driver for your operating system and architecture (32 or 64 bit) of Enterprise Architect from the MySQL <a href="#">website</a>.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• Not all versions of MySQL ODBC driver function correctly with Enterprise Architect, see the <a href="#">Driver Issues</a> page for details of the versions that cause problems.</li></ul>
2	Run the MySQL ODBC driver installer, accepting the default values.

## Create ODBC DSN

A separate ODBC DSN must be created for each MySQL repository that the client wants to connect to.


A ODBC DSN is simply the details of the a database (server and database names, Port and user credentials), stored in the registry and given a unique name that allows applications (like Enterprise Architect) to easily connect to databases.

Step	Action
1	<p>The Windows Operating System includes 2 different versions of the ODBC administrative tool, one for 32 bit and the other for 64 bit applications. Therefore you need to open the 'Open Data Source Administrator' that corresponds to the architecture of your Enterprise Architect application. The easiest way to achieve this is to use Enterprise Architect's build-in ribbon option: 'Settings &gt; User Tools &gt; ODBC Data Sources'.</p> <p>The ODBC Data Source Administrator window displays.</p>
2	The DSN can be saved as either a User or System DSN, if you have administrator privileges on the local

	machine then we would suggest saving the DSN as a System DSN, otherwise your only option is to create a User DSN.
3	Click on the Add button. The 'Create New Data Source' dialog displays, enabling you to add a new DSN.
4	Select the appropriate MySQL ODBC Driver (usually 'MySQL ODBC x.x Unicode Driver') from the list.
5	Click on the Finish button. The 'MySQL Connector/ODBC' dialog displays.
6	Enter these configuration details: <ul style="list-style-type: none"> <li>• <b>Data Source Name:</b> (DSN), a unique name for the connection</li> <li>• <b>Description:</b> (optional) description of the DSN</li> <li>• <b>TCP/IP Server:</b> The host name or IP address of the MariaDB server</li> <li>• <b>Port:</b> The Port that the MariaDB server is listening to</li> <li>• <b>User and Password:</b> database user credentials</li> <li>• <b>Database:</b> The database name on the selected server</li> </ul>
7	To set the advanced options, click on the Details>> button.
8	Select these checkboxes (where provided): <ul style="list-style-type: none"> <li>• 'Return matched rows instead of affected rows' ('Connection' or 'Cursors/Results' tab)</li> <li>• 'Allow big result sets' ('Connection' tab)</li> </ul>
9	Click on the Test Connection button to confirm that the details are correct.
10	If the test succeeds, click on the OK button to complete the configuration. If the test does not succeed, review your settings.

## Connect to the Repository

Once the ODBC driver is installed and ODBC DSN defined on an individual machine, the Enterprise Architect client can open the repository using these steps:

Step	Action
1	Open the 'Data Link Properties' dialog using one of these methods: <ul style="list-style-type: none"> <li>• Keyboard Shortcut: Ctrl+O : Connect to Server</li> <li>• Start Page   Server Connection (direct to 'Open Server Connection' dialog)</li> <li>•    Open Project : Connect to Server</li> <li>• Start Page : Manage Projects : Connect to Server</li> </ul>
2	On the Provider tab select 'Microsoft OLE DB Provider for ODBC Drivers', click [Next >>]
3	Select the ODBC DSN in the 'Use data source name' combo, click Test Connection.

4	Once step 3 is successful, click [OK] to open the repository. If the test does not succeed, review your settings.
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## Notes

- Connecting to DBMS based Repositories is available in the Enterprise Architect Corporate, Unified and Ultimate Editions

# Create a Project in an Oracle Database

To create a project in an Oracle repository, you work through these stages:

- Stage 1: Create a database user to own the Enterprise Architect tables
- Stage 2: Setup up a connection to the repository
- Stage 3: Load initial data

## Prerequisites

- A machine with Oracle 9i or higher installed and running
- Oracle Client installed on the client machine; if you are not using the Native Connection, please ensure that the OLE DB drivers are installed (you can download the drivers from the Oracle Technology Network web site, as part of the Oracle Data Access Components (ODAC) package; see *Learn more*)

## 1. Create Database Repository

Step	Action
1.1	Create an Oracle database user to own the Enterprise Architect table and configure it to your preferences, making sure to configure the correct character set and collation. The exact method you use to create the database is not important to this discussion, therefore use the most convenient or familiar method.
1.2	Open your SQL management console of choice (such as Oracle SQL Developer) and connect to the new Enterprise Architect repository.
1.3	Download <b>EASchema_1558_Oracle.sql</b> file from the Sparx Systems <a href="#">website</a> and open it in your SQL management console.
1.4	Run EASchema_1558_Oracle.sql to create the required database tables.

## 2. Set up Connection to Oracle repository

From Enterprise Architect version 16 there is now a third ways that Enterprise Architect can connect to Oracle repositories:

- via a Native connection (see [Native Connection to Oracle Repository](#) for details), or
- via an ADO/OLEDB connection (see [OLE DB Connection to Oracle Repository](#) for details)
- via an ADO/ODBC connection (see [ODBC Connection to Oracle Repository](#) for details)

Note: Sparx Systems recommend Native connections as they are much simpler and don't require any other software installed or configured.

## 3. Load Initial Data

Enterprise Architect repositories require a basic amount of reference data to function correctly.




You can set up this initial data in one of two different ways:

- Transfer the entire contents of an existing model into the new database, or
- Run initial data SQL Script

### 3.1 Load Initial Data - Transfer Existing Model

If you choose to set up your new database with the contents of an existing model then Sparx Systems recommend that a Project Integrity check is performed on the existing model to ensure it is 'clean' and free from data-related errors before being copied into the new database.

The Enterprise Architect installation provides a model called EABase.qea, which is copied into the installation folder specifically for the purpose of providing basic data for a new model. However, if you have customized the various drop-down lists in another model then you might prefer to use that. Regardless of what model you choose to use, the process is the same and is outlined here.

Step	Action
3.1.1	In Enterprise Architect, open the existing repository and select 'Settings > Model > Integrity > Project Integrity' in the ribbon.
3.1.2	Ensure that the 'Action' panel is set to 'Report Only' and that all items in 'Checks to Run' are enabled, then click on the Go button.
3.1.3	If Enterprise Architect detects that the existing model contains integrity issues, they will be listed in the main panel at the bottom of the dialog. These issues should be resolved before continuing with the project transfer.
3.1.4	With Enterprise Architect open, ensure that it there is no project loaded, by selecting 'Close Project' from the  button.
3.1.5	Select the 'Settings > Model > Transfer > Full Project Transfer via Connection' ribbon option. The 'Project Transfer' dialog displays.
3.1.6	In the 'Transfer Type' panel, select 'File to DBMS'.
3.1.7	At the right of the 'Source Project' field, click on the  button and browse for the name of the project file to copy to Oracle. If the .QEA file has Replication enabled, this must be removed before performing the transfer.
3.1.8	At the right of the 'Target Project' field, click on the  button and select either: <ul style="list-style-type: none"> <li>• 'Native Connection' - the 'Open Server Connection' dialog displays (see the <i>Native Connection to Oracle repository</i> Help topic, then resume at step 3.1.13), or, if using the ODBC DSN</li> <li>• 'ODBC Connection Wizard' - The 'Datalink Properties' dialog displays (see the <i>OLEDDB Connection to Oracle repository</i> Help topic for details, in particular step Connect to the Repository)</li> <li>• 'ODBC Connection Wizard' - The 'Datalink Properties' dialog displays (see the <i>ODBC Connection to Oracle repository</i> Help topic for details, in particular step Connect to the Repository)</li> </ul>
3.1.9	If required, select the 'Logfile' checkbox and type a path and filename for the data transfer log file.
3.1.1	Click on the Transfer button to begin the data transfer process.

0	
3.1.1 1	When the process is complete, you have created a project on an Oracle database and can now connect to it and open it from Enterprise Architect.

## 3.2. Load Initial Data - SQL Script

Step	Action
3.2.1	Open your SQL management console of choice (such as SQL Developer) and log in as the owner of the newly created Enterprise Architect repository.
3.2.2	Download the EABase_1558_Oracle.sql file from the Sparx Systems <a href="#">website</a> and open it in your SQL management console.
3.2.3	Run EABase_1558_Oracle.sql to load the required initial data.

## Notes

- When transferring a project to Oracle you must have access rights to execute the CREATE SEQUENCE command


# Native Connection to Oracle Repository

In most installations users will be able to create native connections to Oracle repositories without the need to install or configure any other software.

## Prerequisites

- An Oracle database server
- An Enterprise Architect repository defined in the Oracle database server
- You know the database user credentials that have SELECT, INSERT, UPDATE, DELETE, and EXECUTE access permissions to the Enterprise Architect repository

## Access

Keyboard Shortcuts	Ctrl+O : Connect to Server
Other	Start Page   Server Connection (direct to 'Open Server Connection' dialog)    Open Project : Connect to Server Start Page : Manage Projects : Connect to Server

## Connect to Repository

Step	Action
1	In Enterprise Architect, open the 'Open Server Connection' screen ('Project list   Open Project : Connect to Server' ribbon option).
2	Select the Oracle option
3	Fill in the details of the repository, including: <ul style="list-style-type: none"> <li>• <b>Server Name:</b> The host name or IP address of the Oracle server</li> <li>• <b>Database Name:</b> The database name on the selected server (in more recent versions of Oracle, call the pluggable database)</li> <li>• <b>Port:</b> The Port that the Oracle server is listening to</li> <li>• <b>User and Password:</b> database user credentials</li> </ul>
4	Click the [Test] button. A "Connection Successful" popup message should be displayed, including a summary of the server's version details. If the connection is not successful, the message should include a hint or reason why it failed, the reason(s) listed will need to be corrected before continuing. Note - Minimum requirements are: <ul style="list-style-type: none"> <li>• <b>Windows 8</b> (earlier versions doesn't support the underlying database driver, if you require</li> </ul>



	connectivity from Windows 7 then you will need to use OLEDB or ODBC)
5	Once step 4 succeeds the OK button will be enabled, click [OK] to open the repository.

## Notes

- Connecting to DBMS based Repositories is available in the Corporate, Unified and Ultimate Editions of Enterprise Architect

## OLE DB Connection to Oracle Repository


In order for an Enterprise Architect client to open an Oracle repository using an OLE DB connection, the client machine must have the Oracle client (including the OLE DB driver) installed for the same architecture (32 or 64 bit) that Enterprise Architect uses.

For example, if you are using the 64 bit version of Enterprise Architect, then the client machine will need a 64 bit OLE DB driver, but if you are using the 32 bit version of Enterprise Architect then a 32 OLE DB driver will be required.

### Prerequisites

- An Oracle database server
- An Enterprise Architect repository defined in the Oracle database server
- You know the database user credentials that have SELECT, INSERT, UPDATE, DELETE, EXECUTE access permissions to the Enterprise Architect repository
- Oracle Client already installed on the client machine; please ensure that the OLE DB drivers are installed (you can download the drivers from the Oracle Technology Network web site, as part of the Oracle Data Access Components (ODAC) package - see *Learn more*)

### Access

Keyboard Shortcuts	Ctrl+O : Connect to Server drop-down arrow : ODBC Connection Wizard
Other	 : Open Project : Connect to Server drop-down arrow : ODBC Connection Wizard Start Page : Manage Projects : Connect to Server drop-down arrow : ODBC Connection Wizard

### Install the OLE DB Driver

The OLE DB driver will only need to be install once on each client machine, therefore if your machine already has the appropriate Oracle client (and OLE DB driver) installed you can skip to the next step.

Step	Action
1	Download the appropriate Oracle instant client for your operating system and architecture (32 or 64 bit) of Enterprise Architect from the Oracle <a href="#">website</a> . Note: <ul style="list-style-type: none"> <li>• Installing and configuring the Oracle instant client is not a trivial task, therefore it is best to involve people with previous experience performing this task. Unfortunately Sparx Systems can not provide support for another vendors software.</li> </ul>
2	Run the Oracle Instant Client installer, making sure to include the Oracle OLE DB driver component, and perform all client configuration necessary for applications to make use of this driver.

## Connect to the Repository

Step	Action
1	<p>In the 'Open Project' dialog, select the 'ODBC Connection Wizard' option available under the Connect to Server drop down.</p> <p>The Data Link Properties screen is shown</p>
2	<p>Select <b>Oracle Provider for OLE DB</b> from the list on the Provider tab.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• <b>Do not</b> select 'Microsoft OLE DB Provider for Oracle', it will not function correctly.</li></ul>
3	<p>Click on the Next&gt;&gt; button.</p> <p>The 'Connection' tab displays.</p>
4	<p>In the 'Data source' field, enter Oracle service name (as defined in your TNSNAMES.ORA) of your database.</p>
5	<p>Enter the owner credentials of the Oracle repository (ie. user name and password), check the <i>Allow saving password</i> option.</p>
6	<p>Click on the Test Connection button to confirm that the details are correct.</p>
7	<p>If the test does not succeed, revise your settings.</p> <p>If the test succeeds, click on the OK button.</p>
8	<p>Depending on how the connection to Oracle process was started, the 'Connection Name &amp; Type' dialog might be displayed; if so, fill in the Name and - if required - check the 'Encrypt Connection String' option.</p> <p>The Name entered will be the value displayed on the 'Recent Projects' panel on the 'Open Project' dialog, while the 'Encrypt Connection string' option hides the connection details of the database, which is useful for keeping the details secret when you share the connection string with other users.</p>

## Notes

- Connecting to DBMS based Repositories is available in the Corporate, Unified and Ultimate Editions
- Enterprise Architect only supports the official Oracle OLE DB driver and not the 'Microsoft OLE DB Provider for Oracle' driver that comes with Windows

## ODBC Connection to Oracle Repository


In order for an Enterprise Architect client to open an Oracle repository using an ODBC connection, the client machine must have the Oracle client (including the ODBC driver) installed and an ODBC DSN defined for the same architecture (32 or 64 bit) that Enterprise Architect uses.

For example, if you are using the 64 bit version of Enterprise Architect, then the client machine will need a 64 bit ODBC driver and 64 bit ODBC DSN, but if you are using the 32 bit version of Enterprise Architect then a 32 ODBC driver and DSN will be required.

### Prerequisites

- An Oracle database server
- An Enterprise Architect repository defined in the Oracle database server
- You know the database user credentials that have SELECT, INSERT, UPDATE, DELETE, EXECUTE access permissions to the Enterprise Architect repository
- Oracle Client already installed on the client machine; please ensure that the OLE DB drivers are installed (you can download the drivers from the Oracle Technology Network web site, as part of the Oracle Data Access Components (ODAC) package - see *Learn more*)

### Access

Keyboard Shortcuts	Ctrl+O : Connect to Server drop-down arrow : ODBC Connection Wizard
Other	 : Open Project : Connect to Server drop-down arrow : ODBC Connection Wizard Start Page : Manage Projects : Connect to Server drop-down arrow : ODBC Connection Wizard

### Install the ODBC Driver

The ODBC driver will only need to be install once on each client machine, therefore if your machine already has the appropriate Oracle client (and ODBC driver) installed you can skip to the next step.

Step	Action
1	Download the appropriate Oracle instant client for your operating system and architecture (32 or 64 bit) of Enterprise Architect from the Oracle <a href="#">website</a> . Note: <ul style="list-style-type: none"> <li>• Installing and configuring the Oracle instant client is not a trivial task, therefore it is best to involve people with previous experience performing this task. Unfortunately Sparx Systems can not provide support for another vendors software.</li> </ul>
2	Run the Oracle Instant Client installer, making sure to include the Oracle ODBC driver component, and perform all client configuration necessary for applications to make use of this driver.

## Create ODBC DSN


A separate ODBC DSN must be created for each Oracle repository that the client wants to connect to.

An ODBC DSN is simply the details of the database (server and database names, Port and user credentials), stored in the registry and given a unique name that allows applications (like Enterprise Architect) to easily connect to databases.

Step	Action
1	The Windows Operating System includes 2 different versions of the ODBC administrative tool, one for 32 bit and the other for 64 bit applications. Therefore you need to open the 'Open Data Source Administrator' that corresponds to the architecture of your Enterprise Architect application. The easiest way to achieve this is to use Enterprise Architect's build-in ribbon option: 'Settings > User Tools > ODBC Data Sources'. The ODBC Data Source Administrator window displays.
2	Click on the Add button. The 'Create New Data Source' dialog displays, enabling you to add a new DSN.
3	Select the appropriate Oracle ODBC Driver from the list.
4	Click on the Finish button. The ' <i>Oracle ODBC Driver Configuration</i> ' dialog is displayed.
5	Enter these configuration details: <ul style="list-style-type: none"> <li>• <b>Data Source Name:</b> (DSN), a unique name for the connection</li> <li>• <b>Description:</b> (optional) description of the DSN</li> <li>• <b>TNS Service Name:</b> The Oracle service name (as defined in the TNSNAMES.ORA) of the Oracle database</li> <li>• <b>User ID:</b> the database owner of repository</li> </ul>
6	Click [Test Connection] button, you will then be prompted for the User's password, enter the Password and click [OK] to confirm that the details are correct.
7	If the test succeeds, click on the OK button to complete the configuration. If the test does not succeed, review your settings.

## Connect to the Repository

Once the ODBC driver is installed and ODBC DSN defined on an individual machine the Enterprise Architect client can open the repository according to these steps:

Step	Action
1	Open the 'Data Link Properties' dialog using one of these methods: Keyboard Shortcut: Ctrl+O : Connect to Server Start Page   Server Connection (direct to 'Open Server Connection' dialog)    Open Project : Connect to Server

	Start Page : Manage Projects : Connect to Server
2	On the Provider tab select 'Microsoft OLE DB Provider for ODBC Drivers', click [Next >>]
3	Select the ODBC DSN in the ' <i>Use data source name</i> ' combo, click Test Connection.
4	Once step 3 is successful, click [OK] to open the repository. If the test does not succeed, review your settings.

## Notes

- Connecting to DBMS based Repositories is available in the Corporate, Unified and Ultimate Editions
- As a general rule Sparx Systems usually recommends the use of the Oracle OLE DB driver over the Oracle ODBC driver due to better performance

# Create a Project in a PostgreSQL Database

To create a project in a repository on PostgreSQL, you work through these stages:

- Stage 1: Create a database and tables
- Stage 2: Set up a connection to the database
- Stage 3: Load initial data

## Prerequisites

- A machine with PostgreSQL Server v9 or higher installed and running
- psqLODBC, version 8.03 or higher has been installed (do not use version 8.3.4 or 8.4.1)

## 1. Create a PostgreSQL database and tables

Step	Action
1.1	Create a new empty database and configure it to your preferences, making sure to configure the correct character set and collation. The exact method you use to create the database is not important to this discussion, therefore use the most convenient or familiar method.
1.2	Open your SQL management console of choice (such as pgAdmin) and connect to the new database.
1.3	Download the <b>EASchema_1558_PostgreSQL.sql</b> file from the Sparx Systems <a href="#">website</a> and open it in your SQL management console.
1.4	Run the EASchema_1558_PostgreSQL.sql to create the required database tables.

## 2. Set up Connection to PostgreSQL repository

From Enterprise Architect version 16 there are now two different ways that Enterprise Architect can connect to MariaDB repositories:

- via a Native connection (see [Native Connection to PostgreSQL repository](#) for details), or
- via an ADO/ODBC connection (see [ODBC Connection to PostgreSQL repository](#) for details)

Note: Sparx Systems recommend Native connections as they are much simpler and don't require any other software installed or configured.

## 3. Load Initial Data

Enterprise Architect repositories require a basic amount of reference data to function correctly.



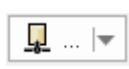
You can set up this initial data in one of two different ways:

- Transfer the entire contents of an existing model into the new database, or
- Run initial data SQL Script

### 3.1 Load Initial Data - Transfer Existing Model

If you choose to set up your new database with the contents of an existing model then Sparx Systems recommend that a Project Integrity check is performed on the existing model to ensure it is 'clean' and free from data-related errors before being copied into the new database.

The Enterprise Architect installation provides a model called EABase.qea, which is copied into the installation folder specifically for the purpose of providing basic data for a new model. However, if you have customized the various drop-down lists in another model then you might prefer to use that. Regardless of what model you choose to use, the process is the same and is outlined here.

Step	Action
3.1.1	In Enterprise Architect, open the existing repository and select 'Settings > Model > Integrity > Project Integrity' in the ribbon.
3.1.2	Ensure that the 'Action' panel is set to 'Report Only' and that all items in 'Checks to Run' are enabled, then click on the Go button.
3.1.3	If Enterprise Architect detects that the existing model contains integrity issues then it will list them in the main panel at the bottom of the dialog. These issues should be resolved before continuing with the project transfer.
3.1.4	With Enterprise Architect open, ensure that there is no project loaded, by selecting 'Close Project' from the  button.
3.1.5	Select the 'Settings > Model > Transfer > Full Project Transfer via Connection' ribbon option. The 'Project Transfer' dialog displays.
3.1.6	In the 'Transfer Type' panel, select 'File to DBMS'.
3.1.7	In the 'Source Project' field, click on the  button and browse for the name of the project file to copy to the repository. If the .EAP file has Replication enabled, this must be removed before performing the transfer.
3.1.8	At the right of the 'Target Project' field, click on the  button and select either: <ul style="list-style-type: none"> <li>'Native Connection' - the 'Open Server Connection' dialog displays (see the <a href="#">Native Connection to PostgreSQL repository</a> Help topic for details), or</li> <li>'ODBC Connection Wizard' - The 'Datalink Properties' dialog displays (see the <a href="#">ODBC Connection to PostgreSQL repository</a> Help topic for details, in particular step <i>Connect to the Repository</i>)</li> </ul>
3.1.9	If required, select the 'Logfile' checkbox and type a path and filename for the data transfer log file.
3.1.10	Click on the Transfer button to begin the data transfer process.
3.1.11	When the process is complete, you have created a project on a PostgreSQL database and can now connect to it and open it from Enterprise Architect. Note: <ul style="list-style-type: none"> <li>During the transfer, if an error message displays reporting '...nonstandard use of \\ in a string literal...',</li> </ul>



	<p>then the server variable (in the postgresql.conf file) will need to get set as shown and the transfer re-run:</p> <p><code>escape_string_warning = off</code></p>
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### 3.2 Load Initial Data - SQL Script

Step	Action
3.2.1	Open your SQL management console of choice (such as pgAdmin) and connect to the new database.
3.2.2	Download the EABase_1558_PostgreSQL.sql file from the Sparx Systems <a href="#">website</a> and open it in your SQL management console.
3.2.3	Run EABase_1558_PostgreSQL.sql to load the required initial data.


# Native Connection to PostgreSQL repository

In most installations users will be able to create native connections to PostgreSQL database without the need to install or configure any other software.

## Prerequisites

- A PostgreSQL database server (v9 or later)
- An Enterprise Architect repository defined in the PostgreSQL database server
- You know the database user credentials that have SELECT, INSERT, UPDATE, DELETE, EXECUTE access permissions to the Enterprise Architect repository

## Access

Keyboard Shortcuts	Ctrl+O : Connect to Server
Other	Start Page   Server Connection (direct to 'Open Server Connection' dialog)    Open Project : Connect to Server Start Page : Manage Projects : Connect to Server

## Connect to Repository

Step	Action
1	In Enterprise Architect, open the 'Open Server Connection' screen ('Project list   Open Project : Connect to Server' ribbon option).
2	Select the PostgreSQL option
3	Fill in the details of the database, including Server Name, Port, Database Name, Database User and Password
4	Click the [Test] button. A "Connection Successful" popup message should be displayed, including a summary of the server's version details. If the connection is not successful, the message should include a hint or reason why it failed, the reason(s) listed will need to be corrected before continuing.
5	Once step 4 succeeds the OK button will be enabled, click [OK] to open the repository.

## Notes

- Connecting to DBMS based Repositories is available in the Corporate, Unified and Ultimate Editions of Enterprise Architect

# ODBC Connection to PostgreSQL repository

In order for an Enterprise Architect client to open a PostgreSQL repository using an ODBC connection, the client machine must have the PostgreSQL ODBC driver installed and an ODBC DSN defined for the same architecture (32 or 64 bit) that Enterprise Architect uses.

For example, if you are using the 64 bit version of Enterprise Architect, then the client machine will need a 64 bit ODBC driver and 64 bit ODBC DSN, but if you are using the 32 bit version of Enterprise Architect then a 32 ODBC driver and DSN will be required.

## Prerequisites

- A PostgreSQL database server
- An Enterprise Architect repository defined in the PostgreSQL
- You know the database user credentials that have SELECT, INSERT, UPDATE, DELETE, EXECUTE access permissions to the Enterprise Architect repository
- You know the architecture (32 or 64 bit) of your installed Enterprise Architect application

## Install the ODBC Driver

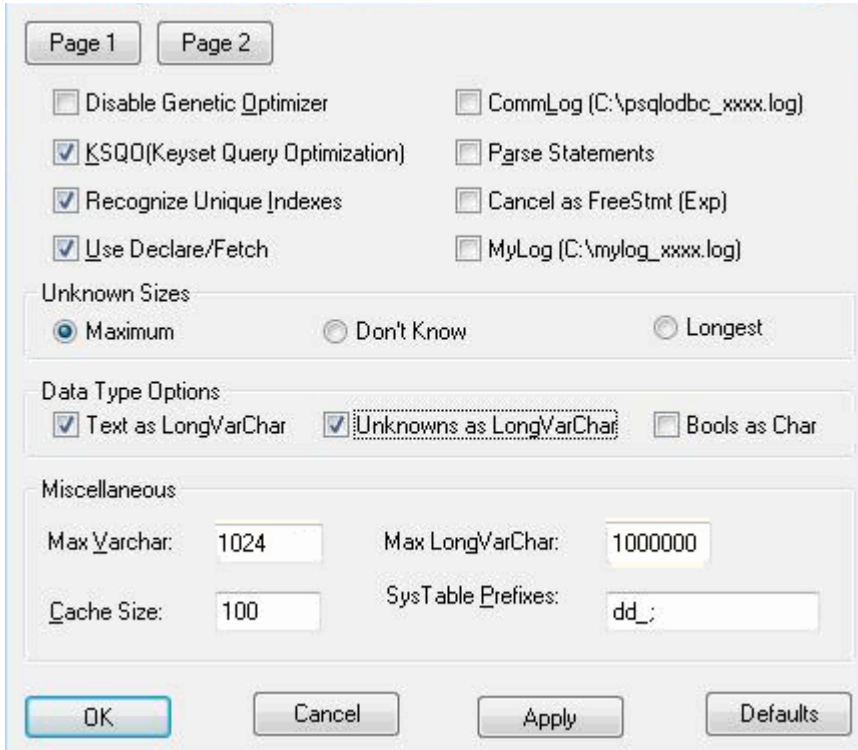
Step	Action
1	<p>Download the appropriate PostgreSQL ODBC driver (psqlODBC) for your operating system and architecture (32 or 64 bit) of Enterprise Architect from the PostgreSQL <a href="#">website</a>.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• Not all versions of PostgreSQL ODBC driver function correctly with Enterprise Architect, see the <a href="#">Driver Issues</a> page for details of the versions that cause problems.</li></ul>
2	<p>Run the PostgreSQL driver installer, accepting the default values.</p>

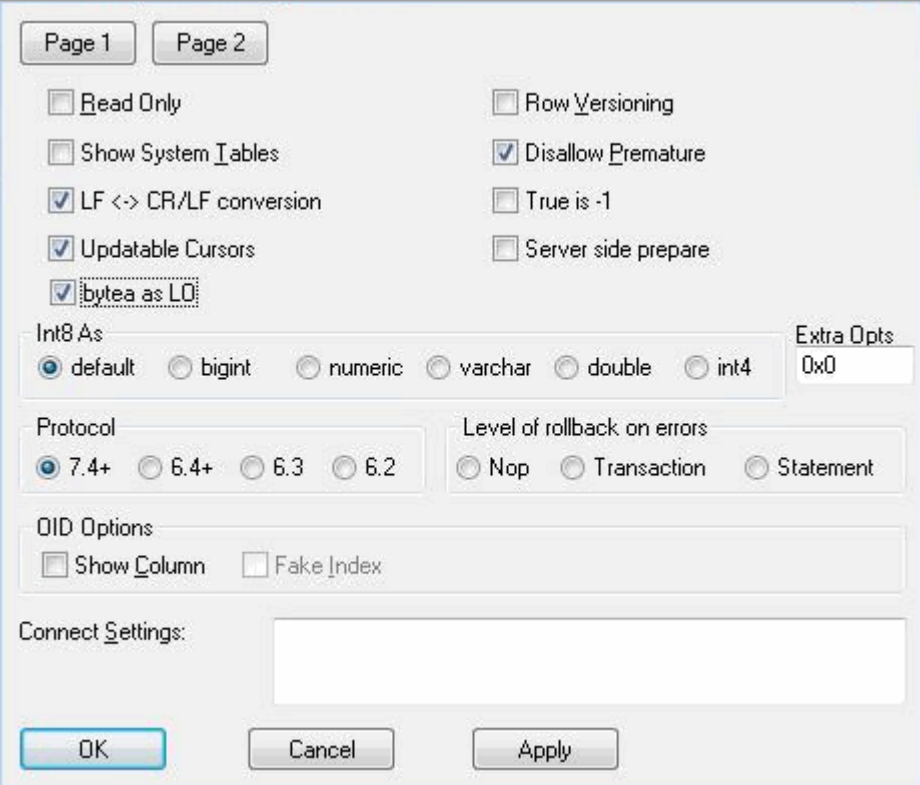
## Create ODBC DSN

A separate ODBC DSN must be created for each PostgreSQL repository that the client wants to connect to.

A ODBC DSN is simply the details of the a database (server and database names, Port and user credentials), stored in the registry and given a unique name that allows applications (like Enterprise Architect) to easily connect to databases.


Step	Action
1	<p>The Windows Operating System includes 2 different versions of the ODBC administrative tool, one for 32 bit and the other for 64 bit applications. Therefore you need to open the 'Open Data Source Administrator' that corresponds to the architecture of your Enterprise Architect application. The easiest way to achieve this is to use Enterprise Architect's build-in ribbon option: 'Settings &gt; User Tools &gt; ODBC Data Sources'.</p> <p>The ODBC Data Source Administrator window displays.</p>
2	<p>The DSN can be saved as either a User or System DSN, if you have administrator privileges on the local machine then we would suggest saving the DSN as a System DSN, otherwise your only option is to create a User DSN.</p>

3	Click on the Add button. The 'Create New Data Source' dialog displays, enabling you to add a new DSN.
4	Select 'PostgreSQL UNICODE' from the list.
5	Click on the Finish button. The 'Postgre SQL Connector/ODBC' dialog displays.
6	Enter these configuration details: <ul style="list-style-type: none"> <li>• <b>Data Source:</b> a unique name for the connection</li> <li>• <b>Description:</b> (optional) description of the DSN</li> <li>• <b>Database:</b> The database name on the selected server</li> <li>• <b>Server:</b> The host name or IP address of the MariaDB server</li> <li>• <b>Port:</b> The Port that the PostgreSQL server is listening to</li> <li>• <b>User and Password:</b> database user credentials</li> </ul>
7	<p>To set the advanced options, click on the Datasource button and set the options on 'Page 1' as shown:</p>  <p>Note: From version 9.5.4 onwards some options shown in this image are no longer available and can be ignored.</p>
8	If you are using a version of PostgreSQL between 8 and 9.5.4, set the options on Page 2 as shown:

	 <ul style="list-style-type: none"> <li>• The 'Disallow Premature' checkbox should be checked</li> <li>• In the 'Protocol' panel, the '7.4+' radio button should be selected</li> </ul> <p>Note: From version 9.5.4 onwards the two options are no longer available and can be ignored.</p>
9	Click on the OK button to close the Advanced Options screen.
10	Click Test and if successful, click on the OK button to complete the configuration. If the test does not succeed, review your settings.

## Connect to the Repository

Once the ODBC driver is installed and ODBC DSN defined on an individual machine, the Enterprise Architect client can open the repository using these steps:

Step	Action
1	Open the 'Data Link Properties' dialog using one of these methods: <ul style="list-style-type: none"> <li>• Keyboard Shortcut: Ctrl+O : Connect to Server</li> <li>• Start Page   Server Connection (direct to 'Open Server Connection' dialog)</li> <li>•    Open Project : Connect to Server</li> <li>• Start Page : Manage Projects : Connect to Server</li> </ul>
2	On the Provider tab select 'Microsoft OLE DB Provider for ODBC Drivers', click [Next >>]
3	Select the ODBC DSN in the 'Use data source name' combo, click Test Connection.

4	Once step 3 is successful, click [OK] to open the repository. If the test does not succeed, review your settings.
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## Notes

- Connecting to DBMS based Repositories is available in the Enterprise Architect Corporate, Unified and Ultimate Editions

# Create a Project in a SQL Server Database

To create a project on a repository in SQL Server 2005 and above, or SQL Server Express 2005 and above, work through these stages:

- Stage 1: Create a database and tables
- Stage 2: Set up a connection to the database
- Stage 3: Set up initial model data

## Prerequisites

- A machine with SQL Server installed and running
- MDAC 2.6 or higher on the client machine
- Permissions to create databases on SQL Server (see the *SQL Server Security Permissions* Help topic)
- ALTER permission on the t\_image table in Enterprise Architect, to be able to import model images

## 1. Create a SQL Server database and tables

Step	Action
1.1	<p>Create a new empty database and configure it to your preferences, making sure to configure the correct character set and collation. The exact method you use to create the database is not important to this discussion, therefore use the most convenient or familiar method.</p> <p>As an example Microsoft's SQL Server Management Studio could be used:</p> <ul style="list-style-type: none"><li>• In SQL Server Management Studio, locate the server on which to create your new database (such as DBSERVER02\SQLEXPRESS) and login with administrator privileges.</li><li>• On the Databases folder, right-click and choose the 'New Database' option.</li><li>• Enter a suitable name for the database and set any options as required, including the character set and collation.</li><li>• Click OK to create the database</li></ul>
1.2	<p>If not already open your SQL management console of choice (such as Microsoft SQL Server Management Studio) and connect to the new database.</p>
1.3	<p>Download the <b>EASchema_1558_SQLServer.sql</b> file from the Sparx Systems <a href="#">website</a> and open it in the SQL management console.</p>
1.4	<p>Run EASchema_1558_SQLServer.sql to create the required database schema.</p>
1.5	<p>If your Enterprise Architect user base are all using v14 or greater then we would suggest applying the optional schema update that removes the need for users to have an elevated level of permissions in the database when importing images. To achieve this:</p> <p>Download the <b>EASchema_1558_SQLServer_Update1.sql</b> file from the Sparx Systems <a href="#">website</a> and open it in the SQL management console and run it.</p>



## 2. Set up Connection to the SQL Server repository

From Enterprise Architect version 16 there are now two different ways that Enterprise Architect can connect to SQL Server repositories:

- via a Native connection (see [Native Connection to SQL Server Repository](#) for details), or
- via an ADO/OLEDB connection (see [OLE DB Connection to SQL Server Repository](#) for details)

Note: Sparx Systems recommend Native connections as they are much simpler and don't require any other software installed or configured.

## 3. Set up Initial Data

Enterprise Architect repositories require a basic amount of reference data to function correctly.



You can set up this initial data in one of two different ways:


- Transfer the entire contents of an existing model into the new database, or
- Load initial data using a SQL Script

### 3.1 Load Initial Data - Transfer existing model

If you choose to set up your new database with the contents of an existing model then Sparx Systems recommend that a Project Integrity check is performed on the existing model to ensure it is 'clean' and free from data-related errors before being copied into the new database.

The Enterprise Architect installation provides a model called EABase.qea, which is copied into the installation folder specifically for the purpose of providing basic data for a new model. However, if you have customized the various drop-down lists in another model then you might prefer to use that. Regardless of what model you choose to use, the process is the same and is outlined here.

Step	Action
3.1.1	In Enterprise Architect, open the existing repository and select 'Settings > Model > Integrity > Project Integrity' in the ribbon.
3.1.2	Ensure that the 'Action' panel is set to 'Report Only' and that all items in 'Checks to Run' are enabled, then click on the Go button.
3.1.3	If Enterprise Architect detects that the existing model contains integrity issues, they will be listed in the main panel at the bottom of the dialog. These issues should be resolved before continuing with the project transfer.
3.1.4	With Enterprise Architect open, ensure that there is no project loaded, by selecting 'Close Project' from the  button.
3.1.5	Select the 'Settings > Model > Transfer > Full Project Transfer via Connection' ribbon option. The 'Project Transfer' dialog displays.
3.1.6	In the 'Transfer Type' panel, select 'File to DBMS'.
3.1.7	In the 'Source Project' field, click on the  button and browse for and select the name of the project file to copy to the repository.

	If the .QEA file has Replication enabled, this must be removed before performing the transfer.
3.1.8	<p>At the right of the 'Target Project' field, click on the  button and select either:</p> <ul style="list-style-type: none"> <li>'Native Connection' - the 'Open Server Connection' dialog displays (see the <a href="#">Native Connection to SQL Server Repository</a> Help topic for details), or</li> <li>'ODBC Connection Wizard' - The 'Datalink Properties' dialog displays (see the <a href="#">OLE DB Connection to SQL Server Repository</a> Help topic for details, in particular step Connect to the Repository)</li> </ul>
3.1.9	If required, select the 'Logfile' checkbox and type a path and filename for the data transfer log file.
3.1.10	Click on the Transfer button to begin the data transfer process.
3.1.11	When the process is complete, you have created a project on a SQL Server database and can now connect to it and open it from Enterprise Architect.

## 3.2 Load Initial Data - SQL Script

The Sparx Systems website provides a SQL Script that contains a series of INSERT statements that will load an empty database with all the data needed by Enterprise Architect.

Step	Action
3.2.1	Open your SQL management console of choice (such as Microsoft SQL Server Management Studio), and connect to the new database.
3.2.2	Download the EABase_1558_SQLServer.sql file from the Sparx Systems <a href="#">website</a> and open it in your SQL management console.
3.2.3	Run EABase_1558_SQLServer.sql to load the required initial data.

# Create a SQL Server Repository

Creating a SQL Server database is fully documented in the product information provided with your SQL Server installer.

There are many ways to create a new SQL Server database. A common method is to use an SQL-based Management Console such as Microsoft SQL Server Management Studio, which provides a convenient graphical user interface to create databases, execute scripts, and perform backups and restores. However, the exact method used is not important to this discussion, and you can use the most convenient or familiar method at your disposal.

Having created your SQL Server database, use the SQL script provided by Sparx Systems to create the required table definitions for Enterprise Architect. The latest EASchema\_XXXX\_SQLServer.sql script (where XXXX represents the latest schema version) is freely available on the [DBMS Based Repositories](#) page on the Sparx Systems website.

## SQL Server Management Studio example

Step	Action
1	In SQL Server Management Studio, locate the server on which to create your new repository (such as DBSERVER02\SQLEXPRESS) and login with administrator privileges.
2	Right-click and choose the 'New Database' option.
3	Enter a suitable name for the database. Set any file options as required. Ensure that the database collation is set to the alphabet you use, such as Latin or Cyrillic, and case-insensitive.
4	Click on the database to select it, then select the 'New Query' menu option.
5	In the Query window, use the 'Open File' dialog to locate the EASchema_1220_SQLServer.sql script file.
6	Click on the Open button. In the drop-down menu, check that you have selected the correct database to run the script in.
7	Click on the Execute button; SQL Server executes the script, which creates the base tables for an Enterprise Architect project.

## Notes

- You should have ALTER permission on the t\_image table in Enterprise Architect, to be able to import model images
- When creating a project in a SQL Server database you must have 'db\_ddladmin' permission in order to execute the SET IDENTITY\_INSERT (table) {ON | OFF} command


# Native Connection to SQL Server Repository

In most installations users will be able to create native connections to SQL Server databases without the need to install or configure any other software.

## Prerequisites

- A SQL Server database server
- An Enterprise Architect repository defined in the SQL Server database server
- You know the database user credentials that have SELECT, INSERT, UPDATE, DELETE, EXECUTE and SHOW VIEW access permissions to the Enterprise Architect repository

## Access

Keyboard Shortcuts	Ctrl+O : Connect to Server
Other	Start Page   Server Connection (direct to 'Open Server Connection' dialog)    Open Project : Connect to Server Start Page : Manage Projects : Connect to Server

## Connect to Repository

Step	Action
1	In Enterprise Architect, open the 'Open Server Connection' screen ('Project list   Open Project : Connect to Server' ribbon option).
2	Select the SQL Server option
3	Fill in the details of the database, including Server Name, Port, Database Name and optionally Database User and Password. Note: to use Windows Authentication (or Integrated Authentication) simply leave both the User and Password fields empty. Entering a User and Password will imply that the connection will use SQL Server Authentication.
4	Enterprise Architect Native connection to SQL Server has the ability to make use of either the OLEDB or ODBC drivers, the option you choose will depend on the drivers installed on your machine The <i>Use strong encryption for data</i> and <i>Trust server certificate</i> extended options are only visible for the OLEDB driver type and relate to how the underlying database driver will communication to the database server.
5	Click the [Test] button. A "Connection Successful" popup message should be displayed, including a summary of the server's version details. If the connection is not successful, the message should include a hint or reason why it failed, the reason(s)

	<p>listed will need to be corrected before continuing.</p> <p>Note:</p> <p>Minimum requirements:</p> <ul style="list-style-type: none"><li>• <b>Windows 7 SP1</b></li><li>• <b>KB3140245</b> (for TLS defaults)</li><li>• <b>KB4474419</b> (for SHA-2 support)</li><li>• <b>KB4490628</b> (for SHA-2 support)</li></ul>
6	Once step 5 succeeds the OK button will be enabled, click [OK] to open the repository.

## Notes

- Connecting to DBMS based Repositories is available in the Corporate, Unified and Ultimate Editions of Enterprise Architect
- Depending

## OLE DB Connection to SQL Server Repository


In order for an Enterprise Architect client to open a SQL Server repository using an OLE DB connection, the client machine must have the SQL Server OLE DB driver installed for the same architecture (32 or 64 bit) that Enterprise Architect uses.

For example, if you are using the 64 bit version of Enterprise Architect, then the client machine will need a 64 bit OLE DB driver, but if you are using the 32 bit version of Enterprise Architect then a 32 OLE DB driver will be required.

### Prerequisites

- A Microsoft SQL Server database server
- An Enterprise Architect repository defined in the SQL Server database server
- You know the database user credentials that have SELECT, INSERT, UPDATE, DELETE, EXECUTE access permissions to the Enterprise Architect repository; see the *SQL Server Security Permissions* Help topic
- 'Microsoft OLE DB Provider for SQL Server' or 'Microsoft OLE DB Driver for SQL Server' should be installed

### Access

Keyboard Shortcuts	Ctrl+O : Connect to Server drop-down arrow : ODBC Connection Wizard
Other	   Open Project : Connect to Server drop-down arrow : ODBC Connection Wizard Start Page : Manage Projects : Connect to Server drop-down arrow : ODBC Connection Wizard

### Install the OLEDB Driver

In the majority of modern Windows Operating Systems there is a 'Microsoft OLE DB Provider for SQL Server' driver installed as part of the Operating System, however this driver is quite old and can not connect to more recent versions of SQL Server database server, therefore a manual install of a newer driver is required.

The OLEDB driver will only need to be install once on each client machine, therefore if your machine already has the appropriate SQL Server ODBC driver installed you can skip to the next step.

Step	Action
1	Download the appropriate SQL Server OLEDB driver for your operating system and architecture (32 or 64 bit) of Enterprise Architect, from the Microsoft <a href="#">website</a> . If you are interested, the history of the SQL Server OLEDB driver is discussed on this <a href="#">webpage</a> .
2	Run the SQL Server OLEDB driver installer, accepting the default values.

### Connect to the Repository

Step	Action
1	In the 'Open Project' dialog, select the 'ODBC Connection Wizard' option available under the <i>Connect to Server</i> drop down. The Data Link Properties screen is shown
2	Select 'Microsoft OLE DB Provider for SQL Server' or 'Microsoft OLE DB Driver for SQL Server' from the list on the Provider tab. Note: <ul style="list-style-type: none"> <li>'Microsoft OLE DB Provider for SQL Server' is usually part of the Windows Operating System, otherwise it can be installed as part of MDAC 2.8</li> <li>'Microsoft OLE DB Driver for SQL Server' is a newly released driver that adds support for TLS v1.2 and other more recent features of Microsoft SQL Server (such as multi-subnet failover capabilities); this driver is available from the Microsoft website</li> </ul>
3	Click on the Next>> button. The 'Connection' tab displays.
4	Type in the connection details, including Server Name, User Name, Password and check the <i>Allow saving password</i> option.
5	From the <i>Select the database on the server</i> drop down choose the database name to connect to.
6	Click on the Test Connection button to confirm that the details are correct.
7	If the test does not succeed, revise your settings. If the test succeeds, click on the OK button.
8	Depending on how the connecting to SQL Server process was started, the 'Connection Name & Type' dialog could be displayed; if so fill in the Name and, if required, check the 'Encrypt Connection String' option. The Name entered will be the value displayed on the 'Recent Projects' panel on the 'Open Project' dialog, while the Encrypt Connection string option hides the connection details of the database, which is useful for keeping the details secret when you share the connection string with other users.

## Notes

- Connecting to DBMS based Repositories is available in the Corporate, Unified and Ultimate Editions

## Install the ODBC Driver

The ODBC driver will only need to be install once on each client machine, therefore if your machine already has the appropriate MySQL ODBC driver installed you can skip to the next step.

Step	Action
1	Download the appropriate MySQL ODBC driver for your operating system and architecture (32 or 64 bit)

	<p>of Enterprise Architect from the MySQL <a href="#">website</a>.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• Not all versions of MySQL ODBC driver function correctly with Enterprise Architect, our experience has determined that versions between 5.2.4 &amp; 5.3.4 and 8.0.16 onwards have been the most stable (see more details in the notes section below).</li><li>• Sparx Systems recommends the MySQL ODBC driver (instead of the MariaDB driver) because it has better performance.</li></ul>
2	Run the MySQL ODBC driver installer, accepting the default values.



# SQL Server Security Permissions

The security model implemented by Microsoft's SQL Server is tight and highly configurable, supporting many different possible solutions for securing the data contained in SQL Server databases and ensuring it is only accessible to users with the required permissions. For a more detailed description and explanation of SQL Server permissions, see the SQL Server documentation.

## Minimum Permissions

Enterprise Architect users who plan to add, edit and delete contents in a SQL Server repository must have permissions to execute SELECT, UPDATE, INSERT and DELETE statements on all Tables in the Enterprise Architect database. The easiest way to achieve this is to grant these database roles to each user:

- db\_datareader
- db\_datawriter

## Additional Permissions for Diagram Images

When an Enterprise Architect repository has not been defined with the optional schema update (EASchema\_XXXX\_SQLServer\_Update1.sql) database users will require additional permissions in order to be able to perform Project Transfers and XML imports that include diagram images.

Why is this the case? In order for Enterprise Architect to be able to store unique images in each repository the value used as the key in T\_IMAGE records needs to be set; however, the original schema definition of the T\_IMAGE table did not allow this and as a result Enterprise Architect needed to execute SET IDENTITY\_INSERT T\_IMAGE {ON | OFF} commands, which requires higher permissions; that is, the role of 'db\_ddladmin'.

To avoid the need for each user to have an elevated level of permissions, an optional schema update (EASchema\_XXXX\_SQLServer\_Update1.sql) was developed that unfortunately is not backward compatible with earlier versions of Enterprise Architect. Therefore the optional schema update (EASchema\_XXXX\_SQLServer\_Update1.sql) should only be applied if all users are using Enterprise Architect 14 or later. See <https://sparxsystems.com/resources/repositories/index.html>

## Does Enterprise Architect support Windows Authentication?

Enterprise Architect does support Windows Authentication. However, the type of authentication is determined by the configuration of the connection used, and not by Enterprise Architect.

Windows Authentication to SQL Server is commonly used by Enterprise Architect users, but this requires that all Windows users in Enterprise Architect be defined on the SQL Server server and be granted the security roles 'db\_datareader' and 'db\_datawriter' for the repository.

## Open Server Connections - Native Connection

The '*Open Server Connection*' dialog helps you to define a new connection to an existing server based repository. It is the simplest way, and the recommended method, to set up such a connection to repositories in:

- Firebird
- MariaDB
- MySQL
- Oracle
- PostgreSQL and
- SQLServer

Using a native connection, in most cases you do not need to install any additional drivers or perform any additional steps outside of Enterprise Architect.

For compatibility reasons the original methods of defining ODBC and OLEDB database connections on the Microsoft 'Data Link Properties' dialog are still available and discussed in their own topics (*ODBC Connection to <dbms name> repository* and *OLE DB Connection to <dbms name> repository*); however with the introduction of a 64 bit version of Enterprise Architect, user machines would most likely require additional ODBC/OLE DB drivers (and/or ODBC DSNs) to continue to function.

### Access

Other	Start Page > Open Project   Server Connection Start Page : Manage Projects : Connect to Server (or, on drop down arrow,   Native
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	Connection)    Open Project : Connect to Server
--	---

## Define the Connection

Description	Type in the name by which the connection is known.
DBMS	<p>Click on the radio button for the type of DBMS you are connecting to. Depending on which one you select, additional notes and fields might appear on the dialog.</p> <p>For a database on SQLServer that has an ODBC connection, you are prompted to select whether to use that or the OLE DB connection; if there is no SQL Server ODBC or OLE DB driver installed then the relevant radio button is grayed out. By default Enterprise Architect will default to OLE DB.</p>
Server Name	<p>Type in the name or ID of the Server being used to support the database. If you are connecting to:</p> <ul style="list-style-type: none"> <li>• A Firebird database on the local server, you do not need to complete this field; provide the name if the file is on a remote server</li> <li>• An Oracle database, you can enter either the server name or the name defined in TNSNAMES.ORA</li> <li>• A SQL Server database, enter the server and instance name</li> </ul>
Port	Type in the number of the Port through which the connection will be made.
Database Name	Type in the name of the database to connect to.
User	In the majority of cases access to a database is limited to authorized users only, enter the user name/ID of the database user.
Password	In the majority of cases access to a database is limited to authorized users only, enter the password of the database user.
Encrypt Connection	If required, select this checkbox to encrypt and hide the connection details of the database from the users who the connection string is given to.
Test	<p>Click on this button to check that a connection can be made to the server-based database, as specified by the entered details.</p> <p>Note: that this button is only enabled once all the mandatory fields have a value.</p> <p>If the test does not succeed, revise your settings.</p> <p>If the test succeeds, click on the OK button.</p>
OK	<p>Click on this button to close the dialog and open the repository.</p> <p>Note: this button is only enabled when a test has been successfully completed.</p> <p>By opening the repository an entry will be automatically added to the 'Recent' list on the 'Start Page' and <i>Recent Projects</i> list in the <i>Manage Projects</i> screen.</p>

Close	Click on this button to cancel any changes on the dialog, and close it.
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## Connect to a Repository via ODBC

Server based connection via ODBC (and OLE DB) has been supported in Enterprise Architect for many years, and with the release of Enterprise Architect v16 this continues; however, this is no longer the default server based connection since they are complex to define and can involve steps being performed outside Enterprise Architect.

Enterprise Architect supports ODBC based connections from these DBMSs:

- MariaDB
- MySQL
- PostgreSQL
- Oracle

### Prerequisites

- A DBMS database server
- A database defined in the database server with the necessary table definitions
- You have the database user credentials that have the correct access permissions, such as SELECT, UPDATE, INSERT, EXECUTE, SHOW VIEW and DELETE
- The appropriate ODBC driver is installed on the local machine

### Access

Keyboard Shortcuts	Ctrl+O
Other	 : Open Project Start Page : Manage Projects

## Connect to a Data Repository Using an ODBC Driver

Step	Action
1	In the 'Open Project' dialog, click on the Connect to Server button drop-down arrow and select the 'ODBC Connection Wizard' option. The 'Data Link Properties' dialog displays.
2	Select 'Microsoft OLE DB Provider for ODBC Drivers' from the list.
3	Click on the Next>> button. The 'Connection' tab displays.
4	Click on the 'Use data source name' radio button and, in the data field, click on the down arrow. From the list, select the ODBC driver you have set up to connect to your database repository.
5	If required, type in a user name and password.

	If required (for MariaDB, MySQL), in the 'Enter initial catalog to use' field, click on the down arrow and provide an initial catalog name.
6	Click on the Test Connection button to confirm that the details are correct.
7	If the test does not succeed, revise your settings. If the test succeeds, click on the OK button. If appropriate (Oracle) the database prompts you for the password - type in the password.
8	The 'Connection Name and Type' dialog displays.
9	Give the connection a suitable Name so that you can recognize it in the 'Recent Projects' panel on the 'Open Project' dialog.
10	If you want to hide the connection details from anyone reviewing the connection string, select the 'Encrypt Connection String' checkbox. This option is most useful when sharing a connection string with other users but you don't want them knowing the exact details.
11	Click on the OK button to complete the configuration and open the repository. This also adds the Name (defined at step 9) to the 'Recent' list on the Start Page; from now on, you can open the project again just by clicking on this Name.

## Notes

- Connecting to DBMS based Repositories is available in the Corporate, Unified and Ultimate Editions of Enterprise Architect

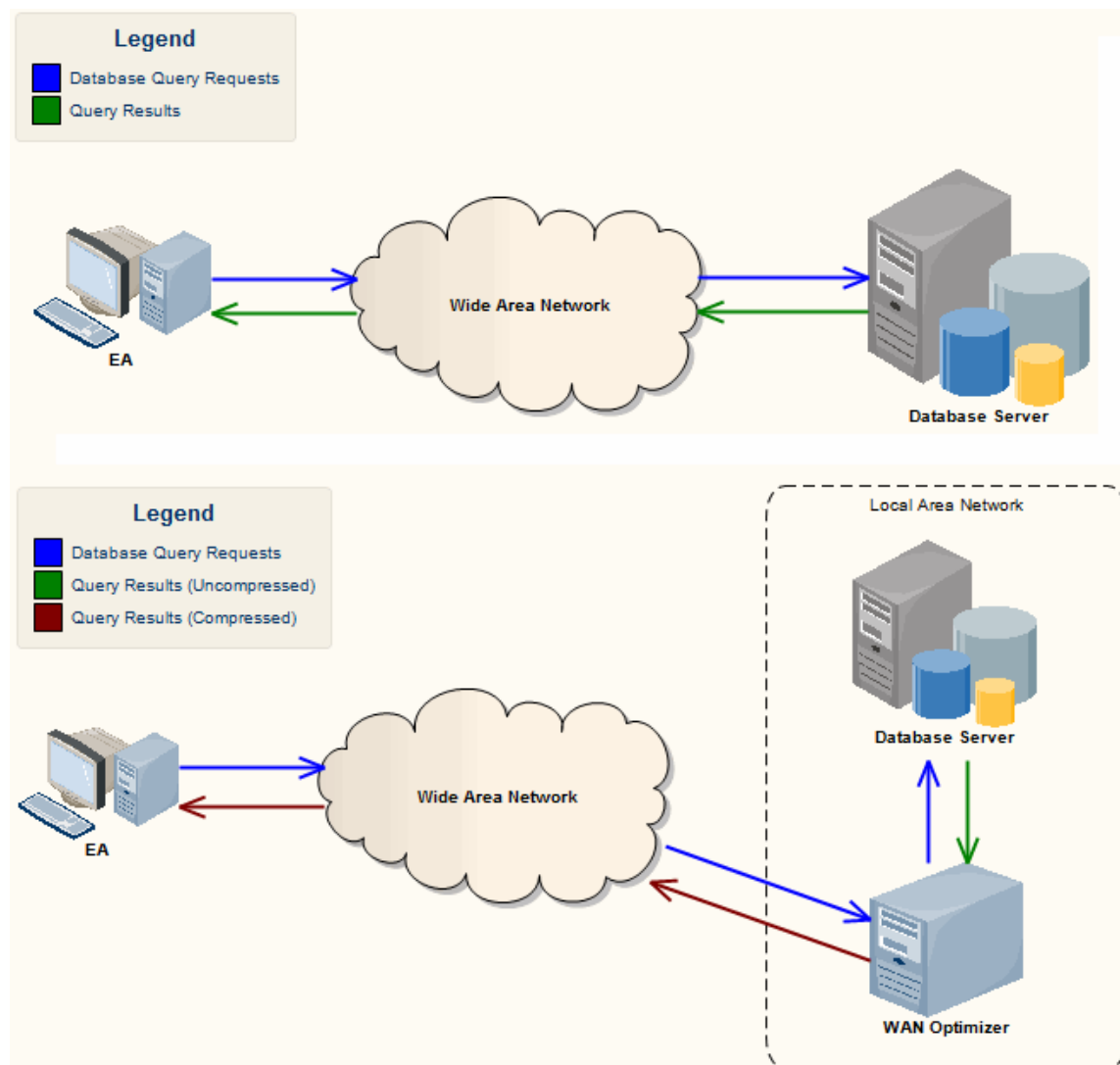
## The WAN Optimizer

**"February 2014,** With the release of Enterprise Architect version 11, the functionality provided by the WAN Optimizer has been replaced by the new product 'Cloud Services', as a result no further development will be made to the WAN Optimizer. The information in this topic remains here for legacy purposes only."

**"July 2019,** With the release of Pro Cloud Server v4, the functionality provided by the Cloud Services has been replaced by the unlicensed edition of the Pro Cloud Server, as a result no further development will be made to Cloud Services."

You can significantly improve Enterprise Architect's performance in a Wide Area Network (WAN) by reducing the amount of data transmitted and the number of network calls made. To achieve this, you can use the Sparx Systems Wide Area Network (WAN) Optimizer, a lightweight server installed on a Local Area Network (LAN) connection to a Database Management System (DBMS) that hosts an Enterprise Architect repository. You can configure the server to listen for client connections on a particular port; it acts as a local proxy to execute queries and return the results in a compressed format to the client.

In this diagram, transmission between Enterprise Architect and a DBMS is depicted first without and then with the WAN Optimizer.



You can download the WAN Optimizer installer from the 'Downloads' page of the Registered Users section of the Sparx Systems website. The Wan Optimizer Service installer package provides two installable features for the target machine:

- WAN Optimizer Service - the installer also helps register and start the service on the target machine, and add it to the Windows Startup folder
- WAN Optimizer Admin Client - to enable an administrator to administer and configure the service from a remote

client

The Optimizer has its own *Sparx Systems WAN Optimizer User Guide*. See that Guide for more information on:

- WAN Optimizer Components
- Installing and Starting the WAN Optimizer Service
- Configuring the Service
- Troubleshooting

## Notes

- The WAN optimizer was the first generation product
- The Sparx Systems Cloud Services was the second generation and replaced the WAN optimizer
- The Sparx Systems Pro Cloud Server is the third generation and has replaced the Sparx Systems Cloud Services
- All Cloud products provided similar basic functionality of the WAN Optimizer, but the later generations do so faster and more securely; they also have many more additional features

Whilst you can still use the WAN Optimizer as described here, we recommend that the Pro Cloud Server should now be used instead of both the WAN Optimizer and Cloud Services products.



