



# Enterprise Architect

User Guide Series

# Model Repository

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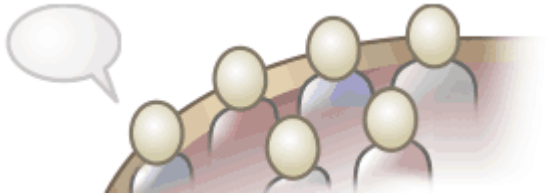
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# Model Repository



Enterprise Architect is a rich modeling platform that can be used in a wide range of modeling and design situations, from a single user accessing a file based repository to a large and distributed team of thousands of modelers working all over the world using a **Cloud Based Repository**. The repositories can be scaled up and down, and a project that started with a single user can be seamlessly scaled up to a large multi-user repository.

Enterprise Architect has been built to support inter-disciplinary modelers collaborating to create a single and unified view of a system or enterprise, and the platform has numerous built in features to support this team development. By taking advantage of the base UML modeling language, in addition to the numerous extension languages such as BPMN and SysML, plus highly effective frameworks such as TOGAF and UPDM, modelers, designers, managers and others can build comprehensive, inter-connected models that fully expresses the capabilities, structure and behavior of fully functioning, multi-layered, complex systems and/or enterprises.

In addition, there are features that allow modelers to discuss the model, such as the element discussion window, and review work that has been in progress in the **Team Review** window. Modelers can even send model mail to communicate ideas. Model Security can be implemented, which facilitates collaboration and prevents work accidentally being overridden.

There are a range of project management features, such as tasks and resource allocation and a Gantt Chart to view progress on tasks over time, and a Project Calendar that keeps track of important project events.

Integration is so easy and the feature sets so powerful that strategic thinkers, business managers, architects, information and data modelers, testers, software engineers and many others will derive great benefit from using the tool and incorporating their models into the overall vision.

## Key Concepts

### Repository Format

Enterprise Architect models are stored in **standard relational databases**. This approach has been built into Enterprise Architect from the very first version. Using a relational database provides a huge advantage over other tools that are limited in scope and capability by relying on a simple text file based model storage system. With support for two file based repository formats (MS JET and Firebird) plus a number of industry standard DBMS servers (such as SQL Server, MySQL and Oracle) plus Cloud based storage, Enterprise Architect provides fast, scalable, flexible and transparent access to models in a wide range of deployment scenarios.

### Modeling Languages

Enterprise Architect is based on industry standard UML, a specification maintained by the Object Management Group (OMG). Although initially conceived as a modeling language primarily for software development, over the years the capabilities and formal (standard) extensions have allowed the UML to develop into a rich set of constructs and modeling behaviors that provide very rich and detailed support for everything from software, to business processes, embedded software, enterprise architecture, organizational charts, strategic model, mind mapping, requirements management and much more. The success of UML has been proven over and over again in the real world and the number of new technologies and modeling profiles that use UML as the underlying 'meta-language' are tribute to the power and effectiveness of UML.

### Team Development

From the very first version of Enterprise Architect the goal has been to provide the

best and most accessible support for Team based development. A wealth of tools and capabilities have been designed into the platform over the years to support security, scalability, information sharing, concurrent access, management, reporting and querying. With the growth of the internet and distributed development scenarios, Enterprise Architect has evolved to be the pre-eminent platform for developing models and designs in a globally distributed situation. The Cloud Server based deployment offers high availability, excellent performance and simple configuration to rapidly bring diverse and distributed teams into a single, living repository where work can be easily shared, reviewed, discussed and managed.

**Scalability** By leveraging the power of today's DBMS servers and Cloud Based technologies, Enterprise Architect can be easily scaled up to truly epic proportions. Millions of objects can be stored and accessed by large and dispersed teams in real time. The level of scalability is limited solely by the choice of DBMS or Cloud Technology and the capabilities of the network and server infrastructure the model is deployed on. In practice, over the many years that Enterprise Architect has been used in industry, modelers and designers have taken advantage of the powerful in-built scalability to construct stunning and often huge models that capture an enormous amount of information about complex and highly inter-connected systems and enterprises.

**Security** Due to the nature of the Repository used by Enterprise Architect and the possible deployment scenarios, security can be managed in a number of ways. In the Corporate edition of Enterprise Architect and above, there is built-in support for defining users and groups that permit locking and management of elements and Packages within the model. This will be discussed later in the section on Security. In addition, it is also possible to restrict general access to models by using file based security access for the MS JET and Firebird based models (.EAP and FDB) and DBMS server authentication and access for the larger database server based systems. As a further refinement it is also possible to restrict access to a model using the HTTPS protocol when connecting to a Cloud Based server.

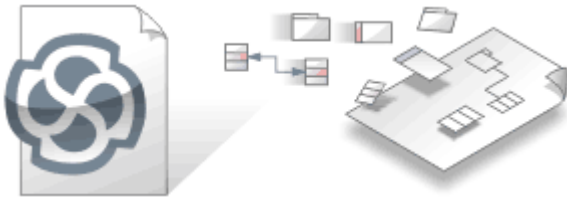
**Versioning** Enterprise Architect uses industry standard XMI (XML Interchange) format files to store and version model Packages. By integrating the import and export of XMI model fragments into a version control system (such as SVN) supported by Enterprise Architect, you can maintain multiple versions of the same model in different repositories and exercise fine control over the development and design process. Given the nature of this versioning system, there are several different scenarios that can be used to maintain different models and how teams access information. For example, where the versioning system is used as the single point of truth and de-facto Repository, it could be convenient to use many workgroup or single user based Repositories that reflect the actual model at a particular point in time. In contrast, where the versioned files are mainly held for backup and baseline purposes only, a larger, Team based DBMS server would be used to provide the model sharing and collaboration capabilities. So whatever the actual needs are, Enterprise Architect has a number of solution scenarios that can be adapted to provide the right level of change management and collaborative development.

## Example Repository Tasks

Task

Create a project in a simple, file-based repository (.EAP and .FEAP files)
Create the project in one of a range of DBMS repositories - these provide for larger models with more concurrently connected users (Corporate and extended editions)
Manage change within the model
Maintain the integrity of the project data
Share the reference data used across the project, between models and between projects
Allow each user to configure their personal preferences for how project tools display and behave on their workstation
Document your model through document or web reports, which you can tailor to your purposes

## Repository Overview



An Enterprise Architect repository is stored in a relational database; this can be a file based database such as MS Access or Firebird, or a database management system (DBMS) such as Oracle or MS SQL Server, on a network or in a **Cloud Based Repository**. It is common to start with a **File Based Repository** and, when the project gets some momentum and there are a number of modelers accessing the repository, to transfer it to a DBMS. Whichever type of repository is implemented, the user interface remains the same and users can seamlessly move from one type of repository to another and continue to contribute as a team member on this powerful modeling platform.

### Concepts

Concept	Description
Repository as a File	<p>In any version of Enterprise Architect you can store a project in a single file with a .eap or .feap extension.</p> <ul style="list-style-type: none"> <li>• A .eap file is a Microsoft JET database, so you can also open it using MS Access 97, 2000, 2003 or 2013, or any other reporting tool that can work with JET databases</li> <li>• A .feap file is a Firebird project file</li> </ul>
Repository in a DBMS (Database Management System)	<p>In the Enterprise Architect Corporate edition (and above) you can also use a suitable DBMS repository for projects.</p> <p>DBMS projects have the same logical structure as .eap and .feap files, but provide much greater scalability and concurrent access. You connect to a DBMS using ADO/ODBC (see <i>Connect to a Data Repository</i>). Please note that when configuring an ODBC data source on a 64 bit machine, you should access the ODBC data manager using the 'Main Menu   Tools   ODBC Data Sources' menu option, as this will load the correct ODBC manager to access 32 bit data sources as used by Enterprise Architect.</p>
Repository in the Cloud	<p>In the Corporate Edition (and above) of Enterprise Architect you can further enable the distributed capabilities of Enterprise Architect and use the Internet or local network to connect to a Cloud Based server on which one or more Repositories have been installed and configured for access. The Cloud Server is free software available from Sparx Systems and is relatively simple to set up and configure on a suitable Windows based machine. Firebird files or any DBMS server are the required Repository types supported by the Cloud Server, and these can reside on the same machine for best performance or on another machine to maximize local and network access. Cloud based repositories provide the ultimate in distributed development and minimal client configuration. It is in fact much easier to deploy a Firebird based repository on a Cloud Server for distributed development than to set up and manage a full DBMS solution.</p>
Models	<p>Enterprise Architect uses this terminology when discussing Repositories and their contents.</p> <ol style="list-style-type: none"> <li>1. A Model is a related group of content that expresses some focused aspect of a system or enterprise that is related by the modeling tools and paradigm used. For</li> </ol>

	<p>example, you might build a 'Usecase Model' that describes behavior and scenarios using UML Use Cases. Process models, architectural models, behavioral models, structural models, Class models and so on are all Models within the current Project.</p> <p>2. A Project is a group of models that has a single unifying purpose. For example, a Project to design the navigation systems for a new aircraft or automobile would be considered a single Project. Within this Project there would be multiple models. Projects typically define levels of security, types of views and models necessary, procedures and other management tasks necessary to deliver the product. Project management capabilities in Enterprise Architect are quite rich and allow for resource management, security, change management, testing and other typical project management tasks.</p> <p>3. A Repository is a single File, DBMS database or Cloud Server address that contains one or more Projects. Typically, file based repositories such as MS JET and Firebird models contain a single Project with multiple models that can be shared by a small workgroup or only accessed by a single modeler. DBMS and Cloud based Repositories will often contain more than one Project, especially where the Projects are somehow inter-related or co-dependent.</p>
Adding Initial Content	<p>After creating and accessing your new project in whatever form the Repository takes, you can now use the <b>Model Wizard</b> to create Model Packages that range from generic and simple views to more complex and pattern based content.</p> <p>You can add Models to a project from the <b>Project Browser</b> by:</p> <ul style="list-style-type: none"> <li>• Right-clicking on an existing model and selecting the 'New Model' or 'Add a New Model using Wizard' options</li> <li>• Right-clicking on a Package and selecting the 'Add   Add a New Model using Wizard' option</li> <li>• Clicking on an existing model, pressing the <b>Insert key</b> and selecting the 'New Model' or 'Add a New Model using Wizard' menu options</li> <li>• Clicking on a Package, pressing the Insert key and selecting the 'Add a New Model using Wizard' menu option</li> </ul>
Opening Existing Projects	<p>Existing Projects are accessible via the 'Main Menu   File   Open Project' option. They are also accessible from the 'Recent' list in the Main Menu and on the <b>Start Page</b>.</p> <p>Connecting to an existing DBMS or Cloud based Repository is discussed in more detail under the relevant sections on working with those Repository types.</p> <p>For new users, you can use the 'Main Menu   Help   Open Example Model' option to open and explore the Enterprise Architect Example Repository supplied with Enterprise Architect. This example is not so much a fully worked example as a collection of models that show how you can leverage the power of the Enterprise Architect platform and the UML to create a wide range of visual and text based models.</p>
DBMS Repositories	<p>You can connect to any of these data repositories:</p> <ul style="list-style-type: none"> <li>• MS Access 97, 2000, 2003 and 2013 (in all editions - .eap files are stored in Microsoft JET databases)</li> <li>• Access 2007</li> <li>• SQL Server 2000 onwards</li> <li>• SQL Server Express 2005 onwards</li> <li>• MySQL</li> <li>• Oracle 9i, 10g, 11g and 12c</li> <li>• PostgreSQL</li> <li>• Adaptive Server Anywhere</li> </ul>

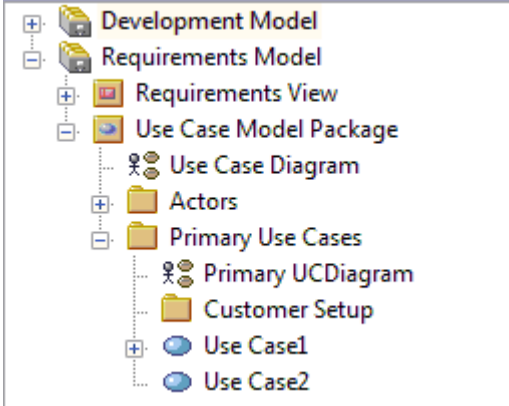
	<p>In brief, to create a new data repository, you first create a new database with the DBMS management software, then run supplied scripts to create the logical structure.</p> <p>You then use Enterprise Architect data transfer functions to move a project from a .eap, .feap or DBMS model into the new project. Details are available under the <i>Server Based Repositories</i> section.</p>
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## Projects Defined

An Enterprise Architect Project is a repository for storing, manipulating and managing one or more Models. A single repository can contain many models, and a Repository can be either file based, hosted in a larger DBMS system or based in the Cloud.

### Concepts

Concept	Detail
Project	A project can contain a single model, or a number of models, each of which defines a particular system or process. A model contains the diagrams, elements, relationships and associated metadata that define the structure and function of the system or process. These components are organized into a hierarchy of Packages, which help to group and manage related components.
Model	Different aspects of the process or system - or their development - are defined by Model Packages, which you generate from templates specifically structured to support the aspects that the Model Packages represent, such as requirements or deployment. You can generate these templated Packages at any level of the hierarchy, but as they are created with their own content they are more useful at the top levels.
View	The top-level Packages in a model can also be Views, which represent partitions of the model that you define yourself. You can start with standard Views such as Class or Component, or create whatever partitions are appropriate to your model.
Example Project Structure	 <p>Each View or Model Package contains Packages; Use Case Model Package contains:</p> <ul style="list-style-type: none"> <li>Actors and</li> <li>Primary Use Cases</li> </ul> <p>It also contains the diagram <b>Use Case Diagram</b>, which could be an overview of the Package structure or function.</p> <p>Each Package itself can contain one or more diagrams, one or more Packages, and several elements; the Primary Use Cases Package contains the:</p> <ul style="list-style-type: none"> <li>Primary UCDiagram</li> <li>Customer Setup Package</li> </ul>

	<ul style="list-style-type: none"><li>• Use Case1 element</li><li>• Use Case2 element</li></ul> <p>Each subordinate Package also contains diagrams, elements and (if necessary) further Packages; the elements are related by connectors created in the diagrams, and each element and connector has properties, attributes, operations and extensions defined in the respective 'Properties' dialogs.</p> <p>Note that models do not have to be constructed this way. Depending on the methodology you are following and information you need to model, the project structure might look completely different. In addition, many architectural frameworks such as TOGAF and Archimate specify their own project structure as part of their overall solution architecture.</p>
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## Opening a Project

An Enterprise Architect project is used for storing and managing the components of one or more UML models. The Desktop and Professional versions of Enterprise Architect work on file-based projects (.eap files). If you are using the Corporate edition (or above), you can also use one of a number of DBMSs such as Oracle or MySQL, or a Cloud Based server to host the project repository.

When you select to open a project, you can:

- Select a shortcut to a recent project, to open it
- Browse for another existing project to open
- Remove a shortcut from the list of recently-opened projects
- Specify connection details for opening a project hosted on a DBMS
- Connect to a project via the Cloud
- Create a new Enterprise Architect project file

### Access

Ribbon	 > Open Project
Menu	File   Open Project
Keyboard Shortcuts	<b>Ctrl</b> + <b>O</b>

### Options

Field/Button	Action
Local File	Click on this button to open a file browser dialog, and locate and select an existing .EAP or .FEAP file; the .EAP file can be a project file or a shortcut to a project hosted on a DBMS. Alternatively, click on the drop-down arrow and select the 'New Project' option to create a new project.
Connect to Server	Click on this button to specify connection details for opening an Enterprise Architect project that is hosted on a DBMS. The 'Windows Data Link Properties' dialog displays; start to define the connection to the project's server-based repository. You can also click on the drop-down arrow and select: <ul style="list-style-type: none"> <li>• 'Connection Wizard' - the 'Data Link Properties' dialog again displays</li> <li>• 'Connection String' - the 'Connection String' dialog displays; type in or paste the connection string and click on the <b>OK button</b> to connect directly to the project</li> </ul>
Connect to Cloud	Click on this button to connect to a project through the Cloud. The 'Cloud Connection' dialog displays, on which you specify the server, URL and model name to access via the Cloud.

Recent Projects	<p>This panel lists the most recently opened projects, up to a maximum of ten. To open one of these projects either double-click on the name, or click on it and then click on the <b>Open button</b>.</p> <p>Each project name is shown with its access path. You can edit the access path by right-clicking on it and selecting the 'Edit Connection String' context menu option; make the changes on the 'Connection String' dialog, and click on the <b>OK button</b>.</p> <p>This list is also displayed:</p> <ul style="list-style-type: none"> <li>• On the <b>Start Page</b>, under the 'Recent' heading</li> <li>• As a drop-down menu under the <b>Open Project button</b> on the Default Tools toolbar</li> <li>• As part of the 'File' menu</li> </ul>
Remove Selection from List	Click on a project name and click on this button to remove that project name from the 'Recent' list.
Show this Dialog at Startup	Select the checkbox to show this 'Open Enterprise Architect Project' dialog automatically upon starting Enterprise Architect. Deselect the checkbox to hide the dialog.
Default Project to Open	Click on a project name in the 'Recent' list and select this checkbox to open the selected project automatically whenever you start up Enterprise Architect.
Open	Click on this button to open the currently selected project in the Recent Project list.
Cancel	Click on this button to close this dialog without any further action.
Help	Click on this button to display this Help topic.


## Notes

- Use of a DBMS and/or Cloud for hosting the model repository is available in the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions of Enterprise Architect
- Enterprise Architect supports these DBMS products for hosting model repositories:
  - SQL Server and SQL Server Express;
  - MySQL
  - Oracle 9i, 10g, 11g or 12c
  - Postgre SQL and
  - ASA

## Project Shortcuts

Enterprise Architect enables you to create a desktop shortcut (or proxy file) to an Enterprise Architect project (Cloud, DBMS or file-based). Each shortcut is a file containing the connection string for the model. In addition, the shortcut also defines views that Enterprise Architect should open when it opens the model, as outlined here. In this manner it is a convenient and customizable way of quickly sharing a connection to a Cloud based model without requiring other users to know the details of the connections string, model name and other parameters.

### Access

Ribbon	 > Save As Shortcut
Menu	File   Save as Shortcut

### Topics

View	Detail
Diagrams	Define one or more specific diagram(s) to be loaded on opening the project.
Model Search	<p>Open the <b>Model Search</b> with a specific text string and search type.</p> <p>For searches operating on the current tree selection, a diagram in the target Package must be opened first.</p> <p>If you use a custom SQL search, the SQL must include ea_guid AS CLASSGUID and the object type.</p> <p>You specify a single Model Search to open.</p>
The Relationship Matrix with a saved profile	<p>Open the <b>Relationship Matrix</b> with a saved profile.</p> <p>You specify a single Relationship Matrix profile to open.</p>
The default Team Review	<p>Open the default <b>Team Review</b> document.</p> <p>You specify the Team Review once.</p>
Working Set	<p>Open a working set.</p> <p>You specify a single Working Set to open.</p> <p>This is very similar to the shortcut itself, opening a defined set of diagrams and views. However, the working set can also open source code editors, therefore widening the capabilities of the shortcut alone.</p> <p>Working sets make it easy to customize the main views you want to open without having to resave your project short cuts. The working set is easy to tailor to your changing requirements, adding greater flexibility to any short cut that calls the working set.</p> <p>Also, working sets provide the capability of storing the currently-engaged files when closing a model, and reopening them in the context in which you were last using them. The basic project shortcut can also do this, but once the work</p>

	<p>environment is captured the shortcut returns to the same set up each time you use it. The working set always captures the current work environment each time the model closes.</p> <p>This option can be very useful in, for example, a coding environment when you want to return to the last files you were editing.</p>
Workspace Layout	<p>Apply a selected Workspace Layout, which opens and sets out the appropriate screens and windows for a specific area of work, such as model simulation.</p> <p>You specify a single Workspace Layout to open. However, by creating and using separate shortcuts you can open Enterprise Architect in exactly the configuration you need for the work you want to do - modeling, coding, or debugging, for example.</p>
An example shortcut	<p>You might create a shortcut to open, in sequence:</p> <ul style="list-style-type: none"> <li>• A Development module</li> <li>• The <b>Model Search</b> for a simple search on the term Issue</li> <li>• The module Issues diagram</li> <li>• The module 'Changes' diagram</li> </ul> <p>Enterprise Architect opens the appropriate windows in the sequence in which you list the options, displaying the last view in the list as the active view.</p> <p>In this example, the project opens with the Enterprise Architect work area showing the two diagram tabs and the 'Model Search' tab, and with the 'Changes' diagram displayed in the <b>Diagram View</b>.</p>

## Notes


- If specified, the shortcut views override any default diagram defined for the model or current user
- A shortcut does not affect the original Enterprise Architect .exe file or icon, or any other shortcut you might have defined; you can use all of these independently
- If you are using a database repository other than MS Access 97, 2000, 2003 or 2013, you can configure the shortcut to encrypt the password used to set up the connection between Enterprise Architect and the repository; the Enterprise Architect user does not have the real password, thereby preventing them from accessing the repository using other tools such as Query Analyzer or SQLPlus

## Create Project Shortcut


You can create a shortcut to an Enterprise Architect project (either a DBMS project or file based project). The shortcut can specify additional windows and diagrams to open up automatically every time the shortcut is run, to create a working environment in advance for other users.

Shortcuts are stored with a .EAP extension, but are actually small text files that tell Enterprise Architect what project to open and what initial views and windows to display.

### Access

Ribbon	 : Save as Shortcut
Menu	File   Save as Shrotcut

### Create a project shortcut

Step	Action
1	Open Enterprise Architect.
2	Open the required project.
3	Select the 'File  Save Shortcut' menu option. The 'Save Project Shortcut' dialog displays.
4	Click on the  button at the end of the 'Target File' field. The 'Save Project As' dialog displays.
5	Browse for the appropriate file location and, in the 'File name' field, type an appropriate filename. All shortcuts are .EAP files, regardless of whether the model itself is a .EAP file or a DBMS model.
6	Click on the <b>Save button</b> to return to the 'Save Project Shortcut' dialog.
7	Click on the <b>Add Other button</b> and select the required option to define: <ul style="list-style-type: none"> <li>• A diagram to open</li> <li>• A <b>Relationship Matrix</b> profile to open</li> <li>• The <b>Team Review</b></li> <li>• A <b>Model Search</b> to perform</li> <li>• A working set to apply</li> <li>• A workspace layout to apply</li> </ul>
8	The appropriate browser or dialog displays to define the view to display; enter the details and click on the <b>OK button</b> .

	The view is added to the 'Actions when model is opened' field; the entry is automatically selected, with a tick in the checkbox.
9	Repeat steps 7 and 8 for as many additional views as you require.
10	<p>Review the items in the 'Actions when model is opened' field.</p> <ul style="list-style-type: none"><li>• If you decide not to have an item in the shortcut, deselect its checkbox</li><li>• If you want to clear all selected items, click on the <b>Include None button</b></li></ul> <p>Unselected entries are deleted when you save the shortcut.</p>
11	<p>If you decide to change the sequence and/or make a different view display first in the <b>Diagram View</b>:</p> <ul style="list-style-type: none"><li>• Click on the appropriate entry</li><li>• Click on the 'Up Hand' or 'Down Hand' buttons</li></ul>
12	Click on the <b>OK button</b> to save the shortcut.

## Notes

- When you subsequently open the 'Save Project Shortcut' dialog, it lists the currently-opened views in the order in which they were opened; you can add further views or remove them from the shortcut




## Capture Current Work Environment


You can capture the current Enterprise Architect work environment in your shortcut. This maintains the work environment from that point, and is useful if you intend to close and re-open the model and return to the same configuration many times.

If you simply want to return to whatever work environment you happen to be in each time you close the model, you should use a work set that captures the current environment, either by itself or as part of a broader project shortcut.

### Access

Ribbon	 : Save as Shortcut
Menu	File   Save as Shortcut

### Capture your current work environment

Step	Action
1	Open Enterprise Architect.
2	Open the required project and work in it.
3	At the point at which you decide to capture your work environment in a shortcut, ensure that: <ul style="list-style-type: none"> <li>You have opened all diagrams you require</li> <li>If necessary, you have opened the <b>Team Review</b>, <b>Model Search</b> (with appropriate search term and type) and/or <b>Relationship Matrix</b> (at the appropriate profile)</li> <li>The view you want to resume work on is the last one opened</li> </ul>
4	Select the 'Save As Shortcut' menu option. The 'Save Project Shortcut' dialog displays, showing a list of actions derived from the views you currently have open.
5	If you accessed Enterprise Architect via a shortcut, the 'Target File' field displays the file location of that shortcut.  Otherwise, click on the  button at the end of the 'Target File' field. The 'Save Project As' dialog displays.
6	Browse for the appropriate file location and, in the 'File name' field, type an appropriate filename. All shortcuts are .EAP files, regardless of whether the model itself is a .EAP file, .FEAP file or DBMS model.
7	Click on the <b>Save button</b> to return to the 'Save Project Shortcut' dialog.
8	In the 'Actions when model is opened' field, click on the <b>Include All button</b> .

9	If you also want to save current window positions click 'Add Other' followed by 'Add Workspace Layout'. The dialog shown allows you to select an existing layout or save the current layout.
10	Click on the <b>OK button</b> to save the shortcut.

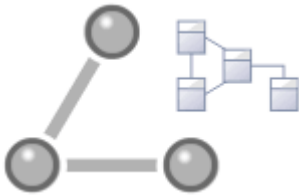
## Encrypt Repository Password

If your model is developed on a DBMS repository, the 'Save Project Shortcut' dialog has an 'Encrypt Connection String' check box.

You can create the shortcut actions and, if necessary, select the checkbox to encrypt the database connection string.

You distribute the shortcut file to the database users who are to access the model. The users then have an encrypted string that prevents them from directly accessing the database using other tools.

## File Based Projects



Enterprise Architect provides a convenient light-weight, low-barrier and portable file based repository out-of-the-box, which is ideal for modelers who want to start work immediately; with the file based repository you can be modeling within a few minutes. When a number of colleagues want to contribute to the models, the file can be moved to a file-share and it is possible to work with this setup even when the model becomes quite large and the number of users increases to ten or more. All editions of Enterprise Architect support this type of repository in the form of a .eap file in an Access database, or a .feap file in a Firebird repository.

You can create your own repository from scratch, but a default repository (EABase.eap) is conveniently supplied, which is located in the Enterprise Architect installation directory. The file acts as a template for creating new projects and can be copied to give you a head start in creating a repository. You can tailor this repository to suit your organization or create your own base repository. A **File Based Repository** can be easily transferred to a DBMS based repository using the **Project Transfer** feature, allowing a project to be scaled up when the team increases in size or organizational policy dictates it.

### File-based project tasks

Task	Detail
Create .EAP Project Files	<p>Select one of:</p> <ul style="list-style-type: none"> <li>• 'File   New Project' menu option</li> <li>• 'Local File   New Project' option on the 'Manage Projects' dialog, or</li> <li>• 'New File' option on the <b>Start Page</b></li> </ul> <p>All of these options display the 'New Project' dialog; select a directory and enter a file name for your project.</p> <p>Once the project has been saved, the <b>Model Wizard</b> displays, which makes a selection of Model Patterns available; select the Model Patterns to use.</p> <p>Enterprise Architect adds a model containing the selected Model Packages to the <b>Project Browser</b>.</p>
Create .FEAP Project Files	<p>As for a .eap file (above), except that in the 'New Project' dialog, in the 'Save as Type' field, click on the drop-down arrow and select the .feap file extension.</p> <p>Enterprise Architect will check your input and display an error message if:</p> <ul style="list-style-type: none"> <li>• Your Firebird repository is not located on the local drive; a Firebird repository is not appropriate for a network shared project</li> <li>• The file path contains characters that are not in the system codepage</li> </ul>
Location of default (EABase.eap) repository template	<p>The default installation directories, depending on which version you have installed, are:</p> <ul style="list-style-type: none"> <li>• Registered version: C:\Program Files\Sparx Systems\EA</li> <li>• Trial version: C:\Program Files\Sparx Systems\EA Trial</li> <li>• Lite version: C:\Program Files\Sparx Systems\EA Lite</li> </ul> <p>A base project contains templates and reference data from which you can quickly</p>

	<p>develop your own project.</p> <p>Note that in addition to deriving a new model from EABase.eap, it is also possible to start a new project by copying an existing one. While it is possible to simply "copy" the EAP file at the file system level, this results in two identical models - and should only be used when that is the required behavior - for example when distributing a model to a client for verification etc. If you use the built in functions within EA to create a new model based on a pre-existent one, Enterprise Architect will modify the unique identifiers (GUIDS) for all elements and related constructs so that the new model is essentially unique, and not a simple copy of the existing one.</p>
Configure Project	Having created your project, you can set a range of project parameters to define defaults, tailor the project to particular coding languages, and ensure consistent development and use of the project.
Create Custom Templates	You can customize any Enterprise Architect project as a template project with company standards, tutorials, frameworks and any other common piece of modeling already in-built; with careful planning you can save yourself many hours of work at project start-up.

## Best Practices for File Based Repositories

Single User	Simple file based repositories (.eap and .feap files) are best suited to single user development with the model file placed on the modelers local drive. This is fast, very efficient and provides a very powerful means of getting started out in modeling a particular solution. Many models will start out as single user repositories and only later be migrated into a DBMS or Cloud based scenario for larger team access. If you need to quickly start work on a project and do some exploratory work, or you are working alone as a consultant, the .eap or .feap file format is ideal.
Small Workgroup	With the Professional version of Enterprise Architect and above it is possible to share a .eap file at the network file level. This is really only a suitable solution for small workgroups (up to say 5 members) who are collaborating on a shared model. This solution is very much at the mercy of the quality of the network connection and may be less than ideal if collaborating users increase in number and/or the model grows very large. As Enterprise Architect on the user's machine is still running all the queries and performing all database operations on a network file, a slow network will result in less than ideal performance. As team size and model size increases it is best to upsize to either a DBMS or Cloud based architecture.
In Conjunction with Version Control	One additional scenario in which file based repositories can be used to great effect is with a version control system such as SVN. If the SVN system holds the master content, then individual developers/modelers can check out the material of interest to them into a local .eap or .feap file. When they have made their changes they can migrate their work back into the shared master. This style of development is quite effective, and as the import and export of model material from the version control system works best with single user local project files, it is a good match and a good use of the two technologies.
Copy of Repository for	A further use of the single file repository is for distribution to clients and others for review and comment, where the original model(s) is located in a DBMS or Cloud

Storage or Review	that the recipient would not have access to. As it is relatively easy to bulk copy a DBMS model to a local .eap file, this is a good method for passing on a model to a client or another interested party. If some of the material is restricted, it is possible to delete sections from this single file repository after the bulk copy is complete and before passing it on.
Replication	If network access is limited and DBMS and Cloud based solutions are not possible, another (less than optimal but still effective) team based solution is to use the built in replication features of the .EAP file format. By creating a design master and distributing replicas to other modelers, it is possible to effectively share and contribute to a model without having direct shared access to the common model. On the down side, someone will have to perform the model merges as required and if there are replication conflicts (two changes to the same item) this will require manual resolution.

## Notes

- You can also add Model Packages to a project using the New Model From Pattern icon in the **Project Browser** toolbar

## Copy a Base Project


When you create a new project, you can use the **Model Wizard** to define the structure and contents. Alternatively, you can copy an existing template or base project which is already largely set up, containing company standards, tutorials, frameworks and any other common modeling structures. You can also copy an operational .EAP or .FEAP project file to a new file location under a new name to, for example:

- Provide separate copies for individual team members
- Create an evaluation or distribution version of the project

If you intend to use an existing project file as the template for a new project, it is important to use this method rather than simply copying the .EAP file using Windows Explorer. This process provides the option to reset all the unique identifiers for Packages and elements, so that your new project is truly unique - otherwise you create an exact copy of the original project.

### Access

Open the template project or existing operational project then;

Ribbon	 : Save Project As
Menu	File   Save Project As

### Create a new project from a base project

Field/Option/Button	Action
Target Project	Type the new project filename. You can either type in the file path as well, or click on the <b>Browse button</b> and browse for the required file path. If this is to be a shared project, store the file on a shared network resource such as a Network Server or Workgroup Server.
Source Project	Defaults to the path and name of the currently-open template or project.
Reset New Project GUIDs	If the target project is to be a different project from the source (such as when you copy a base template), select this checkbox to replace all GUIDs from the base model with fresh GUIDs in the new model. However, if the new project is to be a direct copy of the source, or based on a project that is under version control, we recommend that you deselect this checkbox to prevent duplication of Packages when the Get Latest facility is used.
Save As	Click on this button to save and open the new project.

# Sharing File Based Projects

Enterprise Architect offers a diverse range of functionality designed specifically for sharing projects in team-based and distributed development environments, through network deployment of model repositories, DBMS based repositories, Cloud based models, replication and XMI Import/Export.

## Features

Feature	Detail
Network Deployment	<p>Network deployment is possible under three different schemas:</p> <ul style="list-style-type: none"><li>• File based repositories</li><li>• DBMS server based repositories, or</li><li>• Cloud based deployment (recommended)</li></ul> <p>DBMS server based repositories offer better:</p> <ul style="list-style-type: none"><li>• Response times than files on networks, due to the inherent structure of the DBMS</li><li>• Solutions when networking problems are encountered, as they have the ability to backtrack transactions caused by external breakdowns</li></ul>
Replication	<p>Replication enables data interchange between .EAP based repositories and is suitable for where many different users work independently in parallel development.</p> <p>Modelers merge their changes into a Design Master only as required; it is recommended that a backup is carried out prior to replication.</p> <p>Replication cannot be performed on repositories stored on a DBMS server.</p>
XMI Import and Export	<p>XMI Import/Export can be used to export and share discrete Packages between developers; XMI enables the export of Packages into XML files which can then be imported into any model.</p> <p>Package control can be used to set up Packages for version control and to enable batch export of Packages using XMI; version control enables a repository to be maintained by a third-party source code control application that is used to control access and record revisions.</p>

## Notes

- DBMS Repository support is available with the Corporate, Business and Software Engineering, System Engineering and Ultimate editions of Enterprise Architect



## Share Enterprise Architect Projects

The most efficient way of using Enterprise Architect to manage a team development is to share a project amongst a team of designers, developers and analysts.

### Facilities

Facility	Detail
By Sharing a project	<ul style="list-style-type: none"><li>• Many people can work on the model at the same time and contribute their particular skill</li><li>• Team members can always see what the latest changes are, keeping the team informed and up to date with the project status</li></ul>
You can share a project in three ways	<ul style="list-style-type: none"><li>• Place the project in a shared network directory</li><li>• Use replication</li><li>• Use a shared DBMS-based repository</li></ul>


### Notes

- Project Sharing and Replication are available in the Professional, Corporate, Business and Software Engineering, System Engineering and Ultimate editions of Enterprise Architect
- DBMS repositories are supported in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions of Enterprise Architect

## Refresh View of Shared Project

When a user of a shared model checks out a Package and makes changes, other users can see those changes by refreshing their view of the Package or the changed diagram within the Package, in a number of ways.

### Refresh the view

Object	Options
Project	<ul style="list-style-type: none"><li>• Right-click on the Package name in the <b>Project Browser</b> and select the 'Contents   Reload Current Package' option, or</li><li>• Select the 'File   Reload Project' menu option, or</li><li>• Select the  (Reload Project) icon in the Project toolbar, or</li><li>• Press <b>Ctrl+Shift+F11</b>, or</li><li>• Close the project and reopen it</li></ul>
Diagram	<ul style="list-style-type: none"><li>• Select the 'Window   Reload Current View' menu option, or</li><li>• Right-click on the opened diagram tab in the <b>Diagram View</b>, and select the 'Reload &lt;diagram name&gt;' option</li></ul>

## Share a Project

The easiest way to share a project amongst a work group of developers and analysts is to place the project file on a shared network drive, to which people connect from their workstations.

Individual developers and analysts can then open and work on the project concurrently.

### Network Issues

Enterprise Architect accepts a number of concurrent connections without issue; however, there are points you should consider:

Issue	Description
Lock Outs	There can be occasional 'lock-outs' when one user tries to access or update something another user is in the process of modifying.
Other Changes	Changes to the <b>Project Browser</b> (and other project views) are not automatically updated; to compensate for this, users must occasionally reload their project to see changes made by other users.
Diagrams	If two or more people work on the same diagram concurrently, unexpected results can occur; it is best to allow only one analyst to work on a diagram at a time.
System crashes	(.EAP files only) If a user's machine crashes, the network suffers an outage or a machine is turned off unexpectedly, the project file might require repair to compensate for the sudden inconsistency; a repair facility is provided (Project   Data Management   Manage .EAP File   Repair .EAP File) to carry out this task.

### Notes

- Firebird-based projects (.feap files) are not suitable for sharing over a network

# Distributed Development

Enterprise Architect supports distributed development using two different techniques.

## Replication

Using replication, geographically separated analysts can update and modify parts of the model in replicas, then merge these back together at a central location.

## XMI Import/Export

Using XMI-based import/export, you can export discrete Packages to XML to share among the development team; this has several benefits over replication:

- You can assemble a model from only the parts necessary to get your job done
- You can assemble a full model if required
- You can assemble a model from different Package versions for different purposes (such as customer visible, internal release only)
- You can roll-back parts of a model as required
- There is less chance of 'collisions' between developers if each works on a discrete Package
- The process is controllable using a version control system, or through Package control

XMI based import/export is UML1.3 / XMI1.1 compliant; you can also write XML based tools to manipulate and extract information from XML files to enhance the development process.

XMI-based Import/Export is accessed through Package | Import/Export.

# Replication

Apart from sharing Enterprise Architect projects in real time over a network, you can also share projects using replication.

## Guide

Facility	Detail
Replication	<p>Replication is a powerful means of sharing projects between isolated or mobile users; it enables different users to work independently of one another, and to merge their changes at a later time.</p> <p>In Replication:</p> <ul style="list-style-type: none"> <li>• A project is converted to a design master, then replicas are made of the master</li> <li>• Users take the replicas away, modify the project, then bring their replicas back to be synchronized with the master file</li> </ul>
Use Replication	<p>To use replication:</p> <ol style="list-style-type: none"> <li>1. Convert the base project to a design master.</li> <li>2. Create replicas from the design master.</li> <li>3. Take the replica away and work on it as required, then bring it back for synchronization with the design master.</li> <li>4. Synchronize the replicas, during which all changes to both the master and the replica are propagated in both directions, so they both finally contain the same information.</li> </ol>
Enterprise Architect Merge Rules	<p>Enterprise Architect follows these rules in merging:</p> <ul style="list-style-type: none"> <li>• Additions are cumulative; that is, two replicas each creating three new Classes result in six new Classes after merging</li> <li>• Deletions prevail over modifications; if one replica changes a Class name and other deletes the Class, merging replicas results in both files losing the Class</li> </ul> <p>Conflicting modifications appear in the 'Resolve Replication Conflicts' dialog.</p>
Upgrades and Replicas	<p>When you upgrade your version of Enterprise Architect, you must not open a replica until you have opened the design master and then synchronized the replicas with the master; you cannot directly upgrade a replica.</p>
Avoid Change Collisions	<p>If two or more people make changes to the same element, Enterprise Architect arbitrarily overwrites one person's change with the other's; to avoid this, different users should work on different Packages.</p> <p>However, since Enterprise Architect does not enforce this rule, it is possible for users' work to conflict; to minimize difficulties, please note these guidelines:</p> <ul style="list-style-type: none"> <li>• If users are likely to have worked in the same area of the model, they should both witness the synchronization and confirm that they are happy with the net result</li> <li>• If small pieces of information have been lost, they should be typed into one of the merged models after synchronization</li> <li>• If a large piece of information has been lost (for example, an overwritten large Class note) use the 'Resolve Replication Conflicts' dialog</li> </ul>

Disable or Remove Replication Features	If you have converted a project to a design master but now want to disable the replication features, you can remove Replication; ensure that you back up all your files first.
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# Design Masters

A design master is the first converted Enterprise Architect project that supports replication. You create the master project from which you create replicas that can be modified independently of the master project and re-merged later.

## Access

Ribbon	Configure > Model > Check Integrity > Manage .EAP File > Make Design Master
Menu	Project > Data Management > Manage .EAP File > Make Design Master

## Create a design master

Step	Action
1	Take a back-up of the required Enterprise Architect project.
2	Select the project in the <b>Project Browser</b> .
3	Select the 'Make Design Master' menu option and follow the on-screen instructions.

# Create Replicas

A replica is one of several copies of the design master of an Enterprise Architect project. You create the copy of the master project for you or another user to modify independently and re-merge later.

## Access

Ribbon	Configure > Model > Check Integrity > Manage .EAP File > Create New Replica
Menu	Project > Data Management > Manage .EAP File > Create New Replica

## Create a replica

Step	Action
1	First create a design master, then select the 'Create New Replica' menu option and follow the on-screen instructions.
2	Edit the replica over time and, when required, return the file for merging with the design master.

## Notes

- In the Corporate, Business and Software Engineering, System Engineering and Ultimate editions of Enterprise Architect, if security is enabled you must have Manage Replicas permission to create a replica



# Synchronize Replicas

Synchronizing replicas combines the changes made to each file. You can:

- Merge the changes made to each replica with the design master, so that a new set of replicas with all changes can be generated and distributed
- Combine the changes made to two replicas, should it be necessary for two team members to combine their work

## Access

Ribbon	Configure > Model > Check Integrity > Manage .EAP File > Synchronize Replicas
Menu	Project > Data Management > Manage .EAP File > Synchronize Replicas

## Synchronize replicas

Step	Action
1	Open the design master project file (or the first required replica).
2	Select the 'Synchronize Replicas' menu option.
3	Locate and select the (second) required replica to merge the open project and the replica.

## Notes

- Information is copied both ways, including deletes, updates and inserts; both projects end up containing identical information
- If this process generates 'conflicting changes' errors, you should review and, if necessary, resolve these conflicts
- In the Corporate, Business and Software Engineering, System Engineering and Ultimate editions of Enterprise Architect, if security is enabled you must have Manage Replicas permission to create a replica

## Remove Replication

Replication makes many changes to the database structure of your model, so the model file becomes considerably larger with additional information; you might, therefore, decide not to use the replication feature any more.

### Access

Ribbon	Configure > Model > Check Integrity > Manage .EAP File > Remove Replication
Menu	Project > Data Management > Manage .EAP File > Remove Replication

### Remove replication from your model

Step	Action
1	Ensure that you have open a temporary repository (not the one having replication removed) - the menu option is not available if no repository is open.
2	Select the 'Remove Replication' menu option. The 'Remove Replication Wizard' displays.
3	Enter the full path and file name of the project to have replication removed. Click on the <b>Next button</b> .
4	Enter the full path and file name of the base Enterprise Architect model (with no replication) to act as template. Click on the <b>Next button</b> .
5	Enter the full path and required file name for the output file. Click on the <b>Next button</b> .
6	Select whether to have a log file created and, if so, enter a file name for the log file.
7	Click on the <b>Run button</b> to begin removing replication. Enterprise Architect creates a new project containing all the model information. Your model has now had replication removed, and should be considerably smaller.

### Notes

- You cannot remove replication from a model with **Auditing** enabled - if you want to remove replication:
- Disable Auditing
- If prompted to do so, allow Enterprise Architect to roll back the database version

- Remove replication

# Upgrade Replicas

A new release of Enterprise Architect might contain changes to the underlying project structure, such as more tables or changed queries. If you use Replication, you must take care with your upgrade.

## Considerations

Consideration	Detail
Open Design Master Project first	After installing the new version of Enterprise Architect, it is very important that you open the design master before opening any of the replicas with the updated version.
Changes to the database design	Changes to the database design in a replicated project can ONLY be done to the design master; trying to update a replica at best does nothing, and at worst causes the update of the master to fail.
Propagate Changes	Design changes are propagated through to the replicas the next time the replicas are synchronized with the master.
Alternatively	One other strategy is to remove replication from a copy of the replica set, upgrade that project and convert it into a new design master from which new replicas are created.

## Resolve Conflicts

If two or more people each work on the same model object in their respective replicas between synchronizations, the replication engine has problems in resolving which change is the master. You need to select which of two conflicting changes you should save to the Design Master and/or replicas, where a substantial piece of information has been overridden by a user and you want to retrieve it.

### Access

Ribbon	Configure > Model > Check Integrity > Manage .EAP File > Resolve Replication Conflicts
Menu	Project > Data Management > Manage .EAP File > Resolve Replication Conflicts

### Considerations

Consideration	Detail
Avoid the problem	Ensure that each team member always works in a separate area of the model within their replica.
Check for conflicts	After synchronizing replicas, open the 'Resolve Conflicts' dialog (see next table) and check if there were any conflicts.
Response to conflicts	<p>When a project record has been modified in different ways by different users, the replication engine selects one of the conflicting values based on rules within the JET replication manager.</p> <p>However, the replication engine stores the discarded changes and flags the conflict on the 'Resolve Conflicts' dialog so that you can choose to roll in the discarded change instead.</p> <p>Normally it is not necessary or desirable to examine conflicts, since they represent relatively inconsequential pieces of information that can very easily be modified through the normal Enterprise Architect interface; for example, by moving a diagram element.</p> <p>The only case in which the 'Resolve Conflicts' dialog should be used is where a substantial piece of information has been overridden by a user, and you want to retrieve it.</p>

### Resolve conflicts in changes to the same model object in two separate replicas

Step	Action
1	Synchronize a replica with the Design Master, and display the 'Resolve Conflicts' dialog.

2	In the Table with Conflicts list, click on the entry that is likely to contain the lost information.
3	<p>Click on each entry in the Conflicting Records list.</p> <p>When the lost information appears in the Conflict Details list, click on the <b>Overwrite with Conflict button</b>.</p>
4	<p>In the 'Conflicting Records' list, you can also copy each Row ID to the clipboard by right-clicking on the row and selecting the 'Copy to Clipboard' menu option.</p> <p>You can locate the object that is in conflict in the <b>Project Browser</b> or diagrams, by right-clicking on it and selecting the 'Find in Project Browser' or 'Find in Diagrams' option.</p>

## Server Based Repositories



As a repository becomes larger, or the number of concurrent users increases or 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, Business and Software Engineering, Systems Engineering or Ultimate editions. Enterprise Architect has a function to transfer your repository from a file based repository to a server based one, helping you to get started quickly and with no changes in the user-interface.

Note that the performance of the Repository as experienced by end users will depend very much on the quality and power of the server machine 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 all models are quite different and although Sparx Systems does its best to maximize performance based on what is expected to be held in a repository, sometimes this is not quite sufficient. 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 repository.
2. Create the required tables in your repository, by running a script supplied on the Sparx Systems website.
3. (For certain DBMS products) 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 .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.

### DBMS Products you can use

You can set up your project on a repository in:

- Firebird from v2
- MySQL from v5
- Microsoft SQL Server from 2005, all editions including Express and Azure
- Microsoft Access from 2007
- Oracle from 9i (all editions)
- PostgreSQL from v8
- Sybase Adaptive Server Anywhere 8 or 9, or SQL Anywhere 10, 11 or 12

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 MySQL Database

To create a project in a repository on MySQL 5, you work through these stages:

- Stage 1: Create an empty database repository and set up the data tables
- Stage 2: Set up the ODBC Driver
- Stage 3: Perform a project integrity check on the project file you are using as a base (optional, but recommended)
- Stage 4: Transfer the data
- Stage 5: Connect to the repository and open the project

### Prerequisites

- A machine with MySQL version 5 or higher installed and running,
- MySQL ODBC - either 5.1.5, or higher than 5.2.4 (other versions are not recommended)

### Create a MySQL Repository

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 recommend all users to choose InnoDB as it supports transactions and UTF8.

Step	Action
1	Create a new empty database and configure it to your installation's defaults.
2	Load the EASchema_1220_MySQL.sql file from the Sparx Systems website into your SQL managment console of choice (ie MySQL Workbench).
3	Run the script to create the required database schema.


### Set Up the ODBC DSN

Step	Action
1	<p>Create a suitable ODBC Data Source to point to your new database.</p> <p>Select the following extended options:</p> <ul style="list-style-type: none"><li>• 'Return matched rows instead of affected rows'</li><li>• 'Allow big result sets'</li></ul>

### Perform a Project Integrity Check

Step	Action
1	In Enterprise Architect, open the file-based project or template from which you are creating the project on the repository.
2	Select and run 'Project   Data Management   Project Integrity Check'. This ensures your project data is 'clean' and free from errors before being copied to the repository.

## Transfer the Project Data

Step	Action
1	Open Enterprise Architect. (If the 'Open Project' dialog displays, click on the <b>Cancel button</b> to open with no project loaded.)
2	Select the 'Project   Data Management   <b>Project Transfer</b> ' menu option. The 'Project Transfer' dialog displays.
3	In the 'Transfer Type' panel, select '.EAP to DBMS'.
4	In the 'Source Project' field, type 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.
5	At the right of the 'Target Project' field, click on the  button. The 'Datalink Properties' dialog displays.
6	Select 'Microsoft OLE DB Provider for ODBC Drivers' from the list. Click on the <b>Next button</b> .
7	In the 'Use Data source name' field, click on the drop-down arrow and select the ODBC Data Source you configured to point to your new database. Click on the <b>OK button</b> . The 'Project Transfer' dialog redisplay.
8	If required, select the 'Logfile' checkbox and type a path and filename for the data transfer log file.
9	Click on the <b>Transfer button</b> to begin the data transfer process.
10	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.

## Create a MySQL Repository

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

Having created your MySQL database, use the SQL script provided by Sparx Systems to create the required table definitions for Enterprise Architect.

You can obtain the scripts from the Sparx Systems website, on the:

- Registered Corporate edition 'Resources' page (Registered users)
- Corporate edition 'Resources' page (Trial users)

### Third Party Tools

If you are unfamiliar with MySQL and DBMS systems in general, you might want to consider a suitable front end tool. MySQL Administrator is one such tool, providing a convenient graphical user interface to enable the creation of databases, the execution of scripts, and backups and restores.

You might, therefore:

1. Run MySQL Administrator and create a new database, then
2. Run MySQL Query Browser, and open and execute the MySQL repository script

After creating a MySQL data repository in Enterprise Architect, you must set up the MySQL ODBC driver.

### Notes

- This feature is available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions
- Ensure that the collation is set to the alphabet you use, such as Latin or Cyrillic

# Set up a MySQL ODBC Driver

After you have created a repository on your MySQL database, you set up the MySQL ODBC driver so that you can connect to a project on that repository from Enterprise Architect.

## Prerequisites

Install:

- MySQL DBMS and repository
- MySQL ODBC driver software version 5.1.5 or higher than 5.2.4

## Set up the ODBC Driver

Your MySQL driver is now available to connect to the repository from Enterprise Architect.

Step	Action
1	Under both 32-bit and 64-bit operating systems, Enterprise Architect requires 32-bit ODBC drivers to connect to a repository through ODBC. You can quickly load the correct 32-bit ODBC Data Source Administrator by selecting 'Tools   ODBC Data Sources'. The <b>ODBC Data Source Administrator</b> window displays.
2	Click on the <b>Add button</b> . The 'Create New Data Source' dialog displays, enabling you to add a new DSN.
3	Select the appropriate MySQL ODBC Driver from the list.
4	Click on the <b>Finish button</b> . The 'MySQL Connector/ODBC' dialog displays.
5	Enter these configuration details: <ul style="list-style-type: none"><li>• A data source name for the connection</li><li>• A description (optional)</li><li>• The host address of the DBMS server</li><li>• User name and password</li><li>• The database name on the selected server</li></ul>
6	To set the advanced options, click on the Details>> button.
7	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>
8	Click on the <b>Test Connection button</b> to confirm that the details are correct.
9	If the test succeeds, click on the <b>OK button</b> to complete the configuration. If the test does not succeed, review your settings.




## Connect to a MySQL Data Repository

To access a project in your MySQL data repository, you must connect to the data repository from Enterprise Architect.


### Prerequisites

- The MySQL repository and the project already exist
- You have SELECT, INSERT, UPDATE, DELETE, EXECUTE and SHOW VIEW access permissions
- The MySQL ODBC driver has been set up

### Access

Ribbon	 : Open Project
Menu	File   Open Project
Keyboard Shortcuts	<b>Ctrl</b> + O

### Connect to the repository

Step	Action
1	In the 'Open Project' dialog, select the 'Connect to Server' checkbox.
2	Click on the  button. The 'Data Link Properties' dialog displays.
3	Select 'Microsoft OLE DB Provider for ODBC Drivers' from the list.
4	Click on the Next>> button. The 'Connection' tab displays.
5	Click on the 'Use data source name' radio button and on the drop-down arrow in its field. From the list, select the ODBC driver you have set up to connect to your MySQL repository.
6	If required, type in a User name and Password.
7	If required, type in an initial catalog.
8	Click on the <b>Test Connection button</b> to confirm that the details are correct.
9	If the test does not succeed, revise your settings.

	If the test succeeds, click on the <b>OK button</b> ; the 'Connection Name & Type' dialog displays.
10	Give the connection a suitable name so that you can recognize it in the 'Recent Projects' panel on the 'Open Project' dialog.
11	If required, select the 'Encrypt Connection String' checkbox. This encrypts and hides the connection details of the database from the users that the connection string is given to.
12	If required, select the 'Lazy Load' checkbox to not load the full project view when the model is loaded; instead, only the parts that are necessary to display the visible portion of the tree are loaded. With this setting, the model loads faster and users can begin work sooner, but at the expense of later small delays as Enterprise Architect loads specific portions of the model.
13	If required, select the 'Use WAN Optimization' checkbox. To improve performance over a Wide Area Network, remote database calls can be routed through a WAN Optimizer that compresses the data returned from the repository, reducing transfer time. If you select this checkbox, complete the next three fields (see your administrator for the correct values); otherwise go to step 17.
14	In the 'Server' field, type the network name or address of the optimizer server.
15	In the 'Port' field, type the port on which the server is running on the remote machine.
16	In the 'DSN' field, type the data source name of the database as it appears on the remote machine.
17	Click on the <b>OK button</b> to complete the configuration and open the project. This also adds the project name to the 'Recent' list on the 'Start Page'; from now on, you can open the project again just by clicking on this name.

## Notes

- This feature is available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions of Enterprise Architect

## Create a Project in an Oracle Database

To create a project in a repository on Oracle 9i, 10g, 11g or 12c, you work through these stages:

- Stage 1: Create an empty database repository and set up the data tables
- Stage 2: Set up the ODBC Driver (if required; you can connect to an Oracle repository using either OLE DB or an ODBC driver; if you intend to connect through the ODBC driver, you must first set it up)
- Stage 3: Perform a project integrity check on the project file you are using as a base (optional, but recommended)
- Stage 4: Transfer the data
- Stage 5: Connect to the repository to open the project

### Prerequisites

- A machine with Oracle 9i, 10g or 11g installed and running
- Oracle Client installed on the client machine, please ensure that both the ODBC and OLE/DB drivers are installed

### Create Database Repository

Step	Action
1	Create the empty database.
2	Load the EASchema_1220_Oracle.sql file from the Sparx Systems website into your SQL management console of choice (ie Oracle SQL Developer)
3	Run the script to create the required database schema.

### Set Up the ODBC DSN


Step	Action
1	Create a suitable ODBC Data Source to point to your new database.

### Perform Project Integrity Check

Step	Action
1	Open the file-based project or template.
2	Select and run 'Project   Data Management   Project Integrity Check'. This ensures your project data is 'clean' before uploading.



## Transfer the project data to the repository

Step	Action
1	Open Enterprise Architect. (If the 'Open Project' dialog displays, click on the <b>Cancel button</b> to open with no project loaded.)
2	Select the 'Project   Data Management   <b>Project Transfer</b> ' menu option. The 'Project Transfer' dialog displays.
3	In the 'Transfer Type' panel, select '.EAP to DBMS'.
4	In the 'Source Project' field, type the name of the project file to copy to Oracle. If the .EAP file has Replication enabled, this must be removed before performing the transfer.
5	At the right of the 'Target Project' field, click on the  button. The 'Datalink Properties' dialog displays.
6	Select 'Oracle Provider for OLE DB' from the list. Click on the <b>Next button</b> .
7	On the 'Connection' page of the 'Datalink Properties' dialog, enter the Oracle service name in the 'Data Source' field, and the user name and password as required. Click on the <b>OK button</b> . The 'Project Transfer' dialog redisplay.
8	If required, select the 'Logfile' checkbox and type a path and filename for the data transfer log file.
9	Click on the <b>Transfer button</b> to begin the data transfer process.
10	When the process is complete, you have created a project on a Oracle database and can now connect to it and open it from Enterprise Architect.

## Notes

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

# Create an Oracle Data Repository

Creating an Oracle database is fully documented in the product information provided with your Oracle installer.

Before creating an Oracle data repository, install the appropriate version of Oracle (9i, 10g, 11g or 12c) and MDAC 2.6 or higher, and obtain access permission to create a new database.

Having created your Oracle database, use the SQL script (Oracle\_EASchema.sql) provided by Sparx Systems to create the required table definitions and indexes for Enterprise Architect. You can obtain the script from the Sparx Systems website, on the:

- Registered Corporate edition 'Resources' page (Registered users), or
- Corporate edition 'Resources' page (Trial users)

When you eventually connect to the Oracle database from Enterprise Architect, you can do so using either OLE DB or ODBC; if you intent to use ODBC, after creating the Oracle data repository you set up the Oracle ODBC driver.

## Third Party Tools

If you are unfamiliar with Oracle and DBMS systems in general, you might want to consider a suitable front end tool. You could connect to the database and execute the scripts with a program such as Oracle SQL\*Plus or SQL Plus Worksheet.

## Notes

- This feature is available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions
- With Windows 7 the OLE/ODBC connection is set using the 32 bit ODBC driver, installed using C:\Windows\SysWOW64\odbcad32.exe; the connection can be set using either ODBC or OLE
- If you intend to connect via the OLE connection, download the 32-bit ODBC driver from [here](#)
- Set the collation to the alphabet you use, such as Latin or Cyrillic

## Set up an Oracle ODBC Driver

After you have created a repository on your Oracle database, you set up the Oracle ODBC driver so that you can connect to a project on that repository from Enterprise Architect (in preference to using an OLE DB connection).

### Prerequisites

Install:

- Oracle DBMS and repository

### Set up the Oracle ODBC driver

Your Oracle driver is now available to connect to the repository from Enterprise Architect.

Step	Action
1	Under both 32-bit and 64-bit operating systems, Enterprise Architect requires 32-bit ODBC drivers to connect to a repository through ODBC. You can quickly load the correct 32-bit ODBC Data Source Administrator by selecting 'Tools   ODBC Data Sources'. The <b>ODBC Data Source Administrator</b> window displays.
2	Click on the <b>Add button</b> . The 'Create New Data Source' dialog displays, enabling you to add a new DSN.
3	Select 'Oracle in OraDB11g_home1' from the list (or similar, depending on the ODBC installation).
4	Click on the <b>Finish button</b> . The 'Oracle ODBC Driver Configuration' dialog displays.
5	Enter these configuration details: <ul style="list-style-type: none"><li>• A data source name for the connection</li><li>• A description (optional)</li><li>• The TNS Service Name (click on the drop down arrow and select from the list)</li><li>• User ID</li></ul>
6	Click on the <b>Test Connection button</b> and enter the Oracle user password to confirm that the details are correct.
7	If the test succeeds, click on the <b>OK button</b> to complete the configuration. If the test does not succeed, review your settings.

## Connect to an Oracle Data Repository (ODBC)


To access a project in your Oracle 9i, 10g, 11g or 12c data repository, you connect to the data repository from Enterprise Architect.

### Prerequisites


- The Oracle repository and the project already exist
- You have SELECT, UPDATE, INSERT and DELETE access permissions
- The Oracle ODBC driver has been set up

Alternatively, you can connect to your Oracle project using OLE DB - see *Connect to an Oracle Data Repository (OLE DB)*.

### Access

Ribbon	 : Open Project
Menu	File   Open Project
Keyboard Shortcuts	<b>Ctrl</b> + O

## Connect to an Oracle Data Repository using an ODBC Driver

Step	Action
1	In the 'Open Project' dialog, select the 'Connect to Server' checkbox.
2	Click on the  button. The 'Data Link Properties' dialog displays.
3	Select 'Microsoft OLE DB Provider for ODBC Drivers' from the list.
4	Click on the Next>> button. The 'Connection' tab displays.
5	In the 'Data source' field, click on the drop-down arrow and select the data source name.
6	Type in the User name and Password.
7	Click on the <b>Test Connection button</b> to confirm that the details are correct.
8	If the test does not succeed, revise your settings.

	If the test succeeds, click on the <b>OK button</b> ; Oracle prompts you for the password.
9	Type in the password. The 'Connection Name and Type' dialog displays.
10	Give the connection a suitable name so that you can recognize it in the 'Recent Projects' panel on the 'Open Project' dialog.
11	If you want to encrypt and hide the connection details of the database from the users that the connection string is given to, select the 'Encrypt Connection String' checkbox.
12	The Lazy Load facility does not load the full project view when the model is loaded; instead, it loads only the parts that are necessary to display the visible portion of the tree. With this set, the model loads faster and users can begin work sooner, but at the expense of later small delays as Enterprise Architect loads specific portions of the model. If you want to use the Lazy load facility, select the 'Lazy Load' checkbox.
13	To improve performance over a Wide Area Network, remote database calls can be routed through a WAN Optimizer that compresses the data returned from the repository, reducing transfer time. If you are using a WAN, and want to apply this facility, select the 'Use WAN Optimization' checkbox; otherwise go to step 16. If you select this checkbox, complete the next two fields (see your administrator for the correct values).
14	In the 'Server' field, type the network name or address of the optimizer server.
15	In the 'Port' field, type the port on which the server is running on the remote machine.
16	Click on the <b>OK button</b> to complete the configuration and open the project. This also adds the project name to the 'Recent' list on the <b>Start Page</b> ; from now on, you can open the project again just by clicking on this name.

## Notes

- This feature is available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions

## Connect to an Oracle Data Repository (OLE DB)


To access a project in your Oracle 9i, 10g, 11g or 12c data repository, you connect to the data repository from Enterprise Architect.

### Prerequisites


- The Oracle repository and the project already exist
- You have SELECT, UPDATE, INSERT and DELETE access permissions

Alternatively, you can connect to the repository using an Oracle ODBC driver - see *Connect to an Oracle Data Repository (ODBC)*.

### Access

Ribbon	 : Open Project
Menu	File   Open Project
Keyboard Shortcuts	<b>Ctrl</b> + O

### Connect to an Oracle Repository using OLE DB

Step	Action
1	In the 'Open Project' dialog, select the 'Connect to Server' checkbox.
2	Click on the  button. The 'Data Link Properties' dialog displays.
3	Select 'Oracle Provider for OLE DB' from the list. <b>Do not</b> select 'Microsoft OLE DB Provider for Oracle'; Enterprise Architect might not work as expected.
4	Click on the Next>> button. The 'Connection' tab displays.
5	In the 'Data source' field, click on the drop-down arrow and select the data source name (the service name of the Oracle database).
6	Type in the User name and Password.
7	Click on the <b>Test Connection button</b> to confirm that the details are correct.

8	<p>If the test does not succeed, revise your settings.</p> <p>If the test succeeds, click on the <b>OK button</b>; the 'Connection Name and Type' dialog displays.</p>
9	<p>Give the connection a suitable name so that you can recognize it in the 'Recent Projects' panel on the 'Open Project' dialog.</p>
10	<p>If you want to encrypt and hide the connection details of the database from the users that the connection string is given to, select the 'Encrypt Connection String' checkbox.</p>
11	<p>If required, select the 'Lazy Load' checkbox to not load the full project view when the model is loaded; instead, only the parts that are necessary to display the visible portion of the tree are loaded.</p> <p>With this setting, the model loads faster and users can begin work sooner, but at the expense of later small delays as Enterprise Architect loads specific portions of the model.</p>
12	<p>To improve performance over a Wide Area Network, remote database calls can be routed through a WAN Optimizer that compresses the data returned from the repository, reducing transfer time. If you are using a WAN, and want to apply this facility, select the 'Use WAN Optimization' checkbox; otherwise go to step 15.</p> <p>If you select this checkbox, complete the next two fields (see your administrator for the correct values).</p>
13	<p>In the 'Server' field, type the network name or address of the optimizer server.</p>
14	<p>In the 'Port' field, type the port on which the server is running on the remote machine.</p>
15	<p>Click on the <b>OK button</b> to complete the configuration and open the project.</p> <p>This also adds the project name to the 'Recent' list on the <b>Start Page</b>; from now on, you can open the project again just by clicking on this name.</p>

## Notes

- This feature is available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions

## Create a Project in a PostgreSQL Database

To create a project in a repository on PostgreSQL 7, 8 or 9, you work through these stages:

- Stage 1: Create an empty database repository and set up the data tables
- Stage 2: Set up the PostgreSQL ODBC Driver
- Stage 3: Perform a project integrity check on the project file you are using as a base (optional, but recommended)
- Stage 4: Transfer the data
- Stage 5: Connect to the repository to open the project

### Prerequisites

- A machine with PostgreSQL 7.3.2 or higher installed and running
- psqLODBC, version 7.03.01.00 or higher has been installed (do not use version 8.3.4 or 8.4.1)

### Create Database Repository

Step	Action
1	Create the empty database.
2	Load the EASchema_PostgreSQL_1220.sql file from the Sparx Systems website into your SQL managment console of choice (ie pgAdminIII).
3	Run the script to create the required database schema.

### Set Up the ODBC DSN

Step	Action
1	<p>Create a suitable ODBC Data Source to point to your new database.</p> <p>Select the following extended options:</p> <p>Page 1:</p> <p>Disable Genetic Optimizer - <b>Uncheck</b></p> <p>Use Declare/Fetch - <b>Check</b></p> <p>Unknowns as LongVarChar - <b>Check</b></p> <p>Bools as Char - <b>Uncheck</b></p> <p>Max Varchar - <b>1024</b></p> <p>Max LongVarChar - <b>1000000</b></p> <p>Page 2:</p>




	bytea as LO - <b>Check</b> Disallow Premature - <b>Check</b> Protocol - <b>7.4+</b>
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## Perform a Project Integrity Check

Step	Action
1	In Enterprise Architect, open the file-based project or template from which you are creating the project on the repository.
2	Select and run 'Project   Data Management   Project Integrity Check'. This ensures your project data is 'clean' before being copied to the repository.

## Transfer the project data to the repository

Step	Action
1	Open Enterprise Architect. (If the 'Open Project' dialog displays, click on the <b>Cancel button</b> to open with no project loaded.)
2	Select the 'Project   Data Management   <b>Project Transfer</b> ' menu option. The 'Project Transfer' dialog displays.
3	In the 'Transfer Type' panel, select '.EAP to DBMS'.
4	In the 'Source Project' field, type 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.
5	At the right of the 'Target Project' field, click on the  button. The 'Datalink Properties' dialog displays.
6	Select 'Microsoft OLE DB Provider for ODBC Drivers' from the list. Click on the <b>Next button</b> .
7	On the 'Use Data Source Name' field, click on the drop-down arrow and select the ODBC Data Source you configured to point to your new database. Click on the <b>OK button</b> . The ' <b>Project Transfer</b> ' dialog redisplay.
8	If required, select the 'Logfile' checkbox and type a path and filename for the data transfer log file.
9	Click on the <b>Transfer button</b> to begin the data transfer process.
	When the process is complete, you have created a project on a PostgreSQL database and can now connect

10	to it and open it from Enterprise Architect.
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## Notes

- During the transfer, if an error message displays reporting '...nonstandard use of \\ in a string literal...', set the server variable in the postgresql.conf file to: `escape_string_warning = off`

## Create a PostgreSQL Repository

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

Having created your PostgreSQL database, use the SQL script provided by Sparx Systems to create the required table definitions for Enterprise Architect. You can obtain the scripts from the Sparx Systems website, on the:

- Registered Corporate edition 'Resources' page (Registered users)
- Corporate edition 'Resources' page (Trial users)

### Third Party Tools

If you are unfamiliar with PostgreSQL and DBMS systems in general, you might want to consider a suitable front end tool. One such tool is pgAdminIII. It provides a convenient graphical user interface to enable creation of databases, execution of scripts and restores.

After creating a PostgreSQL data repository in Enterprise Architect, you must set up the PostgreSQL ODBC driver.

### Notes

- This feature is available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions
- Ensure that the collation is set to the alphabet you use, such as Latin or Cyrillic

## Set up a PostgreSQL ODBC Driver

After you have created a repository on your PostgreSQL database, you set up the PostgreSQL ODBC driver so that you can connect to a project on that repository from Enterprise Architect.

### Prerequisites

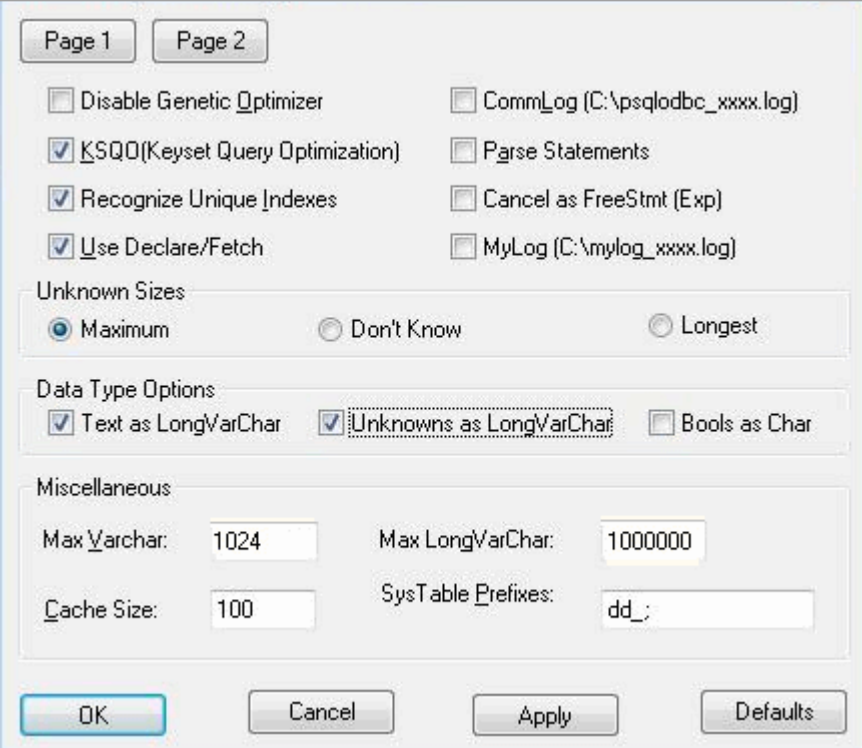
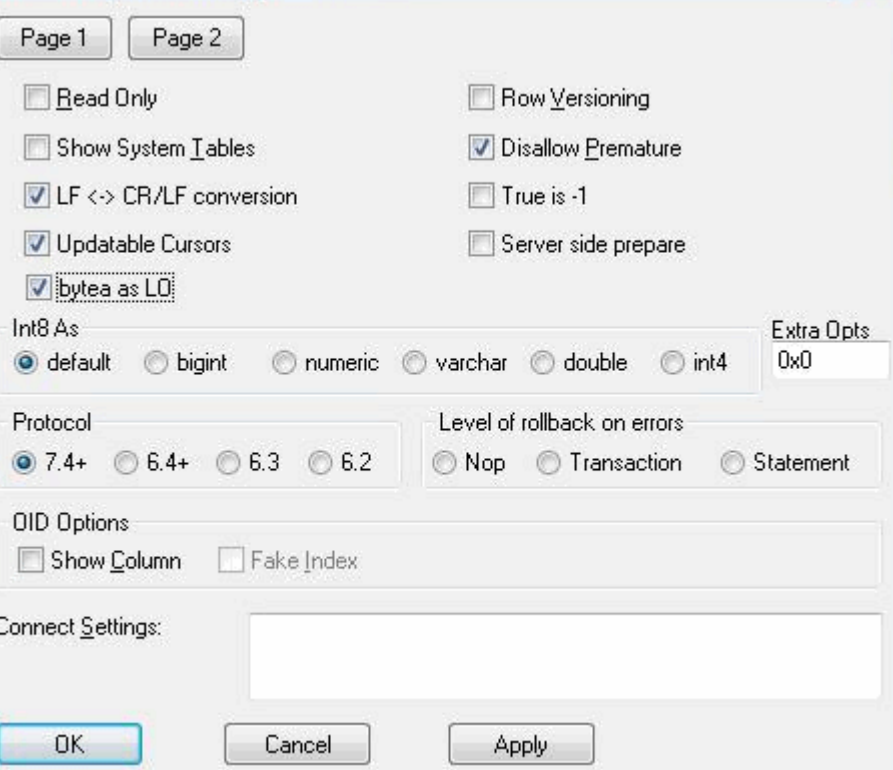
Install:

- PostgreSQL DBMS and repository
- PostgreSQL ODBC driver software version 7.03.01.00 or above (note that versions 8.3.4 and 8.4.1 of the PostgreSQL ODBC Driver are not supported)

### Set up the ODBC driver

Your PostgreSQL driver is now available to connect to the repository from Enterprise Architect.

Step	Action
1	Under both 32-bit and 64-bit operating systems, Enterprise Architect requires 32-bit ODBC drivers to connect to a repository through ODBC. You can quickly load the correct 32-bit ODBC Data Source Administrator by selecting 'Tools   ODBC Data Sources'. The <b>ODBC Data Source Administrator</b> window displays.
2	Click on the <b>Add button</b> . The 'Create New Data Source' dialog displays, enabling you to add a new DSN.
3	Select 'PostgreSQL UNICODE' from the list.
4	Click on the <b>Finish button</b> . The 'Postgre SQL Connector/ODBC' dialog displays.
5	Enter these configuration details: <ul style="list-style-type: none"><li>• A data source name for the connection</li><li>• The actual name of the database</li><li>• The host address of the DBMS server</li><li>• User name</li><li>• A description (optional)</li><li>• The password</li></ul>
6	To set the advanced options, click on the <b>Datasource button</b> and set the options on 'Page 1' and 'Page 2' as shown:

	 
7	<p>If you are using PostgreSQL version 8+, on Page 2 select:</p> <ul style="list-style-type: none"> <li>• The 'Disallow Premature' checkbox</li> <li>• In the 'Protocol' panel, the '7.4+' radio button</li> </ul>
8	<p>Click on the <b>OK button</b> to complete the configuration.</p>




## Connect to a PostgreSQL Data Repository

To access a project in your MySQL data repository, you must connect to the data repository from Enterprise Architect.


### Prerequisites

- The PostgreSQL repository and the project already exist
- You have SELECT, UPDATE, INSERT and DELETE access permissions
- The PostgreSQL ODBC driver has been set up

### Access

Ribbon	 : Open Project
Menu	File   Open Project
Keyboard Shortcuts	<b>Ctrl</b> + O

### Connect to the repository

Step	Action
1	In the 'Open Project' dialog, select the 'Connect to Server' checkbox.
2	Click on the  button. The 'Data Link Properties' dialog displays.
3	Select 'Microsoft OLE DB Provider for ODBC Drivers' from the list.
4	Click on the Next>> button. The 'Connection' tab displays.
5	Click on the 'Use data source name' radio button and on the drop-down arrow in its field. From the list, select the ODBC driver you have set up to connect to your PostgreSQL repository.
6	Click on the <b>Test Connection button</b> to confirm that the details are correct.
7	If the test does not succeed, revise your settings. If the test succeeds, click on the <b>OK button</b> ; the 'Connection Name & Type' dialog displays.
8	Give the connection a suitable name so that you can recognize it in the 'Recent Projects' panel on the 'Open Project' dialog.

9	<p>If required, select the 'Encrypt Connection String' checkbox.</p> <p>This encrypts and hides the connection details of the database from the users that the connection string is given to.</p>
10	<p>If required, select the 'Lazy Load' checkbox to not load the full project view when the model is loaded; instead, only the parts that are necessary to display the visible portion of the tree are loaded.</p> <p>With this setting, the model loads faster and users can begin work sooner, but at the expense of later small delays as Enterprise Architect loads specific portions of the model.</p>
11	<p>If required, select the 'Use WAN Optimization' checkbox.</p> <p>To improve performance over a Wide Area Network, remote database calls can be routed through a WAN Optimizer that compresses the data returned from the repository, reducing transfer time.</p> <p>If you select this checkbox, complete the next three fields (see your administrator for the correct values); otherwise go to step 15.</p>
12	<p>In the 'Server' field, type the network name or address of the optimizer server.</p>
13	<p>In the 'Port' field, type the port on which the server is running on the remote machine.</p>
14	<p>In the 'DSN' field, type the data source name of the database as it appears on the remote machine.</p>
15	<p>Click on the <b>OK button</b> to complete the configuration and open the project.</p> <p>This also adds the project name to the 'Recent' list on the <b>Start Page</b>; from now on, you can open the project again just by clicking on this name.</p>

## Notes

- This feature is available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions



## Create a Project in an Access 2007 Database

In setting up a project in an Access 2007 repository, you could be working in one of two situations:

- You are able to work in Access 2007 itself, in which case you can convert your .eap project directly to an Access 2007 .accdb database file, which you can connect to and open in Enterprise Architect
- You have access to an empty Access 2007 .accdb file, and need to transfer a .eap project into that .accdb file

In either case, before you convert or transfer the project data, you could perform a project integrity check on the .eap file you are using as a base (optional, but recommended).

### Prerequisites

- The 'Microsoft Office 12.0 Access Database Engine OLE DB Provider' ODBC driver installed

### Perform a Project Integrity Check


Step	Action
1	Open the base project or template .eap file.
2	Select and run 'Project   Data Management   Project Integrity Check'. This ensures your project data is 'clean' before uploading.

### Convert a .eap file in Access 2007

Step	Action
1	Open MS Access 2007 and open the source .eap file within this product. Allow Access to convert the .eap file to a .accdb file. This forms the Access 2007 repository.

### Transfer the project data into an empty .accdb file

Step	Action
1	Open Enterprise Architect. (If the 'Open Project' dialog displays, click on the <b>Cancel</b> button to open with no project loaded.)
2	Select the 'Project   Data Management   <b>Project Transfer</b> ' menu option. The 'Project Transfer' dialog displays.
3	In the 'Transfer Type' panel, select 'File to DBMS'.

4	In the 'Source Project' field, type the name of the .EAP file to copy to the repository. If the .EAP file has Replication enabled, this must be removed before performing the transfer.
5	At the right of the 'Target Project' field, click on the  button. The 'Datalink Properties' dialog displays.
6	Select 'Microsoft Office 12.0 Access Database Engine OLE DB Provider' from the list. Click on the <b>Next button</b> .
7	On the 'Data Source Details' page of the 'Datalink Properties' dialog, type in the full path to the Access 2007 .accdb file. Click on the <b>OK button</b> to return to the 'Project Transfer' dialog.
8	If required, select the 'Logfile' checkbox and type a path and filename for the data transfer log file.
9	Click on the <b>Transfer button</b> to begin the data transfer process. When the process is complete, you have created your project in an Access 2007 database and can now open it directly from Enterprise Architect, browsing for the .accdb file location in the 'Open Project' dialog.

## Notes

- This feature is available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions
- If you do not have Access 2007, you can download the Access Database Engine from the [Microsoft downloads site](#)
- Ensure that the collation is set to the alphabet you use, such as Latin or Cyrillic

## 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 an empty database repository and set up the data tables
- Stage 2: Perform a project integrity check on the project file you are using as a base (optional, but recommended)
- Stage 3: Transfer the data
- Stage 4: Connect to the repository to open the project

### 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

### Create a SQL Server Repository


Step	Action
1	Create a new empty database.
2	Load the EASchema_1220_SQLServer.sql file from the Sparx Systems website into your SQL managment console of choice (ie Microsoft SQL Server Management Studio).
3	Run the script to create the required database schema.

### Perform a Project Integrity Check

Step	Action
1	In Enterprise Architect, open the file-based project or template from which you are creating the project on the repository.
2	Select and run 'Project   Data Management   Project Integrity Check' This ensures your project data is 'clean' before being copied to the repository.

### Transfer the project data to the repository

Step	Action

1	Open Enterprise Architect. (If the 'Open Project' dialog displays, click on the <b>Cancel button</b> to open with no project loaded.)
2	Select the 'Project   Data Management   <b>Project Transfer</b> ' menu option. The 'Project Transfer' dialog displays.
3	In the 'Transfer Type' panel, select '.EAP to DBMS'.
4	In the 'Source Project' field, type 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.
5	At the right of the 'Target Project' field, click on the  button. The 'Datalink Properties' dialog displays.
6	Select 'Microsoft OLE DB Provider for SQL Server' from the list. Click on the <b>Next button</b> .
7	On the 'Data Source Details' page of the 'Datalink Properties' dialog, type in the server name, database name and any security details required. Click on the <b>OK button</b> . The ' <b>Project Transfer</b> ' dialog redisplay.
8	If required, select the 'Logfile' checkbox and type a path and filename for the data transfer log file.
9	Click on the <b>Transfer button</b> to begin the data transfer process.
10	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.

## Create a SQL Server Repository

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

Having created your SQL Server database, use the SQL script (SQLServer\_EASchema.sql) provided by Sparx Systems to create the required table definitions for Enterprise Architect. You can obtain the script from the Sparx Systems website, on the:

- Registered Corporate edition 'Resources' page (Registered users)
- Corporate edition 'Resources' page (Trial users)

If you are unfamiliar with SQL Server and DBMS systems in general, you might want to consider a suitable front end tool, such as SQL Enterprise Manager.

### SQL Enterprise Manager example

Step	Action
1	In SQL Enterprise Manager, locate the server on which to create your new project; for example: DBSERVER02\SQLEXPRESS.
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 <b>Query window</b> , use the 'Open File' dialog to locate the SQLServer_EASchema.sql script file.
6	Click on the <b>Open button</b> . In the drop-down menu, check that you have selected the correct database to run the script in.
7	Click on the <b>Execute button</b> ; SQL Server executes the script, which creates the base tables for an Enterprise Architect project.

### Notes

- This feature is available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions
- 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

## SQL Server Security Permissions

The security model implemented by Microsoft's SQL Server is quite powerful and highly configurable, supporting many different possible solutions for securing the data contained in SQL Server databases, 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.

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

### Additional Permissions for Project Transfers

When an Enterprise Architect repository is transferred into a SQL Server based repository it is necessary for Enterprise Architect to perform a number of SET IDENTITY\_INSERT (table) {ON | OFF} commands during the process. This means the user performing the transfer must have a high level of security, the role of 'db\_ddladmin'.

### 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.


# Connect to a SQL Server Data Repository

To access a project in your SQL Server data repository, you must connect to the data repository from Enterprise Architect.


## Prerequisites

- The SQL Server repository and the project already exist
- You have SELECT, UPDATE, INSERT and DELETE access permissions

## Access

Ribbon	 : Open Project
Menu	File   Open Project
Keyboard Shortcuts	<b>Ctrl</b> + O

## Connect to the repository

Step	Action
1	In the 'Open Project' dialog, select the 'Connect to Server' checkbox.
2	Click on the  button. The 'Data Link Properties' dialog displays.
3	Select 'Microsoft OLE DB Provider for SQL Server' from the list.
4	Click on the Next>> button. The 'Connection' tab displays.
5	Type in the server details, including Server Name, User Name and Password.
6	Click on the 'Select the database on the server' option and on the drop-down arrow. From the list, select the project to connect to.
7	Click on the <b>Test Connection button</b> to confirm that the details are correct.
8	If the test does not succeed, revise your settings. If the test succeeds, click on the <b>OK button</b> ; the 'Connection Name & 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 required, select the 'Encrypt Connection String' checkbox. This encrypts and hides the connection details of the database from the users that the connection string is given to.
11	If required, select the 'Lazy Load' checkbox to not load the full project view when the model is loaded; instead, only the parts that are necessary to display the visible portion of the tree are loaded. With this setting, the model loads faster and users can begin work sooner, but at the expense of later small delays as Enterprise Architect loads specific portions of the model.
12	If required, select the 'Use WAN Optimization' checkbox. To improve performance over a Wide Area Network, remote database calls can be routed through a WAN Optimizer that compresses the data returned from the repository, reducing transfer time. If you select this checkbox, complete the next two fields (see your administrator for the correct values); otherwise go to step 15.
13	In the 'Server' field, type the network name or address of the optimizer server.
14	In the 'Port' field, type the port on which the server is running on the remote machine.
15	Click on the <b>OK button</b> to complete the configuration and open the project. This also adds the project name to the 'Recent' list on the <b>Start Page</b> ; from now on, you can open the project again just by clicking on this name.

## Notes

- This feature is available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions



## Create a Project in a Sybase ASA Database

To create a project in a repository on Sybase Adaptive Server Anywhere 8 or 9, or SQL Anywhere 10, 11 or 12, you work through these stages:

- Stage 1: Create an empty database repository
- Stage 2: Set up the ASA ODBC Driver
- Stage 3: Perform a project integrity check on the project file you are using as a base (optional, but recommended)
- Stage 4: Transfer the data
- Stage 5: Connect to the repository and open the project

### Prerequisites

- A machine with Adaptive Server Anywhere installed and running
- Install SQL Anywhere Studio 8 or higher, this also installs the ASA ODBC driver or just the ASA ODBC driver

### Create Database Repository

Step	Action
1	Create a new empty database.
2	Load the EASchema_1220_SybaseASA.sql file from the Sparx Systems website into your SQL managment console of choice (ie Sybase Central).
3	Run the script to create the required database schema.

### Set up the ODBC DSN


Step	Action
1	Create a suitable ODBC Data Source to point to your new database.

### Perform Project Integrity Check

Step	Action
1	In Enterprise Architect, open the file-based project or template from which you are creating the project on the repository.
2	Select and run 'Project   Data Management   Project Integrity Check'.

	This ensures your project data is 'clean' before being copied to the repository.
--	--

## Transfer the Project Data

Step	Action
1	Open Enterprise Architect. (If the 'Open Project' dialog displays, click on the <b>Cancel button</b> to open with no project loaded.)
2	Select the 'Project   Data Management   <b>Project Transfer</b> ' menu option. The 'Project Transfer' dialog displays.
3	In the 'Transfer Type' panel, select '.EAP to DBMS'.
4	In the 'Source Project' field, type 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.
5	At the right of the 'Target Project' field, click on the  button. The 'Datalink Properties' dialog displays.
6	Select 'Microsoft OLE DB Provider for ODBC Drivers' from the list. Click on the <b>Next button</b> .
7	In the 'Use Data source name' field, click on the drop-down arrow and select the ODBC Data Source you configured to point to your new database. Click on the <b>OK button</b> . The ' <b>Project Transfer</b> ' dialog redisplay.
8	If required, select the 'Logfile' checkbox and type a path and filename for the data transfer log file.
9	Click on the <b>Transfer button</b> to begin the data transfer process.
10	When the process is complete, you have created a project on an ASA database and can now connect to it and open it from Enterprise Architect.

## Create an Adaptive Server Anywhere Repository

Creating an ASA database is fully documented in the product information provided with your ASA installer.

Having created your ASA database, use the SQL script (ASA\_EASchema.sql) provided by Sparx Systems to create the required table definitions for Enterprise Architect. You can obtain the scripts from the Sparx Systems website, on the:

- Registered Corporate edition 'Resources' page (Registered users)
- Corporate edition 'Resources' page (Trial users)

### Third Party Tools

If you are unfamiliar with ASA and DBMS systems in general, you might want to consider a suitable front end tool. Sybase Central is one such tool, that can be installed along with the DBMS. It provides a convenient graphical user interface to enable creation of databases, execution of scripts and restores.

After creating an ASA data repository in Enterprise Architect, you must set up the ASA ODBC driver.

### Notes

- This feature is available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions
- Ensure that the collation is set to the alphabet you use, such as Latin or Cyrillic

## Set up an ASA ODBC Driver

After you have created a repository on your ASA database, you set up the ASA ODBC driver so that you can connect to a project on that repository from Enterprise Architect.

### Prerequisites

Install:

- Adaptive Server Anywhere - SQL Anywhere Studio 8 or higher, and create a repository
- ASA ODBC driver software (installed with the ASA DBMS)

### Set up the ODBC Driver

Your ASA driver is now available to connect to the repository from Enterprise Architect.

Step	Action
1	Under both 32-bit and 64-bit operating systems, Enterprise Architect requires 32-bit ODBC drivers to connect to a repository through ODBC. You can quickly load the correct 32-bit ODBC Data Source Administrator by selecting 'Tools   ODBC Data Sources'. The <b>ODBC Data Source Administrator</b> window displays.
2	Click on the <b>Add button</b> . The 'Create New Data Source' dialog displays, enabling you to add a new DSN.
3	Select 'Adaptive Server Anywhere' or 'SQL Anywhere' from the list.
4	Click on the <b>Finish button</b> . The 'ASA Connector/ODBC' dialog displays.
5	Enter these configuration details: <ul style="list-style-type: none"><li>• A data source name for the connection, on the 'ODBC' tab</li><li>• User name and password on the 'Login' tab (dba, sql are the defaults when ASA is installed)</li><li>• The server name and the path to the database, on the 'Database' tab</li><li>• The network protocol on the 'Network' tab (if the database is on a network location)</li></ul>
6	Return to the 'ODBC' tab and click on the <b>Test Connection button</b> to confirm that the details are correct.
7	If the test succeeds, click on the <b>OK button</b> to complete the configuration. If the test does not succeed, review your settings.


## Connect to an ASA Data Repository

To access a project in your Adaptive Server Anywhere (ASA) data repository, you must connect to the data repository from Enterprise Architect.


### Prerequisites

- The ASA repository and the project already exist
- You have SELECT, UPDATE, INSERT and DELETE access permissions
- The ASA ODBC driver has been set up

### Access

Ribbon	 : Open Project
Menu	File   Open Project
Keyboard Shortcuts	<b>Ctrl</b> + O

### Connect to the repository

Step	Action
1	In the 'Open Project' dialog, select the <b>Connect to Server button</b> .
2	Click on the  button. The 'Data Link Properties' dialog displays.
3	Select 'Microsoft OLE DB Provider for ODBC Drivers' from the list.
4	Click on the Next>> button. The 'Connection' tab displays.
5	Click on the 'Use data source name' radio button and on the drop-down arrow in its field. From the list, select the ODBC driver you have set up to connect to your ASA repository.
6	Click on the <b>Test Connection button</b> to confirm that the details are correct.
7	If the test does not succeed, revise your settings. If the test succeeds, click on the <b>OK button</b> ; the 'Connection Name & Type' dialog displays.
8	Give the connection a suitable name so that you can recognize it in the 'Recent Projects' panel on the

	'Open Project' dialog.
9	If required, select the 'Encrypt Connection String' checkbox. This encrypts and hides the connection details of the database from the users that the connection string is given to.
10	If required, select the 'Lazy Load' checkbox to not load the full project view when the model is loaded; instead, only the parts that are necessary to display the visible portion of the tree are loaded. With this setting, the model loads faster and users can begin work sooner, but at the expense of later small delays as Enterprise Architect loads specific portions of the model.
11	If required, select the 'Use WAN Optimization' checkbox. To improve performance over a Wide Area Network, remote database calls can be routed through a WAN Optimizer that compresses the data returned from the repository, reducing transfer time. If you select this checkbox, complete the next three fields (see your administrator for the correct values); otherwise go to step 15.
12	In the 'Server' field, type the network name or address of the optimizer server.
13	In the 'Port' field, type the port on which the server is running on the remote machine.
14	In the 'DSN' field, type the data source name of the database as it appears on the remote machine.
15	Click on the <b>OK button</b> to complete the configuration and open the project. This also adds the project name to the 'Recent' list on the <b>Start Page</b> ; from now on, you can open the project again just by clicking on this name.

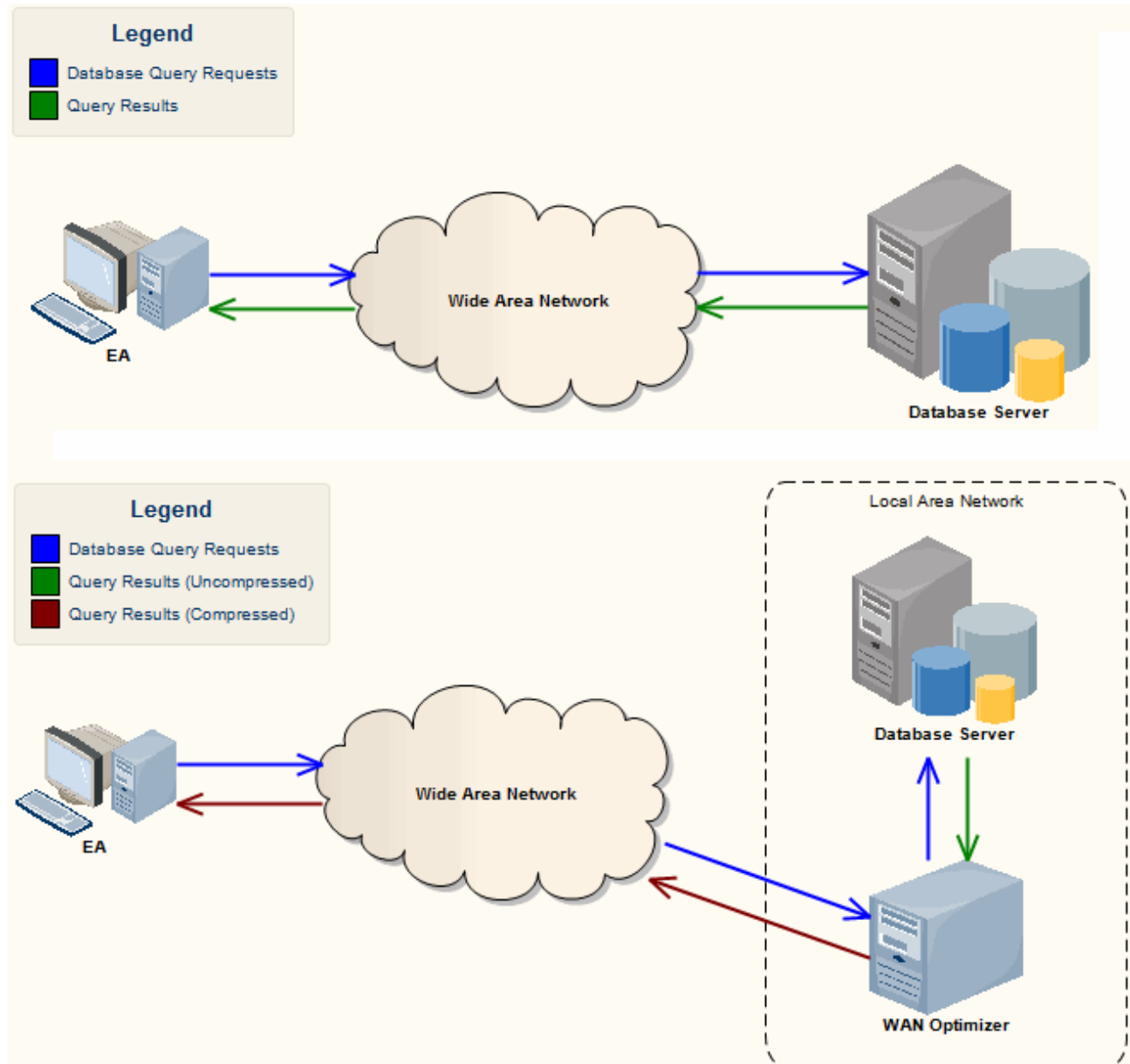
## Notes

- This feature is available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions

## The WAN Optimizer

You can significantly improve Enterprise Architect's performance in a Wide Area Network (WAN) by reducing the amount of data transmitted and, in turn, 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



## Cloud Based Repositories

With a simple connection to the internet or web - the 'Cloud' - you can access and work on projects stored in repositories at remote locations anywhere in the world, or access local repositories from such locations, using the Enterprise Architect installation on your machine. The advantages of working in this way include:

- You, as a user, do not need to have database drivers installed on your machine or to create a database connection, as you do to work directly on projects held on a DBMS server; your system administrator performs the driver set-up and connection once only, during server configuration
- The http and, especially, https connections apply a firewall and all the security facilities provided by the web server - whether Apache or IIS - to your project work, such as URL authorization, domain authentication and IP security
- The Cloud Server can be configured to encrypt all communications using standard TLS/SSL protocols; you can be certain that your data is not intercepted during transmission across insecure networks

Using the Cloud can help to reduce **lag time** for common tasks such as opening Packages and editing model data. Requests are cached and sent together, rather than individually, which reduces communication delays to a minimum.

Using the Cloud server is most beneficial when:

- You want to minimize the set-up requirements each user has on their workstation
- You want to expose models held outside your private network
- Your users are accessing their models over slow connections

### Notes

- This facility is available through the Corporate, Business and Software Engineering, Systems Engineering or Ultimate editions

# Introducing the Cloud Server

The Sparx Systems Cloud Services solution provides seamless access to Enterprise Architect repositories (models) from anywhere in the world, providing high performance for remote access, secure encrypted links and optimization for high latency WAN connections.

Cloud-based repositories provide easy access to models, not only for people within your local team, but for remote team members, external customers and consultants anywhere around the world with Internet access. Collaborative and distributive modeling and design are dramatically enhanced by using a Cloud-based repository, and can provide the shared backbone for a wealth of development scenarios.

This section will:

1. Familiarize you with the concepts of the Cloud Services
2. Walk you through the process of setting up a server
3. Walk you through the process of connecting for the first time
4. Discuss considerations of when and where you should use a Cloud server
5. Highlight some of the additional functionality available through the Cloud server
6. Outline working with Active Directory using IIS

## Overview

Connecting to models stored in a Cloud Server is as simple as entering a single URL. Enterprise Architect models are stored in databases. With standard connection to DBMS repositories, such as SQL Server and Oracle, Enterprise Architect requires users to install the appropriate drivers for the database and create ODBC or other connections.

When connecting to a Cloud Server that procedure is dramatically simplified, requiring only a URL to the provided Cloud repository. No special drivers or further configuration is required.

Connecting to a Cloud Server provides a number of key benefits:

1. Improved performance for models used for distributed development. The Cloud server provides benefits to connections that involve high latency and reduced data transfer speeds.
2. The process of setting up drivers and connections can now be performed once by an administrator during the server configuration. The only set-up required on a user machine is to install Enterprise Architect and connect to any model on the Cloud server using a simple URL.
3. Database servers no longer have to be exposed through a firewall; the Cloud server can be run from inside a corporate firewall. All model connections are now created using HTTP, allowing firewalls to completely isolate your database server.
4. A Cloud server can be configured to encrypt all communication. Using standard TLS/SSL protocols, you can be confident that your data is not intercepted during transmission on insecure networks.
5. A Cloud server can be configured to provide HTTP-level authorization to any model taken directly from the model user list. Even when the model is exposed on a public network, you can be assured that only authorized users are able to access your model.
6. A Cloud server can be configured to provide read-only access to any model; for example, for clients required to review a model.

## Security Considerations

As with any web connected service, there are a number of security concerns that must be considered when setting up a new service. To help you minimize risks, consider these points:

- If any data is considered private, always use an HTTPS connection and require user authentication. There is an option on each of the service's database configurations to prompt for this.

- There is an implicit trust in sharing a model with anyone. Security is available in models, which prevents a wide range of possible interactions. However, due to Enterprise Architect's flexibility determined users can circumvent this. In particular **Model Search** SQL queries can be run in a number of places that allow data to be read that would not otherwise be accessible. Of note, this includes user IDs and hashes of their passwords. To prevent this type of access to a list of users, you could use **Global Authentication** instead of **Model Authentication**. This is discussed further in the *Cloud Server Configuration* topic.

# Cloud Server Installation

The Sparx Systems Cloud Server runs as a Windows Service, accepting network connections from Enterprise Architect clients and sending the data required by the system back over the network. The service installer can be downloaded from the registered user section of the Sparx website:

<http://www.sparxsystems.com.au/registered/index.html>

Installing the service and editing configuration files will both require you to have Administration rights. To ensure that you are running as Administrator, right-click on the downloaded installer and select 'Run as Administrator'.

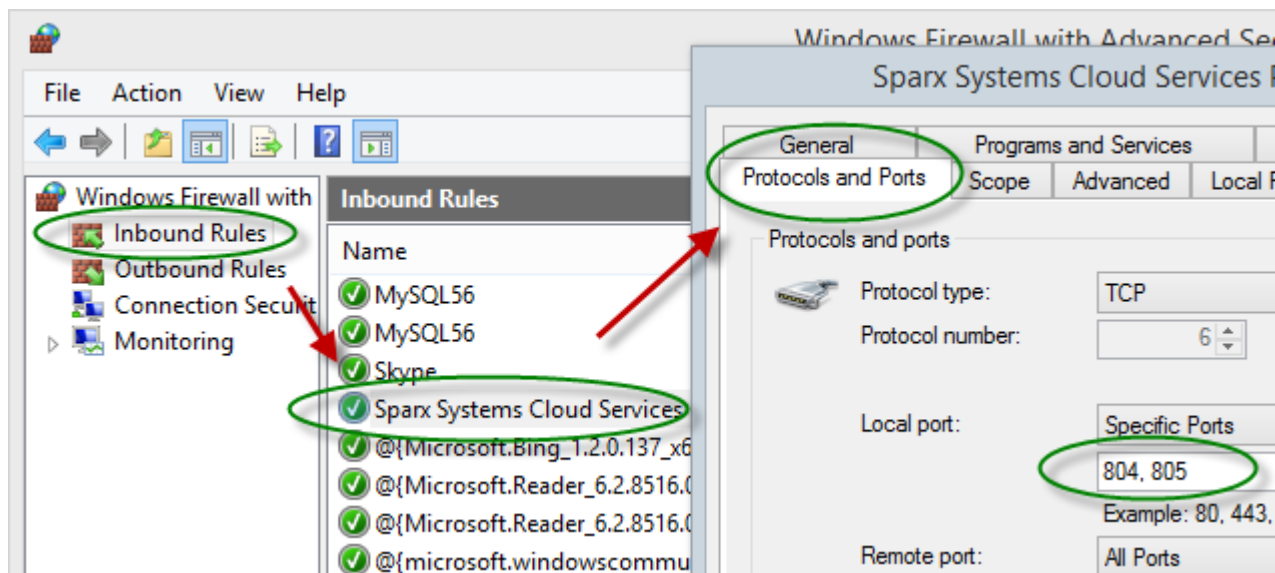
## Cloud Server Components

Component	Description
Sparx Systems Cloud Service	<p>The Windows service that will accept connections from Enterprise Architect and the management client.</p> <p>Note: The only time you will not want this installed is when you are installing the IIS integration or management client on a different machine to the one running the service.</p>
Http Support	<p>Optional component for integration with IIS.</p> <p>Note: This is only required when using the advanced authentication method available through IIS; it can be installed on a different machine to the service itself. See the <i>Cloud Server Using IIS</i> topic.</p>
Management Client	<p>This is used for management tasks - including configuration of databases to connect to - and some server options.</p> <p>Note: This can be installed separate from the service itself, allowing many management tasks to be performed without logging directly into the server.</p>

## Firewall Settings

When setting up a server, you do need to check that the Firewall on the server is set to allow the incoming ports for the database connections that you have created.

For example, in the default SSCloudServices.config the ports 804 and 805 are set as operative. If you have a firewall you must set these ports as enabled for inbound traffic.



See also the Windows documentation [Open a Port in Windows Firewall](#).

Note: Another common cause of failure is that other services are already using the allocated ports. This is especially likely when using the default http (80) and https (443) ports.

## Self-Signed Certificate using OpenSSL

In order to use a secure connection to your model, a server certificate is required. For a production environment, particularly one providing access to external users, you should obtain a certificate from an appropriate certificate authority. However, to help with initial setup and testing purposes these instructions are included for generating your own certificate.

This is a simple batch file that assumes that **openssl** is available on the windows path and is appropriately configured. If you paste this code into a batch file and run it with the target hostname as a parameter, it will generate an appropriate key file, which can then be placed in the service install directory.

```
echo off
if not "%1" == "" goto generate
echo ERROR: No target specified
echo USAGE: %0 url
echo EXAMPLE %0 localhost
goto end
:generate
echo on
openssl genrsa -out %1.key 2048
openssl req -new -x509 -key %1.key -out %1.cert -days 3650 -subj /CN=%1
copy /b %1.cert+%1.key server.pem
:end
```

# Cloud Server Configuration

Many configuration settings for the Cloud Server are set by directly editing the configuration file **SSCloudServices.config** found in your service directory.

To edit the configuration file, open it in a text editor (running as an administrator).

Once it is opened, you can edit the file to set configuration options, including the ports the server will listen on.

## Management Client Connection Settings

The first settings you will see in the configuration file are to control how the Management Client will connect to the server. The default values are:

SERVER\_PORT=803

SERVER\_PASSWORD=

Use of the Management Client is discussed in the *Cloud Server Management Client* topic.

Setting	Description
SERVER_PASSWORD	<b>SERVER_PASSWORD</b> is the password to protect the administration functions of the server.  Note: This can be changed within the Management Client, which means a full server restart will not be necessary.
SERVER_PORT	<b>SERVER_PORT</b> is used when you connect to the Management Client or opt to use the IIS integration instead of the integrated web-server. For more detail see the <i>Cloud Server Using IIS</i> topic.  Note: When changing this port, check for other services on the same one. We recommend that this port is not exposed to any external networks, as encryption cannot be applied to it.

## General Settings

The next list of settings is the default global settings across the entire service:

DBMAN\_DEFAULTMAXSIMQUERIES=10

AUDIT\_TIME\_PERIOD=3600

TEMP\_DIRECTORY=%SERVICE\_PATH%\Temp

LOGGING\_LEVEL=SYSTEM

LOGGING\_DIRECTORY=%SERVICE\_PATH%\Logs

LOGGING\_FILECOUNT=3

LOGGING\_FILESIZE=1048576

Setting	Description
AUDIT_TIME_PERIOD	The number of seconds between the system logs recording activity on each database.
DBMAN_DEFAULTMAX	The default maximum number of queries that can be run at a time for any configured database. This can be changed directly within the Management Client

SIMQUERIES	(see <b>Default Max Simultaneous Queries</b> under <i>Global Server Options</i> in the <i>Cloud Server Management Client</i> topic). Note: As this can be set directly within the Management Client, a full server restart will not be required.
TEMP_DIRECTORY	The location to write temporary files before they are sent to clients. You should not generally need to change this.
LOGGING_LEVEL	Determines how verbose the server should be when writing log files. The valid values are: OFF, FATAL, WARNING, INFO and SYSTEM. The value can be changed directly within the Management Client. (See <b>Log Level</b> under <i>Global Server Options</i> in the <i>Cloud Server Management Client</i> topic). Note: As this can be set directly within the Management Client, a full server restart will not be required.
LOGGING_DIRECTORY	Defines where the log files are to be stored. The default is set to: = %SERVICE_PATH%\Logs Note: The = %SERVICE_PATH% refers to the directory where the Cloud service is installed.
LOGGING_FILECOUNT	Determines the maximum number of rolling log files kept. When the file count is exceeded, the oldest file is automatically deleted.
LOGGING_FILESIZE	Determines the maximum file size of each log file. When the logging file size is reached a new log file is created. For more details on using the logs see the <i>Cloud Server Troubleshooting</i> topic.

## Client Connection Settings

Using the Cloud Server you can define an arbitrary number of different ports on which to listen for connections from Enterprise Architect, each with a different configuration. Each port is denoted in the configuration file, with open and close parentheses, on their own lines.

```
(
SERVER_PORT=804
REQUIRE_SSL=0
DEFAULT_MODEL=
MODEL_AUTHENTICATION=
GLOBAL_AUTHENTICATION=user model
OSLC_SUPPORT=1
)
```

Setting	Description
SERVER_PORT	The port on which the server will listen for HTTP connections; each connection must be unique and not used by any other services on the machine. You must check that no firewalls are blocking this port on the client or server. You can use the standard HTTP port (80) or HTTPS port (443). Note: When changing this, check firewall settings and other services using that port.

REQUIRE_SSL	<p>Should be set to <b>1</b> to enable HTTPS on this port; HTTPS should be enabled for all connections that are being exposed on public networks. HTTPS requires a private key file (<b>server.pem</b>), to be included in the same directory as the configuration file, before it will run.</p> <p>Note: This unique file must be user-created. See <i>Creating a Self-Signed Certificate using OpenSSL</i> in <i>Cloud Server Installation</i>.</p>
DEFAULT_MODEL	<p>Allows a single model to be exposed on a port, making it possible to use a different port for each model. Model Names are discussed further in the <i>Connecting Enterprise Architect to a Cloud Server</i> topic.</p>
MODEL_AUTHENTICATION	<p>Can be set to <b>1</b> to request HTTP authorization using the user security defined in the Enterprise Architect model being connected to. Passwords must be explicitly and individually assigned in that model using the <i>Maintain Users</i> procedure; the default administrator password and any passwords imported from Windows Active Directory do not work. Note that if you are not using SSL to connect, the usernames and passwords will be sent in plain text.</p> <p>If the model does not have security enabled, the Cloud user is not prompted for a password.</p> <p>This option is mutually exclusive with <b>GLOBAL_AUTHENTICATION</b>.</p>
GLOBAL_AUTHENTICATION	<p>Can be set to the name of an Enterprise Architect model with security enabled that will provide the list of users for all models accessed by the connection. This is helpful if you want to provide multiple models but only manage one list of users. Passwords must be explicitly and individually assigned in the reference model using the <i>Maintain Users</i> procedure; the default administrator password and any passwords imported from Windows Active Directory do not work.</p> <p>This option is mutually exclusive with MODEL_AUTHENTICATION.</p>
OSLC_SUPPORT	<p>Enabled by default. It allows models to be queried using the 'Open Services for Lifecycle Collaboration' standard. This is discussed further in the <i>OSLC Requirements Management</i> topic.</p> <p>Set to <b>0</b> to disable.</p>

## Restarting the Sparx Cloud Server

If you make any changes to the configuration file you must restart the server for the changes to take effect. A server restart is carried out in the Windows Services application.

Depending on the server operating system, there are two methods for restarting the Cloud Server:

1) Using Window Services. This is available in all versions of Windows (see 'Control Panel | Administrative Tools | Services').

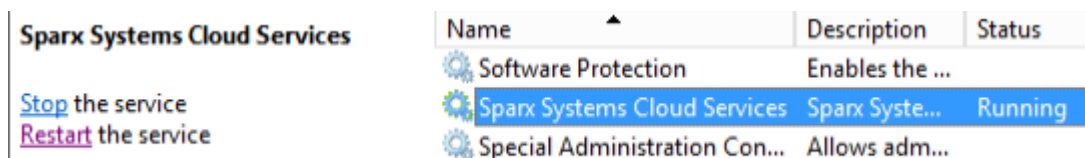
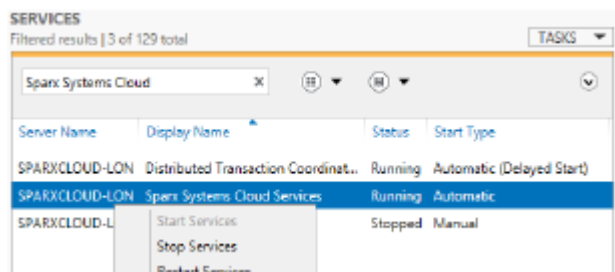


Figure 8: Start and Stop options for Cloud Services in the Windows Services view

2) Using the Server Manager on Windows Server 2012.





## Notes

- If you need to assign passwords to user IDs for a model or models that will be accessed via the Cloud, then:
  1. Open the reference model using a direct connection or via a Cloud connection on a port that does **not** have either `MODEL_AUTHENTICATION` or `GLOBAL_AUTHENTICATION` set.
  2. Enable security and assign a new administrator password.
  3. Open the Cloud Server Management Client for the new database and set the checkbox 'Require a secure and authenticated connection'. (Now that you have a valid account, this model will no longer be accessible without https and http level authentication.)
  4. Connect to the model on a port that **does** have an `_AUTHENTICATION` setting and use the *Maintain Users* procedure to assign passwords to the user IDs in the model.

# Cloud Server Management Client

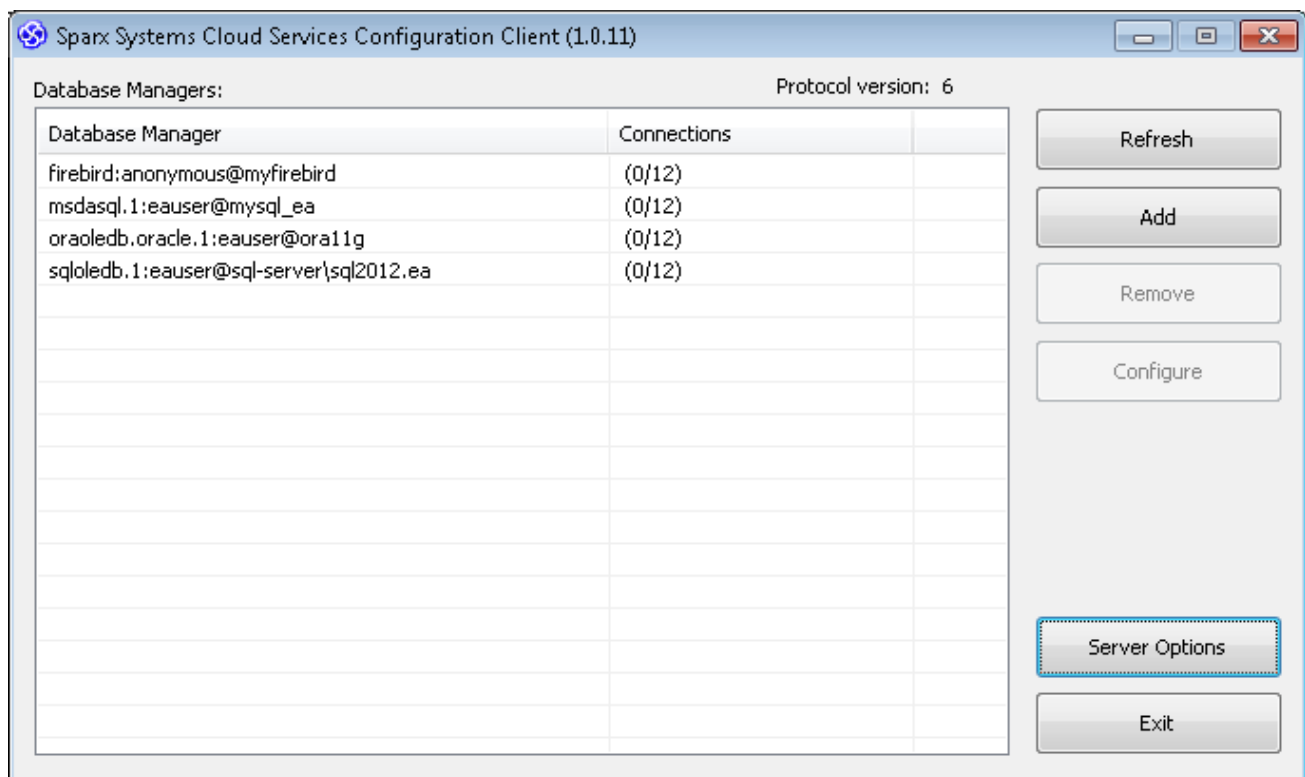
At any point after installation you can connect to the service using the **Management Client** (SSCloudServicesClient.exe).

By default this is accessible from: '...\Program Files (x86)\Sparx Systems\Cloud Services\Client'.

The Management Client is used to configure various settings related to the cloud service and the repositories it connects to. When the application first starts the user is prompted to log into a cloud services (see *Logon screen* for more details), once this is done the **Main screen** is shown.

## The Main screen

The main screen for the Cloud Management Client shows a list of all defined repositories for the Cloud Server and the number of active and total user connections. It is also the entry point for all management functions, i.e. new repositories can be created, existing ones edited and old ones removed.



Sparx Systems Cloud Services supports connections to the following list of DBMS products:

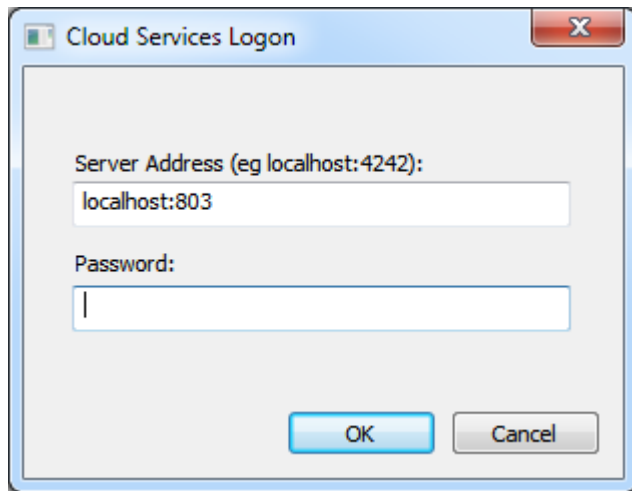
- Firebird
- Microsoft SQL Server
- MySQL
- Oracle
- PostgreSQL

Item	Description
Database Managers	This list displays all defined repositories, each row represents an Enterprise Architect repository and contains 2 columns of information: a summary to describe

	the repository and the number of active and available connections.
Refresh	This button reloads the contents of the Database Managers list.
Add	This button displays a screen that allows the user to define a new database.
Remove	This button permanently deletes the selected Database.
Configure	This button displays a screen that allows the currently selected database's settings to be changed.
Server Options	This button displays a screen that allows the Cloud Server options to be changed.

## Logon Screen

The Logon screen is the first to be shown when launching the Management Client and at a minimum requires the address (and port) of the Cloud Server you wish to connect to.



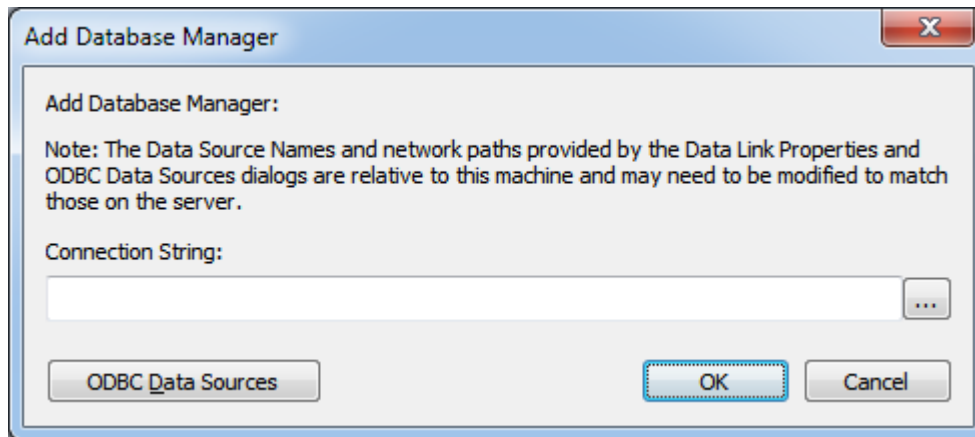
The Management Client can be used from any machine on your local network, however communications between it and the Cloud Service are not secure, so it should not be used from outside of a secure network.

### Cloud Services Logon

Option	Description
Server Address	<p>The <b>Server Address</b> format is:</p> <p style="text-align: center;">&lt;ServerURI&gt;:&lt;Port&gt;</p> <p>The server URI can be 'localhost', an IP address, a DNS name or a machine name; for example, MyWebServer. If you are working on the web server, 'localhost' will be sufficient.</p>
Password	<p>Enter the password you defined in <i>Management Client Connection Settings</i>, in the <i>Cloud Server Configuration</i> topic. By default this password is blank; you can reset it to a new value, as described in the later section <i>Global Server Options</i>.</p>

## Add Database Manager

The **Add Database Manager** screen is shown whenever the **Add** button is pressed on the **Main** screen and helps the user define a new database connection to either a local Firebird or DBMS repository (via ODBC or OLE/DB).

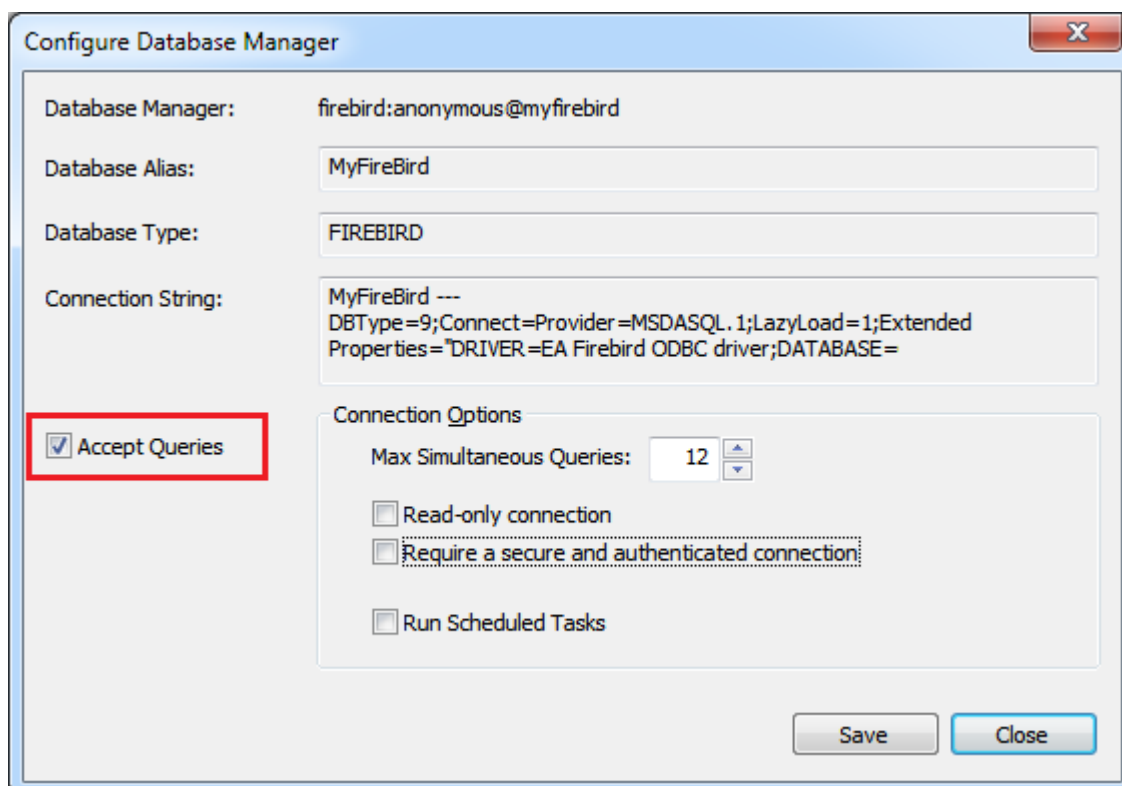


The following note is shown on the Add Database Manager screen:

"Note: The Data Source Names and network paths provided by the Data Link Properties and ODBC Data Sources dialogs are relative to this machine and may need to be modified to match those on the server."

This means if the Management Client application is running from a remote machine (i.e. not the Cloud Server) the screens that are shown by using the (...) and 'ODBC Data Source' buttons are relative to the current machine and not the Cloud Server, so care should be taken.

By default whenever a new Database is defined as a safety precaution it is automatically configured to be disabled. This can be changed by checking the 'Accept Queries' option on the **Configure Database Manager** screen.

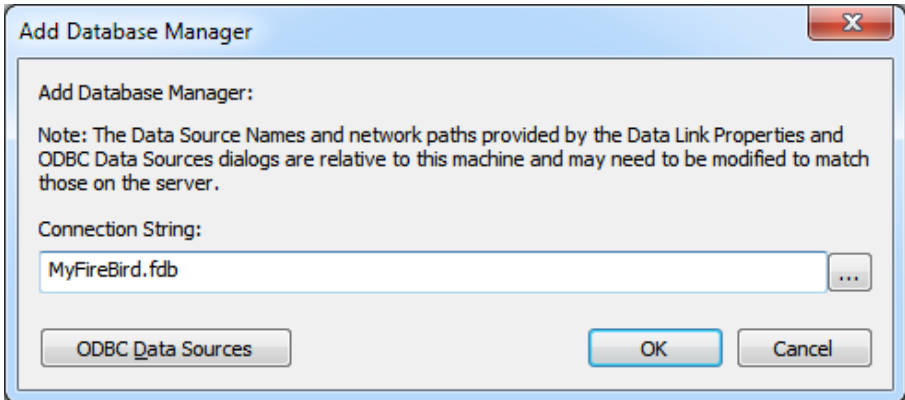


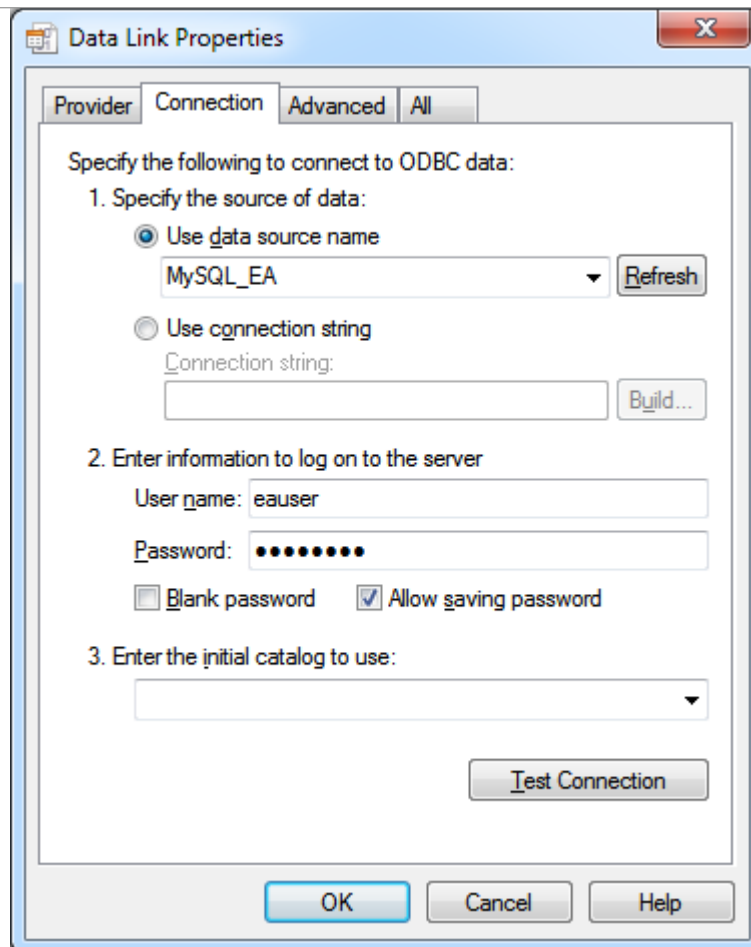
## Adding New Databases

It is important to note that the Cloud Server uniquely identifies Databases by a single identifying value, this value is referred to as the 'Database Alias':

- for Firebird definitions the 'Database Alias' is the filename minus the extension
- for ODBC based definitions the 'Database Alias' is the 'Data Source'
- for Oracle OLE DB based definitions the 'Database Alias' is the 'net service name'
- for SQLServer OLE DB based definitions the 'Database Alias' is the 'Initial Catalog'

Therefore careful consideration must be taken when defining database connections to ensure that duplicate 'Database Alias's are avoided. However if more than one database definition share the same alias then all Enterprise Architect clients will connect to the first database found with the requested alias.

Item	Description
Firebird Database	<p>You can define a connection to a Firebird database by entering its filename (and extension) only, i.e. 'MyFireBird.fdb'.</p>  <p>The Cloud Server assumes all Firebird databases physically reside under the directory %SERVICE_PATH%\Models\. Therefore, if the Cloud Server is installed to the default folder of:</p> <p>... \Program Files (x86) \Sparx Systems \Cloud Services \</p> <p>then all Firebird models will be located at:</p> <p>... \Program Files (x86) \Sparx Systems \Cloud Services \Models \</p>
ODBC Database	<p>You can define a connection to a DBMS Database by specifying the connection string to the database. If you are running the Management Client on the same machine as the server you can</p> <ul style="list-style-type: none"> <li>- click on the '...' button to open the 'Data Link Properties' dialog to build the connection string</li> <li>- select provider 'Microsoft OLE DB Provider for ODBC Drivers' and click 'Next &gt;&gt;'</li> <li>- select the pre-defined System DSN from the 'Use data source name'</li> <li>- fill in the user name and password and check the 'Allow saving password'</li> </ul>



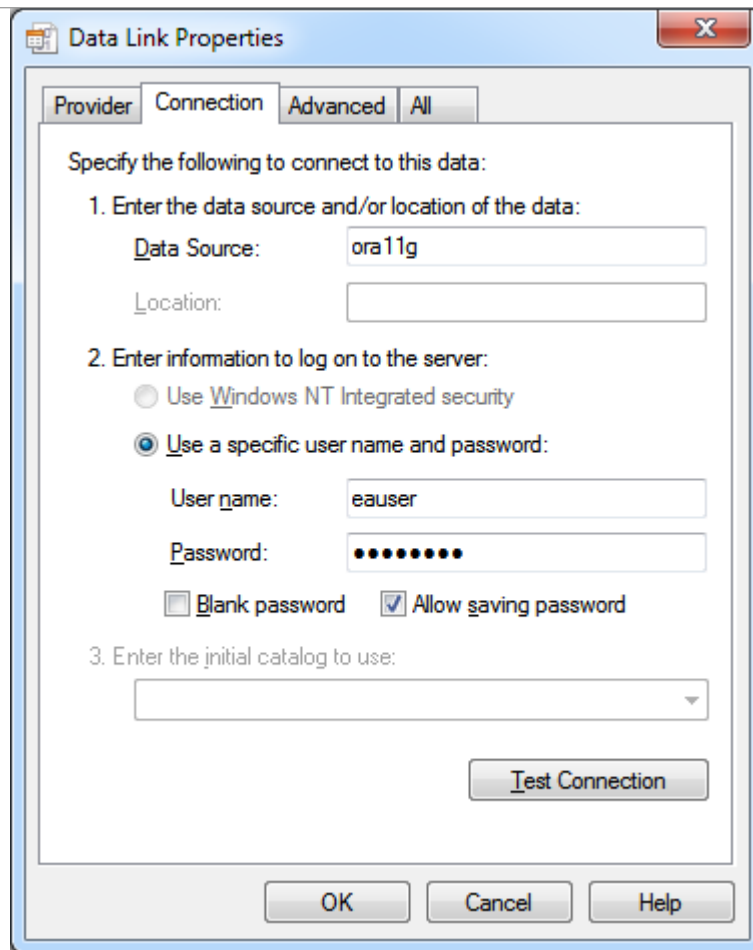
Note 1: All ODBC DSNs need to be defined as SYSTEM DSNs because the Cloud Server runs as a Windows Service and User DSNs may not be available to the Cloud Server.

Note 2: the step about filling in the user name and password may not be required if the user name and password have been saved with the ODBC DSN.

Oracle Database (via OLE DB)

You can define a connection to an Oracle Database (via OLE/DB) by specifying the connection string to the database. If you are running the Management Client on the same machine as the server you can

- click on the '...' button to open the 'Data Link Properties' dialog to build the connection string
- select provider 'Oracle Provider for OLE DB' and click 'Next >>'
- enter the name of the 'Data Source', this is the Oracle 'net service name' as defined in the TNSNAMES.ORA
- fill in the user name and password and check the 'Allow saving password'



Note: because the Cloud Server identifies databases by the 'Data Source' value and Oracle OLE DB defines the 'Data Source' as the 'net service name' it is only possible to access 1 Oracle repository per 'net service name'. The workaround to this limitation is to define multiple 'net service name' in TNSNAMES.ORA that differ only by name.

SQLServer Database (via OLE DB using SQL Server authentication)

Microsoft SQL Server supports 2 different forms of database authentication:

1. Windows NT authentication or
2. SQL Server authentication,

The Cloud Service will work with either, but SQL Server authentication is easier to configure.

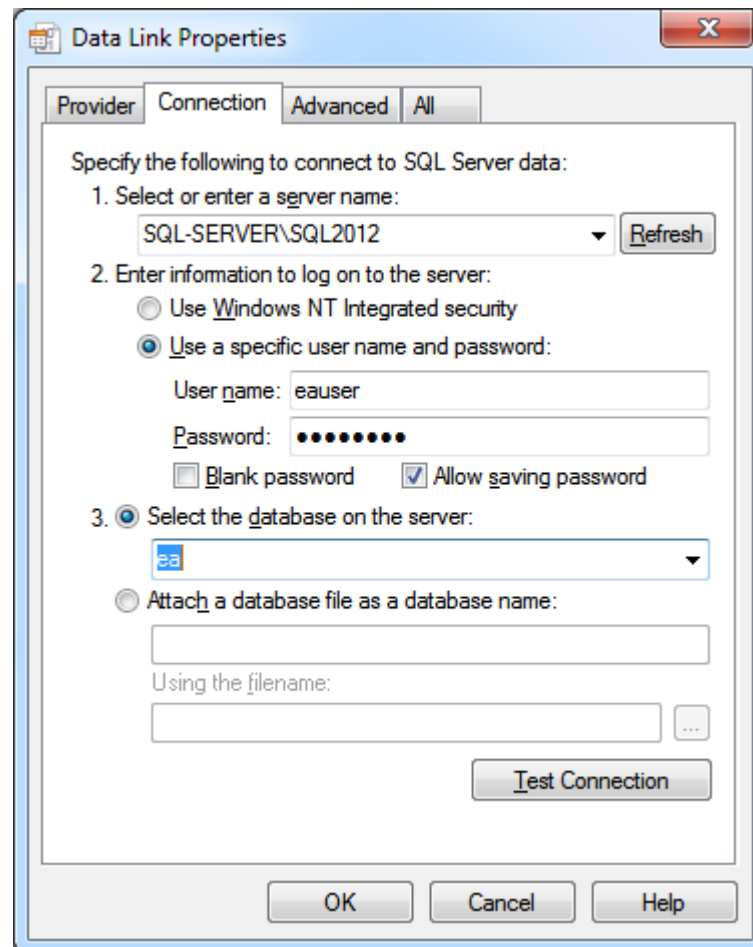
Prior to defining the Cloud Service connection a SQL Server user should be defined and granted the following roles to the database that will act as the Enterprise Architect repository: db\_datareader, db\_datawriter

You can define a connection to a SQLServer Database by specifying the connection string to the database. If you are running the Management Client on the same machine as the server you can

- click on the '...' button to open the 'Data Link Properties' dialog to build the connection string
- select provider 'Microsoft OLE DB Provider for SQL Server' and click 'Next >>'
- select/enter the instance of SQL Server



- check 'Use a specific user name and password' and fill in the user name, password and check the 'Allow saving password'
- select the database that is the Enterprise Architect repository in 'Select the database on the server'



SQLServer Database (via OLE DB using Windows authentication)

Microsoft SQL Server supports 2 different forms of database authentication:

1. Windows NT authentication or
2. SQL Server authentication,

The Cloud Service will work with either, but Windows authentication requires some special consideration. The Cloud Server runs as a Windows Service, and by default all Windows Services run as 'Local System Account' therefore if Windows authentication is to be used the Sparx Systems Cloud Service should be configured to run under predefined network user (configured with the Windows Services console) and this network user will need to be granted access to the database (configured with Microsoft SQL Server Management Studio or similar).

You can define a connection to a SQLServer Database by specifying the connection string to the database. If you are running the Management Client on the same machine as the server you can

- click on the '...' button to open the 'Data Link Properties' dialog to build the connection string
- select provider 'Microsoft OLE DB Provider for SQL Server' and click 'Next >>'
- select/enter the instance of SQL Server
- check 'Use Windows NT Integrated security'
- select the database that is the Enterprise Architect repository in 'Select the

database on the server'

The screenshot shows the 'Data Link Properties' dialog box with the 'Connection' tab selected. The dialog is titled 'Data Link Properties' and has a close button (X) in the top right corner. It contains four tabs: 'Provider', 'Connection', 'Advanced', and 'All'. The 'Connection' tab is active, showing instructions to 'Specify the following to connect to SQL Server data:'. There are three main steps: 1. 'Select or enter a server name:' with a dropdown menu showing 'SQL-SERVER\SQL2012' and a 'Refresh' button. 2. 'Enter information to log on to the server:' with two radio buttons: 'Use Windows NT Integrated security' (selected) and 'Use a specific user name and password:'. The latter has fields for 'User name:' and 'Password:', and checkboxes for 'Blank password' and 'Allow saving password'. 3. 'Select the database on the server:' with a radio button selected and a dropdown menu showing 'ea'. Below this is another radio button 'Attach a database file as a database name:' with a text field and a 'Using the filename:' field with a browse button (...). At the bottom right is a 'Test Connection' button. At the bottom of the dialog are 'OK', 'Cancel', and 'Help' buttons.

Note: Because the Cloud Service is run under a single account, all database access will be performed under that account, so it will not be possible to keep track of what records are updated in the database by individual users.

## Configure Database Manager

The **Configure Database Manager** screen is shown whenever the 'Configure' button is pressed on the **Main** screen. It allows the user to modify the various options for a given Database.

**Configure Database Manager**

Database Manager: firebird:anonymous@myfirebird

Database Alias: MyFireBird

Database Type: FIREBIRD

Connection String: MyFireBird ---  
DBType=9;Connect=Provider=MSDASQL.1;LazyLoad=1;Extended  
Properties="DRIVER=EA Firebird ODBC driver;DATABASE=

☒ Accept Queries

Connection Options

Max Simultaneous Queries: 12

☐ Read-only connection

☐ Require a secure and authenticated connection

☐ Run Scheduled Tasks

Save Close

### Options

Field/Option	Description
Database Manager	Read-only display showing the description of the database as shown in the Database Manager List. The description contains a number of values formatted to help quickly describe the database. The description has the format: {odbc provider}:{user}@{datasource}
Database Alias	Read-only display showing the Database Alias, this is the value all Enterprise Architect clients will need to use in the 'Model Name' field of the 'Cloud Connection' screen.
Database Type	Read-only display showing the DBMS of the database, i.e. Firebird, MySQL, Postgres, SQLSvr or Oracle.
Connection String	Read-only display showing the connection string used to connect to the database.
Accept Queries	Select this checkbox to allow the Cloud service to respond to requests for the connection.

Max Simultaneous Queries	Type in the maximum number of connections to open. You can use the up/down arrows to adjust this figure to balance resource usage with concurrent user performance.
Read-only connection	Select this checkbox to prevent users from modifying the database referenced by this connection.
Require a secure and authenticated connection	Select this checkbox to ensure this database is only used by https connections using http authentication.
Run Scheduled Tasks	Select this checkbox to enable the service to update Time Series charts on a schedule, or any other scheduled tasks that might be supported in the future.

## Global Server Options

The **Configure Server** screen displays when you click on the 'Server Options' button on the **Main** screen. It helps you to configure the global options applied to the Cloud Server. Each of these options can also be set in the configuration file; however, the service does not require a restart if the options are changed using this screen.

**Configure Server**

Server Properties:

Protocol Version: 6

Audit Time Period: 3600

Logging File Count: 17

Logging File Size: 16777

Log Level: INFO

Logging Directory:  
C:\EA\Sparx Cloud Services\Debug\Logs

Temp Directory:  
C:\EA\Sparx Cloud Services\Debug\Temp

Default Max Simultaneous Queries: 12

☐ Set New Password

New Password:

Confirm Password:

Save Close

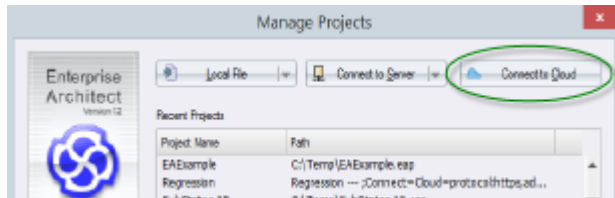
## Options

Field/Option	Description
Protocol Version	Read-only display showing the highest level protocol supported by this version of the server.
Audit Time Period	Read-only display showing the number of seconds in-between each audit report.
Logging File Count	Read-only display showing the number of log files that should be retained. All logging is written to files named 'SparxCloudServicesLog-X.log' where X represents the file number. File 'SparxCloudServicesLog-1.log' is always the current file, when the maximum file size is reached all existing files are renamed by incrementing their file number and a new 'SparxCloudServicesLog-1.log' created.
Logging File Size	Read-only display showing the max file size of each log file before a new one is created.

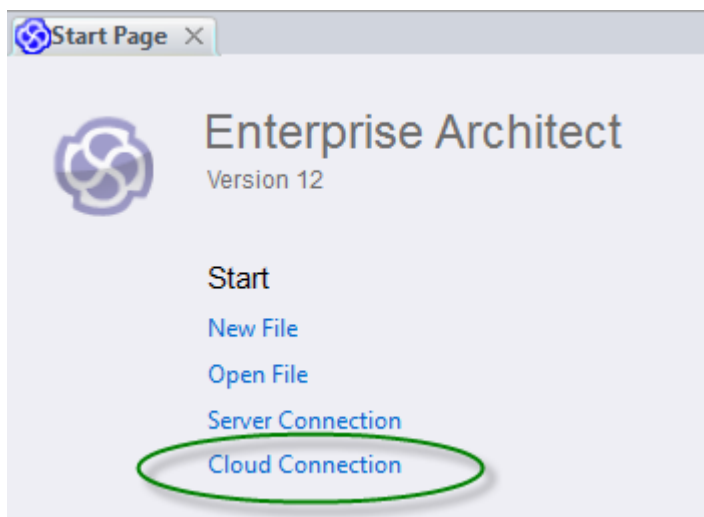
Log Level	Click on the drop-down arrow and select the level of information to be written to the log file.
Logging Directory	Read-only display showing the physical directory where the log files saved.
Temp Directory	Read-only display showing physical path of the temp directory.
Default Max Simultaneous Queries	Set the value of 'Max Simultaneous Queries' for newly created database connections.
Set New Password	Select this checkbox to change the password for using the admin client for this server; type in and confirm the new password.

## Connecting Enterprise Architect to a Cloud Server

Once your server has been set up with at least one port listening for communication and at least one model you can connect to, you can connect to the model in Enterprise Architect. When you first open Enterprise Architect, the 'Manage Projects' dialog displays. The **Connect to Cloud button** on the top right provides access to Cloud connections.

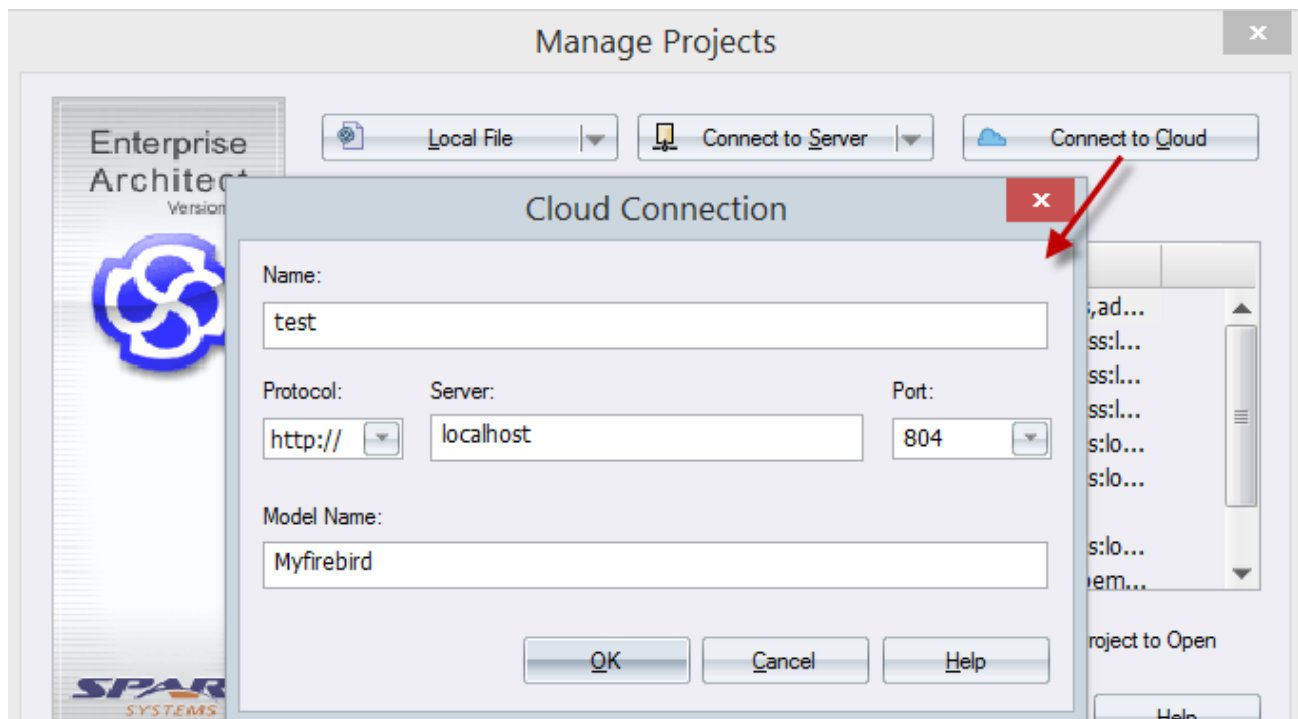


There is also a Cloud Connection link on the 'Start Page'.



### Cloud Connection Dialog

The 'Cloud Connection' dialog prompts you for the details of the model.



Field/Option	Action
Name	Type the name by which to refer to this model. It does not have to match any values on the server, and will appear in your recent models list.
Protocol	Click on the drop-down arrow and select a secure (https) or insecure (http) connection, as supported by the server you are connecting to. When you select the protocol, the port will automatically be set to match the default for that protocol.
Server	Type in the machine name (sparxcloud.com) or IP address (192.168.0.20) of your server.
Port	Define the port number the service is listening on. This should match the settings in the configuration file on the server. Note: For a server, the default settings will use port 804 for http and port 805 for https.
Model Name	Type in the name of the model available on the server. Note: Generally a system administrator will provide you with a list of available models. However, for those with permission to use the management client the next table describes how to determine the model name for different connection types.

## Determining the model name

DBMS	Discussion
ASA/SQL Anywhere	ASA/SQL Anywhere repositories are accessed using an ODBC connection, and the model name will match the ODBC connection name.



	<p>The database manager might show:</p> <p>msdasql.1:anonymous@my model</p> <p>In this case users will enter 'my model' as the model name in the 'Connection' dialog.</p>
Firebird	<p>Firebird repositories are most often files in the Cloud Service directory. The model name will match the file name.</p> <p>The database manager might show:</p> <p>firebird:anonymous@my model</p> <p>In this case users will enter 'my model' as the model name in the 'Connection' dialog.</p>
MySQL	<p>MySQL repositories are accessed using an ODBC connection, and the model name will match the ODBC connection name.</p> <p>The database manager might show:</p> <p>msdasql.1:anonymous@my model</p> <p>In this case, users will enter 'my model' as the model name in the 'Connection' dialog.</p>
Oracle	<p>Oracle repositories can be accessed using an OLE DB connection or an ODBC connection.</p> <p>The database manager might show:</p> <p>oraoledb.oracle.1:user@mymodel</p> <p>In this case users will enter 'my model' as the model name in the 'Connection' dialog. Note that this means a Cloud Server can't connect to multiple schemas on the same database via OLEDB.</p> <p>Alternatively, the database manager might show:</p> <p>msdasql.1:anonymous@my model</p> <p>In this case users will enter 'my model' as the model name in the 'Connection' dialog. Note that this does allow connecting to multiple schemas within the same database.</p>
PostgreSQL	<p>PostgreSQL repositories are accessed using an ODBC connection, and the model name will match the ODBC connection name.</p> <p>The database manager might show:</p> <p>msdasql.1:anonymous@my model</p> <p>In this case users will enter 'my model' as the model name in the 'Connection' dialog.</p>
SQL Server	<p>SQL Server repositories can be accessed using an OLE DB connection or an ODBC connection.</p> <p>The database manager might show:</p> <p>sqloledb.1:sa@server\instance.mymodel</p> <p>In this case users will enter the database name 'my model' as the model name in the 'Connection' dialog.</p> <p>Alternatively, the database manager might show:</p> <p>msdasql.1:anonymous@my model</p> <p>In this case users will enter the ODBC connection name, 'my model' as the model name in the 'Connection' dialog.</p>



# Cloud Server Troubleshooting

## Browser Test

For a simple check that the service is operating on the specified ports defined in the configuration file, you can enter this address into a web browser:

`<protocol>://<machineName>:<port>`

For example, on the Cloud Server:

`http://localhost:804/`

Or

`https://sparxcloud.com`

If the port is enabled this prompt displays:

*Sparx Systems Cloud Server*

*Congratulations, your server is now ready to host your models. Connect through the configuration client to add or remove models.*

If this message is not displayed, confirm the server and port name, check for other services listening on the specified port and check the server log file for error messages.

## Errors shown in Enterprise Architect System Output

Error Message	Meaning
HTTP Status 401 Access Denied	Indicates a failure to authenticate with the server. With the built-in web server, this error will occur if an invalid username or password was provided, or no username/password were provided.
HTTP Status 403	Indicates an attempt to access a model that is marked on the server as 'Require authenticated and secure connection'. This might indicate that you are connecting using an <i>http</i> protocol instead of <i>https</i> , or that the port you are using is not providing authentication to the model you are connecting to. Check that you are using <i>https</i> . Check with the system administrator that the security authentication option is pointing to a model with security enabled.
HTTP Status 500 Unable to connect to service	The connection is not being accepted. <ul style="list-style-type: none"> <li>• Check the server name</li> <li>• Check the firewall settings on the client and server</li> <li>• Check the ports the server is listening on</li> </ul>
The database manager for this database was shut down	Enterprise Architect established a connection to a cloud service, and requested to connect to a known repository, but the repository is currently disabled. Ask your system administrator to check the 'Accept Queries' option for the database in question.
There is no database	Enterprise Architect established a connection to a cloud service, but the model

manager configured for the requested repository	name requested does not match any defined database on the server.
Unable to connect to Database	<p>Enterprise Architect established a connection to a cloud service and requested to connect to a known repository; however, when the server attempted to open a connection to the database using the supplied details, it failed. Note: Whenever this error occurs, a Warning level message that contains more detailed information will be written to the cloud server logs.</p> <p>If the repository is:</p> <ul style="list-style-type: none"> <li>• Using ODBC, ask your System Administrator to check that an ODBC connection is defined as a System DSN (not a User DSN) on the server, that all connection parameters are correct, and that the database username and password have been saved into the ODBC DSN or the connection string</li> <li>• Oracle, ask your System Administrator to verify that the user name and password were saved with the connection string and that all other options in the connection are correct</li> <li>• SQL Server connecting via OLE DB and Windows authentication, ask your System Administrator to verify that the user name the Cloud Service is running under has been granted permission to the SQL Server database (at a minimum it will need roles db_datareader and db_datawriter) and that all other options in the connection are correct</li> <li>• SQL Server connecting via OLE DB and SQLServer authentication, ask your System Administrator to verify that the defined user name has been granted permission to the SQL Server database (at a minimum it will need roles db_datareader and db_datawriter), that the option to save the password with connection string was enabled, and that all other options in the connection are correct</li> </ul>

## Reading Server Logs

There are two key sources of troubleshooting information to determine the cause of connection errors. The first of these is the server logs.

When troubleshooting, it is recommended that the Cloud Services LOG\_LEVEL property be set to the highest level, SYSTEM.

```

SpanCloudServicesLog-1.log - Notepad
File Edit Format View Help
2014-04-04 09:37:44 [INFO]: #####
2014-04-04 09:37:44 [INFO]: # Sparx Systems Cloud Services #
2014-04-04 09:37:44 [INFO]: #####
2014-04-04 09:37:44 [INFO]: # Protocol Version: 5.0 #
2014-04-04 09:37:44 [INFO]: # Start Time: 2014-04-04 09:37:44 #
2014-04-04 09:37:44 [INFO]: # Operating System: Windows 6.01 Service Pack 1 #
2014-04-04 09:37:44 [INFO]: #
2014-04-04 09:37:44 [INFO]: # Service Path: C:\Program Files (x86)\Sparx Systems\Cloud Services\Service #
2014-04-04 09:37:44 [INFO]: # Logging Dir: C:\Program Files (x86)\Sparx Systems\Cloud Services\Service\Logs#
2014-04-04 09:37:44 [INFO]: # Temp Dir: C:\Program Files (x86)\Sparx Systems\Cloud Services\Service\Temp #
2014-04-04 09:37:44 [INFO]: #####
2014-04-04 09:37:44 [INFO]: ** Starting up!
2014-04-04 09:37:44 [SYSTEM]: SUCCESS Added database manager firebird:anonymous@myfirebird
2014-04-04 09:37:44 [SYSTEM]: SUCCESS started database manager firebird:anonymous@myfirebird.
2014-04-04 09:37:44 [SYSTEM]: SUCCESS Added database manager firebird:anonymous@myfirebird.
2014-04-04 09:37:44 [SYSTEM]: SUCCESS Added database manager firebird:anonymous@newmodel
2014-04-04 09:37:44 [SYSTEM]: SUCCESS Started database manager firebird:anonymous@newmodel.
2014-04-04 09:37:44 [SYSTEM]: SUCCESS Added database manager msdsql.1:anonymous@regression test
2014-04-04 09:37:44 [SYSTEM]: SUCCESS Management thread started
2014-04-04 09:37:44 [SYSTEM]: SUCCESS Bound and listening on port 803
2014-04-04 09:37:44 [SYSTEM]: SUCCESS socket acceptor thread started
2014-04-04 09:37:44 [INFO]: ** Now listening for connections
2014-04-04 09:37:44 [WARNING]: Unable to create secure server on port 805. Keyfile not found at C:\Program Files (x86)\Sparx Systems\Cloud Services\Service\server.pem
2014-04-04 09:37:44 [SYSTEM]: SUCCESS Bound and listening on port 804
2014-04-04 10:51:10 [INFO]: [AUDIT] start. Period: 2014-04-04 09:37:44 to 2014-04-04 10:51:10 (0d, 1h 13m 26s)
2014-04-04 10:51:10 [INFO]: [AUDIT] firebird:anonymous@myfirebird Free: 0 Max Active: 0 Acquisitions: 0
2014-04-04 10:51:10 [INFO]: [AUDIT] firebird:anonymous@myfirebird. Free: 0 Max Active: 0 Acquisitions: 0
2014-04-04 10:51:10 [INFO]: [AUDIT] firebird:anonymous@newmodel Free: 0 Max Active: 0 Acquisitions: 0
2014-04-04 10:51:10 [INFO]: [AUDIT] msdsql.1:anonymous@regression test Free: 0 Max Active: 0 Acquisitions: 0
2014-04-04 10:51:10 [INFO]: [AUDIT] End.
2014-04-04 12:01:14 [INFO]: [AUDIT] start. Period: 2014-04-04 10:51:10 to 2014-04-04 12:01:14 (0d, 1h 10m 4s)
2014-04-04 12:01:14 [INFO]: [AUDIT] firebird:anonymous@myfirebird Free: 0 Max Active: 0 Acquisitions: 0
2014-04-04 12:01:14 [INFO]: [AUDIT] firebird:anonymous@myfirebird. Free: 0 Max Active: 0 Acquisitions: 0
2014-04-04 12:01:14 [INFO]: [AUDIT] firebird:anonymous@newmodel Free: 0 Max Active: 0 Acquisitions: 0
2014-04-04 12:01:14 [INFO]: [AUDIT] msdsql.1:anonymous@regression test Free: 0 Max Active: 0 Acquisitions: 0
2014-04-04 12:01:14 [INFO]: [AUDIT] End.
2014-04-04 13:01:15 [INFO]: [AUDIT] start. Period: 2014-04-04 12:01:14 to 2014-04-04 13:01:15 (0d, 1h 0m 1s)
2014-04-04 13:01:15 [INFO]: [AUDIT] firebird:anonymous@myfirebird Free: 0 Max Active: 0 Acquisitions: 0
2014-04-04 13:01:15 [INFO]: [AUDIT] firebird:anonymous@myfirebird. Free: 0 Max Active: 0 Acquisitions: 0
2014-04-04 13:01:15 [INFO]: [AUDIT] firebird:anonymous@newmodel Free: 0 Max Active: 0 Acquisitions: 0
2014-04-04 13:01:15 [INFO]: [AUDIT] msdsql.1:anonymous@regression test Free: 0 Max Active: 0 Acquisitions: 0
2014-04-04 13:01:15 [INFO]: [AUDIT] End.
2014-04-04 14:05:56 [INFO]: [AUDIT] start. Period: 2014-04-04 13:01:15 to 2014-04-04 14:05:56 (0d, 1h 4m 41s)
2014-04-04 14:05:56 [INFO]: [AUDIT] firebird:anonymous@myfirebird Free: 0 Max Active: 0 Acquisitions: 0
2014-04-04 14:05:56 [INFO]: [AUDIT] firebird:anonymous@myfirebird. Free: 0 Max Active: 0 Acquisitions: 0
2014-04-04 14:05:56 [INFO]: [AUDIT] firebird:anonymous@newmodel Free: 0 Max Active: 0 Acquisitions: 0
2014-04-04 14:05:56 [INFO]: [AUDIT] msdsql.1:anonymous@regression test Free: 0 Max Active: 0 Acquisitions: 0
2014-04-04 14:05:56 [INFO]: [AUDIT] End.

```

Log Message	Explanation
Started database managers	<p>When a Cloud Server is initially started, it writes the list of available models to the log file. For each model you have added, you should see a line such as:</p> <p><i>[SYSTEM]: SUCCESS Added database manager msdsql.1:anonymous@mymodel</i></p> <p>If the log file is missing any lines, or if the message doesn't read 'SUCCESS' this might indicate a problem with the model connection.</p>
Open port list	<p>When a Cloud Server is initially started, it writes to the log file the status of all ports on which it tries to listen. For each port, including the management port and any http/https ports, you should see a line such as:</p> <p><i>[SYSTEM] SUCCESS Bound and listening on port 803.</i></p> <p>If the log file is missing any lines, or if the message doesn't read 'SUCCESS' this might indicate a problem with the server port.</p> <p>A common error here is:</p> <p><i>Unable to create secure server on port 443.</i></p> <p>Possible causes of this are:</p> <ul style="list-style-type: none"> <li>• Keyfile not found at C:\Program Files (x86)\Sparx Systems\Cloud Services\Service\server.pem</li> <li>• The server.pem file is an invalid certificate (i.e. a private key is missing)</li> <li>• Certificate Authority file not found or invalid at C:\Program Files (x86)\Sparx Systems\Cloud Services\Service\cacert.pem</li> </ul>
Unable to connect to database	<p>During operation, the server will write to the log file any attempts to open a model that fail. This will generally not occur until a user attempts to connect to the database. Errors that can occur here are:</p> <p><i>REQUEST_CONNECT FAIL. Error (5): Unable to connect to database</i></p> <p>This means that the server attempted to open a connect but it failed. If you see this message, review the list of potential reasons outlined in the earlier section <i>Errors shown in Enterprise Architect System Output</i>.</p>



## Cloud Server using IIS (Optional)

For most users, the built-in web server provided with the Cloud Server provides all the functionality they need. It is also the easiest method to set up and use.

However, the Cloud Server also provides the option of integrating with Internet Information Services (IIS). This is *only* recommended for users for whom the built-in authentication methods are insufficient, and who want to use Windows Active Directory or certificate-based authentication.

To configure IIS to host the Cloud Service, you must first set the SparxCloudLink.sseap file to refer to the Cloud Service, and then in Windows open the **Internet Information Services (IIS) Manager** and configure it to send requests to the appropriate module. Depending on your preferences you can choose either an HTTP Module or an ISAPI module.

Prior to setting up HTTP or ISAPI, these settings must be made in IIS:

- Application Pool settings
- Feature Settings

For a secure HTTPS setup (optional):

- Set up a Certificate
- Set up HTTPS

### Configuration Settings

Before setting up your HTTP module or ISAPI module, you must first check that the sscloudservices.config file for the service is configured as required, and note the port used so that you can specify it when you go on to set the SparxCloudLink.sseap file to refer to the Cloud Service.

The directory path containing the *ISAPI.dll* also contains the SparxCloudLink.sseap configuration file.

The path should resemble this example:

“C:\Program Files (x86)\Sparx Systems\Cloud Services\ISAPI”.

Edit this file in a text editor running as an Administrator.

The default contents are:

```
[cloud]
server=localhost
port=803
```

The settings are explained further here:

#### **server:**

The address to look-up the machine running the Cloud Service. In most circumstances it is best to run the HTTP module and the Cloud Service on the same machine. In this case, the default value of localhost can be used. If the Cloud Service is running on a different machine, use the IP address or server name where the service is running.

#### **port:**

The port the Cloud Service is listening on for admin requests. By default this takes the value of 803, but this should be cross-referenced against your service configuration, as explained earlier.

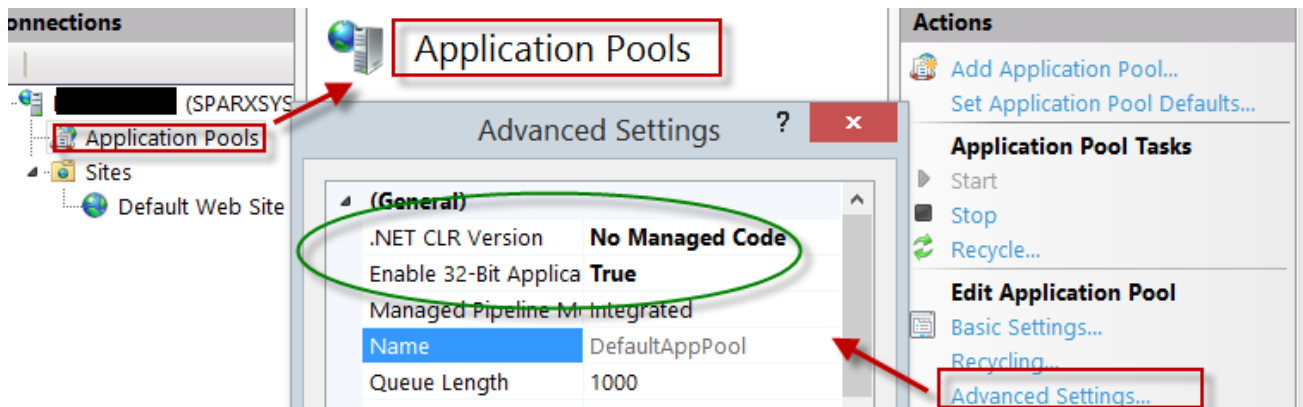
#### **Optional settings**

These points are optional. For testing purposes you might prefer to leave these changes until any issues with IIS are resolved:

1. Clear the Sparx Services configuration file of reference to ports other than the admin port.  
In the SSCloudServices.config file, remove all the references to ports other than the administration port (default 803). In other words, remove the bracketed entries ( ... ) from the config file.
2. Save the SSCloudService.Config file.
3. Restart the Service.

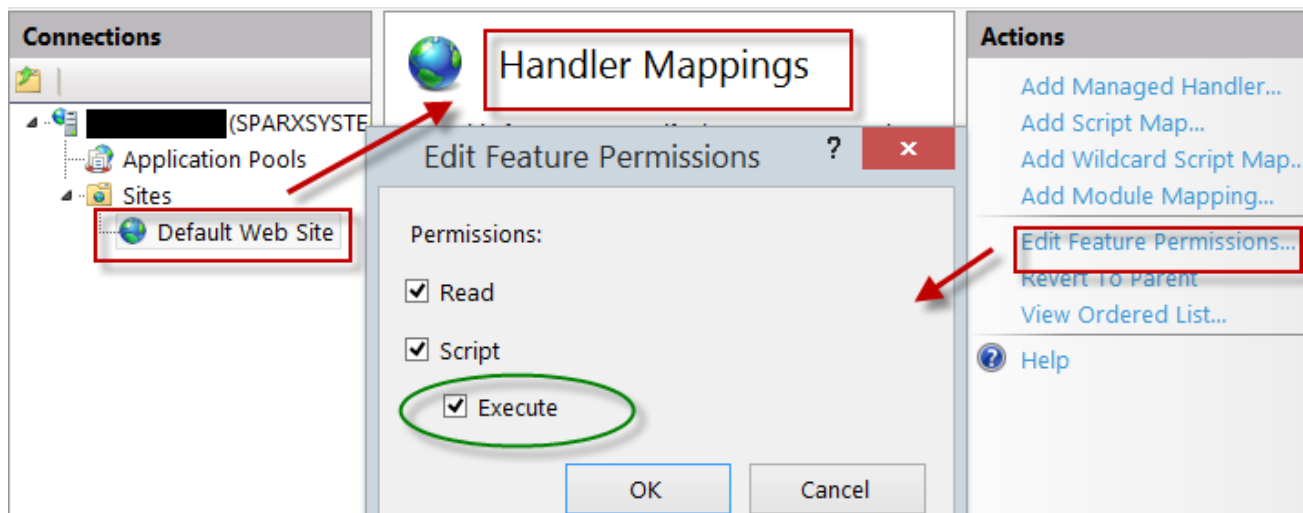
## Application Pool Settings

HTTP or ISAPI will require an Application pool that is 32-bit and not managed code. This illustration shows the settings for 32 bit applications in the IIS **Application Pools Advanced Settings** view.



## Feature Permissions

This illustration shows the access path and the 'Default Web Site | Handler' mappings to permit Script Execution.



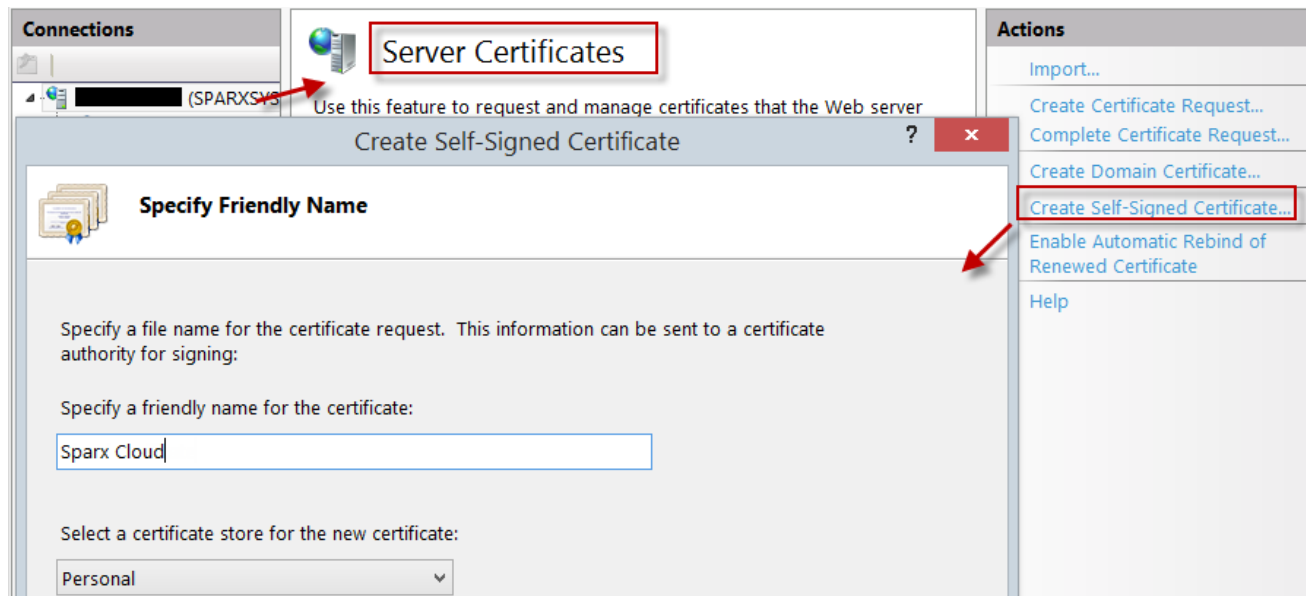
## Setting up a Certificate

In order to run the HTTPS service you must set up a security certificate in IIS.

In the IIS manager:

- Under 'Connections', select the root connection (machine name)
- Double-click the 'Server Certificates' icon
- Click on 'Create Self Signed Certificate'
- Enter these details:



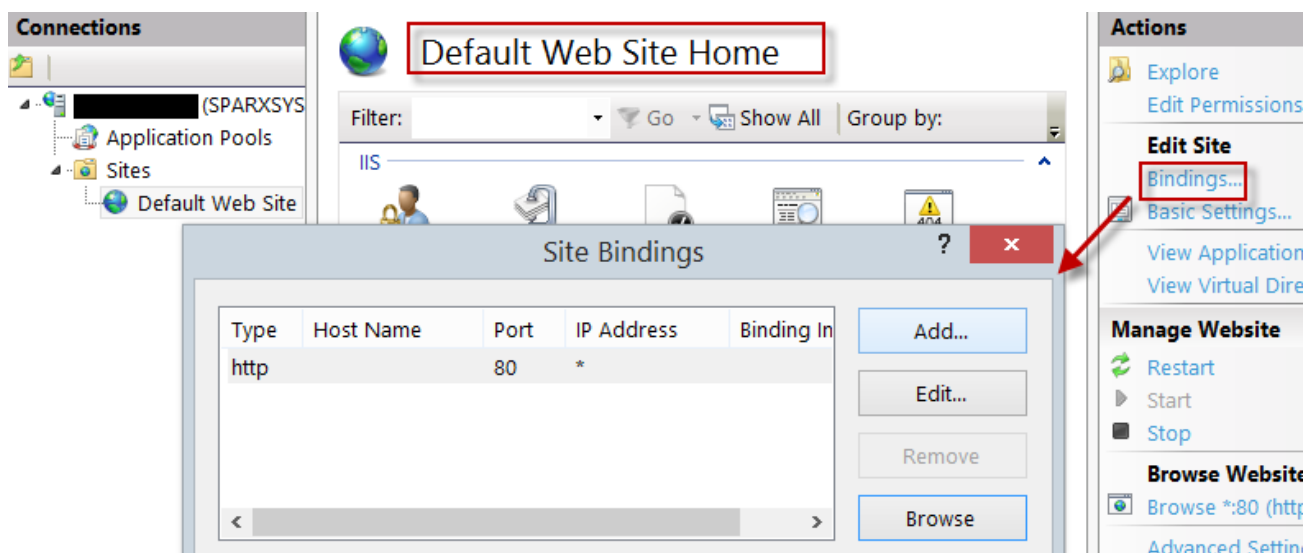


## Setting up HTTPS

To set the bindings through which HTTPS will operate, you need to set the site bindings to include a port and a certificate.

In the IIS manager:

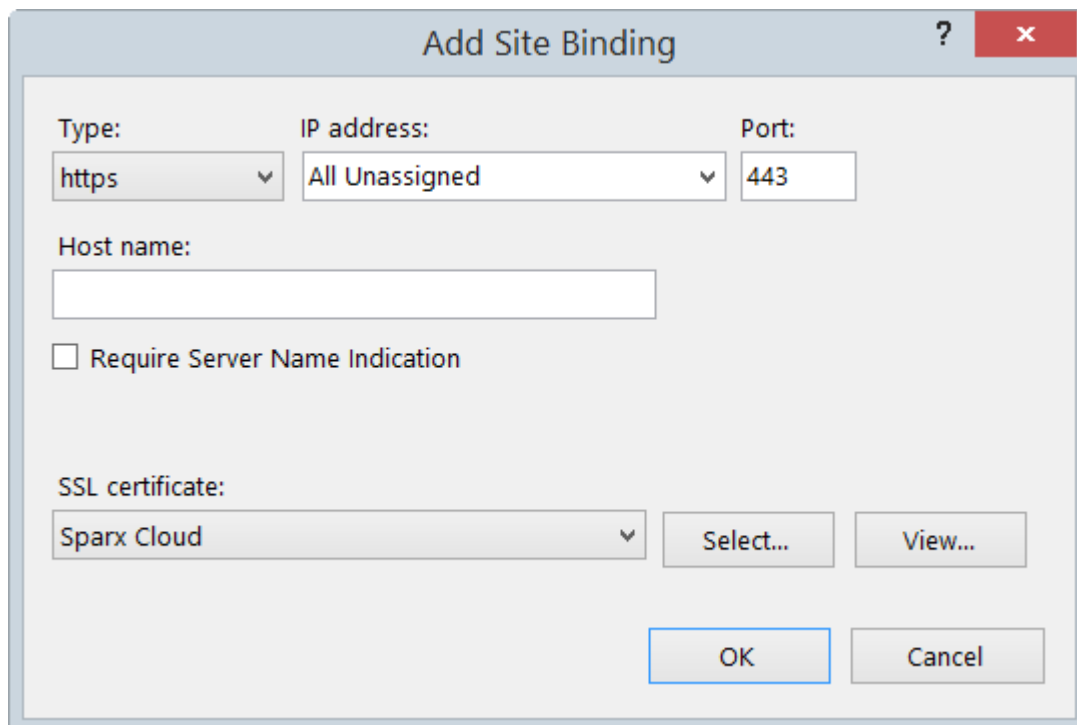
- Under 'Connections', select the default web site
- Under 'Actions' click on the 'Bindings' option
- Click on 'Add' in the 'Site Bindings' window



This will open the Add Site Binding window.

Set the following:

- Type: HTTPS,
- Port: 443
- SSL Certificate: select the certificate created in [Setting up a Certificate](#).



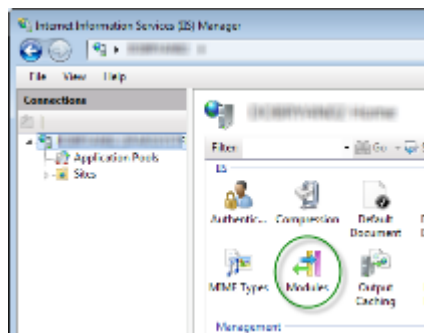
The 'Add Site Binding' dialog box contains the following fields and controls:

- Type:** A dropdown menu with 'https' selected.
- IP address:** A dropdown menu with 'All Unassigned' selected.
- Port:** A text box containing '443'.
- Host name:** An empty text box.
- Require Server Name Indication:** An unchecked checkbox.
- SSL certificate:** A dropdown menu with 'Sparx Cloud' selected.
- Select...** and **View...** buttons next to the SSL certificate dropdown.
- OK** and **Cancel** buttons at the bottom right.

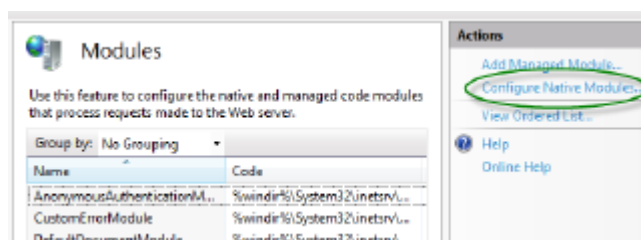
## HTTP Module

To set up the HTTP module in the **Internet Information Services (IIS) Manager**:

1. In the 'Connections' panel, select the machine properties (top of the tree).
2. Double-click on the 'Modules' icon in the middle panel.  
This returns the 'Modules' list and the 'Actions' view.

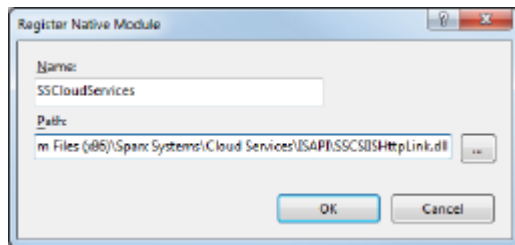


3. In the 'Actions' list, click on the 'Configure Native Modules...' option.



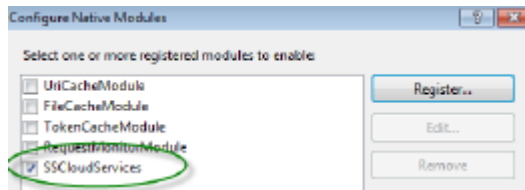
This opens the 'Configure Native Modules' view.

4. Click on the **Register** button to open the 'Register Native Module' dialog.

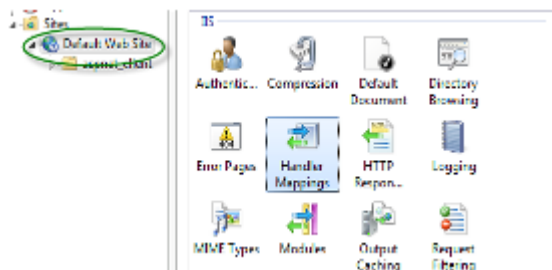


Type in the Name and the Path of the SSCIHttpLink.dll file.

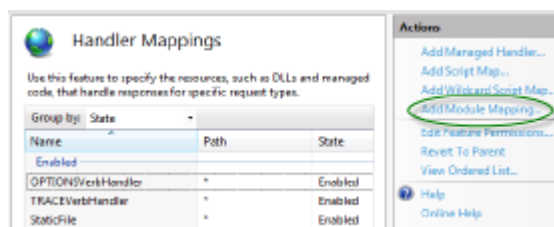
5. Click on the **OK** button. The 'SSCloudServices' checkbox will now be selected.



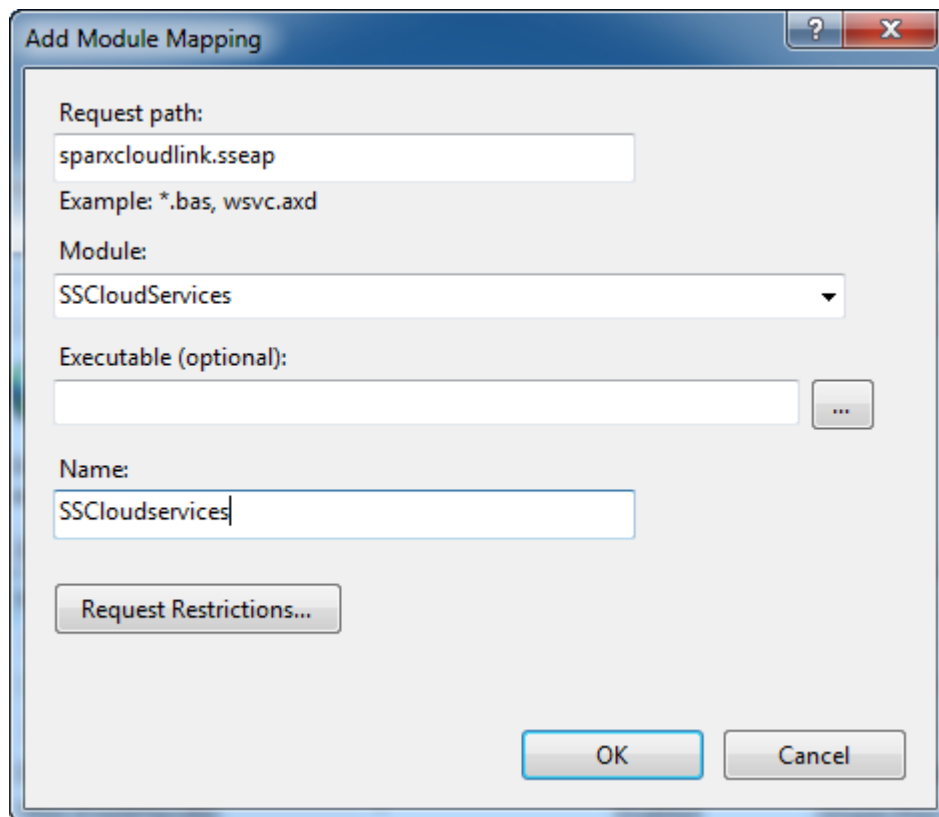
6. Click on the OK button to close the 'Configure Native Modules' dialog.
7. In the 'Connections' panel (see Step 1), select your web site.
8. Double-click the Handler Mappings in the middle pane.



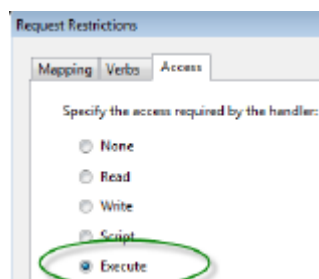
This opens the **Handler Mappings** view:



9. In the 'Actions' list, click on the 'Add Module Mapping' option to open the 'Add Module Mapping' dialog.
10. In the 'Add Module Mapping' dialog (as illustrated), set the 'Request path', 'Module' and 'Name'.
11. From the 'Module' drop-down select the module added in step 4.



12. Click on the **Request Restrictions** button and, on the 'Request Restrictions' dialog, select the 'Access' tab. Select the 'Execute' radio button to enable Execute permission.



Note: The 'Mappings' tab should be left with the default settings, that is 'Invoke handler only if request is mapped to' is not ticked.

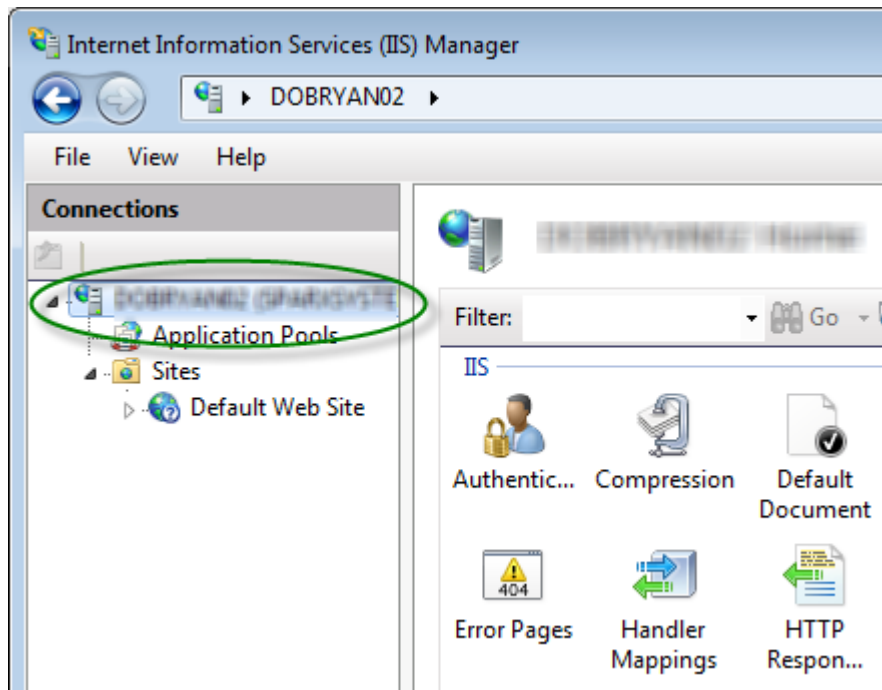
13. Click on the OK button.
14. Close the 'Add Module Mapping' dialog by clicking on the OK button.

To complete this HTTP module set up see also [Configuration Settings](#). You should then be able to connect to a model using Enterprise Architect via your IIS server using the HTTP module.

## ISAPI Module

To configure an ISAPI module instead of the HTTP module:

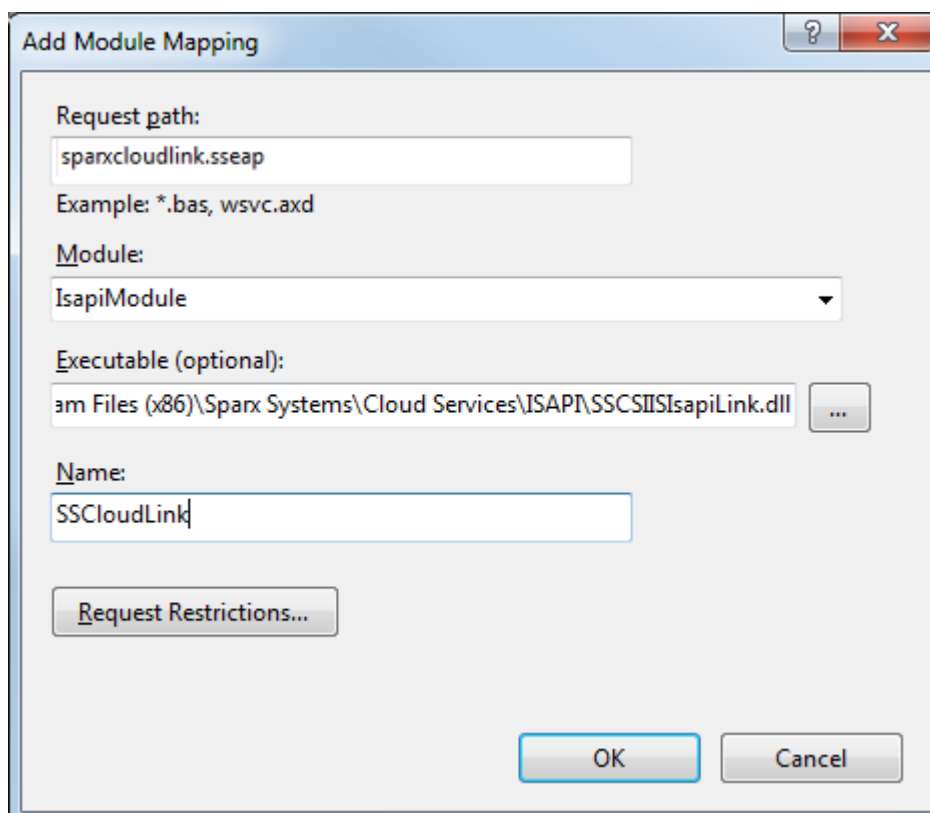
1. In the 'Connections' panel, select the machine properties:



2. Double-click on the 'Handler Mappings' icon:



3. In the 'Actions' list, click on the 'Add Module Mapping' option.
4. In the 'Add Module Mapping' dialog, set 'Request path' to 'sparxCloudLink.sseap', 'Module' to 'IsapiModule', and 'Executable' to 'SSCSIISapiLink.dll', as shown.



5. Click on the OK button to close the dialog. You should now be able to connect to a model using Enterprise Architect

via your IIS server using ISAPI.

## Additional Functionality Using the Cloud

The Cloud Services provide the facility of connecting to and using models over a secure http connection. They also make it possible to use three further facilities on or within your models:

- Open Services for Lifecycle Collaboration (OSLC)
- Reusable Asset Service (RAS)
- Scheduled Tasks

### OSLC

OSLC is an initiative to provide easier integration between Requirement Management tools. It uses HTTP to list, add, modify and delete requirements. The service provider definition to direct any OSLC client to is:

*<protocol>://<server>:<port>/<model\_name>/oslc/sp/*

For example, if you were connecting to a server running on your own machine using the default settings, the connection would be:

*http://localhost:804/model/oslc/sp/*

### Reusable Asset Service (RAS)

The RAS portion of the Cloud Server helps you to define Packages that can be used in any model. When a Package is requested, Enterprise Architect and the Cloud Server will track cross-Package dependencies and make available everything required by that Package.

### Scheduled Tasks

The Cloud Server includes optional support for running time-based updates to data. Currently, this is applied to updating a Time Series chart automatically to provide a dynamic view of how a model is changing over time. You can set different time scales for these updates, such as daily, weekly or monthly.

### Notes

- This facility is available through the Corporate, Business and Software Engineering, Systems Engineering or Ultimate editions

# OSLC Requirements Management

This text is derived from the OSLC Primer:

"Open Services for Lifecycle Collaboration (OSLC) is an open community creating specifications for integrating tools. These specifications allow conforming independent software and product lifecycle tools to integrate their data and workflows in support of end-to-end lifecycle processes."

"OSLC is based on the W3C Linked Data. One of the primary techniques for integrating tools using OSLC is Linking data via HTTP, which specifies creating, retrieving, updating and deleting (CRUD) lifecycle artifacts based on internet standards like HTTP and RDF using Linked Data model. Each artifact in the lifecycle, such as a requirement, is an HTTP resource that is manipulated using the standard methods of the HTTP specification (like GET, POST)."

"Enterprise Architect acts as an OSLC Provider and supports the Requirements Management 2.0 specification of OSLC, which allows for creating, retrieving and querying the Requirements in a model accessed via a Cloud connection. With OSLC support, Requirements in an Enterprise Architect model can be identified and accessed using a unique URL that can be linked to resources in other lifecycle products and tools."

Enterprise Architect complies with these Requirements Management 2.0 base requirements:

- Resource Operations
- Service Provider Resource
- Partial Resource Representations
- Creation Factory
- Query Capability
- Query Syntax
- Error Responses
- RDF/XML Representations

## **\*Beta Implementation\***

This is a BETA release of OSLC Requirements Management and associated tools. As such, it is supplied without warranty of any kind and is subject to change without notice during the Beta period. Sparx Systems welcomes any feedback, issues, suggestions and comments on this implementation. As with all Beta software, please take due care when using OSLC Requirements Management in a production environment.

## **Notes**

- This facility is available through the Corporate, Business and Software Engineering, Systems Engineering or Ultimate editions



## Service Provider and Service Provider Resource

Enterprise Architect acts as an OSLC Provider that other OSLC-compliant tools (OSLC Consumer/Clients) access to link to its Resources. All OSLC Resources live in a Service Provider, which is a central organising concept of OSLC. In Enterprise Architect, each model that can be accessed via the Cloud connection is treated as an OSLC Service Provider. The Requirement elements in the model are the OSLC Resources.

The services offered by the Service Provider can be retrieved using the Service Provider Resource. A Service Provider Resource specifies the:

- URL to which you can POST representations to create new resources
- URL you can use to GET a list of existing resources

To retrieve the Service Provider Resource from an Enterprise Architect model connected via the Cloud, use the URL:

`http://<server>/<model_name>/oslc/sp/`

For example, the Service Provider Resource for a model called `firebird_model`, connected via the Cloud, would be accessed using the URL:

`http://localhost:480/firebird_model/oslc/sp/`

The retrieved resource might resemble this:

```

<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:dcterms="http://purl.org/dc/terms/" xmlns:oslc="http://open-services.net/ns/core#" xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
- <oslc:ServiceProvider rdf:about="http://localhost:480/firebird_model/oslc/sp/">
  <dcterms:title>firebird:anonymous@firebird_model</dcterms:title>
  - <dcterms:publisher>
    - <oslc:Publisher>
      <dcterms:title>Sparx Systems</dcterms:title>
      <dcterms:identifier>http://www.sparxsystems.com.au/</dcterms:identifier>
    </oslc:Publisher>
  </dcterms:publisher>
  - <oslc:service>
    - <oslc:Service>
      <oslc:domain rdf:resource="http://open-services.net/ns/rm#">
      - <oslc:creationFactory>
        - <oslc:CreationFactory>
          <dcterms:title>Requirements Creation</dcterms:title>
          <oslc:creation rdf:resource="http://localhost:480/firebird_model/oslc/cf/">
          <oslc:resourceShape rdf:resource="http://localhost:480/firebird_model/oslc/rs/">
          </oslc:CreationFactory>
        </oslc:creationFactory>
      - <oslc:queryCapability>
        - <oslc:QueryCapability>
          <dcterms:title>Requirements Query</dcterms:title>
          <oslc:queryBase rdf:resource="http://localhost:480/firebird_model/oslc/qc/">
          <oslc:resourceShape rdf:resource="http://localhost:480/firebird_model/oslc/rs/">
          </oslc:QueryCapability>
        </oslc:queryCapability>
      </oslc:Service>
    </oslc:service>
  - <oslc:prefixDefinition>
    - <oslc:PrefixDefinition>
      <oslc:prefix>foaf</oslc:prefix>
      <oslc:prefixBase rdf:resource="http://xmlns.com/foaf/0.1/">
    </oslc:PrefixDefinition>
  - <oslc:prefixDefinition>
    - <oslc:PrefixDefinition>
      <oslc:prefix>rdfs</oslc:prefix>
      <oslc:prefixBase rdf:resource="http://www.w3.org/2000/01/rdf-schema#">
    </oslc:PrefixDefinition>
  - <oslc:prefixDefinition>
    - <oslc:PrefixDefinition>
      <oslc:prefix>dcterms</oslc:prefix>
      <oslc:prefixBase rdf:resource="http://purl.org/dc/terms/">
    </oslc:PrefixDefinition>
  - <oslc:prefixDefinition>
    - <oslc:PrefixDefinition>
      <oslc:prefix>oslc_rm</oslc:prefix>
      <oslc:prefixBase rdf:resource="http://open-services.net/ns/rm#">
    </oslc:PrefixDefinition>
  - <oslc:prefixDefinition>
    - <oslc:PrefixDefinition>
      <oslc:prefix>ss</oslc:prefix>
      <oslc:prefixBase rdf:resource="http://www.sparxsystems.com.au/">
    </oslc:PrefixDefinition>
  - <oslc:prefixDefinition>
    - <oslc:PrefixDefinition>
      <oslc:prefix>oslc</oslc:prefix>
      <oslc:prefixBase rdf:resource="http://open-services.net/ns/core#">
    </oslc:PrefixDefinition>
  - <oslc:prefixDefinition>
    - <oslc:PrefixDefinition>
      <oslc:prefix>rdf</oslc:prefix>
      <oslc:prefixBase rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#">
    </oslc:PrefixDefinition>
  </oslc:ServiceProvider>
</rdf:RDF>

```

Create new Requirements in the Model  
by sending POST request to this URL

Access the Requirements in the Model  
by sending GET request to this URL

Requirements representation is  
available in this URL

## Elements of the Service Provider Resource

Element	Description
oslc:Publisher	Specifies the OSLC Provider.
oslc:Service	<p>Specifies the services offered by the OSLC Provider. Enterprise Architect supports these OSLC Requirement Management services:</p> <ul style="list-style-type: none"> <li>Creation Factory - Used to create new Requirements in the model, by passing the Requirement's representation in RDF format using HTTP POST to the URL: http://&lt;server&gt;/&lt;model_name&gt;/oslc/cf/</li> <li>Query Capability - Used to list/query the Requirements in the model, by passing the query using HTTP GET to the URL:</li> </ul>

	<code>http://&lt;server&gt;/&lt;model_name&gt;/oslc/qc/</code>
<code>oslc:resourceShape</code>	Specifies the Requirement's metadata; that is, its properties and constraints. These are available in the URL: <code>http://&lt;server&gt;/&lt;model_name&gt;/oslc/rs/</code>
<code>oslc:prefixDefinition</code>	Specifies the namespace prefixes and their namespace definitions.

## Notes

- This facility is available through the Corporate, Business and Software Engineering, Systems Engineering or Ultimate editions

## Resource Shape

'Resource Shape' specifies a Requirement's metadata; that is, the set of standard OSLC properties and custom Enterprise Architect properties. 'Resource Shape' can be accessed using the URL:

`http://<server>/<model_name>/oslc/rs/`

The properties of both types specified in the 'Resource Shape' map to specific fields in the Requirement's 'Properties' dialog in Enterprise Architect. For each property, the 'Resource Shape' can also specify constraints.

### OSLC Properties

(These are as defined in the Dublin Core Metadata Element Set.)

Property Name	Requirement element Properties dialog field
title	Short Description
description	Notes
subject	Key Words
creator	Author
created	Created
modified	Last Updated

### Custom Enterprise Architect properties

Property Name	Requirement element Properties dialog field
alias	Alias
status	Status
difficulty	Difficulty
priority	Priority
type	Type
phase	Phase
version	Version

## Constraints

Constraint	Meaning
name	The name of the property.
valueType	The type of value the property can have, such as string, dateTime or integer.
occurs	The cardinality of the property; that is, whether the property is optional or required.
maxSize	The maximum number of characters for a string valueType.
allowedValue	The list of values that can be assigned for the property.
readOnly	Determines whether a value for the property can be set by the client.

## Notes

- This facility is available through the Corporate, Business and Software Engineering, Systems Engineering or Ultimate editions
- The property *identifier* refers to a Requirement's unique Enterprise Architect GUID
- The property *packageID* refers to the ID of the Package under which the Requirement exists in the model

## Query Capability

Clients can query a model and retrieve the Requirements that match a specific criteria. In Enterprise Architect, the base URI for accessing the Query Capability is:

`http://<server>/<model_name>/oslc/qc/`

A query string expressing the specific criteria should be added to the base URI and addressed to the model using an HTTP GET request. The response for this request will be in RDF/XML format. For example, all the Requirements in a model called `firebird_model` connected by the Cloud can be retrieved using the URL:

`http://localhost:480/firebird_model/oslc/qc/`

The response for the request will resemble this:

```
<?xml version="1.0" encoding="UTF-8"?>
- <rdf:RDF xmlns:ss="http://www.sparxsystems.com.au/" xmlns:foaf="http://xmlns.com/foaf/0.1/" xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:oslc_rm="http://open-services.net/ns/rm#" xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#" xmlns:rdf="http://www.w3.org/1999/02/22-rdf-
  syntax-ns#">
  - <rdf:Description rdf:about="http://localhost:480/firebird_model/oslc/qc/">
    - <rdfs:member>
      - <oslc_rm:Requirement rdf:about="http://localhost:480/firebird_model/oslc/re/{58089E4F-E705-46ae-992E-0D876D7F5DF5}"/>
        <rdf:type>http://open-services.net/ns/rm#Requirement</rdf:type>
        <dcterms:title>Requirement2</dcterms:title>
        <dcterms:description>Requirement2 Notes</dcterms:description>
        <dcterms:identifier>{58089E4F-E705-46ae-992E-0D876D7F5DF5}</dcterms:identifier>
        <dcterms:subject>risk, loading factor</dcterms:subject>
        - <dcterms:creator>
          - <foaf:Person>
            <foaf:name>User1</foaf:name>
            </foaf:Person>
          </dcterms:creator>
          <dcterms:created>2014-01-06 11:29:23</dcterms:created>
          <dcterms:modified>2014-01-06 13:20:05</dcterms:modified>
          <ss:alias>Requirement2Alias</ss:alias>
          <ss:status>Proposed</ss:status>
          <ss:difficulty>Medium</ss:difficulty>
          <ss:priority>Medium</ss:priority>
          <ss:type>Display</ss:type>
          <ss:phase>1.0</ss:phase>
          <ss:version>1.0</ss:version>
          <ss:packageID>355</ss:packageID>
        </oslc_rm:Requirement>
      </rdfs:member>
      - <rdfs:member>
        - <oslc_rm:Requirement rdf:about="http://localhost:480/firebird_model/oslc/re/{7104C13D-841C-4068-B7EE-FB998C5BA4B7}"/>
          <rdf:type>http://open-services.net/ns/rm#Requirement</rdf:type>
          <dcterms:title>Requirement1</dcterms:title>
          <dcterms:description>Requirement1 Notes</dcterms:description>
          <dcterms:identifier>{7104C13D-841C-4068-B7EE-FB998C5BA4B7}</dcterms:identifier>
          <dcterms:subject>risk, loading factor</dcterms:subject>
          - <dcterms:creator>
            - <foaf:Person>
              <foaf:name>User1</foaf:name>
              </foaf:Person>
            </dcterms:creator>
            <dcterms:created>2014-01-06 11:01:58</dcterms:created>
            <dcterms:modified>2014-01-06 13:19:51</dcterms:modified>
            <ss:alias>Requirement1Alias</ss:alias>
            <ss:status>Proposed</ss:status>
            <ss:difficulty>Medium</ss:difficulty>
            <ss:priority>Medium</ss:priority>
            <ss:type>Functional</ss:type>
            <ss:phase>1.0</ss:phase>
            <ss:version>1.0</ss:version>
            <ss:packageID>355</ss:packageID>
          </oslc_rm:Requirement>
        </rdfs:member>
      </rdf:Description>
    </rdf:RDF>
```

## Elements of the response

In Enterprise Architect, the Query Capability supports these parameters:

- `oslc.where`
- `oslc.select`
- `oslc.properties`
- `oslc.prefix`

Element	Description

oslc_rm:Requirement	A Requirement and its properties (as defined in the Resource Shape). The attribute <i>rdf:about</i> on this element specifies the URL for accessing the Requirement. The format for the URL is: <code>http://&lt;server&gt;/&lt;model_name&gt;/oslc/re/&lt;requirement_GUID&gt;/</code>
Elements with namespace prefix dterms	The standard properties from the Dublin Core Metadata Element Set.
Elements with namespace prefix ss	The custom Enterprise Architect properties.

## Notes

- This facility is available through the Corporate, Business and Software Engineering, Systems Engineering or Ultimate editions

## WHERE Parameter

The **oslc.where** Query parameter specifies the conditions that the resources must satisfy; it is similar to the WHERE clause of an SQL statement. This parameter must be appended to the base URI of the Query Capability in Enterprise Architect:

`http://<server>/<model_name>/oslc/qc/`

The syntax for the **oslc.where** Query parameter (defined in BNF grammar and as specified in the *OSLC Query Syntax Specification*) is:

```
oslc_where      ::= "oslc.where=" compound_term
compound_term  ::= simple_term (space? boolean_op space? simple_term)*
simple_term     ::= term | scoped_term
space          ::= " " /* a space character */
boolean_op     ::= "and"
term           ::= identifier_wc comparison_op value | identifier_wc space in_op space? in_val
scoped_term    ::= identifier_wc "{" compound_term "}"
identifier_wc  ::= identifier | wildcard
identifier     ::= PrefixedName
PrefixedName  ::= /* see "SPARQL Query Language for RDF", http://www.w3.org/TR/rdf-sparql-query/#rPrefixedName */
wildcard      ::= "*"
comparison_op  ::= "=" | "!=" | "<" | ">" | "<=" | ">="
in_op         ::= "in"
in_val        ::= "[" value ("," value)* "]"
value         ::= uri_ref_esc | literal_value
uri_ref_esc   ::= /* an angle bracket-delimited URI reference in which > and \ are \-escaped. */
literal_value  ::= boolean | decimal | string_esc (LANGTAG | ("^^" PrefixedName))?
boolean       ::= "true" | "false"
decimal       ::= /* see "XML Schema Part 2: Datatypes Second Edition", http://www.w3.org/TR/xmlschema-2/ */
string_esc    ::= /* a string enclosed in double quotes, with certain characters escaped. See below. */
LANGTAG       ::= /* see "SPARQL Query Language for RDF", http://www.w3.org/TR/rdf-sparql-query/#rLANGTAG */
```

## Examples

These example queries act on a model called *firebird\_model* connected by the Cloud.

Example	Query
1	<p><b>Query:</b> <code>http://localhost:480/firebird_model/oslc/qc/?oslc.where=dcterms:title="Requirement1"</code></p> <p>Retrieves all the OSLC properties of all Requirements having the title 'Requirement1'.</p>
2	<p><b>Query:</b> <code>http://localhost:480/firebird_model/oslc/qc/?oslc.where=dcterms:title in ["Requirement1","Requirement2"]</code></p> <p>Retrieves all the OSLC properties of all Requirements having the title 'Requirement1' or 'Requirement2'.</p>
3	<p><b>Query:</b>  <code>http://localhost:480/firebird_model/oslc/qc/?oslc.where=dcterms:title="Requirement1" and dcterms:creator{foaf:name}="User1"</code></p> <p>Retrieves all the OSLC properties of all Requirements having the title 'Requirement1', created by 'User1'.</p>
4	<p><b>Query:</b>  <code>http://localhost:480/firebird_model/oslc/qc/?oslc.where=dcterms:creator{foaf:name}="User1" and dcterms:created&lt;"2014-01-07"</code></p>



	Retrieves all the OSLC properties of all Requirements created by 'User1' prior to 7th January 2014.
5	<b>Query:</b> <code>http://localhost:480/firebird_model/oslc/qc/?oslc.where=name="Requirement1"</code> Returns an error response, as 'name' is not a valid property in Enterprise Architect.
6	<b>Query:</b> <code>http://localhost:480/firebird_model/oslc/qc/?oslc.where=dterms:created&lt;"01-07-2014"</code> Returns an error response as the value of the property created is not in a valid format.

## Notes

- Dates must be specified in the format YYYY-MM-DD
- This facility is available through the Corporate, Business and Software Engineering, Systems Engineering or Ultimate editions

## SELECT Parameter

The **oslc.select** Query parameter specifies the Requirement properties to be retrieved; it is similar to the SELECT clause of an SQL statement. This parameter must be appended to the base URI of the Query Capability in Enterprise Architect:

`http://<server>/<model_name>/oslc/qc/`

The syntax for the **oslc.select** Query parameter (defined in BNF grammar and as specified in the OSLC Query Syntax Specification) is:

```
oslc_select ::= "oslc.select=" properties
properties  ::= property ("," property)*
property    ::= identifier | wildcard | nested_prop
nested_prop ::= (identifier | wildcard) "{" properties "}"
```

## Examples

These example queries act on a model called *firebird\_model* connected by the Cloud.

Example	Query
1	<b>Query:</b> <code>http://localhost:480/firebird_model/oslc/qc/?oslc.select= dcterms:title</code> Retrieves the OSLC property 'title' of all the Requirements in the model.
2	<b>Query:</b> <code>http://localhost:480/firebird_model/oslc/qc/?oslc.select=dcterms:title,dcterms:created,dcterms:creator{foaf:name},ss:version</code> Retrieves the OSLC properties 'title', 'creator' and 'version' of all the Requirements in the model.
3	<b>Query:</b> <code>http://localhost:480/firebird_model/oslc/qc/?oslc.select=*</code> Retrieves all the OSLC properties of all the Requirements in the model.
4	<b>Query:</b> <code>http://localhost:480/firebird_model/oslc/qc/?oslc.select=dcterms:name</code> Returns an error response, as 'name' is not a valid property in Enterprise Architect.

## Notes

- This facility is available through the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions

## Combine WHERE and SELECT Parameters

The **oslc.where** and **oslc.select** Query parameters can be combined in the base URI of the Query Capability to retrieve the required properties of all those Requirements that satisfy the specified condition. This is similar to using WHERE and SELECT clauses together in a SQL statement.

### Examples

These example queries act on a model called *firebird\_model* connected by the Cloud.

Example	Query
1	<p><b>Query:</b> <code>http://localhost:480/firebird_model/oslc/qc/?oslc.where=dcterms:title="Requirement1" &amp; oslc.select=dcterms:title</code></p> <p>Retrieves the OSLC property title of all Requirements that have the title 'Requirement1'.</p>
2	<p><b>Query:</b> <code>http://localhost:480/firebird_model/oslc/qc/?oslc.where= dcterms:title in ["Requirement1","Requirement2"] &amp; oslc.select=dcterms:title,dcterms:created,dcterms:creator{foaf:name}</code></p> <p>Retrieves the OSLC properties 'title', 'created' and 'creator' of all Requirements that have the title 'Requirement1' or 'Requirement2'.</p>
3	<p><b>Query:</b> <code>http://localhost:480/firebird_model/oslc/qc/?oslc.where=dcterms:title="Requirement1" and dcterms:creator{foaf:name}="User1" &amp; oslc.select=*</code></p> <p>Retrieves all the OSLC properties of all Requirements that have the title 'Requirement1', created by 'User1'.</p>
4	<p><b>Query:</b> <code>http://localhost:480/firebird_model/oslc/qc/?oslc.where=dcterms:created&lt;"01-07-2014" oslc.select=dcterms:title</code></p> <p>Returns an error response, as the value of the property 'created' is not in the valid format.</p>

### Notes

- This facility is available through the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions
- Dates must be specified in the format YYYY-MM-DD

## PROPERTIES Parameter

Enterprise Architect supports a technique called **Selective Properties**, through which clients can retrieve selected OSLC properties of a Requirement. This technique accepts a partial representation of the OSLC properties; that is, all properties or only some of them. The base URI for accessing Selective Properties of a Requirement in Enterprise Architect is:

`http://<server>/<model_name>/oslc/re/<requirement_GUID>/`

The syntax for the **oslc.properties** Query parameter (defined in BNF grammar and as specified in the OSLC Core Specification) is:

```
oslc_properties ::= "oslc.properties=" properties
properties      ::= property ("," property)*
property        ::= identifier | wildcard | nested_prop
nested_prop     ::= (identifier | wildcard) "{" properties "}"
wildcard        ::= "*"
identifier      ::= PrefixedName
PrefixedName    ::= /* see "SPARQL Query Language for RDF", http://www.w3.org/TR/rdf-sparql-query/#rPrefixedName */
```

## Examples

These example queries act on a Requirement with the GUID {7104C13D-841C-4068-B7EE-FB998C5BA4B7} in a model called *firebird\_model* connected by the Cloud.

Example	Query
1	<p><b>Query:</b>  <code>http://localhost:480/firebird_model/oslc/re/{7104C13D-841C-4068-B7EE-FB998C5BA4B7}/?oslc.properties=*</code>  Retrieves all the OSLC properties of the specified Requirement.</p>
2	<p><b>Query:</b>  <code>http://localhost:480/firebird_model/oslc/re/{7104C13D-841C-4068-B7EE-FB998C5BA4B7}/?oslc.properties=dcterms:title,dcterms:creator{foaf:name}</code>  Retrieves the OSLC properties 'title' and 'creator' of the specified Requirement.</p>
3	<p><b>Query:</b>  <code>http://localhost:480/firebird_model/oslc/re/{7104C13D-841C-4068-B7EE-FB998C5BA4B7}/?oslc.properties=dcterms:title,dcterms:creator{}</code>  Returns an error response as the property 'creator' is incomplete; it should be:  <code>dcterms:creator{foaf:name}</code></p>

## Notes

- This facility is available through the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions

## PREFIX Parameter

Clients can use the **oslc.prefix** parameter to specify URI prefixes as used in OSLC property names. This parameter is appended to the base URI of the Selective Properties of a requirement:

```
http://<server>/<model_name>/oslc/re/<requirement_GUID>/
```

The syntax for the **oslc.prefix** parameter (defined in BNF grammar and as specified in the OSLC Core Specification) is:

```
oslc_prefix ::= "oslc.prefix=" prefix_defs
prefix_defs ::= prefix_def ("," prefix_def)*
prefix_def  ::= prefix "=" uri_ref_esc
prefix      ::= PN_PREFIX
PN_PREFIX   ::= /* see "SPARQL Query Language for RDF", http://www.w3.org/TR/rdf-sparql-query/#rPN_PREFIX */
uri_ref_esc ::= /* an angle bracket-delimited URI reference in which > and \ are \-escaped. */
```

## Example Queries

These example queries act on a Requirement with the GUID {7104C13D-841C-4068-B7EE-FB998C5BA4B7} in a model called *firebird\_model* connected by the Cloud.

Example	Query
1	<p><b>Query:</b>  <a href="http://localhost:480/firebird_model/oslc/re/{7104C13D-841C-4068-B7EE-FB998C5BA4B7}/?oslc.prefix=otrm=&lt;http://purl.org/dc/terms/&gt;&amp;oslc.properties=otrm:title">http://localhost:480/firebird_model/oslc/re/{7104C13D-841C-4068-B7EE-FB998C5BA4B7}/?oslc.prefix=otrm=&lt;http://purl.org/dc/terms/&gt;&amp;oslc.properties=otrm:title</a>  Retrieves the OSLC property title of the specified Requirement.  Note that the prefix for the namespace <a href="http://purl.org/dc/terms/">http://purl.org/dc/terms/</a> has been specified as 'otrm' in the query.</p>
2	<p><b>Query:</b>  <a href="http://localhost:480/firebird_model/oslc/re/{7104C13D-841C-4068-B7EE-FB998C5BA4B7}/?oslc.prefix=otrm=&lt;http://purl.org/dc/terms/&gt;,spx=&lt;http://www.sparxsystems.com.au/&gt;&amp;oslc.properties=otrm:title,spx:alias">http://localhost:480/firebird_model/oslc/re/{7104C13D-841C-4068-B7EE-FB998C5BA4B7}/?oslc.prefix=otrm=&lt;http://purl.org/dc/terms/&gt;,spx=&lt;http://www.sparxsystems.com.au/&gt;&amp;oslc.properties=otrm:title,spx:alias</a>  Retrieves the OSLC properties title and alias of the specified Requirement.  Note that the prefix for the namespace <a href="http://purl.org/dc/terms/">http://purl.org/dc/terms/</a> has been specified as 'otrm' and that of <a href="http://www.sparxsystems.com.au/">http://www.sparxsystems.com.au/</a> has been specified as 'spx' in the query.</p>
3	<p><b>Query:</b>  <a href="http://localhost:480/firebird_model/oslc/re/{7104C13D-841C-4068-B7EE-FB998C5BA4B7}/?oslc.prefix=otrm=&lt;http://purl.org/dc/terms/&gt;,spx=&lt;http://www.sparxsystems.com.au/&gt;&amp;oslc.properties=otrm:title,sx:alias">http://localhost:480/firebird_model/oslc/re/{7104C13D-841C-4068-B7EE-FB998C5BA4B7}/?oslc.prefix=otrm=&lt;http://purl.org/dc/terms/&gt;,spx=&lt;http://www.sparxsystems.com.au/&gt;&amp;oslc.properties=otrm:title,sx:alias</a>  Returns an error response as the namespace prefix 'sx' on the property alias is undefined.</p>

## Notes

- This facility is available through the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions



## Creation Factory

Enterprise Architect supports the **Creation Factory OSLC service**, through which clients can create new Requirements via HTTP POST. To create a new Requirement, the client POSTs a representation of the Requirement in RDF format to the Creation Factory URL. If the POST is successful, the HTTP location header of the response will contain the URL of the created Requirement. An unsuccessful POST will generate an error response.

The Creation Factory URL has the format:

`http://<server>/<model_name>/oslc/cf/`

## Examples

These are some example representations of a Requirement in RDF format.

Example	RDF Representation
1	<pre> &lt;rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"   xmlns:oslc_rm="http://open-services.net/ns/rm#"   xmlns:dcterms="http://purl.org/dc/terms/"   xmlns:foaf="http://xmlns.com/foaf/0.1/"   xmlns:ss="http://www.sparxsystems.com.au/"&gt;   &lt;oslc_rm:requirement&gt;     &lt;dcterms:title&gt;Requirement3&lt;/dcterms:title&gt;     &lt;dcterms:description&gt;Requirement Notes   &lt;/dcterms:description&gt;     &lt;dcterms:creator&gt;       &lt;foaf:Person&gt;         &lt;foaf:name&gt;User1&lt;/foaf:name&gt;       &lt;/foaf:Person&gt;     &lt;/dcterms:creator&gt;     &lt;ss:type&gt;Functional&lt;/ss:type&gt;     &lt;ss:packageID&gt;355&lt;/ss:packageID&gt;   &lt;/oslc_rm:requirement&gt; &lt;/rdf:RDF&gt; </pre> <p><b>Result Description</b> Creates a new Requirement with the specified <i>name</i>, <i>notes</i>, <i>author</i> and <i>stereotype</i>.</p>
2	<pre> &lt;rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"   xmlns:oslc_rm="http://open-services.net/ns/rm#"   xmlns:dct="http://purl.org/dc/terms/"   xmlns:foaf="http://xmlns.com/foaf/0.1/"   xmlns:ss="http://www.sparxsystems.com.au/"&gt;   &lt;oslc_rm:requirement&gt;     &lt;dct:title&gt;Requirement4&lt;/dct:title&gt;     &lt;ss:packageID&gt;355&lt;/ss:packageID&gt;     &lt;ss:difficulty&gt;High&lt;/ss:difficulty&gt;   &lt;/oslc_rm:requirement&gt; &lt;/rdf:RDF&gt; </pre>

	<pre>&lt;ss:priority&gt;High&lt;/ss:priority&gt; &lt;/oslc_rm:requirement&gt; &lt;/rdf:RDF&gt;</pre> <p><b>Result Description</b> Creates a new Requirement with the specified <i>name</i>, <i>difficulty</i> and <i>priority</i>.</p>
3	<pre>&lt;rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:oslc_rm="http://open-services.net/ns/rm#" xmlns:dct="http://purl.org/dc/terms/" xmlns:foaf="http://xmlns.com/foaf/0.1/" xmlns:ss="http://www.sparxsystems.com.au/"&gt; &lt;oslc_rm:requirement&gt; &lt;dct:title&gt;Requirement4&lt;/dct:title&gt; &lt;ss:packageID&gt;355&lt;/ss:packageID&gt; &lt;ss:difficulty/&gt; &lt;/oslc_rm:requirement&gt; &lt;/rdf:RDF&gt;</pre> <p><b>Result Description</b> Produces an error response, as the property 'difficult' has an invalid (empty) value.</p>

## Notes

- This facility is available through the Corporate, Business and Software Engineering, Systems Engineering or Ultimate editions
- The OSLC properties 'title' and 'packageID' of the Requirement are mandatory and must be supplied in the RDF representation
- The value of the OSLC property 'packageID' should already exist in the model, so before creating a Requirement using Creation Factory, use the Query Capability URL to determine the existing values of 'packageID'
- The OSLC properties 'identifier', 'created' and 'modified' of the Requirement are read-only and cannot be set using the Creation Factory service



## Reusable Asset Service (RAS)

Within a large organization, groups of users can be separated by geographical distance or be on different networks. This can make it difficult to share common data, standards and modeling structures, without the complexity of using external version control tools or manually distributing XMI files between projects. Enterprise Architect has a **Reusable Asset Service (RAS)** that provides a simple and convenient mechanism for modelers to distribute or download reusable model structures, information, corporate directives and standards. The shared repository is accessible via a Cloud Service connection, making it accessible for distributed teams. The person who sets up the reusable data can retain governance of the resource or asset, whilst users of the service can easily review the currency of the information and download the latest versions into their models or file folders.

The RAS gives distributed teams convenient access to a single 'source of truth' for shared data, including project milestones, architectural frameworks and industry standards.

### Reusable Assets

Reusable Assets consist of:

- Packages containing elements, diagrams and structures (as drawn from any point within the **Project Browser**), and
- Files in a range of text, code and graphic formats, including .eap files

An asset can be, for example:

- A common Class library or framework
- A set of common Requirements or Use Cases
- A draft specification document
- Marketing collateral

### Storage Structure and Use

Reusable Assets are held in a remote registry, accessed through a Cloud Service connection. The registry contains any number of Storages, which can either be left unprotected for any user to create, or change-restricted by an Administrator password. Each Storage can contain any number of Asset Packages holding modeling structures, and files containing textual or graphical information and data. When a user creates a Storage, they can protect the contents from being updated in the Registry or downloaded into a model, using password protection defined by that user.

For each Package, the RAS automatically identifies the:

- Version of the Package held in the registry
- Diagrams and elements (including child Package elements) contained by the Asset Package
- Dependencies on parent Packages of any external elements that the Asset Package references
- Dependencies on MDG Technologies

Any user, regardless of password protection, can freely browse and identify the contents of a Package held in a Storage - including displaying the diagrams - without importing the material into a model. A user that has imported an Asset Package into their model can compare their model Package against any version of the Asset Package, to check for and assess any differences between them.

### Notes

- The **Reusable Asset Service** is available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions of Enterprise Architect




## Connect to the Asset Service

The **Reusable Asset Service** provides model structures and documents to you from one or more registries on remote systems. You access these registries through a Cloud connection to the appropriate server. The connection details should be provided to you by your System Administrator or Reusable Asset Service Administrator.

### Access

Ribbon	Publish > Model Exchange > Reusable Assets
Menu	Tools > <b>Reusable Asset Service</b>

### Connect to Assets

Field/Option	Detail
Registry	<p>This field normally defaults to the last-used registry name. If the field is empty, or if you want to switch to a different registry, click on the  button to the right of the field.</p> <p>The 'Cloud Connection' dialog displays.</p> <p>Using the information provided by your administrator, type in the server name, URL and the name of the model hosting the registry data. For example, if you wanted to download the UBL Frameworks into your model, you would specify the server 'sparxcloud.com' and the model name 'modelpatterns'.</p> <p>If advised by your Administrator, type in the user name and password for the server.</p> <p>Click on the <b>OK button</b>; the 'Registry' field now shows the server name.</p>
Storage	<p>If there is more than one Storage available in the Registry, this field defaults to the first listed in the Registry.</p> <p>To check for or select other Storages, click on the drop-down arrow at the right of the field. Click on the Storage to review. For example, if you were downloading UBL frameworks, you would select 'UBL' in the list.</p> <p>The 'Registry Browser' tab displays the Packages registered in the selected Storage.</p>


### Notes

- The **Reusable Asset Service** is available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions of Enterprise Architect

## Browse Assets

When you select a Storage in the **Reusable Asset Service**, the 'Registry Browser' tab immediately displays a list of the Packages registered in that Storage. You can review and use these Packages using the context menu and buttons on the tab.

You can review the properties and contents of the selected Package in the Storage, and access any files in the Storage, using the tabs in the lower half of the Reusable Asset Service view, underneath the 'Registry Browser' tab.

If you have left the Registry Browser open for a while and there is a possibility that the Registry has been changed, you can click on the  icon in the Reusable Asset Service toolbar to refresh the Browser with the latest contents of the Registry.

### Access

Ribbon	Publish > Model Exchange > Reusable Assets > Registry Browser
Menu	Tools   <b>Reusable Asset Service</b> > Registry Browser

### Review Assets

Field/Option	Detail
Toggle Filter Bar	Right-click on the column headings and select this option to show or hide the <b>Filter</b> Bar on the display.
<filter bar fields>	Type in the appropriate characters to list only Packages that have that string of characters in the values in the corresponding column.
Package	This column shows the name of the Packages held in the selected Storage.
Version	This column defaults to the most recent version of each Package held in the selected Storage. You can click on the drop-down arrow at the end of a field and select a different version of the corresponding Package, if any have been registered.
Last Registered	This column shows the date and time at which the currently-listed version of each Package was registered.
Registered By	This column shows the user name of the person who registered the currently-listed version of each Package.
Import	Click on a Package name and click on this button to begin to import either the Package alone or the Package and its dependent structures into your model. You can perform the same action by right-clicking on the Package name and selecting the 'Import from Registry' menu option. If the Package from the Registry already exists in your model, it is deleted and

	<p>replaced by this import.</p> <p>On a 'Learning Center Library' Storage, click on this button to open the 'Download Library' dialog.</p> <p>On a 'Reference Data Library' Storage, click on this button to open the 'Import Reference Data' dialog.</p> <p>On a 'Source Code Library' Storage, click on this button to open the 'Save As' dialog.</p>
Compare with Package in Model	<p>If you have previously imported a Package from the Registry into your model, you can right-click on the Package name in the Registry Browser and select this option to compare the imported Package with the Registry version, and show any differences.</p> <p>The system automatically selects the model Package from the <b>Project Browser</b>.</p>
Find in Project Browser	<p>If you have previously imported a Package from the Registry into your model, you can right-click on the Package name in the Registry Browser and select this option to highlight the corresponding Package in the <b>Project Browser</b>.</p>

## Notes

- Some of the other options available on the Registry Browser are used to set up assets in the Registry
- If the Storage is password-protected, a prompt for you to enter a password displays when you select to perform an operation on the data; in this situation, you need the 'Read-only' password to process the information from the Storage, and the 'All-access' password to change the information in the Storage
- The 'Registry Browser' tab will be empty for a 'Learning Center Library', 'Reference Data Library' or 'Source Code Library' type Storage - the contents of these Storages will be available in the 'Storage Files' tab of the **Reusable Asset Service** view

## Asset Properties

When you select a Storage and a Package in the Registry Browser, the first four tabs in the lower half of the **Reusable Asset Service** view are updated with information from the Package. The 'Asset Properties' tab is a read-only view of the properties of the selected Package itself.

### Access

Open the 'Reusable Asset Service' window using one of the methods outlined below.

Select a package, then click on the 'Asset Properties' tab, to display properties for the selected package.

Ribbon	Publish > Model Exchange > Reusable Assets
Menu	Tools > <b>Reusable Asset Service</b>

### Review Package Properties

Field	Detail
Package	Displays the name of the selected Package.
GUID	Displays the Global Unique Identifier of the Package.
Version	Displays the version reference (such as 1.1 or Beta) of the Package.
Author	Displays the user ID of the person who created the Package (the Package Author).
Created Date	Displays the date and time at which the selected version of the Package was created (that is, registered) in the Registry.
Modified Date	Displays the date and time at which the selected version of the Package was last modified (that is, re-registered) in the Registry.
Comments	Displays any comment recorded against the Package when it was registered in the Storage.
Notes	Displays the notes recorded against the Package when it was registered in the Storage.

### Notes

- The 'Asset Properties' tab will be empty for a 'Learning Center Library', 'Reference Data Library' and 'Source Code Library' type Storage

## Package Contents

When you select a Storage and a Package in the 'Registry Browser', the first four tabs in the lower half of the **Reusable Asset Service** view are updated with information from the Package. The 'Contents' tab lists the diagrams and elements (including child Packages) held in the selected Package, listing the two types of object separately. You can organize the information within a column into alphabetical or reverse-alphabetical order for ease of reference, and use the **Filter bar** to filter the display to show only items with values containing specific characters or digits.

### Access

Open the 'Reusable Asset Service' window using one of the methods outlined below.

Select a package, then click on the 'Contents' tab, to display the contents of the selected package.

Ribbon	Publish > Model Exchange > Reusable Assets
Menu	Tools > <b>Reusable Asset Service</b>

### Review Package Contents

Field/Option	Detail
Content Type	Click on this button to toggle between listing the Package diagrams first and listing the Package elements first.
Toggle Filter Bar	Right-click on the column headings and select this option to show or hide the <b>Filter</b> Bar on the display.
<filter bar fields>	Type in the appropriate characters to list only elements and diagrams that have that string of characters in the values in the corresponding column.
Content Type: Diagram Content Type: Element	These are the headers for the two types of object listed in this tab. Click on the appropriate expansion box to hide or show the list of diagrams or elements under the heading.
Name	Displays the name of the element or diagram available in the Package.
Type	Displays the type of the element or diagram, such as UseCase or <b>Use Case Diagram</b> .
GUID	Displays the Global Unique Identifier of the element or diagram.
Content Type	Displays the object type of the item - Element or Diagram.
Find in Project Browser	Right-click on an element or diagram line and select this option to see if the element or diagram also exists in your model and, if it does, to highlight it in the <b>Project Browser</b> .
	Right-click on a diagram name and select this option to display the diagram within

View Diagram	a labeled frame, as an image. Alternatively, double-click on the diagram name.
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## Notes

- The 'Contents' tab will be empty for a 'Learning Center Library', 'Reference Data Library' and 'Source Code Library' type Storage



## Package Dependencies

A Package held as an asset in the **Reusable Asset Service** registry might contain elements and diagrams that have relationships with objects in other Packages. The Packages containing these 'external' objects will also have been added to the Registry, to support the first Package, and will be listed in the 'Registry Browser' tab along with other, unrelated Packages. You can establish whether the selected Package in the Registry Browser has links to other Packages in the Registry, and which they are, by reviewing the 'Dependency' tab.

Package A depends on Package B if any of these constructs (or their **Tagged Values**) in Package A references elements in Package B:

- Elements
- Attributes
- Operations
- Operation Parameters
- Diagrams
- Connectors

### Access

Open the '**Reusable Asset Service**' window using one of the methods outlined below.

Select a package, then click on the 'Dependency' tab, to display a list of Dependencies for that package.

Ribbon	Publish > Model Exchange > Reusable Assets
Menu	Tools > <b>Reusable Asset Service</b>

### Check Package Dependencies

Field/Option	Detail
Package	Displays the name of the related Package.
Version	Displays the latest registered version of the related Package that has links to the selected Package.
GUID	Displays the Global Unique Identifier of the related Package.
Find in Project Browser	Right-click on the 'Package' line and select this option to see if the Package also exists in your model and, if it does, to highlight it in the <b>Project Browser</b> .

### Notes

- If one Package depends on another, and that second Package itself depends on another Package, both the second and third Packages are shown in the 'Dependency' tab

- The 'Dependency' tab will be empty for a 'Learning Center Library', 'Reference Data Library' and 'Source Code Library' type Storage

## Package Technologies

It is possible that the asset Package in the Registry is associated with one or more Technologies, especially if the Package comes from a model developed as an extension or customization of the UML. You can check whether an asset Package has any associated Technologies, and what they are, by viewing the 'Technology' tab of the **Reusable Asset Service** view.

### Access

Open the 'Reusable Asset Service' window using one of the methods outlined below.

Select a package, then click on the 'Technology' tab, to display a list of Technologies required to support the selected package.

Ribbon	Publish > Model Exchange > Reusable Assets
Menu	Tools > <b>Reusable Asset Service</b>

### Review Technologies

Field/Option	Detail
Name	Displays the name of the Technology as recorded in the Registry.
Version	Displays the required version of the Technology to support the asset Package, available through the Registry.
ID	Displays the unique identifier of the Technology.
Type	Identifies whether the Technology is system-supplied and built in to Enterprise Architect (such as BPMN 2.0 or ArcGIS), or user-defined. A user-defined technology can be introduced from an external source or developed by a user within the system.
Registry Status	Indicates whether the Technology file is: <ul style="list-style-type: none"> <li>• Available - the Technology file is registered in the current Storage, or</li> <li>• Unavailable: <ul style="list-style-type: none"> <li>- The Technology file is not registered in the Storage, or</li> <li>- The Technology is a built-in Technology and is already integrated with your system, or must be purchased under license, or</li> <li>- The Technology is available from a URL and can be downloaded from that URL</li> </ul> </li> </ul>
Import Technology	If your local system does not have one of the Available Technologies, you can quickly import it from the Registry. <ol style="list-style-type: none"> <li>1. Right-click on the Technology name and select Import Technology.</li> <li>2. A prompt displays for you to confirm the import to your system; click on the</li> </ol>

	<p><b>Yes button.</b></p> <p>3. A message displays to confirm that the Technology has been imported; click on the <b>OK button</b>.</p> <p>You might have to restart Enterprise Architect to activate the Technology.</p> <p>Other than the remote Technologies, you cannot import a Technology flagged as Unavailable. You can import a remote Technology from its URL site.</p>
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## Notes

- You can also import Available Technologies from the registry as part of the process of importing the asset Package
- If the Storage is password protected, a prompt to enter your password displays (this can be a Read-Only or a Complete Access password) after you confirm that you want to import the Technology; you cannot import the Technology without this password
- The 'Technology' tab will be empty for a 'Learning Center Library', 'Reference Data Library' and 'Source Code Library' type Storage

## Storage Files

The 'Storage Files' tab of the **Reusable Asset Service** view simply lists the files that have been uploaded to the specified Storage. The files can be of any type, uploaded from any directory on any system connected to the registry. Typically they would be document or graphics files that provide standards, guidelines or design information on a model structure. The tab displays the file name and extension, and a comment on the nature or purpose of the file.

Files held in the Registry are compressed, so to view the contents you download them onto your local system.

### Access

Open the '**Reusable Asset Service**' window using one of the methods outlined below.

Select a package, then click on the 'Storage Files' tab, to display a list of files associated with the selected package, that are available for download.

Ribbon	Publish > Model Exchange > Reusable Assets
Menu	Tools > <b>Reusable Asset Service</b>

### Review files in Draft/Complete type Storage

On the 'Storage Files' tab, check the 'Comments' field against each file that interests you.

To view the contents of a file, right-click on the file name and select the 'Import From Registry' option. The 'Save As' browser displays, through which you select the directory into which to copy the file.

Click on the **Open button**. The file is copied into the selected location, from which you can open it.

### Review files in Learning Center/Reference Data/Source Code Library type Storage

On the 'Storage Files' tab, check the 'Comments' field against each file that interests you.

To import and install a Library file, right-click on the Library file and select the 'Import From Registry' option. Depending on the Storage type, one of the following dialogs will appear :

- 'Download Libraries' dialog for a 'Learning Center' type Storage
- 'Import Reference Data' dialog for a 'Reference Data Library' type Storage
- 'Save As' dialog for a 'Source Code Library' type Storage

'Learning Center Library', 'Reference Data Library' and 'Source Code Library' type Storage will not contain any Assets. So clicking :

- 'Import' button in the Registry Browser will import and install Library file from the Storage
- 'Delete' button in the Registry Browser will delete all Library files in the Storage

### Notes

- If the Storage is password-protected, the system prompts you to enter a password before you begin importing a file from the Storage; in this case you require either a Read-Only or Complete Access password



## Compare an Asset to the Model

If you are developing a Package in your model against a standard structure, or using common elements from the **Reusable Asset Service**, you can check that your model conforms to the standard or incorporates any changes to the common elements, by performing a comparison between the asset Package and your model.

### Access

Open the 'Reusable Asset Service' window using one of the methods outlined below.

Select a package, then right-click on the package and choose 'Compare with Package in Model'.

Ribbon	Publish > Model Exchange > Reusable Assets
Menu	Tools > <b>Reusable Asset Service</b>

### Compare Asset Package and Model

A prompt displays for you to confirm the comparison. Click on the **Yes button**.

The **Baseline Comparison** view displays, showing the element hierarchy in which differences have been detected between the Package in the model and the asset Package in the Registry (as the Baseline).

All facilities of the standard Baseline Comparison are available, including the ability to 'roll back' differences so that the element or Package in the model matches the Registry.

### Notes

- If the Storage is password-protected, the system prompts you to enter a password before you begin comparing information in the Storage and in the model; in this case you require either a Read-Only or a Complete Access password

# Import an Asset into the Model

The **Reusable Asset Service** provides common or standard information and data that you can import into your local model. The unit that you import is a selected version of the Asset Package; you can also, optionally, import:

- Other Packages on which the selected Asset Package depends, and/or
- Available Technologies that support full use of the model structures in the Asset Package

The Asset Package (with, if selected, any needed Packages) is imported into the currently-selected model Package in the **Project Browser**, unless the Asset Package already exists anywhere else in the Project. In this case, the system locates the existing Package and overwrites it with the imported Asset Package.

## Access

Open the 'Reusable Asset Service' window, using one of the methods outlined below.

On the 'Registry Browser' tab, either;

- select an Asset Package and click on the 'Import' button, or
- right-click on an Asset package and choose 'Import from Registry'

Ribbon	Publish > Model Exchange > Reusable Assets
Menu	Tools > <b>Reusable Asset Service</b>

## Import Asset Package

Before selecting an Asset Package to import into your model, click on the 'Version' drop-down arrow and select the appropriate version of the Package to import.

When you select to import an Asset Package into your model, a short menu displays from which you select to import:

- The Package alone or
- The Package with the Packages on which it is dependent

A prompt then displays for you to confirm the import, and to warn you that if the Package already exists in the model, it will be overwritten by the import. Click on the **Yes button** to continue, or the **No button** to cancel the import.

If the Storage is password protected, after you confirm the import a prompt displays for your Read-Only or Complete-Access password; enter this and click on the **OK button**.

The 'Import from Registry' dialog displays, followed by confirmation that the import of the Package or Packages is complete. Click on the OK button.

## If the Package depends on Technologies

If the Technologies associated with an Asset Package are not already on your system and/or enabled in your model, during the display of the 'Import from Registry' dialog the 'Import Technology From Registry' dialog also displays. Process this dialog as described.

Field/Option	Detail
Name	Displays the name of the Technology as recorded in the Registry. The check box against each name is selected by default. If you want to import one



	technology but not another, de select the checkbox of the technology to ignore.
Version	Displays the required version of the Technology to support the Asset Package, available through the Registry.
Registry Status	<p>Indicates whether the Technology file is:</p> <ul style="list-style-type: none"> <li>• <b>Available</b> - the Technology file is registered in the current Storage, or</li> <li>• <b>Unavailable</b> - for one of these reasons: <ul style="list-style-type: none"> <li>- The Technology file is not registered in the Storage, or</li> <li>- The Technology is a built-in Technology and is already integrated with your system, or must be purchased under license, or</li> <li>- The Technology is available from a URL and can be downloaded from that URL</li> </ul> </li> </ul>
Model Status	<p>Indicates whether the Technology is already in your model and disabled.</p> <p>(If the Technology is in your model and enabled, there is no need to import it and it is not listed in the dialog.)</p>
OK	<p>Click on this button to import and/or enable the selected Technology or Technologies in your system.</p> <p>A status message displays to indicate that the Package and Technologies have been imported and the Technologies enabled. You might have to restart Enterprise Architect for the Technologies to take full effect.</p> <p>Click on the <b>OK button</b> to clear the message.</p> <p>In the <b>Project Browser</b>, the Package has been added to the model with (if selected) the Packages on which it is dependent.</p>

## Import Library

The **Reusable Asset Service** provides ability to store Library files, that you can import into your local model. The type of Library file available in a Storage will depend on the Storage type. When a Library from Learning Center Library storage is imported and installed, it will be available for use on all Enterprise Models in this system. When a Library from Reference Data Library storage is imported, it will be installed into the current model. When a Library from Source Code Library storage is imported, it will be saved in the specified location in the file system.

Library from Learning Center Library storage :

- click on the 'Import' button to open the 'Download Libraries' dialog, with all the Library files in this storage checked in the 'Download Libraries' dialog, or
- right-click on a Library file in the 'Storage Files' tab and choose 'Import from Registry' option to open the 'Download Libraries' dialog with that particular Library file checked in the 'Download Libraries' dialog

Library from Reference Data Library storage :

- click on the 'Import' button to open the 'Import Reference Data' dialog, with all the reference data in that particular Library file selected in the 'Import Reference Data' dialog, or
- right-click on a Library file in the 'Storage Files' tab and choose 'Import from Registry' option to open the 'Import Reference Data' dialog, with all the reference data in that particular Library file selected in the 'Import Reference Data' dialog

Library from Source Code Library storage :

- click on the 'Import' button to open the 'Save As' dialog to select a location in the file system to save the imported Library to, or
- right-click on a Library file in the 'Storage Files' tab and choose 'Import from Registry' option to open the 'Save As'

dialog to select a location in the file system to save the imported Library to

If the Storage is password protected, a prompt for you to enter a password displays for your Read-Only or Complete-Access password; enter this and click on the **OK button**.

## Notes

- You can also import Technologies separately from the Package that is dependent on them, using the Technology Tab of the **Reusable Asset Service** view
- 'Learning Center Library', 'Reference Data Library' and 'Source Code Library' type Storage will not contain any Asset Packages

## Set Up Registry Password

As a System Administrator, you can password-protect the Registry server to prevent users from modifying the Registry; that is, restrict users from creating, modifying and deleting Storages. Once you have set password protection, only those users who have a valid Administrator password can modify the Registry.

You can also change the password at regular intervals, for added security.

### Access

Ribbon	Publish > Model Exchange > Reusable Assets : Set Administrator Password
Menu	Tools   <b>Reusable Asset Service</b> : Set Administrator Password

### Set the Administrator Password

Field/Option	Detail
Enter old password	Disabled if no password exists for the Registry server. If the server has a current password, type it in to this field.
New password	Type in the new Administrator password.
Retype new	Type in the new Administrator password, for confirmation.
OK	Click on this button to set the password and close the dialog.
Cancel	Click on this button to abort the changes and close the dialog.

### Notes

- To remove password protection from the Registry server, complete the 'Enter old password' field but leave the 'New password' and 'Retype new' fields blank
- If a Storage has a Complete Access password, then you can use either the Administrator password or the Complete Access password to modify the Storage

# Set Up the Asset Service

The process of setting up assets and files in the **Reusable Asset Service** has a number of simple stages, typically:


- Identify the Registry
- Create the Storages, including copying an existing Storage as template for a new one
- Set password protection on each Storage
- Register the Asset Packages and Storage Files, and update them as necessary

## Access

Ribbon	Publish > Model Exchange > Reusable Assets
Menu	Tools   <b>Reusable Asset Service</b>

## Identify Registry

The Registry server holds the Storages of the **Reusable Asset Service**. It will have been previously configured by your system administrator, to be accessed through a Cloud Connection. Your system administrator will provide the connection details for you to use.


In the Reusable Asset Service view, click on the  button to the right of the 'Registry' field. The 'Cloud Connection' dialog displays.

Using the information provided by your administrator, type in the server name, URL and the name of the model hosting the registry data. If advised by your administrator, also type in the user name and password for the server.

Click on the **OK button**; the 'Registry' field now shows the server name.

## Create Storages

A Storage is a container within the Registry, holding related assets and files. There can be several Storages in the Registry, to support the different areas of work or purposes that your organization might define.

Step	Action
1	Click on the  icon in the <b>Reusable Asset Service</b> toolbar.
2	If necessary, enter the Administration password that prevents update access to the Registry. Click on the <b>OK button</b> . The 'New Storage' dialog displays.
3	In the 'Name' field, type a name that indicates the purpose or content of the Storage.
4	In the 'Type' field, select: <ul style="list-style-type: none"> <li>• 'Draft' if you intend to make significant changes to the content of the Storage, such as populating it with assets and/or files; you can overwrite existing Packages or files in a Draft Storage</li> </ul>

	<ul style="list-style-type: none"> <li>• 'Complete' if the Storage is ready for use; you cannot overwrite any Packages or files in a Complete Storage, although you can delete Packages and files and add new ones</li> <li>• 'Learning Center Library' if the Storage should contain only Enterprise Architect Learning Center Library files; this Storage type can be populated only with Library files and not with Asset Packages; you can overwrite existing Library files in a Learning Center Library storage</li> <li>• 'Reference Data Library' if the Storage should contain only Enterprise Architect Reference Data Library files; this Storage type can be populated only with Library files and not with Asset Packages; you can overwrite existing Library files in a Reference Data Library storage</li> <li>• 'Source Code Library' if the Storage should contain only Source Code Library files; this Storage type can be populated only with Library files and not with Asset Packages; you can overwrite existing Library files in a Source Code Library storage</li> </ul> <p>You can modify a Storage at a later time, and change this setting.</p>
5	If you want to set Storage Access Passwords on this Storage, click on the check box against one or both password types, and provide and confirm the Complete Access and/or Read-Only Access passwords.
6	<p>Click on the <b>OK button</b>.</p> <p>A prompt displays for you to confirm the creation of the Storage, with the type of access you have set on the Storage.</p>
7	<p>Click on the <b>Yes button</b>.</p> <p>A confirmation message displays; click on the <b>OK button</b>.</p> <p>The name of the new Storage displays in the 'Storage' field.</p>

## Password Protection

The Registry can be protected by a Registry password, so that only the Administrator can create and modify storages. If no Registry password is set, a second level of password protection can be applied.

The owner of a Storage can apply password protection to restrict users in processing and modifying the contents of the Storage either intentionally or unintentionally. Password protection can be applied at two levels:

- Complete Access - users enter their password and can modify or delete the Storage itself, and within the Storage can register, update and delete Packages and files in the Registry, view Packages and import assets into their models
- Read-Only Access - users enter their password and can import assets into their models

You set the Complete Access password before you set the Read-Only Access password.

If password protection is set and a user has no password, they can only view the contents of the Storage. If no password protection is set, all users can freely access and modify the Storage and its contents.

You set the passwords on each Storage as you create that Storage, using the 'New Storage' dialog. Once the Storage has been created, you can change or remove an existing password using the 'Modify Storage Access' dialog, but you cannot add a password.

If a Storage is password protected, the system displays a prompt for the password when the user begins to:

- Change or delete a password on the Storage
- Copy the Storage to create a new Storage
- Delete the Storage
- Register a Package or file in the Storage
- Import a Package, file or Technology from the Storage
- Delete a Package or file from the Storage
- Compare an Asset Package with a Package in the model

The system displays the password prompt when any of those operations is performed for the first time after the user:

- Connects to a Registry
- Reloads the Registry Browser
- Selects a Storage in the 'Storage' field in the **Reusable Asset Services view**

If the user enters the correct password and therefore establishes their credentials, the system does not display a password prompt again for any valid operation that user performs until they:

- Select a different Storage in the 'Storage' field in the Reusable Asset Services view or
- Reload the Registry Browser from the Registry

## Register Assets and Files


Whilst a Storage exists and, if the Storage is under password protection, you have the Complete Access password, you can register Packages from a model and files from your system as assets in that Storage. If the Asset Package was developed using one or more MDG Technologies, you can optionally register those technologies in the Storage as well.

See the *Register New Assets* Help topic.

## Copy Storages

It is possible to copy a Storage as the basis for creating another Storage, for example if you want to use the same set of assets in the context of larger set for a different department, work area or development phase.

Note: It is not possible to change the Type of a 'Learning Center Library', 'Reference Data Library' and 'Source Code Library' type Storage, nor is it possible to change a Draft or Complete type Storage into a 'Learning Center Library', 'Reference Data Library' or 'Source Code Library' type Storage

Step	Action
1	In the 'Storage' field, select the Storage to be copied.
2	Click on the  icon in the <b>Reusable Asset Service</b> toolbar.
3	If necessary, enter the Administrator password or your Complete Access password and click on the <b>OK button</b> . The 'Save Storage As' dialog displays.
4	In the 'Name' field, type a name that indicates the purpose or content of the new Storage.
5	In the <b>Type field</b> , select: <ul style="list-style-type: none"> <li>• Draft if you intend to make significant changes to the content of the Storage, such as populating it with assets and/or files; you can overwrite existing Packages or files in a Draft Storage</li> <li>• Complete if the Storage is ready for use; you cannot overwrite any Packages or files in a Complete Storage, although you can delete Packages and files and add new ones</li> </ul> You can modify a Storage at a later time, and change this setting.
6	If you want to set Storage Access Passwords on this Storage, click on the check box against one or both password types, and provide and confirm the Complete Access and/or Read-Only Access passwords.
7	Click on the <b>OK button</b> . A prompt displays for you to confirm the creation of the Storage, with the type of access you have set on

	the Storage.
8	Click on the <b>Yes button</b> . A confirmation message displays; click on the <b>OK button</b> . The name of the new Storage displays in the 'Storage' field.

## Change Storage Details


After you have set up a Storage, you can update it at a later stage to:

- Change the status, or Type,
- Change one or both of the existing Complete Access and Read-Only Access passwords
- Delete one or both of the passwords

It is not possible to add a password where one has not previously been set.


You cannot change or delete passwords unless you have the Complete Access password yourself.

Note: It is not possible to change the Type of a 'Learning Center Library', 'Reference Data Library' and 'Source Code Library' type Storage, nor is it possible to change a Draft or Complete type Storage into a 'Learning Center Library', 'Reference Data Library' or 'Source Code Library' type Storage

Step	Action
1	On the <b>Reusable Asset Service</b> view, in the 'Storage' field click on the drop-down arrow and select the Storage to update.
2	Click on the  icon in the <b>Reusable Asset Service</b> view toolbar.
3	If necessary, enter the Administrator password or your Complete Access password and click on the <b>OK button</b> . The 'Modify Storage Access' dialog displays.
4	In the 'Type' field, click on the drop-down arrow and select: <ul style="list-style-type: none"> <li>• 'Complete' if the Storage has now been set up and is ready for use; you cannot overwrite any Packages or files in the Storage, although you can delete them and add new Packages and files</li> <li>• 'Draft' if you intend to make significant changes to the content of the Storage; you can overwrite existing Packages or files</li> </ul>
5	The 'Action' field defaults to 'None', to indicate no changes to the passwords. If you are changing or deleting the passwords, click on the drop-down field and select: <ul style="list-style-type: none"> <li>• Change Password to enable both password type fields ready for editing</li> <li>• Remove Storage Access Password to simply delete the Complete Access password altogether</li> <li>• Remove Read-Only Access Password to simply delete the Read-Only Access password altogether</li> </ul>
6	If you have selected the 'Change Password' option, select the appropriate password checkbox or both checkboxes, and type in the new password(s). Re-type the password(s) in the 'Confirm Password' field(s).
7	Click on the <b>OK button</b> to save your changes and close the 'Modify Storage Access' dialog.

## Delete a Storage

If a Storage has been created by mistake, or is no longer necessary in the Registry, you can delete it and its entire contents of Package and files in one action.

Step	Action
1	On the <b>Reusable Asset Service</b> view, in the 'Storage' field click on the drop-down arrow and select the Storage to delete.
2	Click on the  icon in the <b>Reusable Asset Service</b> view toolbar. A prompt displays to confirm the deletion.
3	Click on the <b>Yes button</b> . If necessary, enter the Administrator password or your Complete Access password and click on the <b>OK button</b> . A message displays to confirm that the Storage has been deleted.
4	Click on the <b>OK button</b> to clear the message. The Storage and its contents have been cleared from the Registry.



## Register New Assets

After you have set up your Draft/Complete Storages in the **Reusable Asset Service Registry**, you can register assets in them. The assets include:

- Packages of modeling structures, held in the **Project Browser** of your model; these Packages can include diagrams and subordinate Packages
- Any Packages containing model components on which the primary Asset Packages depend
- Any MDG Technologies that you used in developing the Asset Packages, and that you decide to register with the Packages
- Any text or graphics files you want to make available to your corporate community; these files are compressed before being added to the Storage

You register the first three items together. You can register files in the Storage during that same process, or separately.

You can register separate versions of the same Package. If you register a Package that already exists in the Registry under the same version reference, and the Storage has Draft status, the existing version is overwritten. If you register the same Package with a different version number or reference, it is registered separately and users can access both versions of the Package from the Registry.

'Learning Center Library', 'Reference Data Library' and 'Source Code Library' type Storages cannot contain packages of modeling structures - they can contain only Library files, which will appear in the 'Storage Files' tab. A Library file is :

- a Zipped file containing Enterprise Architect specific Learning Center files for 'Learning Center Library' Storage type
- an XML file containing Enterprise Architect specific reference data XML file for 'Reference Data Library' Storage type
- a Zipped file containing source code files for 'Source Code Library' Storage type

Once registered, the Library file will be available in the 'Storage Files' tab of the Reusable Asset Service view.

### Access

Ribbon	Publish > Model Exchange > Reusable Assets
Menu	Tools   <b>Reusable Asset Service</b>

### Register Package as Asset

Step	Action
1	In the <b>Reusable Asset Service</b> view, select the appropriate Registry and Storage.
2	In the <b>Project Browser</b> for your model, click on the Package to register as an Asset.
3	On the 'Registry Browser' tab, click on the <b>Register button</b> . If the Storage is password protected, a prompt displays for your Complete Access password. Enter this and click on the <b>OK button</b> .
4	The 'Register Package(s)' dialog displays, showing the:


	<ul style="list-style-type: none"> <li>• Name and type of the Storage</li> <li>• Name and status of the selected Package (the status at this point being 'Pending')</li> <li>• The name, GUID and current version of the selected Package; you can type a different version number or text string if necessary</li> </ul> <p>If there is a version of the Package already in the Registry, and the Storage has 'Draft' status, you can either:</p> <ul style="list-style-type: none"> <li>• Overwrite the registered Package with an update of that version, or</li> <li>• Add the updated Package as another Asset under a different version number; in this case, the 'Packages to Register' panel shows the version number, registration date and comments on the latest version of the Asset Package</li> </ul> <p>You cannot overwrite an existing Package if the Storage has 'Complete' status. In this case, add the Package under a different version number.</p>
5	In the 'Comments' field type a short comment and, in the 'Notes' field, a longer explanation of the Package being registered.
6	Click on the <b>Check Dependency button</b> and resolve the dependencies of the Package. At the end of this process, the selected Package has the status Ready (for registration).
7	You can, at this point, also register files as assets of the Storage. See Step 4 of the <i>Register File as Asset</i> procedure. However, if you prefer you can follow the complete procedure separate from registering Packages.
8	Click on the <b>Register button</b> . A prompt displays to confirm registering the Package. Click on the <b>Yes button</b> . If the same version of the selected Package already exists in the Registry (if the Storage is a Draft) a prompt displays to confirm overwriting it. Click on the Yes button. A progress dialog displays. If the Package does not have any associated MDG Technologies, a message displays confirming that Package registration is complete. Go to step 10.
9	If the Package has one or more associated MDG Technologies, the 'Register MDG Technology' dialog displays, listing the Technologies and prompting you to register (OK) or ignore all of them. If you want to register some Technologies but not others, click on those you do not want to register, and click on the <b>Remove button</b> for each one in turn. Click on the <b>OK button</b> or <b>Ignore button</b> . A message displays confirming that Package and Technology registration is complete. Notes: <ul style="list-style-type: none"> <li>• If a remote Technology is removed from registration (that is, the Technology is not registered along with the Package), the registered Package will refer to this Technology at its URL When importing the Package from Registry, the system will import this remote Technology from its URL (if the remote Technology is not already available in the importing model)</li> <li>• If a remote Technology is registered with the Package being registered, the system will store a copy of the Technology file in the Registry When importing the Package from Registry, the system will import the Technology stored in the Registry and will not import it from its URL (if the remote Technology is not already available in the importing model)</li> </ul>
10	Click on the <b>OK button</b> . The 'Registry Browser' tab is updated with the newly-added details of the Package and any dependent Packages. You can review the details on the tabs on the lower half of the <b>Reusable Asset Server view</b> .

## Register File as Asset


Step	Action
1	In the <b>Reusable Asset Service</b> view, select the appropriate Registry and Storage.
2	On the 'Registry Browser' tab, click on the <b>Register button</b> . If the Storage is password-protected, a prompt displays for your Complete Access password. Enter this and click on the <b>OK button</b> . The 'Register Package(s)' dialog displays.
3	If any Packages are listed in the 'Packages to Register' panel, and you do not want to re-register them, clear the checkbox against each Package name.
4	Click on the <b>Additional Files button</b> . The 'Select Additional Files' dialog displays.
5	Click on the <b>Add button</b> . A 'Select' screen displays, on which you browse for and click on the required file. You can only select one file at a time on this browser.
6	Click on the <b>Open button</b> . The 'Add Comment' dialog displays.
7	Type a brief comment on the nature or purpose of the file in the Registry, and click on the <b>OK button</b> . Focus returns to the 'Select Additional Files' dialog, which now lists the selected file.
8	Repeat steps 5-7 for each Asset file to register. When you have finished, click on the <b>OK button</b> . The 'Register Package(s)' dialog redisplay.
9	Click on the <b>Register button</b> . A prompt displays to confirm that you want to register the files.
10	Click on the <b>Yes button</b> . A 'Progress' dialog displays while the files are registered, followed by a message confirming that the (Package and) File registration is complete.
11	Click on the <b>OK button</b> to clear the message, and to return focus to the <b>Reusable Asset Service</b> view. You can review the files on the 'Storage Files' tab in the lower half of the view.

## Register Learning Center Library

Step	Action


1	In the <b>Reusable Asset Service</b> view, select the appropriate Registry and 'Learning Center Library' Storage.
2	On the 'Registry Browser' tab, click on the <b>Register button</b> . If the Storage is password protected, a prompt displays for your Complete Access password. Enter this and click on the <b>OK button</b> .
3	The 'Register Learning Center Library' dialog displays. Select the Library file by pressing the  button next to the 'File' field. Type in a short comment for the Library being registered in the 'Comments' field.
4	Click on the <b>Register button</b> . A prompt displays to confirm registering the Library file. Click on the <b>Yes button</b> . If the same Library file already exists in the Registry a prompt displays to confirm overwriting it. Click on the Yes button. A progress dialog displays and a message displays confirming that Library registration is complete.
5	Click on the <b>OK button</b> . The 'Storage Files' tab in the lower half of the <b>Reusable Asset Server</b> view is updated with the newly-added Library file.

## Register Reference Data Library

Step	Action
1	In the <b>Reusable Asset Service</b> view, select the appropriate Registry and 'Reference Data Library' Storage.
2	On the 'Registry Browser' tab, click on the <b>Register button</b> . If the Storage is password protected, a prompt displays for your Complete Access password. Enter this and click on the <b>OK button</b> .
3	The 'Register Reference Data Library' dialog displays. Press the  button next to the 'File' field and select : <ul style="list-style-type: none"> <li>From File System – to select an existing Reference Data XML file from file system</li> <li>From Model – to open the 'Export Reference Data' dialog for selecting categories that will be registered as Reference Data Library once the <b>Register button</b> is clicked and a name is entered in the Enter Reference Data File Name dialog.</li> </ul> Type in a short comment for the Library being registered in the 'Comments' field.
4	Click on the <b>Register button</b> . A prompt displays to confirm registering the Library file. Click on the <b>Yes button</b> . If the same Library file already exists in the Registry a prompt displays to confirm overwriting it. Click on the Yes button. A progress dialog displays and a message displays confirming that Library registration is complete.
5	Click on the <b>OK button</b> .

	The 'Storage Files' tab in the lower half of the <b>Reusable Asset Server</b> view is updated with the newly-added Library file.
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## Register Source Code Library

Step	Action
1	In the <b>Reusable Asset Service</b> view, select the appropriate Registry and 'Source Code Library' Storage.
2	On the 'Registry Browser' tab, click on the <b>Register button</b> . If the Storage is password protected, a prompt displays for your Complete Access password. Enter this and click on the <b>OK button</b> .
3	The 'Register Source Code Library' dialog displays. Select the Library file by pressing the  button next to the 'File' field. Type in a short comment for the Library being registered in the 'Comments' field.
4	Click on the <b>Register button</b> . A prompt displays to confirm registering the Library file. Click on the <b>Yes button</b> . If the same Library file already exists in the Registry a prompt displays to confirm overwriting it. Click on the Yes button. A progress dialog displays and a message displays confirming that Library registration is complete.
5	Click on the <b>OK button</b> . The 'Storage Files' tab in the lower half of the <b>Reusable Asset Server</b> view is updated with the newly-added Library file.

## Check Package Dependencies

As you register a Package in the **Reusable Asset Service**, the system provides a check on whether that Package is dependent on any external content; that is, whether it links to any modeling component held in Packages other than its own child Packages. You can perform three types of dependency check:

- Complete, which will consider Package A to be dependent on Package B if Package A contains any element, attribute, operation, operation parameter, diagram or connector (or their **Tagged Values**) that references elements in Package B.
- Normative, which is the same as a Complete Dependency Check except that it will not treat as a dependency for Package A any element from Package B that is added as a link on a diagram in Package A
- Package Dependency/Import, where only those Packages that are target of a Dependency/Package Import connector from Package A will be treated as dependent Packages for Package A.

You perform this dependency check as an integral part of the Asset Registration process (specifically, at step 6 of the Register Package as Asset process). The check automatically identifies, firstly, the Packages directly needed by the Asset Package, and then any Packages needed by those initial Packages, and so on until the needed Packages are not dependent on any other.

In practice, such dependency chains are likely to be quite short. If you know that the original Asset Package is dependent on two other Packages, one of which is subordinate to the other, you can simplify the process further by selecting the Parent or Ancestor Package first and thus avoiding the extra steps of selecting the two Packages separately.

### Access

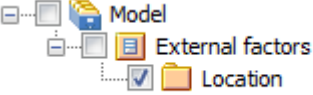
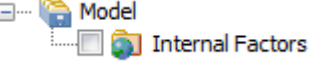
Open the 'Reusable Asset Service' window, using one of the methods outlined below.

- In the 'Reusable Asset Service' window, click on the 'Register' button.

Ribbon	Publish > Model Exchange > Reusable Assets
Menu	Tools > <b>Reusable Asset Service</b>

## Check Package Dependencies

Step	Action
1	Select the appropriate Registry, Storage and version of the model Package to register, and provide any appropriate comments or notes.
2	<p>Click on the <b>Check Dependency button</b>.</p> <p>If there are no Packages on which the Asset Package depends, the system sets that Package to 'Ready'. Go to step 6.</p> <p>The 'Select Needed Package: &lt;dependent package name&gt;' dialog displays, showing the model hierarchy containing the Packages needed by the Asset Package. Each needed Package has a selected checkbox against it.</p> <p>If you know that a needed Package is a child or grandchild of another needed Package, click on the checkbox next to the 'higher' Package name so that the child is validated as part of the parent. In this example, if the Asset Package has dependencies on both External factors and Location, click on the 'External factors' check box to register both dependencies as External factors.</p>

	 <p>If the needed Package is already registered in the Registry, it is indicated by a globe icon:</p>  <p>In this case, select the 'Use latest version of selected package in Registry (if available)' checkbox to link to the registered version. For such Packages, no further dependency check is performed and, on the 'Register Package(s)' dialog, the Package's Status is set to 'Ready'.</p>
3	<p>Click on the <b>OK button</b>.</p> <p>The 'Register Package(s)' dialog updates to show the initial 'Asset Package status' as 'Ready', and to list the needed Packages each with the status of 'Pending'.</p>
4	<p>Click on the <b>Check Dependency button</b> again.</p> <p>If there are no Packages on which the needed Package depends, the system sets that Package to 'Ready' and sets the focus on the next Pending Package. If there are no more Pending Packages, go to step 6.</p> <p>If the needed Package is dependent on other Packages, the 'Select Needed Package: &lt;dependent package name&gt;' dialog displays again, showing the model hierarchy containing those Packages, each with a selected checkbox next to it. As in step 2, you can select a 'higher' Package if appropriate.</p>
5	<p>Click on the <b>OK button</b>.</p> <p>The 'Register Package(s)' dialog updates to show the first needed Package status as 'Ready', and to list any further needed Packages with the status of 'Pending'.</p>
6	<p>If there are further needed Packages in the chain, repeat step 4. The system automatically identifies them and lists them for validation as in step 5.</p> <p>Otherwise the system sets the final needed Package status to Ready and you can continue to register files and MDG Technologies.</p>

## Notes

- A Package with status Pending cannot be registered; only Packages with status Ready can be registered
- If you are certain that there are no parent-child relationships between the needed Packages, you can work through these steps quickly by just clicking on the Check Dependency and OK buttons alternately until all Packages in the Package to Register list have the status Ready
- The system does not allow you to register an Asset Package that has dependencies on its own parent or grandparent Package; such dependencies would cause the Asset Package to be registered twice - by itself and as part of the parent Package - creating the risk of differences developing between the two instances

## Update an Asset

Over time, you might need to revise the contents of the Registry. Such updates can include:

- Registering additional Asset Packages and files
- Registering a new version of an Asset Package
- Registering a new edition of a Storage file
- Registering new Libraries
- Deleting an Asset Package
- Deleting a Storage file
- Deleting a Library
- Changing the details of a Storage
- Deleting an entire Storage and the assets and files within it


### Access

Ribbon	Publish > Model Exchange > Reusable Assets > Registry Browser
Menu	Tools   <b>Reusable Asset Service</b> > Registry Browser

### Update Tasks

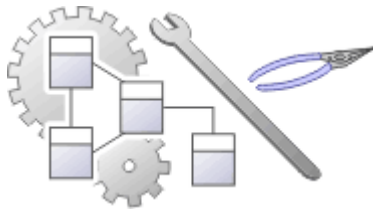
Task	Detail
Register new Asset Packages and Storage files	You can add further Asset Packages and files to a Storage at any time.
Register a new version of an Asset Package	<p>You register a new version of an Asset Package as if it were a new Asset. In the 'Current Version' field on the 'Register Package(s)' dialog, you enter a different number or reference to that assigned to the currently-registered asset.</p> <p>You can overwrite an existing Asset Package under the same version number only if the Storage has 'Draft' status. If the Storage has 'Complete' status, you cannot overwrite the existing Asset Package under the same version number. To replace the current version, you must delete the Asset from the Storage and register the Package again.</p>
Delete Asset Package from Storage	<p>Click on the Package name in the 'Registry Browser' tab and either:</p> <ul style="list-style-type: none"> <li>• Click on the <b>Delete button</b> or</li> <li>• Right-click and select the 'Delete From Registry' menu option</li> </ul> <p>In either case a short submenu displays, prompting you to select to delete:</p> <ul style="list-style-type: none"> <li>• The Asset Package only, or</li> <li>• The Asset Package and the Packages on which it is directly or indirectly dependant</li> </ul> <p>When you select the appropriate option, a prompt displays for you to confirm the</p>



	<p>deletion.</p> <p>Click on the <b>Yes button</b>. A message displays to confirm that the Package has been deleted from the Registry, and the name of the Package is removed from the 'Registry Browser' tab.</p> <p>If the Storage is password-protected, the system prompts you to enter a Complete Access password before it begins deleting the Package(s).</p> <p>If any of the registered Packages depend on the Package being deleted, the system displays the names of these Packages and prompts for confirmation before deleting each Package.</p>
Register a new version of a Storage File.	<p>You register a new version of a Storage file as if it were a new file under a different file name.</p> <p>You can overwrite an existing file under the same file name only if the Storage has 'Draft' status. If the Storage has 'Complete' status, you cannot overwrite the existing file. To replace the current version, you must delete the file from the Storage and register the file again.</p>
Delete Storage Files from Storage	<p>On the 'Storage Files' tab, right-click on the file name and select the 'Delete From Registry' option. A prompt displays for you to confirm the deletion.</p> <p>Click on the <b>Yes button</b>. A status message confirms the deletion, the file is removed from the Registry and the file name is removed from the 'Storage Files' tab.</p> <p>If the Storage is password-protected, the system prompts you to enter a Complete Access password before it begins deleting the file.</p>
Register a new Library File	<p>You can add further Library files to a Storage at any time.</p> <p>When you register a Library file, the file name and location will be used as the unique identifier for the file. You can overwrite this Library file in Registry by registering a file with the same name and from the same file system location.</p>
Delete Library Files from Storage	<p>To delete all Library files in Storage, click on the <b>Delete button</b> in the 'Registry Browser' tab.</p> <p>To delete a particular Library file, right-click on the Library file name in the 'Storage Files' tab and select the 'Delete From Registry' option.</p> <p>A prompt displays for you to confirm the deletion. Click on the <b>Yes button</b>. A status message confirms the deletion, the Library file(s) is removed from the Registry and the Library file(s) name is removed from the 'Storage Files' tab.</p> <p>If the Storage is password-protected, the system prompts you to enter a Complete Access password before it begins deleting the Library file.</p>
Change Storage Details	<p>This task is as documented for setting up the Registry. Note that whilst you can copy a Storage as a new Storage, you cannot transfer assets directly between existing Storages.</p>
Delete a Storage and its contents	<p>This task is as documented for setting up the Registry. Note that whilst you can copy a Storage as a new Storage, you cannot transfer assets directly between existing Storages.</p>
Refresh Registry Browser	<p>If there is a possibility that another user has updated the Registry while you have had it open, click on the  icon in the <b>Reusable Asset Service</b> toolbar to refresh your display from the latest updates to the Registry.</p>



# Change Management



As a repository is developed it will become the data store for valuable organizational information assets, and it is imperative that this data is protected and maintained. Enterprise Architect has sophisticated tools to ensure the information is protected, including full integration with all the leading **Version Control Systems**, **Baselines** that are snapshots of your model that can be taken at important milestones, and **Auditing** that can track the finest changes to a model. A **Project Transfer** function helps you to make backups of models without involving information technology personnel. There are also **Model Validation** and **Project Integrity Checkers** to ensure the repository is maintained with a clean bill of health, and a powerful role based **Security System** to ensure users can collaborate easily.

## Facilities

Facility	Detail
Version Control of Packages	<p>Enterprise Architect Model Version Control helps you to:</p> <ul style="list-style-type: none"> <li>• Coordinate sharing of Packages between users, with either read-only access or update access, ensuring that work on different areas of the model is coordinated and synchronous rather than conflicting</li> <li>• Save and retrieve a history of changes to Packages</li> </ul> <p>To use version control in Enterprise Architect, you require a third-party source-code control application such as:</p> <ul style="list-style-type: none"> <li>• Subversion</li> <li>• CVS</li> <li>• MS Team Foundation Server (TFS), or</li> <li>• Any other version control product that complies with the Microsoft Common Source Code Control standard</li> </ul>
Tracking Changes	<p>Enterprise Architect provides two separate but complementary facilities for tracking changes to data across the project:</p> <ul style="list-style-type: none"> <li>• <b>Auditing</b> of model changes</li> <li>• Baselining and differencing to capture and roll back changes</li> </ul>
Project Data Transfer	<p>Enterprise Architect enables you to transfer project data between project data repositories either for:</p> <ul style="list-style-type: none"> <li>• Sections of the project (XMI and CSV) or</li> <li>• The whole project, row by row, table by table (in the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions of Enterprise Architect)</li> </ul>

## Version Control

Within Enterprise Architect, you can manage changes to and revisions of your projects by placing individual model Packages, view nodes or root nodes under version control. Version control provides numerous key facilities, including:

- Saving a history of changes to Packages
- The ability to retrieve previous revisions of Packages
- Propagating model updates between team members
- Coordinating the sharing of Packages between team members

You apply version control through a third-party source-code control application that manages access to and stores revisions of the controlled Packages. Once the version control software has been installed and configured, you must define a **Version Control** Configuration within your project. You can then use version control to manage changes to the Packages of your model.

### Notes

- Sparx Systems strongly urge you not to manipulate version controlled Package files outside of Enterprise Architect; it is possible to leave the Package files in a state that Enterprise Architect cannot recognize
- Database replication should not be combined with version controlled Packages
- If the Packages under version control contain any alternative images and those images are subject to frequent change, you can set the 'Export alternate images' option on the 'Options' dialog to export the images to the version control repository when you check in the Packages; if the images are not subject to frequent change, do not select this option and instead use 'Export/Import Reference Data' to manage alternative images

# Introduction

Enterprise Architect's version control integration provides several key facilities, including:

- Saving a history of changes made to your model's Packages
- Retrieving previous revisions of Packages
- Propagating model updates between team members
- Coordinating the sharing of Packages between team members

There are a number of factors to consider when setting up and using version control in your model development.

## Factors to consider

Factor	Detail
System Requirements and Configuration	<p>You apply version control through a third-party source-code control application that manages access to and stores revisions of the controlled Packages.</p> <p>Typically the configuration consists of:</p> <ul style="list-style-type: none"> <li>• A server component that manages a version control repository, and</li> <li>• Client components on the workstations, that manage local working copies of controlled files</li> </ul> <p>Enterprise Architect uses the client component to communicate with the server. A version control client must be installed on every machine where you run Enterprise Architect and want to access your version control system.</p>
Version Control Usage	<p>There are two main ways in which projects can be deployed:</p> <ul style="list-style-type: none"> <li>• Centralized Shared Model</li> <li>• Distributed Private Models</li> </ul> <p>Version control is employed in the same way for both scenarios; however, when using Private Model deployment you have the additional facility of propagating model updates throughout the team.</p> <p><b>Version Control</b> can also be used to share standard Packages between different projects.</p>
Team Deployment	<p>Consider the process of setting up a version control environment and applying version control to a project to be accessed by a number of users.</p>
Version Control Basics	<p>Enterprise Architect enforces serialized editing of version controlled Packages, using the lock-modify-unlock mode of operation.</p>
Applying Version Control to Models	<p>Using version control consists of placing individual model Packages under version control, rather than version controlling the project as a whole.</p>
Version Control and Project Reference Data	<p>To share changes in reference data between users in a version-controlled project deployed as multiple private models, you periodically export the reference data from the model where the changes were made, and import it into the other models maintained by the team.</p>
Offline Version Control	<p>You can prevent the system from attempting to make any version control connections by choosing to Work Offline before loading a model.</p> <p>If Enterprise Architect is unable to connect a <b>Version Control</b> Configuration for</p>

	any reason, it displays warning messages to notify you and provides 'offline' version control functionality for all Packages associated with the failed connection.
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## Notes

- Packages under version control are identified in the **Project Browser** by icons that indicate the current status of the Package

# Version Control Usage

The version control facility can be used in many different ways, although these roughly fall into one of four types of use as discussed here.

## Usage

Type	Details
Single Shared model	<p>Users share a model stored in a central project file or DBMS repository. In this configuration you can view changes to other users' Packages without explicitly having to check them out, by simply refreshing your view of the model.</p> <p>Version control is used to:</p> <ul style="list-style-type: none"><li>• Archive successive versions of your work to date</li><li>• Maintain Package revision history</li><li>• Recover from unwanted changes or accidental deletions, through an 'undo' facility</li><li>• Regulate access to Packages</li></ul>
Multiple Private models	<p>One model is created by a single user who configures it for version control. The model file is then distributed to other users, with each user storing their own private copy of the model.</p> <p>Version control is used to:</p> <ul style="list-style-type: none"><li>• Propagate changes to the model, throughout the team</li><li>• Archive successive versions of your work to date</li><li>• Maintain Package revision history</li><li>• Recover from unwanted changes or accidental deletions, through an 'undo' facility</li><li>• Regulate access to Packages</li></ul>
Shared Packages	<p>Individual users create separate models but share one or more Packages:</p> <ul style="list-style-type: none"><li>• Users share Packages through version control</li></ul>
Standard Packages	<p>A company might have a standard set of read-only Packages that are broadly shared:</p> <ul style="list-style-type: none"><li>• Individual users retrieve Packages with the Get Package menu option</li></ul>

## Version Control of Model Data

When applying version control in Enterprise Architect, you place individual model Packages under version control, and not the project as a whole.

All Enterprise Architect models are stored in databases - even the .eap file is an MS Jet database. In simple terms, the project file is a single entity of binary data. Being binary data, the project file would require the use of the lock-modify-unlock model of version control, which would mean that only a single user at a time could work on any given (version controlled) model. Therefore, it is not practical to apply version control to the database (.eap file) as a whole; this can also create problems for you:

- Most version control systems mark their controlled files as read only, unless they are specifically checked-out to you
- The .eap file is an MS Jet database, and Enterprise Architect must be able to open this file for read/write access when you load your model; the system displays an error message and fails to load the model if it is read-only

### Version Controlling Packages in your Model

To overcome the limitations described above, Enterprise Architect exports discrete units of the model - the Packages - as XMI Package files, and it is these XMI files, not the project file, that are placed under version control. The XMI file format used by Enterprise Architect dictates that they too be treated as binary files - therefore it is not possible to merge the XMI files either; however, by splitting the model into much smaller parts, many users can work on separate parts of the model simultaneously.

### Version Controlled Nested Packages

Version controlled nested Packages result in much smaller XMI files being exported, as the parent Packages' XMI files do not contain any content for the version controlled child Packages.

Version control of nested Packages, together with a model structure of small individual Packages, provides greater scope for multiple users to work concurrently, as individual users are locking much smaller parts of the model.



## Version Control and Reference Data

Reference data is data that is used across a model or project; it is not Package-specific. Version control operates at Package level, and therefore does not capture changes in reference data. Where version control is used in a multiple private model set up, changes in reference data are not brought into the model when Packages are updated from version control.

In a Shared Model environment, all users are accessing the same project reference data. Changes in reference data can be shared between users in a version-controlled project deployed as multiple private models, by periodically exporting the reference data from the model where the changes were made, and importing it into the other models maintained by the team.

Reference data is exported and imported as an XMI file, which contains whatever types of reference data you want to transfer. You can place your project reference data under version control by exporting the data as an XMI file and apply version control to that file using your version control software external to Enterprise Architect.

## Version Control Basics

Enterprise Architect implements version control of your model by exporting Package data from the project database to XMI Package files, which are placed under version control in the source-code control application. The XMI file format cannot be merged in the same way as ordinary text files can be merged, which is why Enterprise Architect must enforce serialized editing of version controlled Packages, as discussed here.

### The Lock-Modify-Unlock Solution

Many version control systems use a lock-modify-unlock model to address the problem of different authors in a shared source overwriting each other's work. In this model, the version control repository allows only one person to change a file at a time, and access is managed using **locks**.

Harry must lock a file before he can begin making changes to it. If Harry has locked a file, Sally cannot also lock it, and therefore cannot make any changes to that file. All she can do is read the file, and wait for Harry to finish his changes and release the lock. After Harry unlocks the file, Sally can take her turn in locking and editing the file.

### The Copy-Modify-Merge Solution

Subversion, CVS and a number of other version control systems use a copy-modify-merge model as an alternative to locking. In this model, each user's client contacts the project repository and creates a personal working copy - a local reflection of the repository's files and directories. Users then work simultaneously and independently, modifying their private copies. In due course, the private copies are merged together into a new, final version. The version control system often assists with the merging, but ultimately a person is responsible for making it happen correctly.

### When Locking is Necessary

While the lock-modify-unlock model is generally considered a hindrance to collaboration, there are still times when locking is necessary.

The copy-modify-merge model is based on the assumption that files are contextually merge-able: that is, that the files in the repository are line-based text files (such as program source code). However, for files with binary formats, such as artwork or sound, it is often impossible to merge conflicting changes. In these situations, it really is necessary for users to take strict turns in changing the file. Without serialized access, some users end up wasting time on changes that are ultimately overwritten.

## Add Connectors To Locked Elements

Generally, when working in a diagram containing locked elements, you cannot add a connector to a locked element. However, this depends on the lock status of the source and target elements (or more precisely, the lock status of the parent Packages of the source and target elements, when the source and target element are held in different Packages). There are scenarios in which a connector can be created on a locked element.

### Lock Scenarios

Element Status	Add Connectors
Source unlocked, target unlocked	Yes, any kind of connector can be added
Source unlocked, target locked	Yes, except for Composition connectors
Source locked, target unlocked	No, except for Composition connectors
Source locked, target locked	No, prohibited for all connectors

### Notes

- A connector can be added if its source is unlocked - you are modifying what the source can see
- The exception is Composition connectors, where the target (the parent) must be unlocked - you are modifying the parent by adding children

# Applying Version Control in a Team Environment

The process of setting up a version control environment and applying version control to a project to be accessed by a number of users is summarized here.

## Version Control - Process Overview

Step	Action
1	Install your version control product.
2	Create a version control repository.
3	Create a version control project to be used with your Enterprise Architect project.
4	<p>Check-out a working copy of the version control project (a module, project or folder within the version control system) into a local folder.</p> <p>You must do this for every team member that is accessing the version controlled Packages, whether you are using a single shared model or each team member stores his own private copy of the model.</p>
5	<p>Within Enterprise Architect, define a version control configuration to provide access to the working copy files.</p> <p>The name of the version control configuration must be the same across all machines throughout a team. That is, all version control access to a given Package must be through version control configurations with the same name, across all models and all users.</p> <p>The easiest way to perform this step, (throughout the team), is to have one user set up version control on the model and then share that model with the rest of the team.</p> <ul style="list-style-type: none"><li>• In Shared Model deployment, all users connect to a single instance of the model database, so the model is shared automatically</li><li>• In Private Model deployment, it is easiest to distribute copies of the original model (after version control has been set up) to all other members of the team</li></ul> <p>Whenever you open a model (Private or Shared) that uses a version control configuration that is not yet defined on your workstation, a prompt displays to complete the definition for that configuration. This typically means specifying the local working copy directory and maybe choosing the version control project associated with this Enterprise Architect project.</p> <p>Once this has been done, the version controlled Packages that already exist in the model are ready for use.</p>
6	Configure Packages within the Enterprise Architect model for version control. That is, apply version control to individual Packages.
7	Check-out and check-in Packages as required.

## Notes

- It is possible to use multiple version control configurations within the same model; different Packages can still use different version control configurations within the model, as long as any given Package is always accessed via the same version control configuration



## Version Control Nested Packages

When you save a Package to the version control system, only stub information is exported for any nested Packages. This protects information in a nested Package from being inadvertently over-written by a top level Package.

### Operations on Nested Packages

Operation	Detail
Checking Out	<p>When you check out a Package, you do not modify or delete nested Packages; only the top level Package is modified.</p> <p>As a consequence of this behavior, if you check out or get a version controlled Package with nested Packages that are not already in your model, you see stubs in the model for the nested Packages only.</p>
Get All Latest	<p>If you select the 'Get All Latest' option from the version control menu, any new stubs are populated from the version control system.</p>
Importing Models	<p>You can populate a large and complex model, by 'getting' only the root Packages, then using 'Get All Latest' to recursively iterate through the attached and nested Packages.</p> <p>This is a powerful and efficient means of managing your project and simplifies handling very large models, even in a distributed environment.</p> <p>The 'Import a Model Branch' option combines the steps described above into a single operation.</p>





### Notes

- It is recommended that, when sharing a version controlled model, you do not mix versions of Enterprise Architect later than version 4.5 with earlier versions; if this is necessary it is best to go to the '**Version Control Settings**' dialog and deselect the 'Save nested version controlled packages to stubs only' checkbox, setting Enterprise Architect to the pre-version 4.5 behavior (for the current model only)

# Project Browser Indicators

Packages under version control are identified in the **Project Browser** by icons that indicate the current status of the Package.

## Indicators

Icon	Indicates that
	This Package is version controlled and not checked out to you. You cannot edit the Package (until you check out the Package yourself).
	This Package is version controlled and checked out to you. You can edit the Package.
	This Package is version controlled, but you checked it out whilst not connected to the version control server. You can edit the Package but there could be version conflicts when you check the Package in again.
	This Package is controlled and is represented by an XMI file on disk, but it is not under version control. You can edit this Package.

## Offline Version Control

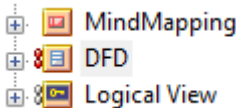
When loading a model that uses version control, Enterprise Architect normally initializes a connection to the version control system for each version control configuration defined in the model. If Enterprise Architect is unable to connect a version control configuration for any reason, it displays warning messages to notify you and provides offline version control functionality for all Packages associated with the failed connection.

You can prevent Enterprise Architect from starting to make any version control connections, by selecting to work offline menu before loading your model.

### Access

Ribbon	Configure > <b>Version Control</b> > Work Offline
Menu	Project   <b>Version Control</b>   Work Offline

### Working Offline

Concept	Discussion
Choosing to Work Offline	<p>Selecting to work offline is useful if you know beforehand that Enterprise Architect cannot connect to your version control system. For example: If you are working on a laptop computer that is disconnected from your network, on an Enterprise Architect model that uses a large number of version control configurations, you can select to work offline before you load the model to avoid all the error messages that the system would normally display as each version control connection attempt failed.</p> <p>You can switch between working offline and working online at any time, either before or after a model is loaded, by toggling the 'Work Offline' menu option. Enterprise Architect disconnects or reconnects version control (depending on the connection availability) according to your selection.</p>
Using Version Control Whilst Disconnected From the Version Control Server	<p>Enterprise Architect 'remembers' the status of a model's version controlled Packages. Packages that were checked out to you prior to disconnecting from the server are still shown as checked out to you, even though you are no longer connected to the server. You can still edit these Packages as you normally would.</p> <p>Packages that were not checked out to you prior to disconnecting from the server are shown as version controlled and locked. You cannot edit these Packages until you check them out.</p>
Offline Check Out	<p>You can 'check-out' and edit a version controlled Package even when your machine is disconnected from the version control server. In this example, the colored 'figure 8' icon for DFD indicates that you have checked it out whilst off line.</p> 



	<p>(The gray 'figure 8' icon shown against Logical View indicates that you have checked out a version-controlled Package on line.)</p> <p>You should be aware that the version control system, and therefore other users, have no way of knowing that you have 'checked-out' a Package whilst offline. It is not possible to merge changes to an XMI file that result from two users editing the same Package at the same time. If an offline checkout leads to two people editing the same Package at the same time, when the changes are brought back online the first-saved set of changes is lost.</p>
Checking In a Package That Was Checked Out Offline	<p>Once you reconnect your system to the version control server, if the Package you checked out offline is not currently checked out by another user, you can check in that Package. However, before Enterprise Architect checks in the Package, it compares the local working copy of the Package file with the latest revision in the repository. (These Package files remain unchanged in your work area until Enterprise Architect exports the Package again before checking in.) If the repository version remains unchanged from when you last updated your local copy, Enterprise Architect exports and checks in your Package without further prompting.</p> <p>On the other hand, if the repository now contains a file that has changed since you last updated your local copy, checking in your Package would overwrite those changes. Enterprise Architect displays a message warning you of the pending data loss and giving you the opportunity to abort the check in. At this point, you must decide whether to discard your own changes, using the Undo Check Out command, or continue with your check in and overwrite the changes that have been committed to the repository since you last updated your local copy from the repository.</p> <p>You can use the File Properties command to determine who checked in the last changes to this Package. This might help you to discover what changes have been uploaded and decide whose changes take precedence.</p>
Update Before You Disconnect	<p>Whenever you are connected to the version control server, you are always working with the latest version of a Package. This is because you cannot modify a Package until you check it out from version control, and checking it out loads the latest revision from the repository into your model.</p> <p>This cannot happen when you are disconnected from the version control server. You are working on whatever versions you have on your machine, dating back to the last time you updated your local copy of each version controlled Package. So, if you are planning to work on a model whilst disconnected from version control, it is a very good idea to make sure that you have the latest versions of all Packages before you disconnect. The 'Get All Latest' option makes this a simple task.</p>

## Version Control Branching

Currently, Enterprise Architect does not support **Version Control** Branching.

Work-arounds to achieve similar results might be possible for certain version-control products; contact Sparx Support for advice.

### Contacts

User Type	Contact via
Registered users	<a href="http://www.sparxsystems.com/registered/reg_support.html">http://www.sparxsystems.com/registered/reg_support.html</a>
Trial users	<a href="mailto:support@sparxsystems.com">support@sparxsystems.com</a>

## Version Control Product Setup

To control and maintain the different revisions of your project Packages, Enterprise Architect uses third-party version control products. Once your version control product is installed and a suitable environment has been created, Enterprise Architect can use that environment to control your project's Packages.

Typically, version control products consist of:

- A server component
- A client component

Enterprise Architect integrates with the version control client components for Subversion, CVS and MS Team Foundation Server command line clients, as well as for products having API clients that comply with the MS SCCI specification.

### Version Control System Components

Component	Detail
Version Control Server	<p>The server component maintains the controlled files in their many revisions, in a central repository.</p> <p>The server component is usually located on a server machine that is accessible to all team members who are using version control.</p>
Server Configuration	<p>The steps for configuring a version control server are, broadly:</p> <ul style="list-style-type: none"><li>• Install the software</li><li>• Create a repository</li><li>• Create version control projects (or modules or folders for use with specific projects)</li><li>• Configure user IDs and passwords</li></ul> <p>For details on configuring any particular version control server, consult the appropriate documentation provided with the version control product.</p>
Version Control Client	<p>The client component manages the working copies of the controlled files, submitting files to or retrieving files from the server as required.</p> <p>A version control client must be installed on every machine on which you run Enterprise Architect and want to access your version control system.</p>
Client Configuration	<p>The steps for configuring a version control client are, broadly:</p> <ul style="list-style-type: none"><li>• Install the software</li><li>• Create a new directory for use as a local working copy folder</li><li>• Log in to the version control server</li><li>• Associate the working copy folder with its corresponding server repository folder</li></ul> <p>For details on setting up a product-specific version control environment for use with Enterprise Architect, click on the appropriate link in the next column.</p>

# System Requirements

Enterprise Architect is a Windows-based application and requires a Windows-based version control client for integration. It is independent of the version control server component and the platform on which that runs.

## Version Control Product Requirements

Product	Detail
Subversion	<p>Subversion is free, open source software.</p> <p>Subversion server components are available to run on a wide range of different hardware and operating systems.</p> <p>Enterprise Architect is not affected by your choice of server components, but requires Subversion's Windows-based command line client for integration.</p> <p>There are many graphical user interface clients available for use with Subversion, such as TortoiseSVN; this type of client cannot be used directly for integration with Enterprise Architect, but can be very useful in preparing a working Subversion environment for use by Enterprise Architect.</p> <p>Binary Packages are available for download from:</p> <ul style="list-style-type: none"> <li>• <a href="http://subversion.apache.org/packages.html">http://subversion.apache.org/packages.html</a></li> </ul> <p>Subversion documentation is available from:</p> <ul style="list-style-type: none"> <li>• <a href="http://svnbook.red-bean.com/nightly/en/index.html">http://svnbook.red-bean.com/nightly/en/index.html</a></li> </ul>
Concurrent Versions System (CVS)	<p>CVS is free, open source software.</p> <p>CVS server components are available to run on a wide range of different hardware and operating systems.</p> <p>Enterprise Architect is not affected by your choice of server components, but requires CVS's Windows-based command line client for integration.</p> <p>There are many graphical user interface clients available for use with CVS, such as TortoiseCVS; this type of client cannot be used directly for integration with Enterprise Architect, but can be very useful in preparing a working CVS environment for use by Enterprise Architect.</p> <p>The software is available for download from:</p> <ul style="list-style-type: none"> <li>• <a href="http://www.nongnu.org/cvs/">http://www.nongnu.org/cvs/</a></li> </ul> <p>CVS documentation is available from:</p> <ul style="list-style-type: none"> <li>• <a href="http://cvsbook.red-bean.com/cvsbook.html">http://cvsbook.red-bean.com/cvsbook.html</a></li> </ul>
Microsoft Team Foundation Server	<p>Enterprise Architect is able to use either the:</p> <ul style="list-style-type: none"> <li>• Command line client for TFS, or</li> <li>• MS TFS-SCC client</li> </ul> <p>Your choice of client affects how you specify your <b>Version Control</b> Configuration.</p> <p>MS TFS-SCC clients are available for download from Microsoft's web pages:</p> <ul style="list-style-type: none"> <li>• <a href="#">Visual Studio 2005 Team Foundation Server MSSCCI Provider</a></li> <li>• <a href="#">Visual Studio Team System 2008 Team Foundation Server MSSCCI Provider</a></li> </ul>
Common Source Code Control (SCC)-compatible	<p>Any version control product that provides a client that complies with the Microsoft Common Source Code Control standard, version 1.1 or higher, can be integrated</p>

products	<p>with Enterprise Architect.</p> <p>These products are SCC-compatible and are known to successfully integrate with Enterprise Architect:</p> <ul style="list-style-type: none"><li>• Accurev</li><li>• ClearCase</li><li>• MS Visual Source Safe</li><li>• MS TFS-SCC</li><li>• MKS Source Integrity</li><li>• Perforce</li><li>• Source Offsite</li><li>• Snapshot CM</li></ul> <p>Products that do not appear in this list should still integrate successfully with Enterprise Architect, if there is a client available for that product that complies with the MS SCC API specification.</p>
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# Create a Subversion Environment

You can use Subversion as a version control provider for Enterprise Architect. The first step in doing this is for a Subversion administrator to install and configure the appropriate software. A number of basic tasks are performed in creating an operational Subversion environment, and useful tools are available for performing some of these tasks.

## Tasks in Creating a Subversion Environment

Task	Detail
Install server components	<p>Executable files for Subversion can be obtained from the Apache Software Foundation.</p> <p>Subversion server components are available to run on a wide range of different hardware and operating systems; Enterprise Architect is not affected by your choice of server components.</p> <p>VisualSVN is a package that can greatly simplify the installation, configuration and management of your Subversion server.</p>
Create a repository	Please consult the official Subversion documentation.
Create Subversion users	Please consult the official Subversion documentation.
Create a new repository sub-tree	<p>It is good practice to create a new repository sub-tree in Subversion for each new Enterprise Architect model being added to version control with Subversion. Users should create a new local working copy from the sub-tree to be used with that model</p> <p>TortoiseSVN can greatly simplify the process of creating new repository sub-trees.</p>
Install client components	Executable files for Subversion can be obtained from the Apache Software Foundation.
Create a working copy folder	<p>A working copy folder must exist on each users' machine, for Enterprise Architect to use when exporting and importing the version controlled Package files. It is this folder that is specified as the Local Project Path, when defining your <b>Version Control Configurations</b>.</p> <p>The working copy folder is the 'sandbox' where you modify the controlled files. The working copy folder is usually associated with a folder that exists within the version control repository. In Subversion, to create a local working copy you perform an initial check-out of a folder from the Subversion repository; this downloads a copy of the folder and its contents, to create your local working copy.</p> <p>TortoiseSVN can greatly simplify the initial check out of a working copy folder.</p>
Setting up Subversion under Wine/CrossOver	The process of setting up and using Subversion with Enterprise Architect under Wine is almost identical to the process when running natively under Windows, apart from minor differences in installing the Subversion client and performing the initial check out of the working copy folder.

## Notes

- Enterprise Architect relies on exclusive file locking when applying version control to its Packages; file locking was not introduced into Subversion until version 1.2, therefore Enterprise Architect does not work with Subversion releases earlier than Subversion 1.2
- Enterprise Architect can only communicate with the Subversion server using the Subversion command line client `svn.exe`

## Create a new Repository Sub-tree

When you set up Subversion as your version control tool, it is good practice to create a new repository sub-tree in Subversion for each new Enterprise Architect model. The sub-tree can be used to control the Package files for your model.

### Create a new sub-tree in the Subversion Repository

Step	Action
1	Use Windows Explorer to create a temporary directory on your PC file system, to be imported into the Subversion repository as a new repository sub-tree. The directory would have this structure:
2	Open a Windows command prompt, navigate to <i>tempDir</i> and issue the Subversion command <i>import</i> . For example: <pre>C:\Documents and Settings\user&gt; cd \tempDir C:\tempDir&gt; svn import . https://host.example.com:8443/repos/ --message "Repository Initialization"</pre>
3	On your PC, delete the temporary directory structure ( <i>tempDir</i> ) and all its contents.

### Notes

- After the import is finished, the original tree is not converted into a Subversion working copy; you should delete the temporary structure and check out a fresh working copy of the tree
- The process described above can also be performed using TortoiseSVN's Repository Browser, which provides commands for simply creating new folders directly in the repository



## Create a Local Working Copy

In order to use Subversion to provide version control of the Packages in a model, you need to prepare a functional SVN working copy folder that can be accessed through an Enterprise Architect version control configuration within that model.

### Create a Subversion working copy folder

Step	Action
1	Choose or create a suitable directory on your system in which to create your Subversion working copy.
2	Open a command prompt window and navigate to the directory you have selected. For example: C:\> mkdir mySVNWorkSpace C:\> mkdir mySVNWorkSpace/myEAModelName C:\> cd mySVNWorkSpace/myEAModelName
3	Perform the initial check out from the Subversion repository, specifying the repository folder and local working copy folder, as well as your user name and password. For example: C:\> svn checkout "https://myserver:8443/svn/repos_folder "C:\mySVNWorkSpace/myEAModelName" --username myUserName --password myPassword  (By specifying your Subversion username and password, you ensure that they are correctly cached by Subversion and available for use by Enterprise Architect.)  If you specify the HTTPS protocol when performing the initial Subversion check out, a prompt displays to accept a security certificate; in this instance, press the <b>P key</b> to permanently accept the certificate.  The nominated local folder is configured as a Subversion working copy folder.  Any files already existing in the repository folder are downloaded to the working copy folder as working copy files.
4	Verify that your Subversion environment functions correctly.

### Notes

- It is important that Subversion caches your username and password, so that it never has to prompt for user input; a check-out operation might not request authentication, and if it does not you should perform an action that does request authentication, such as adding and committing a dummy test file
- The process described above can also be performed using TortoiseSVN's Checkout command (which provides options to browse when specifying both your repository folder and your local folder); when prompted for authentication details by TortoiseSVN, make sure you place a check against the 'Save Authentication Data' option

## Verify the SVN Workspace

After creating the Subversion local working copy to hold the working copies of your Package files, you can verify that it functions correctly before attempting to use it with Enterprise Architect. You need to be able to add files to Subversion, lock the files and commit changes to those files.

### Verify correct operation of a Subversion working copy folder

Step	Action
1	Use Windows to open a command prompt window.
2	Select the directory you specified as the working copy, in the Subversion checkout command when preparing the SVN workspace. For example: <code>C:\&gt; cd mySVNWorkSpace</code>
3	Create a test file, such as <i>Test.txt</i> , containing the text <i>Subversion Test</i> . For example: <code>C:\&gt; echo Subversion Test &gt; Test.txt</code>
4	Execute each of these Subversion commands: <ul style="list-style-type: none"><li>• <code>svn add Test.txt</code></li><li>• <code>svn commit -m"Commit comment" Test.txt</code></li><li>• <code>svn update Test.txt</code></li><li>• <code>svn lock Test.txt</code></li><li>• Use your preferred editor to modify the file and save the changes</li><li>• <code>svn commit -m"Second commit comment" Test.txt</code></li></ul> The commands should execute without any errors and without prompting the user for any extra input.

### Notes

- Your environment must be set up such that you can perform these operations without ever being prompted for user ID or password; for further information, please see the Caching Client Credentials topic in the official Subversion documentation

## Subversion Under Wine-Crossover

If you want to set up and use Subversion with Enterprise Architect under Wine, the process is almost identical to the process for setting up and using the systems under Windows. When running Enterprise Architect under Wine or CrossOver, you still use a Windows-based Subversion command line client.

There are some minor differences in the way you prepare the Subversion working environment, specifically in the way you install your Subversion client and the way you check out a working copy folder from the Subversion repository.

### System Requirements

Sparx Systems has tested the use of Enterprise Architect with Subversion under Wine 1.2, on Mac OS 10.4 and 10.6.2, and on Ubuntu 10.04. All tests were passed.

When using Wine 1.2 on the Ubuntu 9.10 platform, Sparx Systems was able to use the svn: and file: protocols to communicate with the SVN server; but not the https: protocol.

### Installing a Subversion Client


Wine is able to install applications from either a Windows .exe file, or a .msi installer file.

Place the installer for your Windows Subversion client in a convenient location on the native file system, then open a Wine console window from within Enterprise Architect and run the installer from within the Wine console. Your Subversion installation can then access the same C: drive and folders that Enterprise Architect is accessing.

## Preparing a Subversion Environment Under Wine

Under Wine, you can install Subversion from either a Windows .exe file, or a .msi file. By performing your Subversion installation and initial check out from a Wine console window opened from within Enterprise Architect, you have access to the same C: drive and folders that Enterprise Architect is accessing.

### Set up Subversion for use with Enterprise Architect, running under Wine

Step	Action
1	Start Enterprise Architect. You do not have to load a project at this point.
2	Select 'Tools   Customize > Tools:  A new, blank entry is opened on the 'Tools' tab of the 'Customize' dialog.
3	Define the new menu item entry: <ul style="list-style-type: none"> <li>• In the newly-opened 'Menu contents' field, type the name 'Wine Console'</li> <li>• In the 'Command' field, type 'wineconsole'</li> <li>• In the 'Arguments' field, type 'cmd'</li> <li>• Leave the 'Initial directory' field blank</li> </ul>
4	Click on the <b>Close button</b> . The 'Customize' dialog closes.
5	Select 'Tools   Wine Console'. A Wine console window opens.
6	Type 'C:' and press the <b>Enter key</b> . The Wine console switches to the C: drive.
7	Issue the command to install your Subversion client. For example: C:\>/Installers/Subversion-client-1.6.12-1.win32.exe To install from a .msi file, use Wine's msixec utility. For example: C:\>msiexec /i "Slik-Subversion-1.6.9-win32.msi" Installation of the Subversion command line client begins.
8	Create a folder to serve as the working copy folder to be used by Enterprise Architect. For example: C:\>mkdir C:\VC_workspaces\SVN_workcopy
9	Issue the command to perform the initial checkout from the Subversion repository, specifying the repository folder, working copy folder, username and password. For example: C:\>svn checkout "https://myServer:8443/svn/repos_folder" "C:\VC_workspaces\SVN_workcopy " "--username myUserName" "--password myPassword"

	<p>(After specifying your Subversion username and password, they are correctly cached by Subversion and are available for use by Enterprise Architect.)</p> <p>If the HTTPS protocol is specified when performing the initial Subversion check out, you are prompted to accept a security certificate; in this instance, press the <b>P key</b> to permanently accept the certificate.</p> <p>The nominated local folder is configured as a Subversion working copy folder. Any files already existing in the repository folder are downloaded to the working copy folder as working copy files.</p>
10	<p>Type 'Exit' and press the <b>Enter key</b>.</p> <p>The 'Wine console' window closes.</p> <p>You are now ready to load a project in Enterprise Architect and apply version control to it, following the normal Windows-based procedures.</p>

## Notes

- You should copy the installer for your Windows Subversion client to a convenient location on the native file system, so that you can easily refer to it from within the Wine console window in step 7 above

## TortoiseSVN

TortoiseSVN is a Windows shell extension for Subversion; it provides icon overlays in Windows Explorer that are useful as a tool for observing the status of your Subversion controlled files. You can also use it to create your repository sub-trees and check out local working copies from within Windows Explorer, using simple menu commands.

You can download TortoiseSVN from <http://tortoisesvn.net/downloads.html>.

### Notes

- Enterprise Architect can only communicate with the Subversion server using the Subversion command line client `svn.exe`

## Create a CVS Environment

You can use Concurrent Versions System (CVS) as a version control provider for Enterprise Architect. The first step in doing this is for a CVS administrator to install and configure the appropriate software. A number of basic tasks are performed in creating an operational CVS environment, and useful tools are available for performing some of these tasks.

### Tasks in Creating a CVS Environment

Task	Detail
Install server components	Executable files for CVS can be obtained from March Hare Software. CVS server components are available to run on a wide range of different hardware and operating systems; Enterprise Architect is not affected by your choice of server components.
Create a repository	Please consult the official CVS documentation.
Create CVS users	Please consult the official CVS documentation.
Create a new repository module	It is recommended good practice to create a new repository module in CVS for each new Enterprise Architect model being added to version control with CVS. Users should create a new local working copy folder from the module to be used with that model. A repository module represents a project, or a set of related files in the repository. TortoiseCVS can greatly simplify the process of creating new repository sub-trees.
Install client components	Executable files for CVS can be obtained from March Hare Software. Enterprise Architect is a Windows based application - it requires a Windows based CVS command line client for integration.
Create a working copy folder	A working copy folder must exist on each users' machine, for Enterprise Architect to use when exporting and importing the version controlled Package files. It is this folder that is specified as the Local Project Path, when defining your <b>Version Control</b> Configurations. The working copy folder is the 'sandbox' where you modify the controlled files. The working copy folder is usually associated with a folder that exists within the version control repository. In CVS, to create a local working copy you perform an initial check-out of a folder from the CVS repository; this downloads a copy of the folder and its contents, to create your local working copy. TortoiseCVS can greatly simplify the initial check out of a working copy folder.
Setting up CVS under Wine/CrossOver	The process of setting up and using CVS with Enterprise Architect under Wine is almost identical to the process when running natively under Windows, apart from minor differences in installing the CVS client and performing the initial checkout of the working copy folder.

### Notes

- If you do not already use CVS for version control, you should consider using Subversion instead; Subversion's client-server protocols provide a broader range of possibilities for connecting to remote servers, with easier set up of secure connections
- TortoiseCVS is a Windows shell extension; Enterprise Architect cannot use TortoiseCVS as its client, it must use the CVS command line client



## Prepare a CVS Local Workspace

In order to use CVS to provide version control of the Packages in a model, you need to prepare a functional CVS working copy folder that can be accessed through an Enterprise Architect version control configuration within that model.

### Prepare a CVS Working Copy Folder

Step	Action
1	Ask your System Administrator to install CVS and create a remote repository, with a module that you can use to control your Enterprise Architect Package files. Your administrator must create a username and password for you before you can make a connection.
2	Select or create a suitable directory to use as your CVS working copy directory.
3	Open a command prompt window and navigate to your CVS working copy directory. For example: C:\> mkdir myCVSWorkSpace C:\> cd myCVSWorkSpace
4	Log in to the remote CVS repository. For example: C:\myCVSWorkSpace> cvs -d:pserver:myUserID@ServerName:/reposPath login Replace <i>myUserID</i> with your CVS username, replace <i>ServerName</i> with the name of your CVS server and replace <i>reposPath</i> with the path to the repository on the server. A prompt for a password displays.
5	Enter your password. You are logged in to the CVS server.
6	Perform the initial checkout of the CVS repository module, into the local working copy directory. For example: C:\myCVSWorkSpace> cvs -d:pserver:myUserID@ServerName:/reposPath checkout moduleName (Replace <i>moduleName</i> with the name of the repository module that you want to check out.) A subdirectory is created in your current working directory, with the same name as the module being checked out. Any files already existing in the repository module are downloaded to the working copy folder as working copy files.
7	Verify that your CVS environment functions correctly.

### Notes

- Much of the process described above can also be performed (more simply) using the TortoiseCVS command Make New Module

## Verify the CVS Workspace

After creating the CVS local working copy to hold the working copies of your Package files, you can verify that it functions correctly before attempting to use it with Enterprise Architect. You need to be able to add files to CVS, and commit changes to those files. You also need to be able to register as an editor of the file and retrieve the list of currently registered editors.

### Verify correct operation of a CVS working copy folder

Step	Action
1	Use Windows to open a command prompt window.
2	Select the directory you specified as the working copy in the cvs checkout command, when preparing the CVS workspace. For example: <code>C:\&gt; cd myCVSWorkSpace</code>
3	Create a test file, such as <i>Test.txt</i> , containing the text <i>CVS Test</i> . For example: <code>C:\&gt; echo CVS Test &gt; Test.txt</code>
4	Execute these CVS commands: <ul style="list-style-type: none"><li>• <code>cvs add Test.txt</code></li><li>• <code>cvs commit -m"Commit comment" Test.txt</code></li><li>• <code>cvs update Test.txt</code></li><li>• <code>cvs edit Test.txt</code></li><li>• <code>cvs editors Test.txt</code></li></ul> The commands should execute without any errors and without prompting the user for any extra input. The editors command should produce output that resembles this: <code>Test1.txt myUserID Tue Aug 9 10:08:43 2009 GMT myComputer</code> <code>C:\myCVSWorkSpace\moduleName</code>
5	Take note of the userID that follows the filename. Enterprise Architect must find and use this user ID when you create your version control configuration.

### Notes

- Your environment must be set up such that you can perform these operations without ever being prompted for input, such as user ID or password

## TortoiseCVS

TortoiseCVS is a Windows shell extension for CVS; it provides icon overlays in Windows Explorer that are useful as a tool for observing the status of your CVS controlled files. You can also use it to create your repository modules and check out local working copies from within Windows Explorer using simple menu commands.

You can download TortoiseCVS from: <http://www.tortoisecvs.org>.

### Notes

- Enterprise Architect must use the CVS command line client to communicate with the CVS server; it cannot use TortoiseCVS

## Create a TFS Environment

You can use Microsoft Team Foundation Server (TFS) as a version control provider for Enterprise Architect. The first step in doing this is for a TFS administrator to install and configure the TFS server and client applications. A number of basic tasks are performed in creating an operational TFS environment.

### Tasks in Creating a TFS Environment

Task	Detail
Obtain and install TFS	<p>Enterprise Architect uses the TFS command line client to integrate TFS version control.</p> <p>The TFS command line client is normally available as part of your Visual Studio installation.</p>
Choose a TFS project	<p>It is good practice to create a new TFS project, or least a new Source Control Folder within a project, for each Enterprise Architect project being added to version control with TFS.</p> <p>If you have a single Enterprise Architect project that contains many different models (for example, a DBMS hosted project with multiple model root nodes), you might choose to create a new TFS project for each separate model.</p> <p>For further information, please consult your TFS product documentation.</p>
Create a TFS workspace	<p>A working copy folder must exist on each users' machine, for Enterprise Architect to use when exporting and importing the version controlled Package files. It is this folder that is specified as the Local Project Path, when defining your <b>Version Control Configurations</b>.</p> <p>The working copy folder is the 'sandbox' where you modify the controlled files. The working copy folder is usually associated with a folder that exists within the version control repository. In TFS, the TFS workspace is used to map a local working folder on your PC to a Source Control Folder within a TFS project.</p> <p>TFS 2012 and VS 2012 (and later versions) feature a new type of workspace called 'local' workspaces. Do not attempt to use TFS 'local' workspaces with Enterprise Architect. You must use only 'server' workspaces for Enterprise Architect version control, as 'local' workspaces do not support the application of checkout <b>locks</b> to files. Enterprise Architect relies on the presence of checkout locks to ensure that Packages can only be checked out exclusively and that a given Package is not already checked-out in some other project (for instance, in a Private Model deployment). This is necessary because it is not practical to merge the XMI Package files that Enterprise Architect uses for version control.</p> <p>A single TFS workspace can map many different local folders, each one to a separate Source Control Folder. In this case, TFS can take a long time to work through and update the files in all of those folders, and the system might appear to 'freeze' whilst it waits for TFS to hand back program control.</p> <p>You can avoid this if you keep your version controlled Package files in a folder that is separate from other artifacts, such as source code files, creating a separate work space to use just for your Package files, or creating and mapping a separate folder for Package files within an existing workspace.</p>
Configure exclusive check-outs	<p>The XMI format files used for the version control of Enterprise Architect's Packages can not be merged like ordinary text files. Therefore, Enterprise Architect must enforce serialized editing of its version controlled Packages. As a</p>

	consequence, it is important that TFS is configured to use 'exclusive checkouts' for XML files.
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## Notes

- TFS can also be used with an SCC client; the MS TFS-SCC client is available for download from Microsoft's web site
- MDG Integration for Visual Studio 2005 or 2008 enhances TFS support by providing access to, for example, work items and bugs within both Enterprise Architect and the MDG Integration product

## TFS Workspaces

In order to use TFS to provide version control of the Packages in a model, you prepare a functional TFS workspace that can be accessed through an Enterprise Architect version control configuration within that model. You use the TFS workspace to map a local working folder on your PC to a Source Control Folder within a TFS project repository.

It is assumed that have TFS 2013 open and a TFS Team Project already exists for you to use in version controlling the Packages of your Enterprise Architect project. You can create the TFS workspace through MS Visual Studio.

TFS 2013 and later versions support the use of Local workspaces. However, Local workspaces do not support the application of checkout **locks**. For this reason, Sparx Systems strongly advises against the use of Local workspaces when version controlling your Enterprise Architect Package files. Using Local workspaces carries a high risk of merge conflicts when checking in, which would almost certainly result in loss of data or a corrupted model database.

### Map a local folder to a TFS Source Control Folder

Step	Action
1	<p>Connect to your TFS server.</p> <p>From the TFS main menu, choose View   Team Explorer.</p> <p>In the Team Explorer toolbar, click on the Connect to Team Projects button (fourth from left, with a power plug icon).</p> <p>The Team Explorer Connect page displays.</p>
2	<p>Click on the link 'Select Team Projects...'</p> <p>The 'Connect to Team Foundation Server' dialog displays.</p>
3	<p>Click on the appropriate Team Foundation Server, Team Project Collection and Team Project, then click on the Connect button.</p>
4	<p>Click on the Home page of the Team Explorer, and then on the <b>Source Control Explorer</b> button.</p> <p>The Source Control Explorer view displays.</p>
5	<p>In the <b>Source Control Explorer</b>, click on the drop-down arrow in the 'Workspace' field in the toolbar, then click on 'Workspaces' at the bottom of the list.</p> <p>The 'Manage Workspaces' dialog displays.</p>
6	<p>Click on the <b>Add button</b>.</p> <p>The 'Add Workspace' dialog displays.</p>
7	<p>Click on the <b>Advanced button</b>.</p> <p>A number of new fields display on the dialog.</p>
8	<p>Type in an appropriate name for the new workspace and, if required, type in a comment.</p>
9	<p>Set the 'Location' field to 'Server'. This setting is important.</p> <p>This setting is not available in TFS 2010 and earlier releases, where all workspaces are Server based.</p>
10	<p>Click in the Source Control Folder column, then click on the <b>Browse button</b> to select a Source Control Folder.</p> <p>Select the Source Control folder (in the Team Project) to use for controlling Enterprise Architect</p>

	Packages.
11	Click on the <b>Browse button</b> in the Local Folder column and create a new local folder. This is the working copy folder into which Enterprise Architect exports the Package files.
12	Click on the <b>OK button</b> . The new workspace is created and saved. The 'Add Workspace' dialog closes.
13	Click on the <b>OK button</b> . The 'Manage Workspaces' dialog closes.

## Notes

- The local folder referenced in step 11 is the Working Copy Path that should be specified when defining an Enterprise Architect **Version Control** Configuration to use this TFS workspace

## TFS Exclusive Check Outs

The XMI format files used for the version control of Enterprise Architect's Packages can not be merged as ordinary text files can. Therefore Enterprise Architect must enforce serialized editing of its version controlled Packages, and it is important that Team Foundation Server is configured to use 'exclusive checkouts' for XML files. Otherwise, TFS can return file statuses that make it look as if the Package file is not checked-out by another user when indeed it is.

You set exclusive checkouts in the TFS workspace through MS Visual Studio.

### Configure TFS to enforce exclusive check outs for XML files

Step	Action
1	Using Visual Studio, from the main menu select View   Team Explorer.
2	In the 'Team Explorer' pane, right-click on the TFS Server name that is controlling the Enterprise Architect Package files, then from the context menu select 'Team Foundation Server Settings   Source Control File Types'.
3	Select the entry for XML files (or create an entry if necessary) then click on the <b>Edit button</b> .
4	Deselect the 'Enable file merging and multiple check out' checkbox.



# Create an SCC Environment

You can use a Microsoft Common Source Code Control (SCC) compatible product as a version control provider for Enterprise Architect. The first step in doing this is for an administrator to install and configure the server and client applications. A number of basic tasks are performed in creating an operational SCC-based environment.

## Tasks in Creating an SCC Environment

Task	Detail
Install and configure your chosen version control product	<p>A version control server component is typically installed on a dedicated server machine. All Enterprise Architect users who require access to version control must be able to connect to the server machine.</p> <p>After installing the version control software, the administrator should also create version control user IDs for all users who require access to version control.</p> <p>For further information, consult the product documentation for your particular version control product.</p>
Create a new SCC project	<p>It is good practice to create a new SCC version control project, or least a new folder within a project, for each Enterprise Architect project being added to version control with SCC.</p> <p>If you have a single Enterprise Architect project that contains many different models (for example, a DBMS hosted project with multiple model root nodes), you might choose to create a new SCC version control project for each separate model.</p> <p>For further information, consult the product documentation for your particular version control product.</p>
Configure your SCC project to support exclusive check-outs for .XML files	<p>The XMI-format files used for the version control of Enterprise Architect Packages can not be merged in the same way as ordinary text files can. Therefore, Enterprise Architect must enforce serialized editing of its version controlled Packages. As a consequence, it is important that your version control application is configured to use 'exclusive checkouts' for XML files.</p>
Create a local working copy folder	<p>A working copy folder must exist on each users' machine, for Enterprise Architect to use when exporting and importing the version controlled Package files. It is this folder that is specified as the Local Project Path, when defining your <b>Version Control Configurations</b>.</p> <p>The working copy folder is the 'sandbox' where you modify the controlled files. The working copy folder is usually associated with a folder that exists within the version control repository. Your version control product provides some means by which you associate a working copy folder with a repository folder.</p> <p>For further information, consult the documentation for your particular version control product.</p>

## Notes

- When installing the client component software on users' PCs, check that the SCC client is also installed, as it might not be a part of the default installation



## Upgrade at Enterprise Architect Version 4.5, Under SCC Version Control

If you are working in Enterprise Architect release 4.5 or later and you open an SCC version-controlled project that was created under a release earlier than 4.5, you must identify the SCC connection with a new unique ID. You can assign a name to the existing SCC configuration or associate the project with another configuration that has previously been assigned a unique ID.

By having a unique ID for each version control configuration, you can assign a configuration quickly and efficiently using configurations that have been created previously for other version controlled repositories. This enables you to configure the many Packages to use an existing version control repository; this can apply to Packages created for more than just one model enabling a great deal of flexibility.

### Upgrade an existing SCC version controlled project created before release 4.5, in Enterprise Architect release 4.5 or later

Step	Action
1	Open the project that has an SCC version control configuration created in Enterprise Architect earlier than version 4.5. The 'Select or Create Unique ID for <b>Version Control</b> ' dialog automatically displays.
2	On the dialog, either create an ID for an existing configuration or choose a previously created one from the 'Unique ID' drop-down list.
3	The existing SCC configuration is the initial value, represented by SCC-XXXXXX; this number is not especially meaningful, therefore it is recommended that the configuration be given a meaningful name.
4	You can associate the version controlled Package with a previously-defined configuration by selecting an existing configuration from the Unique ID drop-down list (if one exists).
5	After you have assigned the unique ID, click on the <b>OK button</b> to load the model.

## Version Control Setup

Once you or an Administrator have installed and configured the version control product software, to start using version control you must first define a version control configuration within your project in Enterprise Architect, to be used to control the Packages in the project. You can define any number of version control configurations in a single model, but any given Package is associated with only one configuration.

### Access

Ribbon	Configure > <b>Version Control</b> > Settings
Menu	Project > <b>Version Control</b> > Version Control Settings
Context Menu	Right-click on Package > <b>Package Control</b> > <b>Version Control</b> Settings

### Define Version Control Configuration

Step	Action
1	On the 'Version Control Settings' dialog, click on the <b>New button</b> .
2	In the 'Unique ID' field, type a suitable configuration name.
3	Select the Type of version control product you are connecting to, by clicking on the corresponding radio button.
4	At this point, the middle section of the dialog changes to display a collection of fields specific to the type of version control configuration you are defining. Enter details relating to the version control workspace that this configuration is to use.
5	Click on the <b>Save button</b> . The new configuration is added to the Defined Configurations list.
6	If you want to create another version control configuration, return to step 1. When you have finished defining your version control configurations, click on the <b>Close button</b> .

### Notes

- Version control configuration details are stored in the user's Windows Registry settings, but each project stores a list of the configurations it uses, so that version control connections can be initialized as the project is being loaded
- If you are using the Corporate or extended editions of Enterprise Architect with security enabled, the administrator must also set up access permissions to configure and use version control

## Re-use an Existing Configuration

Once a version control configuration has been defined for use in one project, it is possible to re-use that configuration in other projects to provide access to:

- An already existing version control environment (a working copy directory and its associated repository that is already in use)
- Version controlled Packages that were created (and version controlled) in another project

### Access

Ribbon	Configure > <b>Version Control</b> > Settings
Menu	Project   <b>Version Control</b>   Version Control Settings
Context Menu	<b>Project Browser</b>   right-click on Package   <b>Package Control</b>   <b>Version Control</b> Settings

### Select existing configuration

Step	Action
1	On the 'Version Control Settings' dialog, click on the <b>New button</b> . The various fields on the dialog are cleared, ready for data entry.
2	In the 'Unique ID' field, click on the drop-down arrow and select one of the previously-defined version control configurations. The details of the selected configuration are displayed in the dialog.
3	Click on the <b>Save button</b> . The configuration details are saved and are ready for use in the current project.

## Version Control Settings

As part of the process of setting up a version control configuration on your model, or updating an existing version control configuration, you define a number of settings that control how the status of your model is communicated to your version control system. You define these settings using the '**Version Control Settings**' dialog.

### Access

Ribbon	Configure > <b>Version Control</b> > Settings
Menu	Project > <b>Version Control</b> > Version Control Settings
Context Menu	Right-click on Package > <b>Package Control</b> > <b>Version Control Settings</b>

### Configuration Options

Field/Button	Action
This model is private	<p>Select to specify that this model database is to be accessed by just a single user (Private Model).</p> <p>Leave unselected (the default) or deselect to specify that the database is to be accessed by multiple concurrent users (Shared Model).</p> <p>If in doubt, use the default setting.</p>
Save nested version controlled packages to stubs only	<p>Select to specify that the exported XMI file for a version controlled Package will contain Package stubs (place holders) for nested version controlled child Packages (recommended).</p> <p>Deselect to specify that the exported XMI file will contain the full content of nested version controlled child Packages.</p>
For all packages, create placeholders for external references	<p>Select to force all XMI 1.1 imports across the model to exclude incoming relationships and instead create external references.</p> <p>If the 'Create placeholders for missing External References during XMI 1.1/2.1 Import' checkbox is not selected in the XML Specifications options for a user, this field overrides that setting.</p>
Unique ID	<p>Specify a name that uniquely identifies the configuration. Either:</p> <ul style="list-style-type: none"> <li>Type a name to identify a new configuration, or</li> <li>Click on the drop-down arrow and select the name of a configuration previously defined in a different project (if any exist)</li> </ul>
Type	<p>Click on the appropriate radio button for the type of version control system you are associating with this configuration.</p> <p>The middle section of the dialog changes to display a collection of fields relating to the type of version control configuration you are defining.</p>

	<p>Set the type to SCC for:</p> <ul style="list-style-type: none"><li>• MS Visual Source Safe</li><li>• Rational Clear Case</li><li>• Perforce</li><li>• AccuRev</li><li>• Any other SCC-compatible clients</li></ul> <p>For any other product that you are using, select the type that matches the product - CVS, Subversion or TFS.</p>
New	Click on this button to clear the fields and create a new version control configuration.
Save	Click on this button to save the details of a new or updated configuration.
Delete	Click on an entry in the Defined Configurations list and click this button to remove the definition of the selected configuration from this model.
Defined Configurations	Review a list of configurations that are in use in the current model.
In future, do not prompt for incomplete configurations	<p>Select to specify that the user is not prompted to complete the definition of configurations that are not fully specified (the default).</p> <p>Deselect to prompt the user to complete configurations that are not fully defined.</p>
Close	Close the ' <b>Version Control Settings</b> ' dialog.
Help	Display this Help topic.

## Notes

- It is important that, for any given version controlled Package file, any user accessing that file from any model uses version control configurations having the same Unique ID
- When you first open a model that was created by another user and that uses version control, the version control configuration(s) used by that model do not yet exist in your Windows registry settings; you need to complete the definitions of those configurations before you can use version control in that project
- If User Security is enabled, you must have '**Configure Version Control**' permission to set up version control options for the current model
- It is possible to use multiple version control configurations in the same model

## SCC Settings

When you are setting up your version control configurations on the '**Version Control Settings**' dialog, and you set the configuration type to 'SCC', the dialog presents a set of fields specific to SCC-based configurations. You can then define details such as:

- The working copy folder to be used with the configuration
- The details necessary to connect to the SCC version control system

You set the version-control configuration type to SCC for version control providers such as:

- MS Visual Source Safe
- Rational Clear Case
- Perforce
- AccuRev
- Any other SCC-compatible clients

### Access

Ribbon	Configure > <b>Version Control</b> > Settings: Type: SCC
Menu	Project > <b>Version Control</b> > Version Control Settings: Type: SCC
Context Menu	Right-click on Package > <b>Package Control</b> > <b>Version Control Settings</b> : Type: SCC

### Settings

Field/Button	Action
Local Project Path	Displays the full path of the folder that contains the local (working) copies of the XMI Package files. This field is read-only; its value can only be set through use of the <b>Select Path button</b> .
Select Path	Click on this button to choose the Local Project Path, by opening a file browser dialog and navigating through the file system to the appropriate folder. <ul style="list-style-type: none"> <li>• After you choose the appropriate folder path, the 'Select SCC Provider' dialog displays, listing all SCC providers that are installed on the current workstation; choose the SCC provider to use and click on the <b>OK button</b></li> <li>• At this point, the SCC client opens its own dialog to prompt you for information; SCC products implement this functionality in varied ways, but typically you are prompted to log in to the version control system, then prompted to choose the SCC project to use and possibly a (server) folder contained within that project</li> <li>• At the conclusion of this process, all of the SCC details should be filled in; you can then save the definition by clicking on the <b>Save button</b> on the '<b>Version Control Settings</b>' dialog</li> </ul>



Current User	Displays the user name used to log on to the version control system that is accessed through this configuration. This field is read-only; the value it displays is retrieved from the SCC client.
SCC Provider	Displays the name of the SCC provider. This field is read-only; the value it displays is retrieved from the SCC client.
SCC Project	Displays the name of the SCC Project that this configuration attaches to. This field is read-only; the value it displays is retrieved from the SCC client.

## Notes

- You define the SCC-specific details as part of the broader process of setting up a version control configuration on the '**Version Control Settings**' dialog

## CVS Settings

When you are setting up your version control configurations on the '**Version Control Settings**' dialog, and you set the configuration type to CVS, the dialog presents a set of fields specific to CVS-based configurations. You can then define details such as:

- The working copy folder to be used with the configuration
- The path to the CVS command line client

### Access

Ribbon	Configure > <b>Version Control</b> > Settings: Type: CVS
Menu	Project > <b>Version Control</b> > Version Control Settings: Type: CVS
Context Menu	Right-click on Package > <b>Package Control</b> > <b>Version Control Settings</b> : Type: CVS

### Settings

Field/Button	Action
Working Copy Path	Displays the full path of the folder that contains the local (working) copies of the XMI Package files. This field is read-only; its value can only be set through use of the <b>Select Path button</b> .
Select Path	Click on this button to choose the working copy path, by opening a file browser dialog and navigating through the file system to the appropriate folder.
Current User	This field is read-only; its value is retrieved from a file named CVS\Root, located in the folder selected using the <b>Select Path button</b> .
CVS Exe Path	Displays the full path of the CVS command line client executable file. This field is read-only; its value can only be set through use of the <b>Select Path button</b> .
Select Path	Click on this button to specify the path to the CVS command line client, by opening a file browser dialog and navigating through the file system to locate the appropriate file.
VC Time-Out Value	Specify the amount of time that Enterprise Architect waits for a CVS command to complete; if the command does not complete within the allowed time, the system displays a Time-out error message, detailing the command that failed to complete. This single time-out value is applied to all <b>Version Control</b> Configurations (of types SVN, TFS and CVS) that the user accesses from this workstation.

## Notes

- When connecting to a remote CVS repository, the 'Current User' field should display the user name used to log into that repository; if this does not happen, it indicates that Enterprise Architect cannot extract the user name from the file ...\\WorkingCopyPath\\CVS\\Root and the configuration does not work correctly
- You define the CVS-specific details as part of the broader process of setting up a version control configuration on the '**Version Control Settings**' dialog

## SVN Settings

When you are setting up your version control configurations on the '**Version Control Settings**' dialog, and you set the configuration type to 'Subversion', the dialog presents a set of fields specific to Subversion-based configurations. You can then define details such as:

- The working copy folder to be used with the configuration
- The path to the Subversion command line client

### Access

Ribbon	Configure > <b>Version Control</b> > Settings: Type: Subversion
Menu	Project > <b>Version Control</b> > Version Control Settings: Type: Subversion
Context Menu	Right-click on Package > <b>Package Control</b> > <b>Version Control Settings</b> : Type: Subversion

### Settings

Field/Button	Action
Working Copy Path	Displays the full path of the folder that contains the local (working) copies of the XMI Package files. This field is read-only; its value can only be set through use of the <b>Select Path button</b> .
Select Path	Click on this button to choose the Working Copy Path, by opening a file browser dialog and navigating through the file system to the appropriate folder.
Subversion Exe Path	Displays the full path of the Subversion command line client executable file. This field is read-only; its value can only be set through use of the associated <b>Select Path button</b> .
Select Path	Click on this button to specify the path to the Subversion command line client, by opening a file browser dialog and navigating through the file system to locate the appropriate file.
VC Time-Out Value	Specify the amount of time that Enterprise Architect should wait for a Subversion command to complete; if the command does not complete within the allowed time, the system displays a Time-out error message, detailing the command that failed to complete.  This single time-out value is applied to all <b>Version Control</b> Configurations (of types SVN, TFS and CVS) that the user accesses from this workstation.

## Notes

- You define the Subversion-specific details as part of the broader process of setting up a version control configuration on the '**Version Control Settings**' dialog

## TFS Settings

When you are setting up your version control configurations on the '**Version Control Settings**' dialog, and you set the configuration type to 'TFS', the dialog presents a set of fields specific to TFS-based configurations. You can then define details such as:

- The working copy folder to be used with the configuration
- The user name and password to log in to the TFS server
- The path to the TFS command line client

### Access

Ribbon	Configure > <b>Version Control</b> > Settings: Type: TFS
Menu	Project > <b>Version Control</b> > Version Control Settings: Type: TFS
Context Menu	Right-click on Package > <b>Package Control</b> > <b>Version Control Settings</b> : Type: TFS

### Settings

Field/Option/Button	Action
Working Copy Path	Displays the full path of the folder that contains the local (working) copies of the XMI Package files. This field is read-only; its value can only be set through use of the associated <b>Select Path button</b> .
Select Path	Click on this button to choose the Working Copy Path. The file browser dialog opens, through which you navigate through the file system to the appropriate folder.
Server Name	Displays the name of the TFS Server that is associated with the working copy folder specified in the 'Working Copy Path' field. This field is read-only; Enterprise Architect retrieves the value it displays by querying the TFS client.
Workspace Name	Displays the name of the TFS Workspace that is associated with the working copy folder specified in the 'Working Copy Path' field. This field is read-only; Enterprise Architect retrieves the value it displays by querying the TFS client.
User Name	Type in the user name with which to log into the TFS Server.
Password	Type in the password with which to log into the TFS Server.
Display Name	TFS 2013 and later releases use a Display Name to report on who owns a checkout lock on a file. TFS 2010 uses AccountID when reporting lock owners and so does

	<p>not require a Display Name.</p> <p>If using TFS 2013, type in your TFS Display Name as shown in the User column of the Visual Studio <b>Source Control Explorer</b> when you checkout a file.</p>
Checkout Locks Required	<p>This checkbox defaults to selected.</p> <p>TFS 2013 supports the use of Local workspaces, but these do not support checkout <b>locks</b>. If you want to use TFS Local workspaces (not recommended), you must deselect this checkbox. Otherwise, leave the checkbox selected.</p> <p>It is recommended that all workspaces used for version controlling Enterprise Architect Package files are set as 'Server' workspaces.</p>
TFS Exe Path	<p>Displays the full path of the TFS command line client executable file.</p> <p>This field is read-only; its value can only be set through use of the associated <b>Select Path button</b>.</p>
Select Path	<p>Click on this button to specify the path to the TFS command line client.</p> <p>The file browser dialog opens, through which you navigate through the file system to the appropriate folder.</p>
VC Time-Out Value	<p>Type in the number of seconds that Enterprise Architect should wait for a TFS command to complete; if a command does not complete within this allowed time, the system displays a Time-out error message, detailing the command that failed to complete.</p> <p>This single time-out value is applied to all version control configurations (of types SVN, TFS and CVS) that the user accesses from this workstation.</p>

## Notes

- If you automatically log in to TFS through a path external to Enterprise Architect (for example, through MS Integrated Security), you can leave the 'User Name' and 'Password' fields blank
- If the 'Password' field is blank, Enterprise Architect retrieves your Windows username and uses that value when determining whether a Package file is checked out to you or to another user
- TFS version control can also be accessed using the TFS MSSCCI client; to make use of the TFS MSSCCI client, please define an SCC based version control configuration
- You define the TFS-specific details as part of the broader process of setting up a version control configuration on the '**Version Control Settings**' dialog

## Use Version Control

Once your version control product is installed and you have created a suitable environment, Enterprise Architect can make use of that environment to control the Packages in your project. Version control provides a range of facilities, as outlined in this table.

### Facilities

Facility	Detail
Define Version Control Settings	Version control configurations are used by Enterprise Architect to communicate with your version control system. You define one or more version control configurations in your project and then use those configurations to control the Packages in your project.
Configure a Package	To put a Package under version control you mark the Package as a controlled Package, specify the version control configuration to control it, and associate an XMI file with the Package.
Check In a Model Branch	Checks in all Packages involved in a particular unit of work, as a single operation. Checking-in updates the reference version of a Package or group of Packages in the model.
Check Out a Model Branch	Checks out all Packages within a selected model branch as a single operation, so that you can update modeling objects within them.
Check In a Package	Checks in the Package currently selected in the <b>Project Browser</b> . Checking-in updates the reference version of a Package or group of Packages in the model.
Check Out a Package	Checks out the version controlled Package currently selected in the <b>Project Browser</b> , so that you can update modeling objects within it.
Undo Check Out of a Package	Reverses the check-out of a Package, discarding any modifications that have been made by restoring the Package content to the latest revision held in version control.
Import a Package From Version Control	Retrieves Packages from version control that have been created by other users, or by you in another model, and imports them into your current model.
Apply Version Control to a Model Branch	Applies version control to all Packages within the selected model branch, in a single operation. In this context, a model branch is a Package in the <b>Project Browser</b> , and all of the Packages contained within it.
Export a Version Controlled Model Branch	Exports version control information about the root Package of a model branch, that is used to simplify the process of exporting and importing a hierarchy of Packages from one model to another.
Import a Model Branch From Version Control	Uses Enterprise Architect's Model Branch files, of which there are few, to retrieve information about the root Package file and to import the model branch. Model branch files can simplify the process of exporting and importing a hierarchy



	of Packages from one model to another.
View Package Revision History	Displays the change history of version controlled Packages. You can also check out a prior revision of the Package for editing, effectively rolling-back to a prior revision of the Package.
Validate Package Configurations	You can test the validity of the version control settings associated with each version controlled Package within your current model.
Resynchronize the Status of Version Controlled Packages	Re-synchronizes the version control status of Packages within your project with the status reported by your version control provider.

## Notes

- Database replication should not be combined with version controlled Packages
- If the Packages under version control contain any alternative images, you can export the images to the version control repository when you check in the Packages, by setting the 'Export alternate images' option on the 'Options' dialog

## Configure Controlled Package

Once your version control application is set up and you have version control configurations in place, you can place the individual Packages in your model under version control. To put a Package under version control, you:


- Flag the Package as a controlled Package
- Specify the version control configuration to control it and
- Associate an XMI file with the Package

You can then export and import the Package data to and from the file and issue commands to the version control system.

### Access

Ribbon	Configure > <b>Version Control</b> > Configure Package
Context Menu	Right-click on Package > <b>Package Control</b> > Configure
Keyboard Shortcuts	<b>Ctrl + Alt + P</b>

### Apply version control to a single Package

Step	Action
1	Click on the 'Control Package' checkbox to select it, indicating that this Package is to be controlled.
2	Click on the <b>Version Control</b> drop-down arrow and select the version control configuration to be used to control this Package.
3	<p>The 'XMI Filename' field displays a default filename for the Package export file, based on the Package name.</p> <p>Optionally, modify the filename. Either:</p> <ul style="list-style-type: none"> <li>• Type a new name, or</li> <li>• Click on the  button to open a file selection dialog</li> </ul> <p>The target file must be located within the working copy folder of the selected version control configuration, or one of its sub-folders.</p>
4	<p>The 'Version ID' field defaults to '1.0'.</p> <p>Optionally, change this to a different version number.</p>
5	<p>The 'Owner' field defaults to your user name.</p> <p>Optionally, type or select the name of the user who actually owns the Package.</p>
6	<p>Click on the <b>OK button</b>.</p> <p>The 'Add Package to <b>Version Control</b>' dialog displays.</p>

7	Optionally, clear the 'Keep checked out' checkbox. After applying version control, the Package either remains checked-out for editing, or is checked-in and locked against editing, depending on this setting.
8	Click on the <b>OK button</b> . The 'Add Comment' dialog displays.
9	Optionally, add any further comments to the default comment. Enterprise Architect provides a default comment that includes the current date & time.
10	Click on the <b>OK button</b> . The current Package is exported to the nominated XMI file, which is then committed to version control. The Package icon in the <b>Project Browser</b> is updated to reflect the Package's version control status.

## Notes

- If you are using the Corporate or extended editions of Enterprise Architect with security enabled, these features are only available to users who have been granted permission to configure and use version control

## Apply Version Control To Branches

It is possible to apply version control to all Packages within a selected model branch, in a single operation. In this context, a model branch is a Package that is currently selected in the **Project Browser**, and all of the Packages contained within it.

### Access

Context Menu	<b>Project Browser</b>   right-click on Package   <b>Package Control</b>   Add Branch to Version Control
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### Apply version control to all Packages within a selected model branch

Step	Action
1	On the 'Apply VC to Branch' dialog, click on the drop-down arrow in the ' <b>Version Control Configuration</b> ' field and select the configuration to use.
2	Optionally, tick the checkbox 'Export as Model Branch'. Once the version control operation is complete a Model Branch file (.EAB file) is created for this branch.
3	Click on the <b>OK button</b> . The system creates a number of sub-folders within the version control working copy folder, then exports all of the Packages within the selected model branch. The system generates filenames for the XMI files, based on the Package GUIDs.

### Notes

- The version control configuration to be used in this operation must be defined within the model before selecting this command
- When invoked on the model root node, this command applies version control to every Package within the model

## Package Version Control Options

When you have set up a Package for version control, you gain access to a range of version control operations that can be performed on that Package, such as:

- Open the dialog for working with baselines of the Package
- Check-in and check-out single Packages or a selected hierarchy of Packages
- Update Packages to the latest revision from the version control repository
- Inspect the revision history or properties of the XMI file associated with a Package
- Revert a Package to a previous revision
- Compare the current model content of a Package, against the latest revision of the Package in version control
- Import and export hierarchies of Packages (model branches) to and from the model, through the version control system
- Synchronize the status of a Package, with the version control system

### Access

Context Menu	Right-click on version controlled Package > <b>Package Control</b>
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### Options

Option	Action
Configure	Apply or remove version control for the selected Package (specify version control settings) or specify a file for use in XMI <b>Package Control</b> . Shortcut: <b>Ctrl+Alt+P</b>
Package Baselines	Create a Baseline of the current Package, or compare the current Package with a previous Baseline. Shortcut: <b>Ctrl+Alt+B</b>
Check In Branch	Check-in Packages contained in the currently selected model branch (that is, the selected Package and all of its child Packages).  The 'Select Packages to Check In' dialog lists all version controlled Packages within that branch that are checked out to you; you can then select Packages in the displayed list, to be submitted for check-in.  You can also choose to keep the Packages checked-out after committing a new revision to version control.
Check Out Branch	Recursively check out all Packages contained within the currently selected model branch (that is, the selected Package and all of its child Packages) that are version controlled and checked-in.
Check In	Commit a new revision of the currently selected Package to the version control repository and lock the Package against further editing.

	Only available for Packages that you have checked-out yourself.
Check Out	<p>Synchronize the currently selected Package with the latest revision from the version control repository and unlock the Package to allow editing.</p> <p>Only available for Packages that are not already checked-out (and whose associated Package file is not checked-out).</p>
Undo Check Out	<p>Restore the selected Package to the latest revision in the version control repository and lock the Package against further editing.</p>
Put Latest	<p>Commit a new revision of the currently selected Package to the version control system, while keeping the Package checked-out.</p> <p>This is equivalent to checking a Package in and immediately checking it back out again.</p> <p>Only available for Packages that you have checked-out yourself.</p>
Get Latest	<p>Synchronize the currently selected Package with the latest revision from the version control repository.</p> <p>Available only for Packages that are checked in.</p>
Get All Latest	<p>Update all of the version controlled Packages in the project, to the latest revision retrieved from version control.</p> <p>Only updates Packages that are currently checked in.</p> <p>Once the latest revisions are retrieved, the system scans all the controlled Packages and fixes any missing cross-references by comparing the Package with its XMI 1.1 file.</p> <p>If the cross-reference information in the XMI does not match the model, the system updates the model with the information from the XMI and records this update in the <b>System Output</b> window.</p> <p>You can roll back such updates by selecting the entry in the System Output window and using the context menu option 'Rollback Update' (or 'Rollback Selected Updates' if multiple entries are selected).</p> <ul style="list-style-type: none"> <li>• Closing the model clears the entries in the System Output window</li> <li>• An entry in the System Output window is also cleared as and when you roll-back the update for it</li> </ul>
Scan XMI and Reconcile Model	<p>Scan the Package XMI files associated with each of the project's controlled Packages and restore any diagram objects or cross-references that are detected as missing from the project.</p> <p>This function is useful in team environments where each user maintains their own private copy of the model database (that is, multiple private project files) and model updates are propagated through the use of controlled Packages. It provides no benefit when the model is hosted in a single shared database that is accessed by all team members.</p> <p>Each controlled Package is compared with its associated XMI file and, if the cross-reference information in the model does not match the XMI, the system updates the model with the information from the XMI and records the update in the <b>System Output</b> window.</p> <p>You can roll back such updates by right-clicking on the entry in the System Output window and selecting the 'Rollback Update' option (or 'Rollback Selected Updates' if multiple entries are selected).</p> <p>Closing the model clears the entries in the System Output window; an entry in the window is also cleared as and when you roll-back the update for it.</p>

	<p>This functionality is invoked automatically as part of the 'Get All Latest' operation.</p> <p>When working in an environment that uses a Private Model deployment and your model contains a significant number of cross-Package references, it is recommended that you invoke 'Scan XMI and Reconcile Model' from time to time, following the re-importation of controlled Packages - for example, after using 'Get Latest' to update a number of Packages - or after performing a number of Package check-outs.</p> <ul style="list-style-type: none"> <li>As a general rule, avoid running 'Scan XMI and Reconcile Model' while you have uncommitted changes in your model; generally, you: <ul style="list-style-type: none"> <li>- Check-out a number of Packages</li> <li>- Invoke 'Scan XMI and Reconcile Model'</li> <li>- Make your modifications</li> <li>- Commit any outstanding changes before you check-out more Packages and run 'Scan XMI and Reconcile Model' again</li> </ul> </li> </ul>
File Properties	Display version control properties pertaining to the XMI export file associated with the currently selected Package; this also identifies who has checked out the Package.
File History	Display change history information for the currently selected Package. Revert to or check-out a prior revision of the Package.
Compare with Controlled Version	Compare the currently selected Package with the latest revision of its associated XMI file retrieved from version control.
Add Branch to Version Control	<p>Apply version control to all Packages within a selected model branch, in a single operation.</p> <p>In this context, a model branch is a Package that is currently selected in the <b>Project Browser</b>, and all of the Packages contained within it.</p>
Export as Model Branch	Export a newly created model branch from your own private copy of a model.
Import a Model Branch	Retrieve a model branch and import it into either the source model or another model.
Get Package	Access Packages in the version control repository that are not currently available in your model.
Re-synch Status With VC Provider	<p>Update the version control status value recorded for the selected Package in the project to match the value reported by the version control provider, without performing an XMI import or export.</p> <p>Use this function when the Package's version control status recorded in your project is out of synchrony with the version control status reported by your version control provider.</p>
Version Control Settings	Display the ' <b>Version Control Settings</b> ' dialog.

## Notes

- You set up version control using options from the project '**Version Control**' submenu

- If the selected Package is not under version control, a different set of options is available
- If a version control configuration has not been defined for the model, no options for using version control are available, only the options for configuring version control



## Check Out a Package

When you need to work on a version controlled Package, you check it out. The local XMI file associated with the Package is then checked-out from version control. No other user can check out the Package to make changes to it until it has been checked in again.

### Access

Context Menu	Right-click on Package > <b>Package Control</b> > Check Out
Keyboard Shortcuts	<b>Ctrl + Alt + L</b>

### Check out a single Package

The Package file is imported into your model, and the 'Package' icon is updated to reflect the change in the Package's version control status.

When working in a Private Model, if the system detects that the Package content in the model is already up to date with the latest revision of the Package file retrieved from version control, then the 'Import Package' dialog displays first. This dialog is not displayed for a Shared Model.

These options are available:

- Force Reload From XMI - reload the Package from XMI regardless of whether it is up to date or not
- Accept current package - select to skip the process of re-importing the Package from XMI
- Refresh model view - select to refresh the **Project Browser** and diagrams, by reloading the Package content from the project database
- Always use these settings - when selected, if you subsequently check out a Package that is found to be up to date, the same settings are applied again without displaying the dialog

### Notes

- If you check out a version controlled Package whilst offline, the 'Package' icon has a red figure 8 in front of it
- If you have selected the 'Always use these settings' checkbox and you want to reconfigure the 'Import Package' dialog, press the **Ctrl key** whilst you select the **'Package Control | Check Out'** menu option; the dialog displays and you can change the settings

## Undo Check Out of a Package

If you check out a Package and then decide not to proceed, you can undo the check-out and discard any modifications that have been made, by restoring the Package content to the latest revision held in version control. The Package returns to a checked-in state and subsequently can be checked out by any user, including yourself if, for example, you need to reverse incorrect changes before checking the Package out and starting again.

### Access

Context Menu	Right-click on Package > <b>Package Control</b> > Undo Check Out
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### Undo check out of a selected Package

A confirmation dialog displays; click on the **OK button**.

The latest revision of the Package is retrieved from version control and re-imported into your model. The icon against the Package in the **Project Browser** is updated to reflect the change in the Package's version control status.

## Check In a Package

When you have finished working on the contents of a Package under version control, and you want to return it to the model for other users to see, you check it in.

### Access

Context Menu	Right-click on Package > <b>Package Control</b> > Check In
Keyboard Shortcuts	<b>Ctrl + Alt + S</b>

### Check in a single Package

Step	Action
1	The selected Package is exported and the 'Add Comment' dialog displays. A default comment is provided that contains the current date and time. Optionally, modify the default check-in comment
2	Click OK. The Package file is checked-in to version control and the Package icon is updated to reflect the change in version control status.

## Check Out a Model Branch

If you need to check out a number of related Packages involved in a particular unit of work, to update the contents, you can do so in a single operation by checking out the whole model branch that contains them.

### Access

Context Menu	Right-click on Package > <b>Package Control</b> > Check Out Branch
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### Check out a sub-tree of model Packages

Step	Action
1	The selected root-node Package and all of its contained sub-Packages are recursively checked out. Any Packages that cannot be checked-out are listed in a message box, with a brief description of the problem; for example: <i>The Package is already checked out by user 'Fred'</i> .
2	When Project Security is enabled in Lock to Edit mode, Enterprise Architect prompts you to apply a User Lock throughout the selected model branch before proceeding.

## Check In a Model Branch

If you need to check in a number of related Packages involved in a particular unit of work, and that you have updated, you can do so in a single operation by checking in the whole model branch that contains them. You can also commit new revisions of the affected Packages as you complete milestones, whilst keeping the Packages checked-out for further editing.

### Access

Context Menu	Right-click on Package > <b>Package Control</b> > Check In Branch
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### Check in Packages from within a model branch

Step	Action
1	<p>The 'Select Packages to Check-in' dialog lists all version controlled and checked-out Packages within the selected model branch. By default, the entire list is selected.</p> <p>Optionally:</p> <ul style="list-style-type: none"><li>• Click an individual Package to select just that Package</li><li>• <b>Ctrl+click</b> on an individual Package to add or remove it from the selection</li><li>• <b>Shift+click</b> on a range of Packages to select them</li><li>• Click on the <b>All button</b> to select all listed Packages</li><li>• Click on the <b>None button</b> to clear the selection</li></ul>
2	<p>Optionally, you can commit into version control a new revision of all selected Packages, while keeping those Packages checked out for further editing. To do this, select the 'Keep packages checked-out after committing new revision' checkbox.</p>
3	<p>Click on the <b>OK button</b>.</p> <p>The 'Add Comment' dialog displays. A default comment is provided that contains the current date and time. This comment is applied to all Packages that are checked in.</p>
4	<p>Optionally, modify the default check-in comment.</p>
5	<p>Click on the <b>OK button</b>.</p> <p>The selected Packages are exported and checked-in. The Package icons are updated to reflect any change in version control status. If you opted to keep Packages checked out, there is no change in status.</p>

# Update to the Latest Revision of Selected Package

When you are part of a team working in a Distributed Model environment, you will want to periodically update your model with the changes that other team members have committed into version control. You can transfer the other users' updates from version control into the selected Package in the **Project Browser**.

## Access

Context Menu	Right-click on Package > <b>Package Control</b> > Get Latest
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## Update Package to latest revision

The local XMI file associated with the Package is updated to the latest revision from version control. The XMI file is imported into your model database, updating the Package in your model.

When working in a Private Model, if the system detects that the Package content in the model is already up to date with the latest revision of the Package file retrieved from version control, then the 'Import Package' dialog displays first. This dialog is not displayed for a Shared Model.

These options are available:

- 'Force Reload From XMI' - reload the Package from XMI regardless of whether it is up to date or not
- 'Accept current package' - select to skip the process of re-importing the Package from XMI
- 'Refresh model view' - select to refresh the **Project Browser** and diagrams, by reloading the Package content from the project database
- 'Always use these settings' - when selected, if you subsequently check out a Package that is found to be up to date, the same settings are applied again without displaying the dialog

## Notes

- The 'Get Latest' command is disabled for any Package that is checked-out (to anybody) in the currently loaded project
- When using a Shared Model environment, where all users are connected to a single model database, you should reload the Package from the database, rather than using the 'Get Latest' command
- If you have selected the 'Always use these settings' checkbox and you want to reconfigure the 'Import Package' dialog, press the **Ctrl** key whilst you select the '**Package Control** | Get Latest' menu option; the dialog displays and you can change the settings

# Update to the Latest Revision of All Packages

When you are part of a team working in a Distributed Model environment, you will want to periodically update your model with the changes that other team members have committed into version control. You can transfer the other users' updates to all version controlled Packages into the currently loaded project.

## Access

Context Menu	Right-click on Package > <b>Package Control</b> > Get All Latest
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## Update all Packages in project to latest revision retrieved from version control

All the local XMI files for all the version control configurations used in the project are updated to the latest revision from version control. The system then scans the Packages in the model, to determine which ones are up to date and which are not, compared to the latest revisions of the associated Package files.

A prompt displays, providing these import options for Packages that are up to date:

- Import changed files only
- Always import
- Prompt for each file

Click on the **OK button**. The version controlled Packages in your project are updated according to the option you selected; if you chose the 'Prompt for each file' option, a prompt displays to confirm import of each file.

## Notes

- There is no need to re-import Packages that are already up to date - re-importing Packages first deletes them from the project and then re-imports them from the XMI file, which is time consuming as well as unnecessary; we strongly recommend using the default option 'Import changed files only'
- The 'Get All Latest' command does not update any Package that is checked-out (to anybody) in the currently loaded project; otherwise, any changes not yet committed to version control would be discarded
- When using a Shared Model environment, where all users are connected to a single model database, the information in the model database is always the same as, or ahead of, what is committed into version control; in this situation, the Get All Latest command will simply refresh your view of the model database, by reloading diagrams or reloading Package content in the **Project Browser**

## Include Other Users' Packages

Other users might be developing Packages in their own models that you could use in your model, or you might have other models containing Packages that you want to use in the current model. Unless you are sharing an SQL database or project file, those Packages are not automatically available to you. However, if the Packages have been placed into version control, you can import them into your model as children of one of your model's Packages.

### Access

Context Menu	Right-click on Package > <b>Package Control</b> > Get Package
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### Import Packages from version control into current model

Step	Action
1	On the 'Get Shared File' dialog, click on the drop-down arrow of the ' <b>Version Control</b> Configuration' field and select the version control configuration associated with the Package to retrieve. The file list is populated with the names of files available through that configuration, for retrieval and import into your model.
2	Click on the Package file to import into your model and click on the <b>OK button</b> . The Package file is imported as a new child Package, under the parent Package you selected.

### Notes

- You must have access to the Package files through the version control system and you must define a version control configuration through which to access those files
- The version control configuration must use the same unique ID that was originally used to add the Package to version control
- XMI Package files associated with Packages that are already part of your project, are NOT included in the list of files available for import



## Export Controlled Model Branch

Applying version control to a model can result in many XMI files placed under version control. It might then be hard to locate and import the file corresponding to the root of a particular model branch. Using Model Branch Files (.eab files) overcomes this problem by making it easier to export and import Package hierarchies from one model to another.


You could export a newly created model branch from your own private copy of a model so that, for example:

- Another user can import that branch into their own private copy of the same model
- It can be imported for inclusion as a common branch in a number of different models

### Access

Context Menu	Right-click on Package > <b>Package Control</b> > Export as Model Branch
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### Create a Model Branch File to represent a Package hierarchy stored in version control

Step	Action
1	<p>On the 'Export as Model Branch' dialog, in the 'EAB Filename' field, type a name for your Model Branch File.</p> <p>Alternatively, click the  button and browse for the file location.</p> <p>Note that the Package name is supplied as a default.</p>
2	<p>Click on the <b>OK button</b>.</p> <p>A branch file is created to represent the selected Package. The branch file is committed to version control using the same version control configuration that controls the Package you selected.</p>

### Notes

- You can specify any file name, including sub-folder names, as long as the file is contained in or below the working folder of your version control configuration
- The facility is only enabled for Packages that are already under version control

# Import Controlled Model Branch

Applying version control to a model can result in many XMI files placed under version control. It could then be hard to locate and import the file corresponding to the root of a particular model branch, if you want to:

- Retrieve a model branch created by another user in a private copy of a model, to import it into your own private copy of the same model
- Retrieve a model branch that is common in many models, for inclusion in a new model

Model Branch Files overcome this problem by simplifying the retrieval of Package hierarchies for use in other models. You use Enterprise Architect's Model Branch Files, of which there are few, to retrieve information about the root Package file such as the name and type of the version control configuration for the selected Package, and the relative filename of the version controlled XMI file associated with the Package. The system then uses this information to import the branch into your model.

## Prerequisites

Before you begin, you must have:

- An operational version control environment that can be accessed by Enterprise Architect, and
- All of the version controlled Package files and the model branch file associated with the model branch to import, in a valid and accessible working copy folder

## Access

Context Menu	Right-click on target Package for import > <b>Package Control</b> > Import a Model Branch
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## Import a Model Branch

Step	Action
1	On the 'Import VC Model Branch' dialog, either: <ul style="list-style-type: none"><li>• Use the lower portion of the dialog to select a model branch file (this is the simpler option if the associated version control configuration has already been saved in the current model; continue to step 2)</li><li>OR</li><li>• Click on the <b>Find a Model Branch (.EAB) file button</b> (this option is useful when you have not yet defined the version control configuration that is associated with the model branch to be imported; see the <i>Manually Locating Model Branch Files</i> topic)</li></ul>
2	Click on the drop-down arrow in the 'Select a <b>Version Control</b> Configuration' field and select a configuration. A list of .eab files controlled by that configuration is displayed in the 'Select a Model Branch (.EAB) file' list.
3	Select the Model Branch File you need, then click on the <b>OK button</b> .

	The system imports the root Package specified in the Model Branch File and recursively imports and populates all the sub-Packages contained in the root Package.
--	--

## Notes

- The Import a Model Branch command is only enabled for Packages that you (the current user) are able to edit, as the imported model branch is inserted into the model under your selected Package

# Manually Locating Model Branch Files

When importing a Model Branch File from version control, you might not have the associated version control configuration saved in the model that is receiving the import. In this situation, it is simpler to manually browse the file system to locate the Model Branch File (.eab) and let Enterprise Architect derive the details of the configuration from the branch file you select.

## Prerequisites

Before you begin, you must have:

- An operational version control environment that can be accessed by Enterprise Architect, and
- All of the version controlled Package files and the model branch file associated with the model branch to import, in a valid and accessible working copy folder

## Access

Context Menu	Right-click on target Package for import > <b>Package Control</b> > Import a Model Branch : Find a Model Branch (.EAB) file
--------------	---

## Locate the Model Branch File

Step	Action
1	Access the 'Import VC Model Branch' dialog, then browse for and select the Model Branch File that represents the model branch to import.
2	Click on the <b>Open button</b> . If the version control configuration referenced by the file is fully defined within the current model, the import commences at this point. Otherwise, Enterprise Architect displays a dialog prompting you to complete the required configuration.
3	Click 'Yes' to proceed with completing the definition of the version control configuration. The 'Version Control Settings' dialog is displayed.
4	Complete the definition of the configuration. (Typically this involves simply specifying the working copy folder.)
5	Click on the <b>Save button</b> . The configuration details are saved. The import of the model branch proceeds.

## Notes

- The Import a Model Branch command is only enabled for Packages that you (the current user) are able to edit, as the imported model branch is inserted into the model under your selected Package

## Review Package History

It is possible to review the change history of version controlled Packages by examining previous revisions. If necessary, you can check out one of these earlier revisions of a Package for editing, effectively rolling-back to that prior revision of the Package.

### Access

Context Menu	Right-click on Package > <b>Package Control</b> > File History
--------------	--

### Review change history of a version-controlled Package

Step	Action
1	<p>For version control environments using Subversion, CVS or TFS command line clients, the 'File Version History' dialog displays.</p> <p>Click on a revision number in the 'Revisions' field, to select that revision and view its log entry.</p> <p>For version control environments using SCC based clients, your particular product opens its own 'File Version History' dialog.</p>
2	<p>On the 'File Version History' dialog, you can optionally click on either:</p> <ul style="list-style-type: none"><li>• Check Out - the selected revision of the Package file is retrieved from version control and imported into your model as a Package that is checked out for editing; you can subsequently check in this revision as a new HEAD revision, effectively allowing you to revert the Package to a prior revision or</li><li>• Retrieve - the selected revision of the Package file is retrieved from version control and imported into your model, but the Package remains flagged as checked-in and cannot be modified; subsequently checking out the Package updates it to the latest revision before it is unlocked for editing</li></ul>

### Notes

- If the selected Package was already checked out in the current model, the Retrieve and Check Out buttons are disabled
- If the selected Package contains any sub-Package that is already checked-out in the current model, a warning will be displayed and the retrieval or check-out will not go ahead
- If you check out a prior revision of a Package, but do not want to commit it as a new revision, right-click on the Package and select **Package Control** | Undo Check Out

## Review Package History - SCC Client

It is possible to review the change history of version controlled Packages by examining previous revisions. If necessary, you can check out one of these earlier revisions of a Package for editing, effectively rolling-back to that prior revision of the Package. The process for reviewing the change history of Packages configured for version control with an SCC client (including products such as Visual Source Safe, TFS-SCC, ClearCase, Perforce, AccuRev and MKS Source Integrity) differs from that for Subversion, CVS or TFS command line clients.

### Access

Context Menu	Right-click on Package > <b>Package Control</b> > File History
--------------	--

### Review change history of a version-controlled Package (SCC client)

Step	Action
1	The change history mechanism offered by the third party SCC provider displays. To import a prior revision of the Package into your model, use the 'SCC History' dialog to retrieve the revision, then close the dialog.
2	The SCC client notifies Enterprise Architect that a different revision has been retrieved. A prompt then displays, asking whether you want to check-out the prior revision.
3	Optionally, click on either: <ul style="list-style-type: none"><li>• Yes, to check out the prior revision - the selected revision of the Package file is retrieved from version control and imported into your model as a Package that is checked out for editing; you can subsequently check in this revision as a new HEAD revision, effectively reverting the Package to the prior revision OR</li><li>• No, to import the prior revision as read-only - the selected revision of the Package file is retrieved from version control and imported into your model, but the Package remains flagged as checked-in and cannot be modified; subsequently checking out the Package updates it to the latest revision before it is unlocked for editing</li></ul>

### Notes

- If the selected Package was already checked out in the current model, the system does not proceed with retrieving a prior revision
- If you check out a prior revision of the Package, but do not want to commit it as a new revision, right-click on the Package and select **Package Control** | Undo Check Out

## Retrieve Prior Revision - SCC Client

Depending on your version control product, retrieving a prior revision of a controlled Package can involve a number of prompts regarding overwriting the current local copy.

This example details retrieval of a prior revision from a TFS-SCC version control configuration.

### Access

Context Menu	Right-click on Package > <b>Package Control</b> > File History
--------------	--

### Example Procedure - retrieve prior revision, TFS-SCC client

Step	Action
1	Display the 'TFS File History' dialog.
2	Click on the <b>Get button</b> . The TFS-SCC client displays the 'Resolve Conflicts' dialog. This dialog offers the 'Automerge All XML Package files' option. <b>DO NOT</b> select this option. It is important to prevent any merging of Enterprise Architect's XML Package files.
3	Click on the <b>Resolve button</b> . The TFS-SCC client displays the 'Resolve writable file conflict' dialog.
4	Select the 'Overwrite local file/folder' option. The existing working copy of the Package file is overwritten by the prior revision retrieved from version control.
5	Click the <b>OK button</b> . The TFS-SCC client redisplayes the 'Resolve writable file conflict' dialog; it should now show no conflicts.
6	Click on the <b>Close button</b> . The TFS-SCC client redisplayes the 'File History' dialog.
7	Click on the <b>Close button</b> . Enterprise Architect displays a prompt, asking whether to check-out the prior revision.
8	Click on the: <ul style="list-style-type: none"><li>• <b>Yes button</b> to check-out the prior revision</li><li>• <b>No button</b> to retrieve a read-only version of the Package, that is NOT checked-out and is NOT editable</li></ul>



## Validate Package Configurations

Having defined the version control settings for your current model, you can test the validity of those settings associated with each version controlled Package within the model.

### Access

Ribbon	Configure > <b>Version Control</b> > Check Configuration
Menu	Project > <b>Version Control</b> > <b>Validate Package Configurations</b>

### Validate version control settings

Step	Action
1	<p>The validation process scans the model database and verifies that the version control configuration associated with each version controlled Package is fully specified in the current model. It also queries the corresponding version control provider to find the status of the Package file associated with each version controlled Package.</p> <p>The results of the validation process are sent to the <b>System Output</b> window.</p>
2	<p>Open the '<b>Version Control</b> Settings' dialog to complete the definition of any invalid or missing version control configurations.</p>
3	<p>Click on an error message in the <b>System Output</b> window to highlight the corresponding Package in the <b>Project Browser</b>.</p>
4	<p>Right-click a Package node and select '<b>Package Control</b>   Configure Package' to open the 'Package Control Options' dialog.</p> <p>Correct any problems with the version control details for the Package.</p> <p>Correct any problems with the Package's associated XMI file.</p>

## Resynchronize the Status of Version Controlled Packages

It is possible to update the version control status of version controlled Packages within your project to re-synchronize with the status reported by your version control provider. This can be useful if you are creating copies of your project, where checking in a Package from one copy of the model leaves the Package in the second copy of the model with an out-of-date version control status.

For a given Package, the re-synchronization process queries the corresponding version control provider to find the status of the Package file associated with the version-controlled Package. If necessary, the process then updates the Package flags within the model database, to synchronize the Package status recorded in the model with the value reported by the version control provider.

### Access

Ribbon	Configure > <b>Version Control</b> > Re-Synch Status (applies to all packages in model)
Menu	Project > <b>Version Control</b> > Update and Synchronize All Package Statuses
Context Menu	Right-click on Package > <b>Package Control</b> > Re-synch Status With VC Provider (applies to single package only)

### Resynchronize version control status

Step	Action
1	The results of the re-synchronization process are sent to the <b>System Output</b> window.
2	Double-click on any result message to select, in the <b>Project Browser</b> , the corresponding Package.

### Notes

- This process does not cause any Package data to be either exported from your model to the associated Package file, or imported from a Package file into your model's Package data
- If a Package has been checked-out and modified with Enterprise Architect, but your version control provider reports the Package file as checked-in, running this process marks the Package within Enterprise Architect as being checked-in, without exporting and committing the pending changes; subsequently checking-out the Package imports the latest revision of the Package file from version control, effectively discarding the uncommitted modifications from the model
- Similarly, if a Package file is checked-out to you in your local working copy folder, but not in the Enterprise Architect model, running this process marks the Package within the model as checked-out, but it does not import the associated Package file from the version control system; consequently, it is possible to check-in a Package from Enterprise Architect that is potentially out of date, compared to the latest revision of the Package file within the version control system

# Tracking Changes

If you want to track changes to data across your project, you can use two separate but complementary facilities - **Auditing** and **Baselines**.

## Facilities

Facility	Detail
Auditing of model changes	<p><b>Auditing</b> is a project-level feature, available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions, that enables you to record model changes in Enterprise Architect.</p> <p>By enabling this feature, model administrators can view a range of information regarding changes, such as:</p> <ul style="list-style-type: none"><li>• Who changed an element</li><li>• How many elements they changed</li><li>• When they changed the data</li><li>• What the previous values were, and</li><li>• What type of elements they changed</li></ul>
Baselining and differencing to capture and roll back changes	<p>The Enterprise Architect Corporate, Business and Software Engineering, System Engineering and Ultimate editions provide a facility to 'baseline' or snapshot a model branch in XMI format at a particular point in time, and store it within the model in compressed format.</p> <p>More than one baseline can be stored against a single Enterprise Architect Package; using baselines, you can compare Packages at the current and earlier stages of development, using the Compare (Diff) utility.</p> <p>The Compare utility is available in the Professional, Corporate, Business and Software Engineering, System Engineering and Ultimate editions of Enterprise Architect; it enables you to compare the current model with:</p> <ul style="list-style-type: none"><li>• A Baseline</li><li>• An exported Enterprise Architect XMI file on disk</li><li>• A version-controlled Enterprise Architect XMI file on disk</li></ul>

# Auditing

**Auditing** is a project-level feature that model administrators can use to record model changes in Enterprise Architect. After switching Auditing on, you can view information on changes such as:

- Who changed an element
- How many elements they changed
- When they changed the data
- What the previous values were, and
- What type of elements they changed

Auditing does not record changes to:

- Document Templates
- Model Documents
- **Baselines** or
- Profiles

We provide a Quickstart procedure to help you enable Auditing and see it in action, from which point you can explore a number of set-up options and display features.

## Features

Feature	Detail
The Audit View	To view what has been recorded by the audit, use the <b>Audit View</b> , which provides an interface to everything recorded by <b>Auditing</b> . If security is enabled, you must have Audit View permission to display data in the Audit View.
Model Views	You can also obtain a snapshot of selected items in the model, using the <b>Model View</b> facility. In the Corporate, Business and Software Engineering, Systems Engineering or Ultimate editions of Enterprise Architect, you can use this facility to automatically generate a snapshot at intervals and, if there are changes in the items collected by the defined search, to trigger a notification to you of such changes. This helps you to monitor workflow and other events of concern to you.
Document Report	You can generate a document report that includes the audit history information for the selected element or Package, by choosing the basic + audit template.
Audit History	Using <b>Auditing</b> , you can track changes to an element or connector over time. However, enabling Auditing also enables an 'Audit History' tab in the <b>System Output</b> window, which summarizes all changes made to the selected element or connector.
Performance Issues	By enabling <b>Auditing</b> on a project, you increase the time taken for most actions. For most modeling tasks, this increase is insignificant; however, there are some instances where the difference is more substantial.

## Notes

- The **Auditing** facility is available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions
- Warning - If your site runs separate editions of Enterprise Architect, when Auditing is turned on in a project any Desktop or Professional edition users are locked out of the project; to restore access, turn Auditing off in the project from the Corporate, Business and Software Engineering, Systems Engineering or Ultimate edition instance of Enterprise Architect

# Auditing Quickstart

It is very simple to enable **Auditing** and see it in action.

## Access

Ribbon	Configure > Model > Audit : Audit Settings
Menu	Project   <b>Auditing</b> : Audit Settings

## Enable Auditing

Step	Action
1	In the 'Audit View', click on the <b>Audit Settings button</b> . The 'Audit Settings' dialog displays.
2	Select the 'Enable <b>Auditing</b> ' checkbox.
3	Click on the <b>OK button</b> to close the 'Audit Settings' dialog.
4	Close the 'Audit View' dialog.
5	Change and save your project. <ul style="list-style-type: none"><li>• Add a new Package</li><li>• Add a new Class</li><li>• Add a new connector</li><li>• Change the name of an element</li><li>• Delete an element</li></ul>
6	Open the <b>Audit View</b> again and click on the Refresh (or Load) button to display a record of the changes you have made.

# Auditing Settings

Using the 'Audit Settings' dialog, you can change what is recorded by the **Auditing** facility and:

- Define the areas of processing in Enterprise Architect to audit
- Administer your audit records
- Indicate the kind of model objects for which changes are to be recorded
- Configure Auditing to record changes to only certain types of elements

## Access

Ribbon	Configure > Model > Audit : Audit Settings
Menu	Project   <b>Auditing</b> : Audit Settings

## Configure Settings

Field/Option/Button	Action
Enable Auditing	Select this checkbox to turn the <b>Auditing</b> facility on.
Audit XMI Import	Select this checkbox to record changes arising from XMI importing in the audit. As version control uses XMI, you must select this option to record changes from checking out Packages.
Audit XMI Export	Select this checkbox to record changes arising from XMI exporting in the audit. As version control uses XMI, you must select this option to record changes from checking out Packages.
Audit Reverse Engineering	Select this checkbox to record changes arising from reverse engineering in the audit.
Use Database Timestamp	Select this checkbox to use the database server's timestamp instead of each user's local timestamp; this improves security. This option is not available for project files.
Save Logs	Click on this button to save a copy of the logged audit items currently held in the project. These items remain in the project; you can use the <b>Clear Logs button</b> to remove them.  The system prompts you to specify whether to save items covering a specific period of time. <ul style="list-style-type: none"> <li>• Click on the <b>No button</b> to save all log items currently held in the database</li> <li>• Click on the <b>Yes button</b> to display the 'Time <b>Filter</b>' dialog, on which you select a standard time period or define your own</li> </ul> This function can be accessed through the <b>Automation Interface</b> .

Clear Logs	<p>Click on this button to permanently delete all log data from the current project; use the <b>Save Logs</b> button first, to save the audit records outside the project.</p> <p>The system prompts you to specify whether to clear items covering a specific period of time.</p> <ul style="list-style-type: none"> <li>Click on the <b>No button</b> to clear all log items currently held in the database</li> <li>Click on the <b>Yes button</b> to display the 'Time <b>Filter</b>' dialog, on which you select a standard time period or define your own</li> </ul> <p>This function can be accessed through the <b>Automation Interface</b>.</p>
Load Logs	<p>Click on this button to load a previously saved set of logs back into the project. A browser displays through which you select the log file to reload.</p> <p>If the same record exists in both project and log file, that record is not reloaded.</p>
Core	<p>Select this radio button to record changes to elements (including attributes and operations), Packages, connectors and some model-level information.</p>
Standard	<p>Select this radio button to record the same changes as for the Core option, plus changes to some of the 'housekeeping' data for diagrams - Name, Author, Version, Stereotype, Notes and Date Modified.</p> <p>You can check for changes to diagram content and structure using the Baseline facility for reviewing visual changes to diagrams.</p>
Extended	<p>Select this radio button to record the same changes as for the 'Standard' option, plus changes to project security.</p>
Maintenance	<p>Select this radio button to audit changes to maintenance elements only; that is:</p> <ul style="list-style-type: none"> <li>Package (element)</li> <li>Requirement</li> <li>Feature</li> <li>Use Case</li> <li>Actor</li> <li>Note</li> <li>Issue and</li> <li>Change</li> </ul>
Core Structural	<p>Select this radio button to audit changes to maintenance elements (as above) plus certain structural elements; that is:</p> <ul style="list-style-type: none"> <li>Package (structure)</li> <li>Class</li> <li>Interface</li> <li>Signal</li> <li>Node</li> <li>Component</li> <li>Artifact</li> <li>Part</li> <li>Port and</li> <li>Device</li> </ul>



All	Select this radio button to audit changes to all types of element.
Custom	<p>Select this radio button to audit changes to element types that you specify.</p> <p>The <b>Customize button</b> is made available; click on this button to display a list of element types, and select the checkbox against each element type to include in the audit (or click on the <b>Select All</b> button to select every element type).</p> <p>Click on the <b>OK button</b> to save the selection.</p>

## Notes

- As the number of records increases, the performance of the **Audit View** reduces; it is recommended that audit records that are not regularly required are saved to file, then cleared from the project, to help ensure high performance
- Connectors are audited when they are connected to an element that is included in the Audit Options
- If security is enabled, you must have Audit View permission to turn **Auditing** on, and Audit Settings permission to change the audit settings

# The Audit View

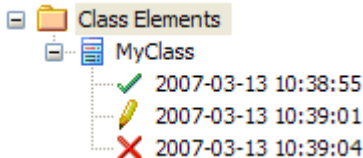
The **Audit View** provides an interface to the information that has been recorded by auditing.

## Access

Ribbon	Configure > Model > Audit
Menu	Project   <b>Auditing</b>

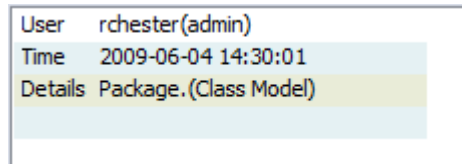
## Sections of the Audit View

The **Audit View** is divided into three main areas:

Section	Description
View controls	The view controls provide a variety of settings for controlling auditing and the display of audit records.
Audit tree	<p>The audit tree displays the log items that have been recorded by auditing. What is displayed in the tree is affected by the view controls, such as:</p> <ul style="list-style-type: none"> <li>• Sorting</li> <li>• <b>Filter</b> (by time)</li> <li>• Mode</li> <li>• <b>Auditing</b> settings (what was actually recorded)</li> </ul> <p>If synchronizing with the <b>Project Browser</b>, it is also affected by the Package, diagram or element you have selected.</p>  <p>In the audit tree:</p> <ul style="list-style-type: none"> <li>• The green tick indicates a creation</li> <li>• The yellow pencil indicates an edit</li> <li>• The red cross indicates a deletion</li> </ul> <p>Right-clicking an element in the audit tree (such as MyClass) displays a context menu that enables you to locate the selected element in:</p> <ul style="list-style-type: none"> <li>• The Project Browser</li> <li>• Any diagrams in which it exists</li> </ul>
Record display	The record display is in two parts: the identity of the selected change, and the actual change made.

The data in the record display is determined by the view controls and mode and, if synchronizing with the **Project Browser**, by the Package, diagram or element you have selected.

### Identity



User	rchester(admin)
Time	2009-06-04 14:30:01
Details	Package.(Class Model)

The identity of a change consists of:

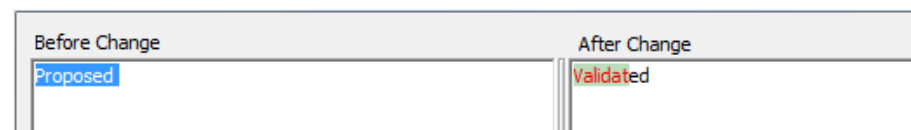
- The Windows username of the user that made the change; if security is enabled, the name is of the format WindowsUsername(SecurityUser)
- When the change was made
- The path of the change; for example: Class Class1 - Attribute Att1 - Attribute Constraint Constraint

### Changes

Changes are displayed in a table format, showing the:

- Property (or data item) name
- Its original value before the change and
- Its value after the change

If you double-click on an item in the list of changes (or right-click and select the 'Show Differences' option) the **Difference window** displays:



Before Change	After Change
Proposed	Validated

This shows the specific changes that have been made, highlighting the edited, created, deleted or formatted characters.

Changes to the format of text in the element, made through the element 'Properties' dialog, are not apparent in the initial table; they are visible in the Difference window, identified by HTML formatting tags.

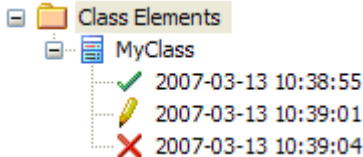
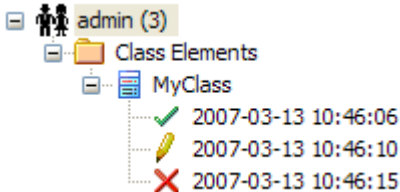
## Notes

- If security is enabled, you must have **Audit View** permission to display data in the Audit View

# Audit View Controls

The **Audit View** controls provide a variety of settings for controlling auditing and the display of audit records.

## Options

Field/Option/Button	Action
Load or Refresh	Click to reload the Audit Tree, updated with any new audit results.
Search	<p>Click to search through log items for a particular area - you can search by Name, Type or GUID.</p> <p>The items are loaded and filtered with the current Sort By, Time <b>Filter</b> and Mode settings.</p> <p>If you refresh the <b>Audit View</b>, you must run the search again.</p>
Audit Settings	Click to open the 'Audit Settings' dialog.
Sort-by	<p>Select the appropriate radio button for the required display setting:</p> <ul style="list-style-type: none"> <li>Type - changes are grouped under element type (such as Class or Requirement), and then grouped under the changed element</li> </ul>  <ul style="list-style-type: none"> <li>User - changes are grouped under user name, each with the number of changes for that user</li> </ul> <p>Under each user name, changes are grouped as for the Type sort</p> 
Filter By Date/Time	<p>Select to enable the <b>Filter</b> Settings button, to filter the audit results by time period.</p> <p>Changes that occur outside the selected filter period are not shown in the <b>Audit View</b>.</p>
Filter Settings	<p>Click to display the 'Time <b>Filter</b>' dialog, to set the filter time period:</p> <ul style="list-style-type: none"> <li>Today - to display changes occurring today</li> <li>Previous Hour - to display changes occurring in the last 60 minutes</li> <li>Previous 24 Hours - to display changes occurring in the last 24 hours</li> <li>Previous Week - to display changes occurring in the last 7 days</li> <li>Previous 30 Days - to display changes occurring in the last 30 days</li> <li>Previous Year - to display changes occurring in the last 365 days</li> </ul>

	<ul style="list-style-type: none"> <li>• Custom - to define your own time period, using the From and To fields</li> </ul> <p>The six pre-configured time periods automatically update when you click on the <b>Refresh button</b>; custom periods are static and do not automatically update.</p> <p>If you have set a filter period, and you deselect the 'Filter By Date/Time' checkbox, the period remains set; the custom time period, too, is retained so that you can re-use it or modify it later if required.</p>
Status Text	<p>Read to see which:</p> <ul style="list-style-type: none"> <li>• Mode has been selected and</li> <li>• Time filter is being applied to the data</li> </ul>
Mode	<p>Click to display a menu of options to change the mode of the <b>Audit View</b>. Select:</p> <ul style="list-style-type: none"> <li>• 'Standard' - to automatically synchronize with the <b>Project Browser</b>; where changes have been made, the Audit View reflects your selection from the Project Browser - if you click on:             <ul style="list-style-type: none"> <li>- An element, the Audit View displays the history for that element</li> <li>- A Package, the Audit View displays the history for that Package and its immediate children (but not the contents of nested Packages)</li> <li>- A diagram, the Audit View displays the history for that diagram and its contents (which could be drawn from a wide area of the Project Browser)</li> </ul> </li> <li>• 'Advanced' - to load large sets of log items independent of the Project Browser; in this mode, a special Audit Settings group can be displayed in the Audit Tree, which records:             <ul style="list-style-type: none"> <li>- When <b>Auditing</b> has been enabled and disabled</li> <li>- Who made the change</li> <li>- The date and time of the change</li> <li>- Changes to the Audit Settings</li> <li>- When Audit Operations are executed</li> <li>- Security changes (which can be browsed in the same way as other changes)</li> </ul> </li> <li>• 'Deleted' - to display only deleted records, but otherwise data is shown as in Advanced mode; records can be sorted by element type or by user as required</li> <li>• 'Raw' - to display all audit records in chronological order without sorting, enabling you to see a progression of changes; this can be especially useful in determining date-time inconsistencies</li> </ul> <p>Any search and filtering you define still apply, enabling you to view all of today's changes in order, or all changes for a particular element in order, or both</p> <p>Additional database information is displayed; this additional information might be insignificant or only in machine-readable format</p>

## Audit History Tab

When **Auditing** is turned on, an 'Audit History' tab is enabled in the **System Output** window. The tab shows a history of changes to whichever element or connector you have selected in the:

- Current diagram
- **Project Browser**
- **Audit View**, or
- **Package Browser**

As you select different elements or connectors, the 'Audit History' tab automatically updates to reflect your current selection. For each change made to the element or connector, the tab shows:

- Who made the change
- When the change was made
- Where the change was made
- The value of the characteristic before the change
- The value of the characteristic after the change

### Access

Ribbon	Show > Window > <b>System Output</b> > Audit History
Menu	View   <b>System Output</b> > Audit History

### Notes

- To see this tab, you must have the **Audit View** open; the tab continues to display if you subsequently close the Audit View
- If security is enabled, you must have Audit View permission to display data on the 'Audit History' tab

## Auditing Performance Issues

Enabling auditing on a project increases the time taken for most actions.

For most modeling tasks, this increase is insignificant; however, there are some situations where the difference is more substantial.

### Operation Delays

Operation	Detail
Large Deletions	Deleting large Packages or Package structures, or large numbers of elements, takes significantly longer with auditing on. You might disable auditing before performing such a deletion.
XMI Imports	Importing XMI takes longer with auditing enabled. A project-level option is provided for disabling auditing of XMI Imports.
Reverse Engineering	Reverse engineering code takes longer with auditing enabled. A project-level option is provided for disabling auditing of reverse engineering.
Replication	You cannot remove replication from a model with <b>Auditing</b> enabled. If you have to remove replication, disable Auditing and - if prompted to do so - allow Enterprise Architect to roll back the database version; you can then remove replication.

## Audit View Performance Issues

The **Audit View** can cause slow performance, generally because of the volume of records it has to process.

### Considerations and Responses

Consideration	Detail
Navigating the Project Browser Within Auditing is Slow	<p>Try setting the time filter to a period in the immediate past, such as Today, Previous 24 Hours or Previous Week; this time period updates each time you open or refresh the <b>Audit View</b>.</p> <p>Save log items outside the project with the <b>Save Logs</b> button; if you then clear the logs you have just saved, the load time of the Audit View is reduced.</p> <p>You can reload logs into the project at any time, using the Load Logs button.</p>
The Audit View is Slow in Loading and Changing Modes	<p>Try setting the time filter to a period in the immediate past, such as Today, Previous 24 Hours or Previous Week; this time period updates each time you open or refresh the <b>Audit View</b>.</p> <p>Save log items outside the project with the <b>Save Logs</b> button; if you then clear the logs you have just saved, the load time of the Audit View is reduced.</p> <p>You can reload logs into the project at any time, using the Load Logs button.</p>
Navigating the Audit Tree is Slow	<p>Close the 'Audit History' tab in the <b>System Output</b> window</p>



# Package Baselines

Enterprise Architect includes tools to help you manage and review changes to your models over time. These tools apply the concepts of **Baselines**, Differencing and Merges.

You use Baselines, Differencing and Merges essentially to compare two snapshots of a specific part of your project, to capture the differences between them and either roll back or incorporate selected changes or all changes.

## Baselines

Enterprise Architect provides a facility to create a Baseline or 'snapshot' of the contents of a selected Package and its child Packages at a particular point in time; this enables you to later compare that branch of the model at that time with the current state of the branch.

**Baselines** are stored in the same XML format as is used for version control, but are stored within the project in compressed format.

You can also have parallel copies of parts of your model for team development, and create Baselines within each copy to merge changes into the project master.

## Differencing

Differencing (Diff, or Compare) helps you to explore the differences between:

- The current state of a specific part of your project, and
- Previous or parallel versions captured in a Baseline or an XMI 1.1 file on disk

## Merges

Once Differencing is complete, you can merge information from the Baseline into the current project; it is not possible to go the other way.

You can:

- Merge information manually, change by change
- Merge information automatically by electing to merge in all changes in one batch procedure
- Revert completely to the original Baseline by importing the stored XMI directly
- Merge information and elements from a Baseline in a different project, making it possible to keep multiple versions of a single model in synch

The merge options are available through the toolbar, context menus and the keyboard on the 'Compare Utility' tab, which shows the results of a comparison.

## Visual differences in diagrams

Changes to a model might include:

- Adding or removing elements and connectors on a diagram, or
- Changing the position of elements or the overall layout of a diagram

You might believe that a diagram has changed, and select to compare it with a baseline using a context menu option from the **Project Browser**. Alternatively, you might perform a baseline comparison on a Package or a model and select from the comparison output any diagrams that are flagged as changed.

## Notes

- Package Baseline facilities are available in the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions of Enterprise Architect
- The Enterprise Architect Corporate, Business and Software Engineering, System Engineering and Ultimate editions provide another facility, **Auditing**, which you can switch on to perform continuous monitoring of changes across the project; you can dovetail your use of each facility to meet the range of your change management requirements
- If a Package under version control forms part of a Baseline, and that Package is checked in to the model, you cannot merge the original data from the Baseline into that Package
- You can also obtain a snapshot of selected items in the model, using the **Model Views** facility; this facility enables you to automatically generate the snapshot at intervals and, if there are changes in the items collected by the defined search, to trigger a notification to you of such changes, which enables you to monitor workflow and other events of concern to you
- If security is enabled you must have 'Baselines - Manage' permission to create, import and delete Baselines, and 'Baselines - Restore' permission to merge data from a Baseline; security permissions are not required to select an existing Baseline and perform a comparison with the model

# Baselines

Enterprise Architect provides a facility to 'Baseline' (snapshot) a model branch at a particular point in time for later comparison with the current Package state.

## Baselines

Baseline comparison is most useful for determining the changes made to the model during development compared to some Baseline saved at a crucial point - for example the completion of a phase or version iteration.

More than one Baseline can be stored against a single Enterprise Architect Package.

**Baselines** are particularly useful during requirements management to check for changes, additions and deletions that have occurred since the start of the current work phase; knowing how a model has changed is an important part of managing change and the overall development process.

Baselines are stored within the model in compressed XML format; you can save a Baseline to an external XML file for storage or archive, or for distributing to other users working on models derived from a master project.

Baselines are generally used in conjunction with the Compare utility.

## Scenario

A typical scenario for using **Baselines** would be:

- Create the base model branch to a sufficient point to create a Baseline (checkpoint); create and store the Baseline as Version 0.1a
- As work continues on development, managers and developers can check the current model branch against the Baseline for important modifications, additions and deletions; the Compare utility can be invoked from the Baseline dialog to check the current model branch against the stored version
- As required, minor Baselines can be created to check recent progress; these 'temporary Baselines' are useful for managing change when a lot of work is being done and it is important to only see what has changed in, for example, the last 24 hours

At sign-off or the move to a new version/phase, a major Baseline can be created to capture the new state of the model.

Minor Baselines created earlier can be deleted if required to save space

## Considerations

- **Baselines** are based on the GUID or unique ID of a particular Package:
- Enterprise Architect checks for that ID as the root element within the XML document being used as a Baseline
- When you export a Package to XML, the Package you export is the root element; likewise when you create a Baseline, the current Package is the root Package of the XML Baseline
- When you save information in a version control system, the current version-controlled Package is again the root Package of the document
- It is not useful to create a Baseline by importing an XMI Package file created by version controlling a Package that itself contains version-controlled child Packages; that type of XMI Package file contains stubs for the child Packages, not full information on the child Packages and elements
- If a Package under version control forms part of a Baseline, and that Package is checked in to the model, you cannot merge the original data from the Baseline into that Package

XML files must be in the same format used by the Baseline engine - currently the UML 1.3 XMI 1.1 format (plus Enterprise Architect extensions), which contains all the information necessary to reconstruct a UML model, even a UML

2.x model

## Notes

- The Baseline facility is available in the Corporate, Business and Software Engineering, System Engineering and Ultimate editions of Enterprise Architect
- The Compare utility is available in the Professional edition of Enterprise Architect, as well as in the Corporate and extended editions above

# Manage Baselines

Enterprise Architect provides a range of facilities for working with and managing **Baselines**.

## Access

Ribbon	Design > Tools > <b>Baselines</b> > Manage Baselines or Design > Package > Manage > Baselines
Context Menu	Right-click on Package > <b>Package Control</b> > Package Baselines
Keyboard Shortcuts	<b>Ctrl + Alt + B</b>

## Baseline Management

Create, select and process **Baselines** using the 'Package Baselines' dialog.

Field/Option	Action
Current Baselines For Package: <Name>	Review the <b>Baselines</b> for the current model branch, listed by version reference with the highest alphabetical/numerical value at the top. If an entry is longer than the display area, a horizontal scroll bar displays at the bottom of the panel; use this to scroll to the text that is not shown.
Show Differences	Run the Compare utility on the selected Baseline and the current model branch or diagram, to display the differences between the two.
Restore to Baseline	Completely restore the model branch from the selected Baseline.
New Baseline	Create a new Baseline.
Delete Selected	Delete the selected Baseline.
Load Other Baselines	Display a drop-down menu that enables you to load <b>Baselines</b> from another model, in either a project file or a DBMS repository. <ul style="list-style-type: none"> <li>For project files, a browser displays; locate the required project file</li> <li>For DBMS repositories, the Windows 'Data Link Properties' dialog displays; select the data provider and click on the <b>OK button</b> to display the 'Select Data Source' dialog, from which you select the required project</li> </ul> <p>In either case, the <i>Connected To:</i> message at the bottom of the 'Package Baselines' dialog changes to the name of the alternative model.</p> <p>To return the dialog to the original project, select the third option on the drop down list: 'Load From Selected Package'.</p>
Import File	Import an XML 1.1 file from the file system as a new Baseline for this current model branch.

Export File	Export the selected Baseline to an XML file on disk.
Compare Model to File	Compare the selected model branch with an XML 1.1 file on disk; a browser displays, which you use to locate the file.
Options	Set filters to make the comparison more specific.

## Notes

- Package Baseline facilities are available in the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions of Enterprise Architect

# Create Baselines

This topic details the basics of creating new baselines of Model Packages.

## Access

Select a Package in the **Project Browser**, then open the '**Baselines**' dialog using one of the methods outlined below.

In the 'Baselines' dialog, click the 'New Baseline' button.

Ribbon	Design > Tools > <b>Baselines</b> > Manage Baselines : New Baseline or Design > Package > Manage > Baselines : New Baseline
Context Menu	Right-click on Package > <b>Package Control</b> > Package Baselines : New Baseline
Keyboard Shortcuts	<b>Ctrl + Alt + B</b> : New Baseline

## Create a new baseline

Field	Action
Name	Display the Package name of the currently selected model branch.
Version	Type a unique version reference for this Baseline, which can consist of any alphanumeric characters. The 'Package Baselines' dialog sorts the <b>Baselines</b> according to the value of this field.
Include Sub-packages	Include the entire sub-Package hierarchy of this branch in the Baseline; this option defaults to selected. If you deselect the checkbox, only the immediate contents (XMI stubs) of the Package are included in the Baseline.
Note	Edit the default current time and date to any other value. The field is a single-line entry, for display on the 'Package Baselines' dialog (a one-line-per-entry list).
OK	Click to create a new Baseline and return to the 'Package Baselines' dialog.

## Notes

- Package Baseline facilities are available in the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions of Enterprise Architect

## The Compare Utility (Diff)

Enterprise Architect has a comprehensive and powerful built in Compare (diff) utility, which enables you to:

- Explore what has changed within a model over time
- Explore how previous versions of a model branch differ from what is currently in the model
- Perform a full model comparison by exporting all of Model A to XMI, then using 'Compare Model to File' from within the current model (Model B)

Comparing and checking model development at various points in the process is an important aspect of managing change and development, monitoring what is being modified and ensuring the development and design process is on track.

Using the Compare Utility you can:

- Compare a model branch in Enterprise Architect with a Baseline created using the Baseline functionality (Corporate, Business and Software Engineering, System Engineering and Ultimate editions)
- Compare a model branch in Enterprise Architect with a Baseline stored in a different model
- Compare a model branch in Enterprise Architect with an XML 1.1 file on disk created previously using the Enterprise Architect XML export facility (user selects file)
- Compare a model branch in Enterprise Architect with the current version-controlled XMI 1.1 file on disk as created when using **Version Control** in Enterprise Architect (file automatically selected)

### Access

Select a Package in the **Project Browser**, then open the '**Baselines**' dialog using one of the methods outlined below.

In the 'Baselines' dialog, click the 'Show Differences' button.

Ribbon	Design > Tools > <b>Baselines</b> > Manage Baselines : Show Differences or Design > Package > Manage > Baselines : Show Differences
Context Menu	Right-click on Package > <b>Package Control</b> > Package Baselines : Show Differences or  Right-click on Package > Package Control > Compare with XMI File (for package not under version control) or Right-click on Package > Package Control > Compare with Controlled Version (for package under version control)
Keyboard Shortcuts	<b>Ctrl + Alt + B</b> : Show Differences

### Differencing With Baselines

As a Baseline is stored within a model and contains all the information, elements and connections for a Package at a point in time, it can be used within Enterprise Architect to track changes to model elements over time.

The Differencing engine first builds a representation of the current Package in memory, based on what is currently in the model.

It then compares this with the stored Baseline, highlighting changes, new elements, missing elements and elements that have been moved to other Packages.

It is possible to filter the resultant output to display only one particular kind of change: for example, additions to the



model.

If a Baseline has been created to ignore child Package content, a comparison between that Baseline and the model does not include any child Package content in the model.

See the Example comparison.

## Notes

- This utility is available in the Professional, Corporate, Business and Software Engineering, System Engineering and Ultimate editions of Enterprise Architect
- You cannot compare the current model with an XMI 2.1 file; the utility can only compare with an XMI 1.1 file

## Compare Options

You use the 'Compare Options' dialog to refine the output of the Compare utility when it compares the current model with a Baseline.

To display the dialog, either:

- Click on the **Options button** on the 'Package Baselines' dialog, or
- Click on the 'Compare Options' icon on the 'Compare Utility' tab toolbar

If the 'Compare Utility' tab shows the results of a Baseline comparison, when you click on the **OK button** the display refreshes to refine the information according to the options you have selected.

### Notes

- Package Baseline facilities are available in the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions of Enterprise Architect

### Options

Option	Action
Always Expand to Differences	<p>Always display the list of elements fully expanded to show changes.</p> <p>If you deselect the checkbox, when the 'Compare Utility' tab is first opened it lists the Package contents to element level, and you expand each element as required to show the changed items.</p> <p>For large branches of the model, it is better to leave the checkbox unselected.</p>
Show Elements that are	<p>List elements that:</p> <ul style="list-style-type: none"> <li>• Have been changed since the Baseline was created</li> <li>• Are in the Baseline only (that is, have been deleted from the model since the Baseline was created)</li> <li>• Are in the model only (that is, have been created since the Baseline was created)</li> <li>• Have not changed since the Baseline was created (you might generally leave this checkbox unselected)</li> </ul>
Suppress these Changes	<p>Exclude:</p> <ul style="list-style-type: none"> <li>• Changes to diagrams</li> <li>• Changes to the 'Date Modified' field for an item</li> <li>• Changes to the 'Date Created' field for an item</li> <li>• Child items of a deleted item</li> <li>• Changes to advanced properties (defaults to selected)</li> </ul>
Baseline Diagram Compare Options	<p>Select the checkbox to always open the first parent Package for which there is a Baseline, when you select the diagram for comparison from the <b>Project Browser</b>.</p>

## Check Visual Changes to Diagrams

The **Baseline Diagram Compare** feature is a quick and easy way to visually compare a current diagram with an earlier version from a saved Baseline, and highlight any elements in the diagram that have been added, deleted, resized or moved.

You can then review these changes and optionally roll back each change if needed to its previous state from the Baseline.

The changes are identified on the 'Baseline Diagram Compare' dialog and on the diagram itself. If the diagram is not already open, the compare feature also opens the diagram.

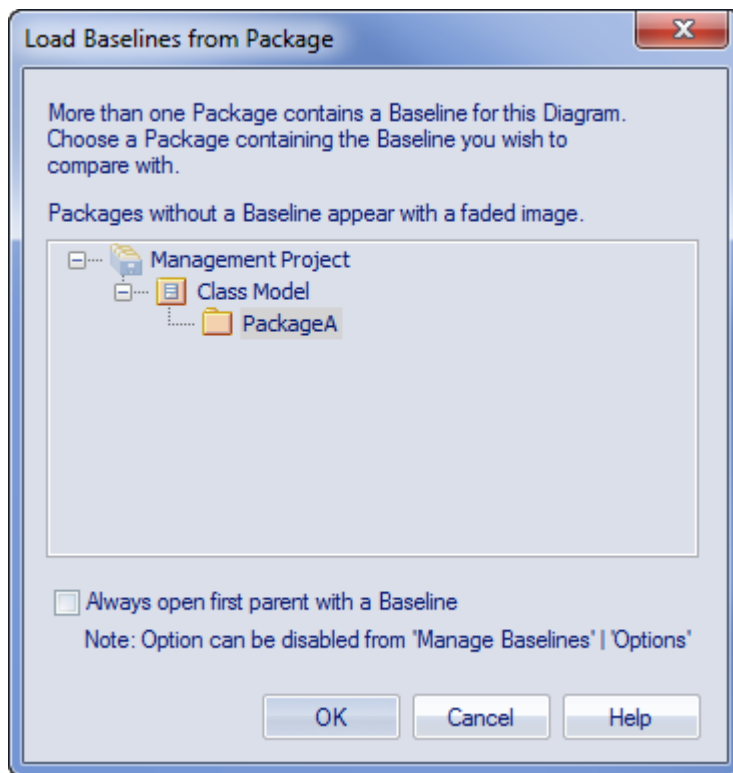
### Access

Ribbon	Layout > Diagram > Manage > Compare to Baseline
Menu	Package > <b>Baselines</b> > <select baseline> : Show Differences > Locate and right-click on diagram name > Compare to Baseline
Context Menu	<p>In <b>Project Browser</b> - Right-click on Package &gt; <b>Package Control</b> &gt; Package Baselines &gt; &lt;select baseline&gt; : Show Differences &gt; Locate and right-click on diagram name &gt; Compare to Baseline</p> <p>In Project Browser - Right-click on Diagram &gt; Compare Diagram to Baseline</p> <p>In open Diagram - Right-click on diagram background &gt; Advanced &gt; Compare Diagram to Baseline</p>

### Processing

In two of these access paths, you perform a comparison of a Package and Baseline, and then select the diagram from the results on the 'Baseline Comparison dialog' to display the '**Baseline Diagram Compare**' dialog. Refer to the *Results* section and the *Options* table.

In the other access paths, you first select the diagram to check, and then might have the option of selecting the Package from which to use a Baseline, on the 'Load **Baselines** from Package' dialog.



This dialog displays if you have NOT selected the:

- 'Always open first parent with a Baseline' checkbox on the dialog itself or
- 'Baseline Diagram Compare Options' checkbox on the 'Compare Options' dialog

(Selecting or clearing one of these checkboxes resets the other one as well.)

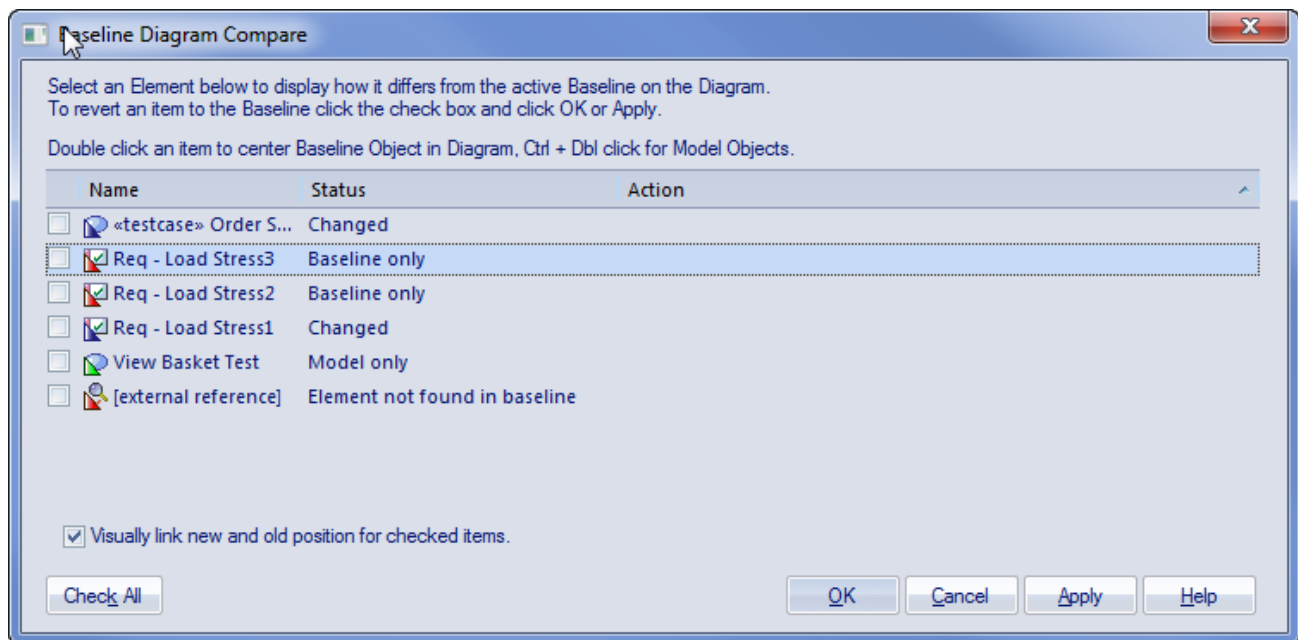
When you create a Baseline, it can be for a Package that contains one or more levels of child Package, and you might create Baselines for the Package(s) at each level. If the diagram you are checking is at a lower level in the hierarchy, there might therefore be a number of Baselines that contain information on the diagram, perhaps taken at different times and capturing different changes to the diagram. The 'Load Baselines from Package' dialog provides the facility to compare the diagram with one of a broader range of Baselines than just those from the diagram's immediate parent.

Click on the Package, and click on the **OK button**. In this case, **or** if the dialog did not display at all (the checkboxes were selected), the 'Baselines dialog displays.

Click on the required Baseline and on the **Show Differences button**. The 'Baseline Diagram Compare' dialog displays. Refer to the *Results* section and the *Options* table.

## Results

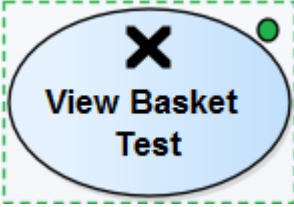
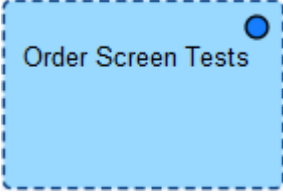
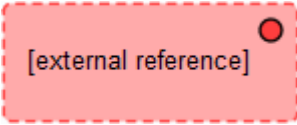
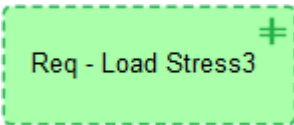
The 'Baseline Diagram Compare' dialog shows the elements that have been changed on the diagram, and what kind of change was made ('Status' field).

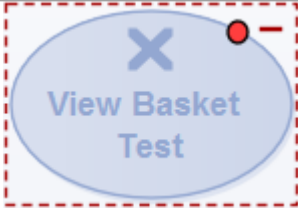
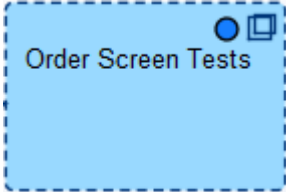
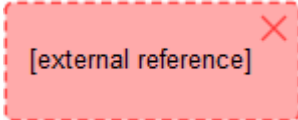


As you select elements on the dialog, images are shown on the diagram itself to indicate where the changed element was and what kind of change it underwent.

## Options

Option	Detail
Select (click on) name of element	<p>The 'Status' column indicates whether the element has been:</p> <ul style="list-style-type: none"> <li>Moved or re-sized (Changed)</li> <li>Deleted from the diagram (Baseline only)</li> <li>Added to the diagram since the Baseline was captured (Model only), or</li> <li>Deleted from its parent external Package, and there is no record in the current Baseline (because the Baseline is only for the current diagram's parent Package)</li> </ul> <p>This diagram-linked element has been deleted from the model. The element might be found in a different baseline either in a parent Package baseline or a different Package baseline outside of the current Package. If the external referenced element is restored to the model, the visual comparison will be able to resolve the missing diagram object in the current baseline.</p> <p>When an item is selected, the corresponding element on the diagram is highlighted as shown:</p> <ul style="list-style-type: none"> <li>Deleted from the diagram</li> </ul> <div> </div> <ul style="list-style-type: none"> <li>Added to the diagram</li> </ul>

	 <ul style="list-style-type: none"> <li>Resized or moved to a new position</li> </ul>  <ul style="list-style-type: none"> <li>A deleted external element on the diagram</li> </ul>  <p>The highlighted element on the diagram is marked with a colored dot, as shown, to indicate that it is in focus.</p>
Position the diagram to show the selected element	<p>To scroll the diagram so that you can see the original (Baseline) position of an element, double-click on the item in the list.</p> <p>To scroll the diagram so that you can see the current (model) position of the element, press and hold <b>Ctrl</b> while you double-click on the item.</p>
Leave the changes in the item as they are	<p>Ensure that the checkbox against the item is not selected.</p> <p>Click on the <b>OK button</b>.</p>
Roll the changes back to the Baseline position	<p>Click on the checkbox against each required item (or click on the <b>Check All button</b> to select every item).</p> <p>The 'Action' column displays the action required to roll each element's relationship to the diagram back to the Baseline relationship, and on the diagram the selected elements are represented as shown:</p> <ul style="list-style-type: none"> <li>This deleted element will be restored</li> </ul>  <ul style="list-style-type: none"> <li>This added element will be removed</li> </ul>

	<div></div> <ul style="list-style-type: none"><li>• This resized/repositioned element will be put back in its original position</li></ul> <div></div> <ul style="list-style-type: none"><li>• This element from another Package, deleted from the diagram, cannot be restored from this Baseline</li></ul> <div></div> <p>The comparison automatically shows a blue direction arrow for each reposition or resize that has been checked. For a heavily edited diagram this might be confusing. However, you can hide the arrow for all elements except the one currently in focus; to do this:</p> <ul style="list-style-type: none"><li>• Deselect the 'Visually link new and old position for checked items' checkbox</li></ul> <p>To roll back the changes for all items for which a checkbox is selected:</p> <ul style="list-style-type: none"><li>• Click on the <b>Apply button</b></li></ul>
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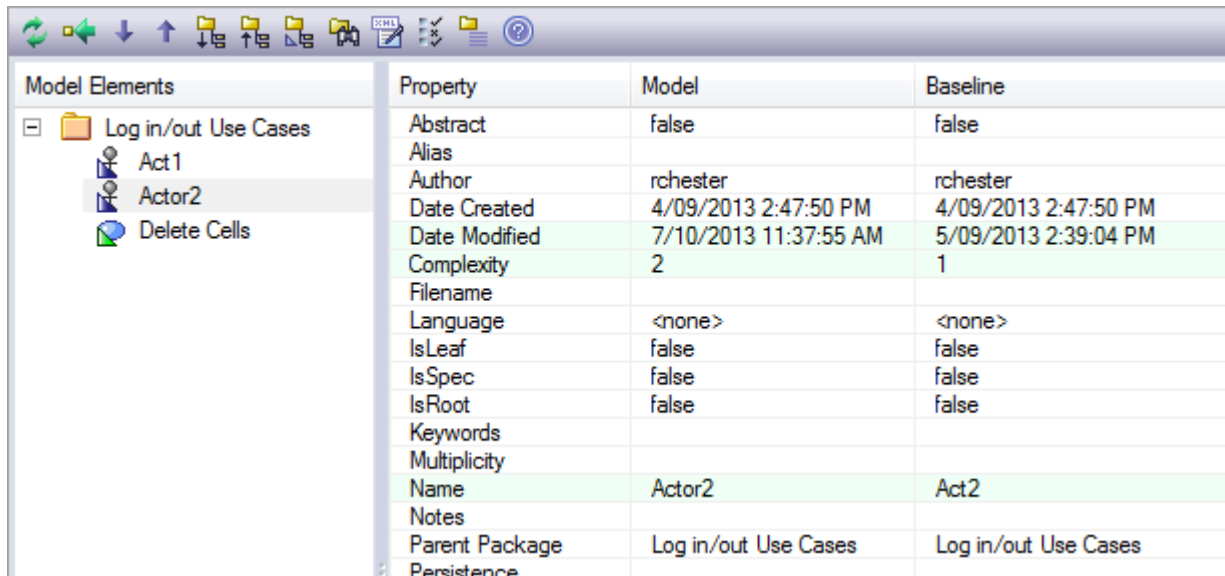
## Notes

- Diagram Baseline facilities are available in the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions of Enterprise Architect

## Example Comparison

This diagram shows the result of a comparison between a Package (Log in/out Use Cases) in the current project and that Package in a Baseline captured at an earlier date.

The results of the comparison are displayed on the 'Baseline Comparison' tab.

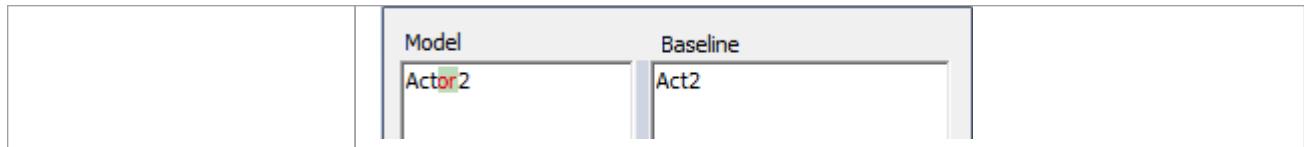


Property	Model	Baseline
Abstract	false	false
Alias		
Author	rchester	rchester
Date Created	4/09/2013 2:47:50 PM	4/09/2013 2:47:50 PM
Date Modified	7/10/2013 11:37:55 AM	5/09/2013 2:39:04 PM
Complexity	2	1
Filename		
Language	<none>	<none>
IsLeaf	false	false
IsSpec	false	false
IsRoot	false	false
Keywords		
Multiplicity		
Name	Actor2	Act2
Notes		
Parent Package	Log in/out Use Cases	Log in/out Use Cases
Persistence		

## Review Changes

Aspect	Description
Interpretation	<p>A hierarchy of model elements is displayed in the left-hand pane.</p> <p>It is clearly visible, from the triangle-based icons and the highlighted lines on the report, which items in the hierarchy have, since the Baseline was captured, been:</p> <ul style="list-style-type: none"> <li>• Changed</li> <li>• Deleted from the model (in the Baseline only)</li> <li>• Added to the model (in the Model only) or</li> <li>• Switched to different Packages (changes in the Parent Package property)</li> </ul> <p>If you click on an item in the left hand pane, the right-hand pane displays a table of properties showing the values of those properties in the current model and in the Baseline.</p> <p>For each property where there is a difference between the model and the Baseline, the row is highlighted.</p> <p>The 'Compare Utility' tab enables you to perform operations (such as merging or rolling back changes) on the reported information, using the toolbar, context menu and keyboard.</p>
Increase Level of Detail	<p>The right panel of the 'Compare Utility' tab might, for some fields, display only part of the value.</p> <p>It might also not be immediately obvious what a change is.</p> <p>In either case, you can double-click on the property to display full details and to highlight the exact differences; this example shows the highlighted changes to the 'Name' property.</p>





## Notes

- The Compare utility is available in the Professional, Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions of Enterprise Architect

## Baseline Comparison Tab Options

The 'Baseline Comparison' tab enables you to perform operations on the reported information, using the toolbar, context menu, 'Merge' dialog and certain keyboard keys.



- The toolbar is at the top of the left-hand panel; the icons operate either on the comparison as a whole or on the currently-selected item in the left hand panel of the 'Baseline Comparison' tab
- Each item in the hierarchy has a context menu, which you display by right-clicking on the item; the options displayed depend on the level of the item in the hierarchy
- The 'Merge' dialog enables you to specify which changes to roll back in the model from the baseline
- You can use a selection of keyboard keys to move up and down the hierarchy, or to roll back changes

### Toolbar Options

Option	Action
Refresh	Re-run the comparison to refresh the current display.
Merge To Model	Merge the values of the currently-selected item in the Baseline back into the model.
Next Change	Highlight the next changed item (this skips Moved items).
Previous Change	Highlight the previously-changed item.
Expand All	Fully expand the selected item.
Collapse All	Collapse the changed items in the selected item.
Expand To Changed Items	Expand the selected item to show changed items only (in the event that you have selected to also show unchanged items in the comparison).
Find in Project Browser	Highlight the item in the <b>Project Browser</b> .
Log To XML	Log the changes to an XML file. A browser displays, on which you specify the file name and location.
Compare Options	Display the 'Compare Options' dialog.
Manage Package Baselines	Display the 'Package Baselines' dialog.
Help	Display the Help topic Package Baselines.

### Context Menu Options

Option	Action
Merge from Baseline Add from Baseline	Restore the item in the model to the Baseline state, or restore a deleted item from the Baseline.
Delete from Model	Remove a recently-created item from the model.
Merge From Baseline (with Options)	(For the root node of the hierarchy on the 'Compare Utility' tab.) Display the 'Merge' dialog, which you can use to specify options for rolling back the whole model branch to the Baseline state.
Refresh	(Object-level items.) Re-run the comparison to refresh the current display.
Find in Project Browser	Locate and highlight the item in the <b>Project Browser</b> .
Open Baseline Diagram Compare	(For a diagram listed in the comparison.) Display the <b>Baseline Diagram Compare</b> window, showing differences in diagram content and layout.
Expand All	Fully expand the selected item.
Expand To Changed Items	Expand the selected item to show changed items only.
Collapse All	Collapse the changed items in the selected item.
Log To XML	Log the changes to an XML file. A browser displays, on which you specify the file name and location.
Compare Options	Display the 'Compare Options' dialog.

## Merge Dialog Options

Field/Button/Option	Action
Changed	Restore all changed items in the model branch to the Baseline state.
In Baseline Only	Restore all deleted items to the model branch from the Baseline.
In Model Only	Remove all recently-created items from the model branch.
Moved	Restore all moved items to their original locations, as identified in the Baseline.
Full Restore from XMI	Completely restore the model branch to the version held in the Baseline XMI 1.1 file, (using the 'XMI Import' function). (This option automatically selects all the other options)

## Keyboard Keys

- Ctrl+ ↓ - expand and highlight the next changed item
- Ctrl+ ↑ - expand and highlight the previous changed item
- Ctrl+ ← - undo the changes for a selected item (roll back to the Baseline values)

## Compare Projects

A number of operations can make changes to your project that you either want to monitor carefully or not have at all. Such events include:

- Recovering from a database crash
- Restoring a backup
- Performing a Project Data Transfer
- Importing from XMI, and
- Deleting model elements

You might have made a copy of the original project or the purpose of the operation is to generate a copy, in which case you can compare the size and row counts of the 'before' and 'after' copies as a convenient 'sanity check'. The copies can be on different platforms; you have options to:

- Compare a project file to another project file
- Compare a project file to a DBMS-based repository
- Compare two DBMS repositories

The comparison examines the number of project rows in each database, producing a report indicating the total records in each and the difference in record count between the two. If discrepancies are found, you must investigate further manually. The comparison does not examine the actual data in the tables.

### Access

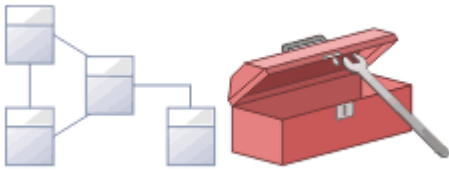
Ribbon	Configure > Model > Check Integrity > <b>Project Compare</b>
Menu	Project > Data Management > <b>Project Compare</b>

### Compare two projects

Step	Action
1	On the ' <b>Project Compare</b> ' dialog, select the radio button for the database types of the two projects you want to compare: <ul style="list-style-type: none"><li>• .EAP to .EAP</li><li>• DBMS to .EAP</li><li>• .EAP to DBMS</li><li>• DBMS to DBMS</li></ul>
2	In the 'Source Project' and 'Target Project' fields, type the name or connection string for the source and target projects to compare.
3	Click on the <b>Compare Projects button</b> . The results of the comparison display in the panel at the bottom of the dialog.
4	If you want to print the results of the comparison, click on the Print List button.



# Project Maintenance



The repository is an important data store that must be maintained to ensure that it is running efficiently and that the information it contains has integrity. Enterprise Architect has built-in features that allow you to keep the repository in good health. These include tools to maintain the database itself, such as Repair and Compact functions (for file based repositories), and a series of tools to manage the data and models, such as model validation and data integrity checks. Reference data can be imported and exported from the repository which can be shared between repositories ensuring consistency. The **Project Browser** allows repositories to be refactored easily by dragging and dropping Packages, elements, features and diagrams to new locations. The **Element Discussion** and **Team Review** features allow the model to be critically analyzed and reviewed.

## Topics

Topic	Detail
Check the integrity of the data in a project	If you have a failed XMI import, network crash or other unforeseen event that could disrupt the integrity of information in the model, it is recommended that you run a Project Integrity Check.
Reset Auto Increment Columns in Tables	XMI Import/Export can affect the table auto increment column values and push them towards the maximum datatype value; you can re-sequence the columns to avoid this problem.
Upgrade an old project to enable use of new features	The structure of Enterprise Architect project files is occasionally changed to support more features; when this happens, existing project files must be upgraded to the new format to ensure correct operation and to take advantage of all the new features.
Rename a project	If you want to rename an Enterprise Architect project, you can do so through Windows Explorer.
Compact a project	After some time, a project .EAP file might benefit from compacting to conserve space.
Repair a project if it did not close properly	If a project has not been closed properly, such as during system or network outages, on rare occasions the .EAP file does not re-open correctly.

## Notes

- You only rename, compact and repair models created as .eap files; these processes are not required for models stored in a DBMS

## Check Project Data Integrity

If you have a failed XMI import, network crash or other unforeseen event that could disrupt the integrity of information in the model, it is recommended that you run the Project Integrity Check function to check that your project data is structurally complete.

You can select a variety of items to check. The integrity check examines all database records and ensures there are no 'orphaned' records or inaccurate or unset identifiers. This function does NOT check UML conformance, only the data relationships and repository structure.

You can run the integrity checker first in report mode to discover if anything should be corrected, and then run it again in 'recover/clean' mode.

When Enterprise Architect 'cleans' the model, it attempts to recover lost Packages and elements, and generates a new Package at the model root level called `_recovered_`. Check through any elements that are found and, if required, drag them into the model proper. If they are not required, delete them.

### Access

Ribbon	Configure > Model > Check Integrity > Project Integrity
Menu	Project > Data Management > Project Integrity Check

### Check the data integrity of your project

Step	Action
1	Open the project.
2	Select the 'Project Integrity Check' menu option. The 'Project Integrity Check' dialog displays.
3	Select the checkbox for each check to run: <ul style="list-style-type: none"><li>• Package Structure</li><li>• Object Structure</li><li>• Object Features</li><li>• All GUIDs</li><li>• Cross References</li><li>• Connectors</li><li>• UML 2.0 Migration</li></ul>
4	Select either: <ul style="list-style-type: none"><li>• The 'Report Only' option to just view a report on the state of your model, or</li><li>• The 'Recover/Clean' option to recover and clean your project; before selecting this option back up your project file first</li></ul>
5	To write a log of the integrity check, click on the Save Results button and select a log file.



6	<p>Click on the <b>Go button</b> to run the check.</p> <p>If you want to display the resulting information in a more readable layout, you can resize the dialog and its columns.</p>
---	--

## UML 2.0 Migration

The UML 2.0 Migration check enables you to migrate the project from UML 1.3 semantics to UML 2.0 semantics. The migration process currently converts activities that are invocations of operations into called operation actions as per the UML 2.0 specification.

The UML 2.0 Migration option is an exclusive process that does not enable any of the other checks to be selected. When you click on the **Go button** to perform the migration, a prompt displays for you to confirm the operation.

## Notes

- In the Corporate, Business and Software Engineering, System Engineering and Ultimate editions of Enterprise Architect, if security is enabled you must have Check Data Integrity permission to perform a data integrity check

# Reset Table Auto Increment or Identity Columns

This topic explains possible impacts of XML Export/Import on table auto increment columns, and how to re-sequence the columns whose value approaches the maximum datatype value.

## Topics

Topic	Detail
XML Export/Import	<p>XML Export/Import can cause gaps in the numbering sequence of auto increment columns.</p> <p>Each XML Import deletes rows from several tables; the import then adds rows starting from the maximum value of the auto increment column.</p> <p>Repeated XML imports can result in the value of the auto increment approaching the maximum value of the database datatype; for example, SQL Server's int datatype has a maximum value of 2,147,483,647.</p>
Replication	<p>Large auto increment values can also arise where the project originated as an EAP replica or design master.</p> <p>The Jet engine assigns random values for auto increment columns with each XML Import into the project.</p> <p>These random values can approach the maximum range of the repository data type, which could present a problem when the EAP project is transferred to a repository.</p>

## Access

Ribbon	Configure > Model > Check Integrity > Reset IDs
Menu	Project > Data Management > Reset IDs

## Re-sequence auto increment columns

Step	Action
1	Open the project.
2	<p>Select the 'Reset IDs' menu option.</p> <p>A dialog displays listing all non-empty tables that contain an auto increment or identity column.</p> <ul style="list-style-type: none"><li>• The 'Rows' column shows the number of rows in the table</li><li>• The 'Maximum ID' column shows the current maximum value of the auto increment column</li><li>• The 'Action' column shows either 'No Action' or 'Reset', depending on how close the column value is to the datatype's maximum</li></ul>

	Tables requiring a reset are automatically selected in the list.
3	Click on the <b>Go button</b> to reset the auto increment column values.

## Notes

- Connection to the project must be via a **direct** connection; IDs cannot be reset while the connection to the repository is via Cloud Services
- Project **Auditing** must be disabled before IDs can be reset
- MySQL repositories will require re-starting of the MySQL server so that the reset auto increment columns start from the reset value
- In the Corporate, Business and Software Engineering, System Engineering and Ultimate editions of Enterprise Architect, if security is enabled you must have Check Data Integrity permission to reset IDs

# Upgrade a Project

The structure of Enterprise Architect project files is occasionally changed to support more features. In such cases, the project might have to be upgraded. Upgrading to the new file structure is a simple and quick process that brings your project to the current level to:

- Ensure correct operation and
- Support all the latest Enterprise Architect features

## Initial Check

When you load a project that was created in an earlier release of Enterprise Architect (for example, an archived project) using a recent release of Enterprise Architect, the system determines whether the project should be upgraded and, if the upgrade is necessary, displays the Upgrade Wizard.

## The Upgrade Project Wizard

The Upgrade Project Wizard takes you through the upgrade process and:

- Advises you of the necessity to upgrade
- Advises you to back up the current project; it is essential to back up before any changes are made
- Checks which upgrade path is required
- Guides you through the steps to perform the upgrade
- Opens the newly converted project

## Notes

- If you are using replication in your models, and the upgrade wizard detects that the project you are opening is a replica and not a Design Master, a different upgrade path is required
- Once upgraded, the project cannot be opened with the version of Enterprise Architect in which it was created

## Upgrade Replicas

Models that have replication features added might have to be upgraded differently from regular projects.

- If the model is a Design Master (the root model of all other replicas) then you can upgrade the model to suit the current version of Enterprise Architect; after upgrading a Design Master you should re-create the replicas, rather than synchronizing
- If the model is not a Design Master, you must first remove the replication features, then upgrade the project in the normal manner; the Upgrade Wizard guides you through the steps

## Run SQL Patches

Occasionally, Sparx Systems might release a patch to correct a model fault.

The patch generally checks how many records are to be updated, and reports on what is to be done.

### Access

Ribbon	Configure > Model > Check Integrity > Run Patch
Menu	Project > Data Management > Run Patch

## Rename a Project

If you want to rename a project, you can only do so at the Windows file system level, using Windows Explorer.

### Rename an Enterprise Architect project file

Step	Action
1	If you have the project open, close it.
2	Ensure no other users have the file open.
3	Open Windows Explorer and navigate to the project.
4	Rename the project file using Windows Explorer.
5	You should keep the file extension to preserve compatibility with the default project type, as installed in the registry at installation time.

## Compact a Project

After a period of time, through general use, a project .eap file might occupy more disc space than necessary. You can move the project to a local drive and compact the file to recover the unused space.

### Access

Ribbon	Configure > Model > Check Integrity > Manage .EAP File > Compact .EAP File
Menu	Project > Data Management > Manage .EAP File > Compact .EAP File

### Compact a project

Step	Action
1	If you have the project open, shut it down.
2	Ensure no other users have the file open.
3	Select the 'Compact .EAP File' menu option.
4	Follow the on-screen instructions to complete the process.

### Notes

- Always compact projects on a local drive, never on a network drive
- In the Corporate, Business and Software Engineering, System Engineering and Ultimate editions of Enterprise Architect, if security is enabled you must have Administer Database permission to compact a project



## Repair a Project

If a project has not been closed properly, such as during system or network outages or on poor network connections, on rare occasions the .eap file does not re-open correctly. A message displays informing you the project is of an unrecognized database format or is not a database file. In such cases, you can move the project file to a local drive and repair it.

### Access

Ribbon	Configure > Model > Check Integrity > Manage .EAP File > Repair .EAP File
Menu	Project > Data Management > Manage .EAP File > Repair .EAP File

### Repair a project that was not closed properly

Step	Action
1	Ensure that all users are logged off the project you are attempting to repair.
2	Copy the project file to a local drive on your workstation.
3	In Enterprise Architect, select 'Tools   Options' to display the 'Options' dialog. On the 'General' page, deselect the 'Use Jet 4.0 - requires restart' checkbox.
4	Close and restart Enterprise Architect - you do not need to open any model, including the one you are repairing.
5	Select the 'Repair .EAP File' menu option, and follow the on-screen instructions.
6	Once you have repaired the project, it is recommended that you perform a data integrity check.

### Notes

- Always repair projects on a local drive, never on a network drive
- The 'Compact a Project' option can also repair corrupt .eap files
- In the Corporate, Business and Software Engineering, System Engineering and Ultimate editions of Enterprise Architect, if security is enabled you must have Administer Database permission to repair a project

## Reference Data



Reference data is used in Enterprise Architect to provide meta-information for the modeler, and is often seen in drop down lists and selection boxes. It includes such things as status codes, requirement types, model authors and more.

For convenience Enterprise Architect comes pre-configured with useful reference data, but it is best practice to review this existing data when setting up a project and either replace or edit it to ensure it is appropriate for the project.

There are a number of different types of reference data, some of which applies at a repository level such as status codes and authors, and other data that is more technical in nature such as code engineering and database datatypes.

The reference data can be copied between repositories by exporting it from one repository and importing it into another; this mechanism can save time and ensure consistency between repositories.

Project reference data can be entered and edited through the Project | Settings... menu and includes:

- Stereotypes
- **Tagged Value Types**
- Cardinalities
- People
- General Types
- Project Indicators
- Estimation Factors
- Datatypes

### Notes

- In the Corporate, Business and Software Engineering, System Engineering and Ultimate editions of Enterprise Architect, if security is enabled you must have Manage Reference Data - Update permission to update and delete reference items

## UML Types

Using the 'UML Types' dialog you can configure stereotypes, **Tagged Value** types and the cardinality list for your project. In more detail, you can:

- Add, modify and delete stereotypes
- Customize stereotypes appearance
- Updating shape scripts and metafiles associated with Stereotypes
- Create/modify tagged values
- Define cardinality rules

### Access

Ribbon	Configure > Reference Data > UML Types
Menu	Project   Settings   UML Types

## Stereotype Settings

Enterprise Architect has an extensive set of Standard Stereotypes that you can apply to any UML construct. Using the 'Stereotypes' tab of the 'UML Types' dialog, a Technical Developer can also customize the stereotypes for your project by adding, modifying and deleting them. For information on customizing stereotypes, see the *Custom Stereotypes* Help Topic.

Stereotypes can be modified to make use of metafiles (image files) or customized colors, or to make use of the Enterprise Architect Shape Scripts to make new object shapes to determine the shape and dimensions of the object.

### Access

Ribbon	Configure > Reference Data > UML Types
Menu	Project   Settings   UML Types > Stereotypes

### Manage Stereotypes

Field/Option/Button	Action
Stereotype	Type in the name of the new stereotype, or click on an existing stereotype in the list in the right-hand panel.
Group name	For a stereotype that applies to an element feature (an attribute or operation) type in a name under which to group the features that have the stereotype. This is shown on diagrams in the attributes or operations compartment of the element. If you do not provide a group name, the label in the feature compartment defaults to the stereotype name.
Base Class	Click on the drop-down arrow and select an object type, so that the stereotyped object will inherit the base characteristics from that existing object type.
Notes	Type in any notes concerning the stereotype (and not the objects to which the stereotype is to be applied).
None	Select this radio button to use the default object appearance.
Metafile	Select this radio button to use an image file for the appearance of the stereotyped object.
Shape Script	Select this radio button to apply a custom shape to the stereotyped object, which you define using the Enterprise Architect Shape Scripting language.
Assign	Click on this button to select or define the associated metafile or Shape Script to be applied to the stereotyped object.
Remove	Click on this button to remove the associated metafile or Shape Script from the stereotype.

Fill	<p>Click on the drop-down arrow and select a default color for the background of the object.</p> <p>This color will be applied to all occurrences of any object to which the stereotype has been applied; if the color is subsequently changed, the change is immediately applied to all occurrences of any object to which the stereotype was applied (as for changes to any other property of the stereotype).</p> <p>However, on elements created with the stereotype, the default color might be overridden by other color definitions of a higher priority that have been applied to the element, such as the Format Toolbar fill definition or the 'Alternative Appearance' dialog (<b>F4</b>) definition.</p>
Border	Click on the drop-down arrow and select a default color for the object border.
Font	Click on the drop-down arrow and select a default color for the stereotype font.
Reset	Click on this button to reset the stereotyped object appearance definition to the default object appearance.
Preview	Provides a visual representation of the stereotyped object definition.
New	Click on this button to clear the dialog fields so that you can define another stereotype.
Save	Click on this button to save the stereotype definition and add it to the list of current stereotypes.
Delete	Click on this button to immediately remove the selected stereotype from the list of defined stereotypes.

# Shape Editor

A Technology Developer can use the **Shape Editor** to specify custom shapes via a scripting language; that is, to create Shape Scripts. These custom shapes are drawn instead of the standard UML notation. Each script is associated with a particular Stereotype, and is drawn for every element of that stereotype.

## Access

Ribbon	Configure > Reference Data > UML Types > Stereotypes > [select or specify a stereotype] : Shape Script : Assign
Menu	Project   Settings   UML Types > Stereotypes   [select or specify a stereotype] : Shape Script : Assign

## Reference

Field/Option/Button	Action
Format	The format in which the script is written.
Import	Opens a Windows browser dialog, allowing for a script file to be loaded.
Export	Opens a Windows browser dialog, allowing for a script file to be saved.
Edit window	The area in which a script can be written.
Preview of main	A visual representation of the compiled script. Nothing displays until the <b>Refresh button</b> is clicked.
Next Shape	If a composite shape is defined within the Edit Window, clicking on the <b>Next Shape button</b> pages through the components of the shape.
Refresh	Parses your script and produces a visual example of the shape in the Preview of main window.
OK	Exit from the <b>Shape Editor</b> ; don't forget to save your scripts from the 'Stereotype' tab.

## Notes

- Shape Scripts adopt the same color gradient settings as normal elements, as defined in the 'Standard Colors' page of the 'Options' dialog
- If an element's appearance is modified by a Shape Script, many of the 'Advanced' context menu options for that element are disabled

- Once you have finishing writing your Shape Script, click on the **OK button**; to save the Shape Script you must click on the 'Stereotypes' tab

# Tagged Value Types

**Tagged Values** are used in a variety of places within Enterprise Architect to specify additional information about an element or connector. The '**Tagged Value Types**' tab of the 'UML Types' dialog enables a Technology Developer to rapidly create Tagged Values, using a range of predefined structured Tagged Values to create structured tags that adhere to a specific format. For example, for model features that use the predefined tag Boolean you can use the Tagged Values window to assign a value of **True** or **False** and no other value.

You can also add default **Tagged Value** names and create predefined reference data Tagged Value types and custom masked Tagged Value types.

Any Tagged Value names created display in the drop-down lists of Tagged Value names in the 'Tagged Value' dialogs for elements, operations and attributes.

## Access

Ribbon	Configure > Reference Data > UML Types > <b>Tagged Value Types</b>
Menu	Project   Settings   UML Types > <b>Tagged Value Types</b>

## Create a Tagged Value Type

Field	Action
Tag Name	Type the new name of the <b>Tagged Value</b> .
Description	Type a description of the <b>Tagged Value</b> .
Detail	Type any additional information necessary.
New	Click to begin creating a new <b>Tagged Value</b> .
Save	Click to save the details of a <b>Tagged Value</b> .
Delete	Click to delete a <b>Tagged Value</b> from the Defined Tag Types list.
Defined Tag Types	A list of previously defined <b>Tagged Values</b> .

## Notes

- You can transport these **Tagged Value Type** definitions between models, using the 'Export Reference Data' and 'Import Reference Data' options; **Tagged Value Types** are exported as Property Types



# Cardinality

The 'Cardinality Values' tab of the 'UML Types' dialog enables you to add, modify and delete values in the default cardinality list.

The cardinality values are used to define the multiplicity of source and target elements in relationships. This is the range of instances of the role that can be active in the relationship; for example, one employee can be assigned to tasks; for the target role you define the range of instances (such as tasks) the employee could be assigned to.

The cardinality values are also used to define the multiplicity of a Classifying element; that is, the number of instances of the element that can exist. For example, the Class element 'Building Walls' might have a multiplicity of 2..n, meaning that at least two walls must exist (to support the roof) but there can be many walls if the building design required it.

The values have these formats:

- \*, or 0..\* - zero, one or many instances
- 0..n - zero or up to n instances, but no more than n
- n - exactly n instances
- n..\* - n, or more than n instances.

## Access

Ribbon	Configure > Reference Data > UML Types > Cardinality Values
Menu	Project   Settings   UML Types > Cardinality Values

## Reference

Field	Action
Cardinality	Type the new name of the Cardinality Value.
New	Type a description of the Cardinality Value.
Save	Saves the Cardinality value and adds it to the Cardinality List.
Delete	Deletes a Cardinality value from the Cardinality List.
Cardinality List	A list of already defined Cardinality values.

## Notes

- You can transport these cardinality values between models, using the 'Export Reference Data' and 'Import Reference Data' options

## People

In your project, you can set up and configure the people and stakeholders involved in and relevant to this model; that is:

- Maintain Authors involved within a project
- Define role types that are captured within Enterprise Architect
- Record information on project resources
- Capture client details associated with the current model

### Access

Ribbon	Configure > Reference Data > Project Types > People
Menu	Project   Settings   Project Types   People

## Project Authors

You can define the people who are working on a project, such as the authors of specific elements.


### Access

Ribbon	Configure > Reference Data > Project Types > People > Project Author(s)
Menu	Project   Settings   Project Types   People > Project Author(s)

### Notes

- If you enter multiple names, Enterprise Architect adds them separately and in alphabetical order to the 'Defined Authors' list; if you then click on one of these names, Enterprise Architect displays that name only in the 'Name(s)' field
- If you type in a role, this is not added to the roles on the 'Project Roles' tab
- You can transport these author definitions between models, using the 'Export Reference Data' and 'Import Reference Data' options

### Reference



Field	Action
Name(s)	<p>Type the name of the person registered as a Project Author.</p> <p>If you are using a Windows Active Directory, you can select names from the directory; click on the  button to display the 'Select Users' dialog.</p> <p>You can also type a list of names separated by semi-colons; this enables you to define a group of people sharing a role, such as a team of Developers, Testers or Analysts.</p> <p>Do not leave any spaces between the names and the semicolons.</p>
Role	<p>(Mandatory) Enter the role the Project Author plays in the project (such as Designer, Analyst, or Architect).</p> <p>You can type a role name or click on the drop-down arrow and select a role defined through the 'Project Roles' tab.</p>
Notes	Type any additional notes concerning the Project Author.
New	Add further Authors.
Save	Add the new Author to the Defined Authors list.
Delete	Removes an Author from the Defined Authors list.

Defined Authors	Review the Project Authors already defined.
-----------------	---

## Select Users

If your company is using a Windows Active Directory, you can select the Project Author names from the local or corporate-wide directory.

### Access

Ribbon	Configure > Reference Data > Project Types > People > Project Author(s) : 
Menu	Project   Settings   Project Types   People > Project Author(s) : 

### Reference

Field	Action
Object Types...	Opens the 'Object Types' dialog, which provides a choice of object types that can be used.
Locations...	Defines the root location from which to begin a search.
Check Names	Matches object names listed in the Enter the object names to select section.
Enter the object names to select	Specify object names to search for.
Advanced...	Opens the 'Advanced' dialog to provide further search options. For more information on this dialog, please refer to Windows Help and Support.

### Use to

- Select Project Authors from Windows Active Directory

### Notes

- Multiple Entries can be typed into the 'Enter the object names to select' section; ensure that objects are separated by semicolons (for example: Name01; Name02)

# Project Roles

People associated with a project play a role in analysis, design or implementation, such as Application Analyst, Architect, Developer and Project Manager. Project roles define the activities that resources can undertake.

## Access

Ribbon	Configure > Reference Data > Project Types > People > Project Roles
Menu	Project   Settings   Project Types   People > Project Roles

## Reference

Field	Action
Role	Type or select the name of the role.
Description	Type a description of the role.
Notes	Type any additional information related to the role.
New	Add further Roles.
Save	Add the new role to the Defined Roles list.
Delete	Removes a role from the Defined Role list.
Defined Roles	<p>Review the Project Roles already defined.</p> <p>The 'Defined Roles' list is available for selection for any element in the model; for example, you can select roles on the 'Project Authors' page of the 'People' dialog, and the <b>Resource Allocation window</b>.</p> <p>You can also specify other roles on these dialogs, but such roles are not added to the 'Defined Roles' list.</p>

## Use to

- Define role types that are captured within Enterprise Architect

## Notes

- Deleting a role has no effect on any Project Author definition having this role; the deleted role becomes a simple text entry in the Project Author definition

- You can transport these role definitions between models, using the 'Export Reference Data' and 'Import Reference Data' options

# Project Resources

Resources are, for example, project authors, analysts, programmers and architects. That is, anyone who might work on the system over time, either adding to the model or programming and designing elements of the system outside Enterprise Architect.

## Access

Ribbon	Configure > Reference Data > Project Types > People > Project Resources
Menu	Project   Settings   Project Types   People > Project Resources

## Reference

Field	Action
Name	Type or select the name of the person listed as a resource. The resource name is available for use in Resource Management.
Organization	Type the name of the organization employing the resource.
Role(s)	Type or select the role the resource plays in the project (for example, Designer, Analyst, Architect).
Phone 1, Phone 2, Mobile, Fax	Type the contact telephone numbers for the resource.
Email	Type the email address for the resource.
Notes	Type any additional notes on the resource.
Available Resources	Review resources that have already been defined.
New	Add further resources.
Save	Add a new resource to the Available Resource list.
Delete	Delete a resource from the Available Resources list.

## Use to

- Record information on project resources



## Notes

- You can transport these resource definitions between models, using the 'Export Reference Data' and 'Import Reference Data' options

# Project Clients

Project clients are the eventual owners of the software system.

## Access

Ribbon	Configure > Reference Data > Project Types > People > Project Clients
Menu	Project   Settings   Project Types   People > Project Clients

## Reference

Field	Action
Name	Type or select the name of the client.
Organization	Type the name of the organization that employs the client.
Role(s)	Type the role the client plays in the project (for example, Manager, Sponsor).
Phone 1, Phone 2, Mobile, Fax	Type the contact telephone numbers for the client.
Email	Type the email address of the client.
Notes	Type any additional notes on the client.
Defined Clients	Review clients that have already been defined.
New	Add details of further clients.
Save	Add a new client to the Defined Client list.
Delete	Delete a client record from the Defined Client list.

## Use to

- Capture client details associated with the current model

## Notes

- You can transport these client definitions between models, using the 'Export Reference Data' and 'Import Reference

Data' options

## General Types

When you create or edit the properties of an element, you define the type or status of the property by selecting from a drop-down list that initially contains system-provided values. You can add to or replace any of these system values with your own customized values. The properties you can customize are:

- Status
- Constraint
- Constraint Status
- Difficulty
- Priority
- Test Status
- Requirement
- Scenario

Each of these can be separately managed through the 'General Types' dialog.

### Access

Ribbon	Configure > Reference Data > Project Types > General Types
Menu	Project   Settings   Project Types   General Types

## Status Types

In an element 'Properties' definition, the status of the element in the development management process is defined in the element 'Status' field. You can select the appropriate value from a drop-down list, which initially contains the system values:

- Approved
- Implemented
- Mandatory
- Proposed and
- Validated

You can add to or replace any of these values with your own custom values. You can also assign a color band to each status type, and define the types of element that can display those colors.

### Access

Ribbon	Layout > Diagram > Appearance > Configure Status Colors, or Configure > Reference Data > Project Types > General Types > Status
Menu	Diagram   Appearance   Configure Status Colors, or Project   Settings   Project Types   General Types > Status

## Customize Element Status Types

Field	Action
Status	Type the name of the status.
Description	Type a short description of the status.
Status Type Color	Using the drop-down arrow, select a color to be applied to the current status type.
Preview	Displays a visual representation of an element with the selected status type color.
Restore Default	Restore the status type color to its default setting.
Applies to...	By default, status colors only apply to Requirement, Issue and Change elements. You might decide to also apply these colors to other UML elements, such as Use Cases or Classes. To do this, click on the <b>Applies to ... button</b> and, in the 'Applied Status Colors' list, select the checkbox against each element type to which to apply the status colors.
New	Clear the dialog fields to create a new status.
Save	Save the status, and add it to the Type list.

Delete	Remove the currently selected status from the Type list.
Type	Lists the current status types and descriptions for each status.

## Notes

- To display status colors on your diagrams, you must select the 'Show status colors on diagrams' checkbox on the 'Objects' page of the 'Options' dialog
- You can transport the status types (and the colors assigned to status types) between models, using the 'Export Reference Data' and 'Import Reference Data' menu options
- Requirement, Feature, Issue and Change elements have a status color compartment, whereas the status color for other elements is applied to the element shadow; to show the element shadows (and hence the status colors), select the 'Element Shadows on' checkbox on the 'Diagram Appearance' page of the 'Options' dialog

## Constraint Types

In an element 'Properties' definition, each constraint on the element is defined by type in the 'Constraint' field. You can select the appropriate value from a drop-down list, which initially contains the system values:

- Invariant
- Post-condition
- Pre-condition
- Process and
- OCL

You can add to or replace any of these values with your own custom values.

### Access

Ribbon	Configure > Reference Data > Project Types > General Types > Constraint
Menu	Project   Settings   Project Types   General Types > Constraint

### Customize Constraint Types

Field/Button	Usage
Constraint	Type the name of the constraint to define.
Description	Type a brief description of the constraint.
Note	Type any further details concerning the constraint.
New	Clear the fields to define a new constraint.
Save	Save the constraint definition and add it to the Defined Constraint Types list.
Delete	Remove the currently selected constraint from the Defined Constraint Types list.
Defined Constraint Types	Lists the currently-defined constraint types and their descriptions.

### Notes

- You can transport customized constraint types between models, using the 'Export Reference Data' and 'Import Reference Data' menu options

## Constraint Status Types

In an element 'Properties' definition, each constraint's status in the development process is defined in the constraint 'Status' field. You can select the appropriate value from a drop-down list, which initially contains the system values:

- Implemented
- Build
- Validated
- Approved
- Mandatory and
- Proposed

You can add to or replace any of these values with your own custom values.

### Access

Ribbon	Configure > Reference Data > Project Types > General Types > Constraint Status Types
Menu	Project   Settings   Project Types   General Types > Constraint Status Types

### Customize Constraint Status Types

Field/Button	Usage
Status	Type the name of the constraint status to define.
Make Default	To make the selected constraint status the default for all constraint 'Status' fields, select the checkbox.
New	Clear the fields to define a new constraint status.
Save	Save the constraint status definition and add it to the Type list.
Delete	Remove the currently selected constraint status from the Type list.
Type	Lists the currently available constraint status types.
twinarrows	Move the selected constraint type higher or lower in the Type list. This defines the ordering used in the Status drop down combo boxes, and in sorting any report or list when the Constraint Status Type is used as the sort-by property.
Sort Alphabetically	Reorganize the entries in the Type list into alphabetical order.
Restore Defaults	Remove all customized constraint status values and restore the system defaults.



## Notes

- You can transport customized constraint status types between models, using the 'Export Reference Data' and 'Import Reference Data' menu options

## Difficulty Types

Developing a particular element might be a simple task or more complex. In the element Properties definition, the level of difficulty of developing that element is defined in the 'Difficulty' field. You can select the appropriate value from a drop-down list, which initially contains the system values 'High', 'Medium' and 'Low'. You can add to or replace any of these values with your own custom values.

### Access

Ribbon	Configure > Reference Data > Project Types > General Types > Difficulty
Menu	Project   Settings   Project Types   General Types > Difficulty

### Customize Difficulty Types

Field/Button	Usage
Difficulty	Type the name of the Difficulty to define.
Make Default	To make the selected Difficulty the default for all 'Difficulty' fields, select the checkbox.
New	Clear the fields to define a new Difficulty type.
Save	Save the Difficulty definition and add it to the Type list.
Delete	Remove the currently selected Difficulty from the Type list.
Type	Lists the currently available Difficulty types.
twinarrows	Move the selected type higher or lower in the 'Type' list. This defines the ordering used in the 'Difficulty' drop down combo boxes, and in sorting any report or list when the Difficulty type is used as the sort-by property. For example: you have several Change elements on a diagram, and you select ' <b>Diagram View</b> '; then you sort on the 'Difficulty' column. The 'Diagram View' entries are grouped by difficulty, in the order you defined in this 'Type' field.
Sort Alphabetically	Reorganize the entries in the Type list into alphabetical order.
Restore Defaults	Remove all customized Difficulty values and restore High, Medium and Low.

### Notes

- You can transport customized Difficulty types between models, using the 'Export Reference Data' and 'Import Reference Data' menu options

## Priority Types

In an element Properties definition, the priority of developing that element is defined in the 'Priority' field. You can select the appropriate value from a drop-down list, which initially contains the system values 'High', 'Medium' and 'Low'. You can add to or replace any of these values with your own custom values.

### Access

Ribbon	Configure > Reference Data > Project Types > General Types > Priority
Menu	Project   Settings   Project Types   General Types > Priority

### Customize Priority Types

Field/Button	Usage
Priority	Type the name of the Priority to define.
Make Default	To make the selected Priority the default for all 'Priority' fields, select the checkbox.
New	Clear the fields to define a new Priority.
Save	Save the Priority definition and add it to the Type list.
Delete	Remove the currently selected Priority from the Type list.
Type	Lists the currently available Priority types.
twinarrows	Move the selected type higher or lower in the 'Type' list. This defines the ordering used in the 'Priority' drop down combo boxes, and in sorting any report or list when the Priority type is used as the sort-by property. For example: you have several Change elements on a diagram, and you select ' <b>Diagram View</b> '; then you sort on the 'Priority' column. The 'Diagram View' entries are grouped by priority, in the order you defined in this 'Type' field.
Sort Alphabetically	Reorganize the entries in the Type list into alphabetical order.
Restore Defaults	Remove all customized Priority values and restore High, Medium and Low.

### Notes

- You can transport customized Priority types between models, using the 'Export Reference Data' and 'Import Reference Data' menu options



## Test Status Types

All tests defined in the **Testing window** and 'Test Details' dialog have a status value to show what point in the testing cycle the test has reached. The system values you can select from the test 'Status' field are:

- Not Run
- Pass
- Fail
- Deferred and
- Canceled

You can add to or replace any of these values with your own custom values.

### Access

Ribbon	Configure > Reference Data > Project Types > General Types > Test Status
Menu	Project   Settings   Project Types   General Types > Test Status

### Customize Test Status Types

Field/Button	Usage
Status	Type the name of the Test status to define.
Make Default	To make the selected test status the default for all test 'Status' fields, select the checkbox.
New	Clear the fields to define a new Test status.
Save	Save the Test status definition and add it to the Type list.
Delete	Remove the currently selected Test status from the Type list.
Type	Lists the currently available Test status types.
twinarrows	Move the selected type higher or lower in the 'Type' list. This defines the ordering used in the test 'Status' drop down combo boxes, and in sorting any report or list when the Test Status Type is used as the sort-by property. For example: you have run several tests on a Package, and you run a Test Details report; then you sort on the 'Status' column. The report entries are grouped by test status, in the order you defined in this 'Type' field.
Sort Alphabetically	Reorganize the entries in the Type list into alphabetical order.
Restore Defaults	Remove all customized Test status values and restore the system defaults.

## Notes

- You can transport customized Test status types between models, using the 'Export Reference Data' and 'Import Reference Data' menu options

## Requirement Types

In a Requirement definition, the requirement is categorized according to type or function, in the 'Type' field of the Requirement 'Properties' dialog. This helps to maintain a single set of typed requirements. You can select the appropriate 'Type' value from a drop-down list, which initially contains the system values:

- Display
- Functional
- Performance
- Printing
- Report
- Testing and
- **Validate**

You can add to or replace any of these types with your own customized values.

### Access

Ribbon	Configure > Reference Data > Project Types > General Types > Requirement
Menu	Project   Settings   Project Types   General Types > Requirement

### Customize Requirement Types

Field	Usage
Requirement	Type the name of the requirement.
Description	Type a short description of the requirement.
Weight	Type a weighting to apply to the requirement type.
New	Clears the dialog fields so that you can define a new requirement type.
Save	Saves the requirement type details and adds it to the Defined Requirement Types list.
Delete	Deletes a selected requirement type from the Defined Requirement Types list.
Defined Requirement Types	Lists the currently available requirement types.

### Notes



- You can transport these requirement types between models, using the 'Export Reference Data' and 'Import Reference Data' menu options

## Scenario Types

In the Scenario definitions for an element each scenario is of a specific type, which you define in the 'Type' field on the 'Scenario' page of the 'Properties' dialog. You can select the appropriate value from a drop-down list, which initially contains the system values:

- Exception
- Alternate and
- Basic Path

You can add to or replace any of these system types with your own customized values.

### Access

Ribbon	Configure > Reference Data > Project Types > General Types > Scenario
Menu	Project   Settings   Project Types   General Types > Scenario

### Customize Scenario Types

Field	Usage
Scenario Type	Type the name of the scenario type.
Description	Type a short description of the scenario type.
Weight	Type a value for the weighting to apply to the scenario type.
Notes	Type any additional information to describe the scenario type.
New	Clears the dialog fields so that you can define a new Scenario type.
Save	Saves the scenario type and adds it to the Defined Scenario Types list.
Delete	Deletes a selected scenario type from the Defined Scenario Types list.
Defined Scenario Types	Lists the currently available scenario types to offer in the drop-down list of a 'Scenario Type' field.

### Notes

- You can transport customized scenario types between models, using the 'Export Reference Data' and 'Import Reference Data' menu options



## Metrics and Estimation

TCF values, EFC values and Default Hour Rate for a project are controlled from the 'Estimation Factors' dialog.

Risk, metric and effort types for a project are controlled from the 'Project Indicators' dialog.

For further information on these see the [Project Management](#) and [Project Resources](#) topics, or specifically:

- [Technical Complexity Factors](#)
- [Environment Complexity Factors](#)
- [Default Hours](#)
- [Effort Types](#)
- [Metric Types](#)
- [Risk Types](#)

# Maintenance

Within your project, you can set up Maintenance types that determine the base Problem Types to be used within the model.

## Access

Ribbon	Configure > Reference Data > Project Types > Maintenance
Menu	Project   Settings   Project Types   Maintenance

## Problem Types

### NOT CURRENTLY USED

For the maintenance and change control screens, you can use the 'Maintenance' dialog to set the base Problem Types that are handled. Examples are hardware-related issues, performance problems, software bugs and network problems.

### Access

Ribbon	Configure > Reference Data > Project Types > Maintenance > Problem Types
Menu	Project   Settings   Project Types   Maintenance > Problem Types

## Define Problem Types

Field	Action
Problem Type	Type in the name of the problem type.
Description	Type a short description of the problem type.
Weight	Provide a weighting to apply to the problem type.
Note	Type any additional information on the problem type.
Defined Types	Displays all of the pre-defined and saved problem types.
New	Click on this button to clear the dialog fields so that you can add a new problem type.
Save	Click on this button to save the scenario details and add it to the 'Defined Types' list.
Delete	Click on this button to delete a selected scenario from the 'Defined Types' list.

### Notes

- You can transport these problem types between models, using the 'Export Reference Data' and 'Import Reference Data' options
- You transport the problem types together with test types as a Maintenance Types file

# Testing Types

You can use the 'Test Types' tab of the 'Maintenance' dialog to add testing types to the basic set that comes with Enterprise Architect. Typical test types are load tests, performance tests and function tests.

## Access

Ribbon	Configure > Reference Data > Project Types > Maintenance > Test Types
Menu	Project   Settings   Project Types   Maintenance > Test Types

## Notes

- You can transport these test types between models, using the 'Export Reference Data' and 'Import Reference Data' options
- You can either export the test types together with the default problem types, as a Maintenance Types file, or separately as a Test Types file

## Reference

Field	Action
Test Type	Type the name of the test type.
Description	Type a short description of the test type.
Weight	Type a weighting to apply to the test type.
Note	Type any additional information on the test type.
Defined Types	Displays all of the pre-defined and saved test types.
New	Add a new test type.
Save	Saves the scenario details and adds it to the 'Defined Types' list.
Delete	Deletes a selected scenario from the 'Defined Types' list.

# Data Types

Different programming languages support different inbuilt data types. It is possible for you to manage and extend this set of inbuilt data types for a standard programming language, as well as define new programming languages for use within Enterprise Architect.

## Access

Ribbon	Configure > Reference Data > Settings > Code Engineering Datatypes
Menu	Project   Settings > Code Engineering Datatypes

## Programming Language Datatype Options

Field	Usage
Product Name	Click on the drop-down arrow and select the name of the programming language.
Add Product	Click on this button to display a prompt for the name of a new programming language. Type the name and click on the <b>OK button</b> .
Datatype	Type the language-specific name of the datatype.
Common Type	Type the common (or generic) name of the datatype; for example, the Java boolean datatype has a common datatype Boolean.
New	Click on this button to clear the fields to create a new datatype.
Save	Click on this button to save the newly created or updated datatype.
Delete	Click on this button to delete the selected datatype. You can delete your own custom data types, but you cannot delete any of the predefined data types.
Defined Datatypes for Programming Languages	Review the list of datatypes for the selected language, and click on any that you want to edit or delete. The details for the selected datatype display in the dialog fields.

## Notes

- You do not need to set the options in the 'Size' panel
- Once you have defined at least one datatype for a new language, that language name is added to the drop-down list



for the 'Language' fields in the 'Programming Languages Datatypes' dialog, in the **Code Template Editor**, and in the 'Properties' dialog for each Class element within the model

- You can transport these data types between models, using the 'Export Reference Data' and 'Import Reference Data' menu options
- In the Corporate, Business and Software Engineering, System Engineering and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Configure Datatypes' permission to update and delete data types

## Resources

The Resources window is a repository of project-standard and re-usable document generation templates, MDG Technologies, **Relationship Matrix** profiles, commonly-used model elements, stylesheets, UML Profiles and UML Patterns. The window provides facilities for creating and modifying these structures and facilities and, in some cases, for applying the facility to the current model directly from the window.

### Access

Ribbon	Start > Explore > Resources Show > Window > Resources Configure > Reference Data > Resources
Menu	View   Resources
Keyboard Shortcuts	<b>Alt</b> + 6

### Resources available through the Resources window

#### Notes

- In the Corporate, Business and Software Engineering, Systems Engineering and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Configure Resources' permission to maintain Resources window items
- For a number of folders in the Resources window, the right-click context menu also offers a 'Help' option that, when you select it, displays a brief description of the folder

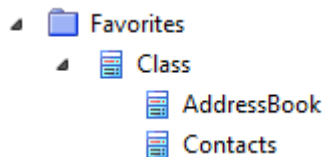
Resource	Description
Document Generation	<p>The Document Generation folder holds a number of sub-folders, each of which provides the facilities for generating a particular type of document or report from your model.</p> <ul style="list-style-type: none"> <li>• <b>System Templates</b> - this sub-folder itself has sub-folders containing system-defined report templates, Fragments, Cover Pages, Style Sheets and Table of Contents definitions You can right-click on these template names and select options to display the template contents or to copy the template as the basis of a user-defined template that you work on in the Document Template Editor, under a different name; you can also select the 'Override' option to create a copy of the system template as a user template with the same name</li> <li>• <b>User Templates</b> - this sub-folder also has sub-folders for report templates, Fragments, Cover Pages, Style Sheets and Tables of Contents, but these are the templates that you have created yourself using the Document Template Editor, either as new or by copying and editing another template You can right-click on these template names and select options to create, delete, rename, modify, move or copy a user-defined template; you have additional options to mark a report template as a Fragment, or a Fragment as a report template, if they are suitable for this reclassification You can also 'drag and drop' user-defined templates between user-defined groups, and between these groups and the appropriate standard 'type' folders;</li> </ul>

	<p>for example, from DavidCover to Cover Pages</p> <ul style="list-style-type: none"> <li>• <b>Technology Templates</b> - If you have loaded an MDG Technology containing document templates, those are also listed under the Technology name</li> <li>• <b>Web Style Templates</b> - this sub-folder contains the HTML style templates that you have created as alternatives to the system-supplied &lt;default&gt; template To create a new template, right-click on the folder name and select the 'Create HTML template' option, and provide a template name; this opens the <b>HTML and CSS Style Editor</b>, in which you create the template from HTML fragments You can right-click on the template names and select options to delete the template or modify the template contents</li> <li>• <b>Defined Documents</b> - this folder holds the Resource documents (report specifications) you have created in the <b>Document Report Generator</b>; you can right-click on the document name to generate documents individually or as a batch, open the generated document, or delete the report specification</li> <li>• <b>Linked Document Templates</b> - this folder holds the non-standard Linked Document templates, either user-defined or supplied with each MDG Technology enabled on the system; you can edit or delete any of these existing templates, or create new ones from scratch or by copying an existing template, including the system-provided linked document templates You can also re-assign the templates to different template groups, either another of the existing groups or a new one that you create as part of the assignment</li> <li>• <b>Legacy Templates</b> - if you are, or have been, using the original (legacy) Enterprise Architect report generator, this sub-folder contains the report templates that you use to generate the documents You can continue to create, modify, use and delete legacy style templates, but it is recommended that you switch to the later report generator</li> </ul>
MDG Technologies	<p>The <i>MDG Technologies</i> folder lists the MDG Technologies that have been imported directly into the Resources window. Each technology extends the modeling capabilities and facilities of Enterprise Architect.</p> <p>You can import Technologies into your project by right-clicking on the <i>MDG Technologies</i> folder and selecting the 'Import Technology' menu option. The 'Copy Technology to Application Data' dialog then gives you the option to import the Technology to:</p> <ul style="list-style-type: none"> <li>• 'User', for your individual use; the Technology is imported into the %APPDATA% folder and is not listed in the Resources window</li> <li>• 'Model', for all project users to access; the Technology is imported into the Resources window</li> </ul> <p>If you have any MDG Technologies in the folder, each has its own subfolder containing the Profiles, Patterns and code modules used in the technology. You can right-click on these and select options to delete the technology, review the Patterns or Profiles, or invoke the code modules.</p> <p>If you remove the technology, it is removed from the Resources window, the 'MDG Technologies' dialog, and the model.</p> <p>Consider the fact that some MDG Technologies can be large and might impose some delays on the workstation as they load each time a user connects to the model.</p>
Matrix Profiles	<p>The Matrix Profiles folder contains a list of <b>Relationship Matrix</b> Profiles that you or your team members have created using the Relationship Matrix or <b>Specification Manager</b>. You simply double-click on a Matrix Profile name to quickly open the Relationship Matrix under the settings defined in the Profile.</p>
Favorites	<p>The Favorites folder provides a shortcut to each commonly-used element that you</p>

	<p>have added to the folder, so that you can quickly and easily locate the elements and add them to diagrams.</p>
Stylesheets	<p>The <i>Stylesheets</i> folder contains XSL stylesheets that you or your team members have imported into the model. These XSL stylesheets support the optional step of converting XMI files exported from the model into alternative formats such as HTML, XSL or source code. Stylesheets imported here are then available in the drop-down lists on the 'XML Export' dialog and the 'Generate GML Application Schema' dialog.</p> <p>Combined with UML Profiles, this is a powerful means of extending Enterprise Architect to generate almost any content required.</p> <p>To import a stylesheet:</p> <ol style="list-style-type: none"> <li>1. Right-click on the folder name and select the 'Import Stylesheet' option.</li> <li>2. Locate and select the stylesheet file in the browser, and click on the <b>Open button</b>.</li> <li>3. Provide a reference name for the file, and click on the <b>OK button</b>.</li> </ol> <p>Once the stylesheet is in the folder, you can select context menu options to reload it (if it has been changed at the source) or delete it.</p>
UML Profiles	<p>A Profile is a source of modified or extended element and connector types that you have developed from the UML base types. You can import each new Profile into this folder, and then create elements and connectors of the new types by dragging the icons from the Profile onto a diagram.</p> <p>Once you have Profiles in the folder, you can select options for arranging them in order of name or type, viewing a Profile description, or deleting a Profile.</p> <p>It is possible to synchronize the <b>Tagged Values</b> and constraints for any elements created from a Profile element in the Resources window.</p> <p>Importing and applying Profiles through the Resources window is no longer recommended; from Enterprise Architect release 7.0. it is recommended that you load and apply Profiles as components of MDG Technologies.</p>
UML Patterns	<p>The UML Patterns folder is a folder of UML Design Patterns that you or your team members have imported into the model. A Pattern captures complex new elements and features that you can drag into a diagram without having to retype or reconfigure each element.</p> <p>Within the folder, the Patterns are grouped by type. Once you have Patterns within a group, you can select options to delete all Patterns in the group or just the selected Pattern, view a Pattern's details, or apply a Pattern to an empty diagram.</p>

## Favorites

If you have any elements that you or your team use frequently - such as the list of Actors in a system - you can add them to the Favorites folder in the Resources window, and use that as the source for conveniently dragging and dropping instances of or links to these elements into other diagrams. This makes it much easier to locate and use the elements as you create and manage your model.



### Access

Ribbon	Start > Explore > Resources > Favorites, or Show > Window > Resources > Favorites, or Configure > Reference Data > Resources > Favorites
Menu	View   Resources   Favorites
Keyboard Shortcuts	<b>Alt + 6</b>   Favorites

### Actions on the Favorites Folder

Action	Detail
Add an element to the Favorites Folder	<ul style="list-style-type: none"> <li>In a diagram, right-click on the element to add</li> <li>From the context menu select the 'Find   Add to Favorites' option</li> <li>Switch to the Resources window and expand the <i>Favorites</i> folder; the added element is listed within its element-type category (such as Class)</li> </ul> <p>You add elements to the <i>Favorites</i> folder individually.</p>
Delete an element from the Favorites Folder	<ul style="list-style-type: none"> <li>Right-click on the element within the <i>Favorites</i> folder in the Resources window</li> <li>From the context menu select the 'Delete Favorite' option</li> <li>A confirmation prompt displays; click on the <b>Yes button</b></li> </ul>
View Properties of an element in the Favorites Folder	<ul style="list-style-type: none"> <li>Select and right-click on the element in the folder</li> <li>From the context menu, select the 'Element Properties' option; the element 'Properties' dialog displays</li> </ul>

### Notes

- When you have had the *Favorites* folder open for some time and other users might have been adding to it, right-click on the folder name and select the 'Refresh Favorites' option to update your view of the folder with the new contents

## Sharing Reference Data

You can conveniently update your models with reference data (including Glossary and Issue information) by exporting the data to and importing the data from .XML files to (for example):

- Copy glossaries from one model to another
- Add additional profiles by merging new stereotypes into the model
- Update reference data from files supplied by Sparx Systems as a maintenance release
- Copy resources, clients and so on from one model to another

You import data into the model automatically or manually from a reference data .XML file, exported from another model or an iteration of the current model.

## Link Reference Data to a Shared Repository

If you have a number of projects that use the same sets of reference data, you can use a central project containing that common data as a shared repository. The common data includes system resources such as Security Users and Groups, Glossary terms or Data Types. Shared repositories make it possible for teams working on multiple projects to leverage a common and consistent set of system resources. Common standards and definitions can be applied across all projects using this repository. Any time a new project is started, that project can automatically inherit some or all of these common resources from the repository; there is no need to establish these resources again for each project.

Shared repositories apply to Database Management System (DBMS) based Enterprise Architect projects and can link all projects residing within one DBMS.

A new DBMS based project in Enterprise Architect is initially created with its own stand-alone repository. A single step process then allows that new project to be linked to the shared repository residing on its DBMS. Any older or pre-existing Enterprise Architect projects can also be linked to the shared repository, taking their resource data from the master version. This then allows for centralized management of the contents of the repository, promoting or enforcing common usage and standards.

Any changes to the shared repository are automatically available to every participating project.

### Access

Ribbon	Configure > Model > Transfer > Shared Repository
Menu	Project > Data Management > Shared Repository

### Set up a shared repository

Step	Action
1	Create the script file to set up the shared repository, as explained in the next table.
2	Execute the generated SQL script using a third-party tool.

### Select the repository tables to share


Field/Button	Action
Script File	Type in the location into which the script file will be generated by this dialog, or click on the  button and search for it.
Main Repository	Type in the name of the current main repository.
Shared Repository	Type in the name of the database to be used as the shared repository. This name cannot be the same as the name of the main repository.



Table Groups	In the list of table groups that can be linked to the shared repository, select the checkbox against each table group to share in the repository.
Tables in each group	(Read only) Review the list of database tables in the currently-selected table group. All of these tables in the selected group will be available through the shared repository.
Generate	Click on this button to generate the SQL script to link the selected tables of the current (main) repository to the shared repository. The script is generated into the file location you specified in the 'Script File' field.
View Script	Click on this button to open the generated script file in the default Code Editor, and to close the dialog.
Close	Click on this button to close the dialog.

## Notes

- This feature is not applicable to projects that are based on local project files (.eap or .feap)
- Shared repositories are supported for MySQL, SQL Server and Oracle

## Export Reference Data

When you have a complete project set up, with fully defined project data, it is possible to capture either selected categories or all categories of that data, and export it to a single XML file. You can then review the data, and import it to another project or tool so that you do not have to define it all again. The exported data includes all instances of the selected data type in the project; for example, all defined cardinality values, or all Document Style Templates.

### Access

Ribbon	Configure > Model > Transfer > Export Reference Data
Menu	Project > Data Management > Export Reference Data

### Select and Export Reference Data

Step	Action
1	On the 'Export Reference Data' dialog, click on the '+' box against each table group you want to expand.
2	Select the checkbox against each table or table group to export. If you select the top-level, group-name checkbox, all tables in that group are selected for export.
3	Click on the <b>Export button</b> .
4	When prompted to do so, enter a valid file name with a .XML extension.
5	Click on the Save and OK buttons. This exports the data to the file; you can use any text or XML viewer to examine the file.

### Notes

- You can resize the 'Export Reference Data' dialog; drag the dialog edges to the size you need
- If there are no instances of a selected data type in the project, the export does not generate any output for that data type in the XML file
- Currently, Standard Complexity Types cannot be directly edited and are therefore effectively standard for all models; they can be listed using the Predefined Reference Data **Tagged Value** type ComplexityTypes

## Import Reference Data

It is possible to import reference data into your model from an .XML file that was exported from another model or from an iteration of the current model, either:

- Manually, whenever you know there is new or changed data to apply, or
- Automatically whenever the model is reloaded into Enterprise Architect (if the file has changed since the previous import)

The automatic import checks if the source file has changed since the last import; if the file has not changed, the import does not proceed. If the file has changed, the changed data is imported; however, you can configure the system to display a prompt for you to allow or cancel the import.

### Access

Ribbon	Configure > Model > Transfer > Import Reference Data > Import File Configure > Model > Transfer > Import Reference Data > Shared File
Menu	Project > Data Management > Import Reference Data > Import File Project > Data Management > Import Reference Data > Shared File

### Import reference data manually (Import File)

Step	Action
1	On the 'Import Reference Data' dialog, click on the 'Import File' tab and on the <b>Select File</b> button, then select the filename to import data from. This would be an XML file produced by the <b>Enterprise Architect Data Exporter</b> .
2	If you have selected a valid file, a list of available tables to import displays in the 'Select Datasets to Import' panel.
3	Click on one or more of the tables to import. Press <b>Ctrl</b> or <b>Shift</b> to click on multiple tables.
4	Click on the <b>Import button</b> to start the process. A message displays when the import is complete; generally the process is quite fast.

### Import reference data automatically (Shared File)

Step	Action
1	On the 'Import Reference Data' dialog, click on the 'Shared File' tab.

2	If you are changing an existing configuration to import from a different XML file, click on the <b>Clear button</b> to clear the dialog fields.
3	Click on the <b>Select File</b> button and browse for the filename to import data from. This would be an XML file produced by the <b>Enterprise Architect Data Exporter</b> .
4	If you have entered the name of a valid file, a list of tables to import displays in the 'Datasets in File' panel. Click on one or more of the tables to import. Press <b>Ctrl</b> or <b>Shift</b> to click on multiple tables.
5	If you prefer to control whether or not the automatic import takes place, select the 'Always prompt before import' checkbox.
6	Click on the <b>Import button</b> to import the reference data now, and to enable the automatic check and import for subsequent reloads.

## Notes

Concerning General Types data:

- For Statuses, Constraints, Requirements and Scenarios, the imported data is merged with the existing data; if a record already exists it is updated to the new values, and if the record does not exist, a new record is added - records are never deleted
- For Constraint Status Types, Difficulty, Test Status and Priority, the complete existing list is replaced by the imported list

Concerning **Calendar** events and event types, **Team Review** configurations, Patterns and Gap Matrix Profiles:

- The imported data is merged with the existing data; if a record already exists it is updated to the new values, and if the record does not exist, a new record is added - records are never deleted

Concerning Images; for MS SQLServer Repositories:

- Importing images as reference data into a SQLServer repository is not supported when connected via Cloud Services
- To import images as reference data you must have additional MS SQL Server permissions, so that you can perform 'Set Identity On/Off' commands; the role of db\_ddladmin provides the required permissions, however this approach might not be allowed in your environment so discuss this requirement with your DBA to find an appropriate solution

