Enterprise Architect

User Guide Series

Model Exchange

How to transfer data between projects? In Sparx Systems Enterprise Architect you can move data between projects using Data Transfer of models to file or repository, Import and Export Packages in XMI format, and Import and Export elements in CSV format.

Author: Sparx Systems

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Model Exchange

Using Enterprise Architect, you can transfer data between projects using one of these different mechanisms:

- XMI Import and Export - Packages can be exported from and imported into your models; this greatly improves the flexibility and robustness of the models because Analysts and Modelers can externalize model elements in XMI for Version Control, distributed development, post processing and transferring Packages between models
- CSV Import and Export - You can import and export information on Enterprise Architect elements in CSV format, and then store and retrieve the information from spreadsheet tools such as Microsoft Excel
- Generate an XML file from a Model Document element to enable separate Packages to be imported into another model together rather than individually
- Data Transfer - You can move complete models between files, and between files and repositories, row by row, table by table
- Data Miner - You can abstract data from a range of external data sources including databases (ODBC, ADO, OLEDB, JET), text files (XML, JSON, plain text), Excel (xls, CSV), and online files or URLs, creating a reproducible import process defined in a model format

Copy Packages Between Projects

It is possible to copy and move individual Packages between projects by exporting and importing the Packages as XML files. You can also duplicate larger structures, such as complete models or projects. This gives you a high level of flexibility in building a project from re-usable parts and from elements produced in widely-dispersed geographic regions.

Access

Ribbon	Publish > Model Exchange > Export XML > Export XML for Current Package Publish > Model Exchange > Import XML > Import Package from XML
Keyboard Shortcuts	Ctrl+Alt+E (export to XML) Ctrl+Alt+I (import from XML)

Copy a Package from one Enterprise Architect project to another

Step	Action
1	Open the project to copy from.
2	In the Browser window, click on the Package to copy and use your preferred Export access method to open the 'Export Package to XML' dialog.
3	Select the appropriate options and filename.
4	Click on the Export button to begin the export process.
5	When the export is complete, open the project to copy into.
6	In the Browser window, navigate to the location to import the Package into.
7	Click on the target Package and use your preferred Import access method to open the 'Import Package from XML' dialog.
8	Select the appropriate options and filename.
9	Click on the Import button. The Package is copied from the source project to the destination project.

Notes

- If the Package you are importing already exists in the target project (that is, it has been imported previously), you must either import over the existing Package or select the 'Strip GUIDs' option; in the latter case, the system creates

a copy of the original Package

Native XML File

Native XML is an Enterprise Architect-specific format for model exchange between various Enterprise Architect repositories. Native XML is, therefore, a mechanism for round-tripping models (that is, performing Enterprise Architect-to-Enterprise Architect transfers). Compared to XMI 1.1/2.1, this format has a structure that closely mimics the Enterprise Architect repository, so exporting to Native XML format is considerably faster compared to exporting to XMI 1.1/2.1.

By default, when importing an XMI 1.1/2.1 file over an existing Package, all information in the current Package is deleted from the model before the data is imported from the XMI file. With a Native XML file import, the existing Package will not be deleted from the model, but will instead be updated with data from the XML file. Therefore, importing a Native XML file will also be considerably faster than importing from XMI 1.1/2.1.

When exporting a Package to Native XML, the Package being exported will become the root Package in the XML file. The children of the Package being exported (that is, its elements, diagrams, connectors and so on) will be exported under the root Package in the XML file. When importing this file into a model, the Native XML Importer will check if:

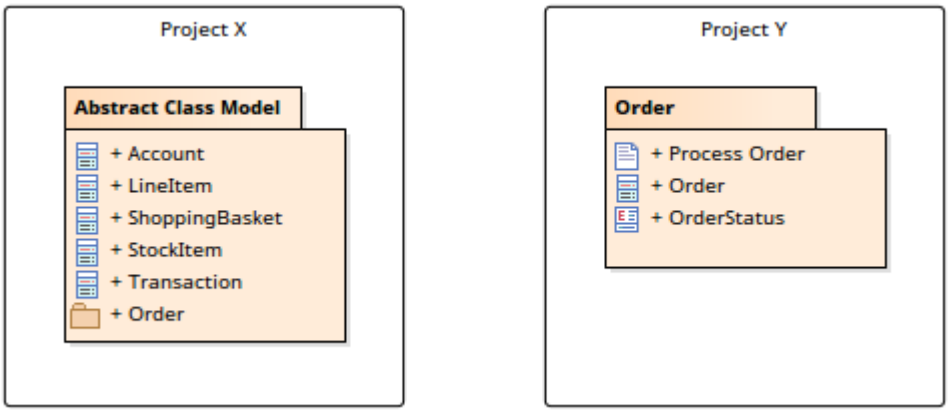
- The root Package in XML exists in the model
- Any of the children of the root Package in XML exist in the model

If the target model does not contain the root Package in XML or its children, then the contents of the XML file will be created as new items in the model.

If the target model contains the root Package in XML and its children, then the existing items in the model will be updated with the contents of the XML file.

Importing a Native XML file to a model that contains some of the imported items

Your model might contain at least one Package that is also used in other models, but not necessarily in the same context. For example, consider the two projects shown here:



Package 'Order' exists in two separate projects, 'Project X' and 'Project Y'. In 'Project X' the 'Order' Package is available as a child of Package 'Abstract Class Model', whereas in 'Project Y' it is a View Package.

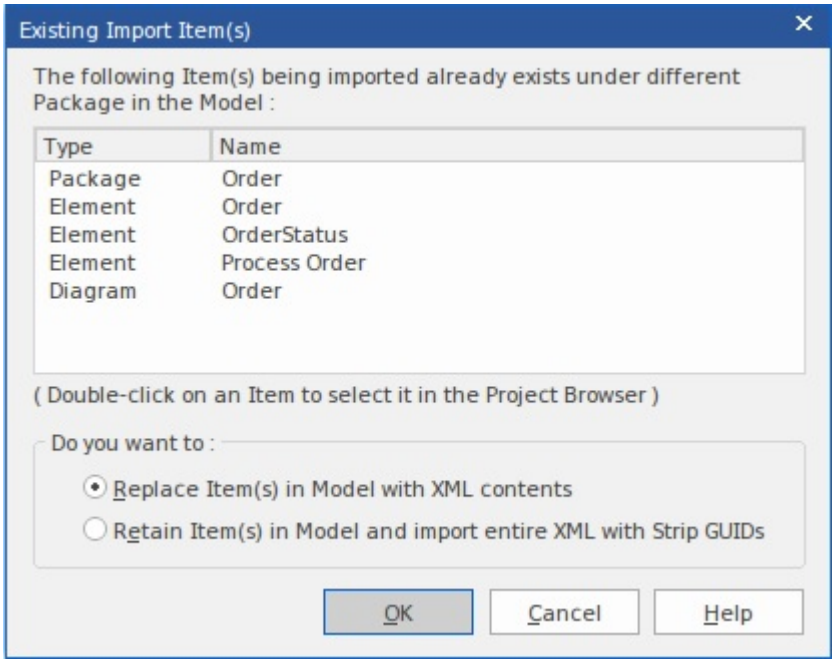
When you export the Package 'Abstract Class Model' from 'Project X' to Native XML, the XML file will contain:

- 'Abstract Class Model' as its root Package and
- All information on 'Abstract Class Model' and its children (including Package 'Order')

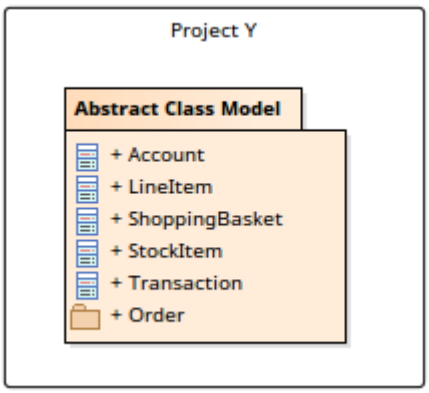
When this XML file is imported into 'Project Y', the Native XML Importer will determine that:

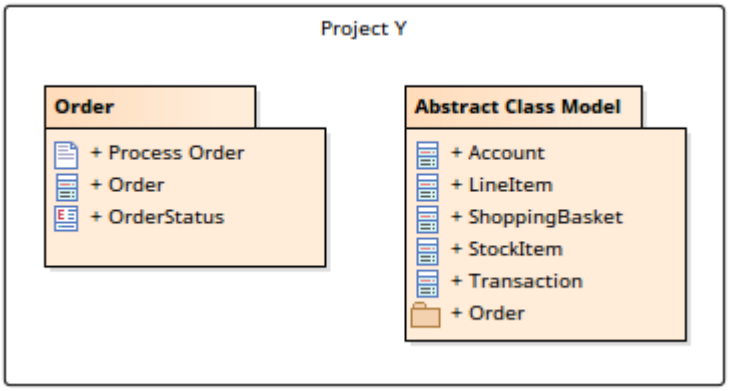
- The root Package in XML, 'Abstract Class Model', does not exist in the model
- The child Package 'Order' does exist in the model

In such a scenario, where the root Package in XML does not exist in the model but its children do, the 'Existing Import Item(s)' dialog will be displayed, which will list the items in XML that already exist in the model:



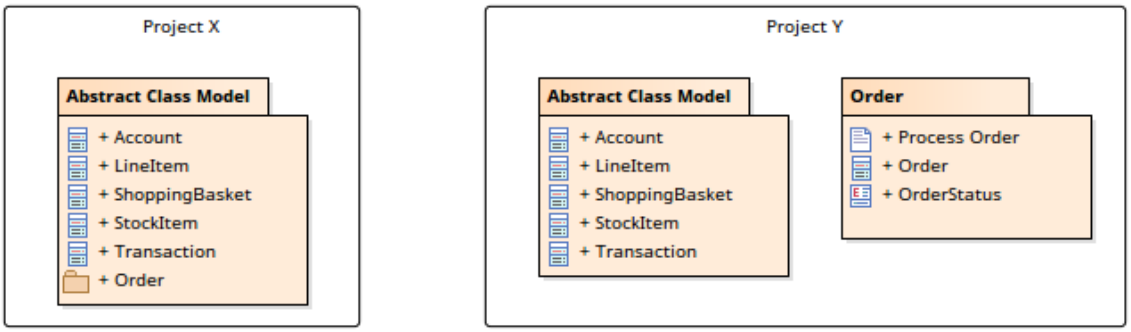
Actions

Action	Detail
Double-click on an item in the list	Selects the item in the Browser window.
Replace Item(s) in Model with XML contents	Select this radio button to: • Delete these items from the model and • Import them from the XML file In our example, after import 'ProjectY' will have this content: 
Retain Item(s) in Model and import entire XML with Strip GUIDs	Select this option to: • Retain (that is, not modify) these existing Item(s) in the model • Import the entire XML with GUIDs stripped from them In our example, after import, 'ProjectY' will have this content:

	 As you can see, two copies of Package 'Order' will exist in 'ProjectY' after import. The View Package 'Order' that existed in the model before import will remain unchanged. The Package 'Order' from the XML file will be imported as a new Package under the imported 'Abstract Class Model' Package.
Cancel	Cancel the XML Import.

Importing Native XML files into Models that contain the root XML Package and children, in a different location

Consider the combination of Projects and Packages shown here:



Packages 'Abstract Class Model' and 'Order' exist in two separate projects, 'Project X' and 'Project Y'. In 'Project X', 'Order' exists as a child of Package 'Abstract Class Model', whereas in 'Project Y' they are both peer Packages**.**

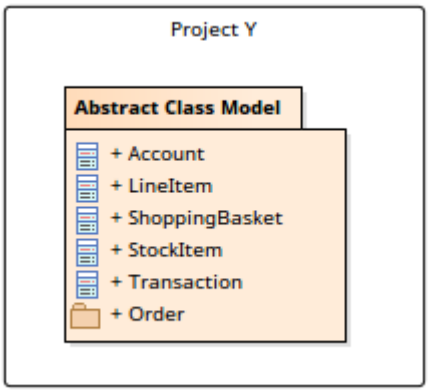
When Package 'Abstract Class Model' is exported from 'Project X' to Native XML, the XML file will contain:

- 'Abstract Class Model' as its root Package
- All information about 'Abstract Class Model' and its children (including Package 'Order')

When this XML file is imported into 'Project Y', the Native XML Importer determines that:

- The root Package in XML. 'Abstract Class Model', exists in the model
- The child Package 'Order' exists in the model
- The root Package and its children are in different locations in the model

In such a scenario, where the root Package in XML and its children exist in the model (albeit in different locations), the Importer will replicate the XML Package structure; that is, it will automatically move Package 'Order' under Package 'Abstract Class Model' in the model. The 'Existing Import Item(s)' dialog will not be displayed. After import, 'ProjectY' will have the contents shown:



Notes

- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you need to have:
  - 'Export XMI' permission to export Packages to Native XML
  - 'Import XMI' permission to import Packages from Native XML
- Native XML files exported by Enterprise Architect 15.0 cannot be imported by earlier versions of Enterprise Architect
- Native XML files exported using the 'Export Package to XML' dialog will not be formatted (that is, 'pretty-printed'), even if the 'Format XMI Output' option is enabled in the 'XML Specifications' option-group of the 'Preferences' dialog
- If you are connected to a SQL Server repository, you require ALTER permission on the t_image table in Enterprise Architect, to be able to import model images

XMI Import and Export

XML Metadata Interchange (XMI), defined by the OMG and based on XML, is an open standard file format that enables the interchange of model information between models and tools.

XMI and Enterprise Architect

Enterprise Architect uses XMI as a method of importing and exporting model specifications between different UML Packages, Enterprise Architect projects and other tools that support XMI. The system supports the XMI 1.1, 1.2, 2.1, 2.4, 2.4.2 and 2.5.1 specifications. XMI 1.1 provides support for UML 1.3, whereas XMI 2.x is used for UML 2.0 - 2.5.

Enterprise Architect does not fully support the older 1.0 specification. When importing or exporting to XMI 1.0, some loss of data occurs due to the limitations of XMI 1.0.

With XMI, model details can be exchanged between different UML tools and other tools that are capable of using XMI. Limited support for export to Rational Rose is provided using the Rose version of the XMI 1.1 specification, as implemented by Unisys for Rational products.

Packages can be exported from and imported into Enterprise Architect models, which greatly improves the flexibility and robustness of the models, helping Analysts and Modelers to externalize model elements in XMI for:

- Version control
- Distributed development
- Post processing and
- Transferring Packages between models

When importing an XML file over an existing Package, by default all information in the current Package is deleted before the data is imported from the XML file. Please make sure you do not have important changes that you do not want to lose before importing from XML. Alternatively, use a merge file to merge the information in the XMI file with the contents of the Package.

XMI Tasks

Tasks you might perform in importing and exporting XMI include:

- Setting XML Options - XMI import, export and Package control all rely on saving and loading XML files; you can set a number of options to streamline this process
- Exporting a Package to XMI in XMI 2.1 (and earlier)
- Importing from XMI with support for XMI 2.1 (and earlier)
- Setting up controlled Packages
- Manually controlling a Package by linking it to an XMI file
- Batch exporting controlled Packages
- Batch importing controlled Packages
- Factoring in the limitations of XMI
- Applying a UML Data Type Definition (DTD)
- Importing a model from IBM Rational Rhapsody
- Importing a model from a MagicDraw MDZIP file

Notes

- XMI 2.1 exported by Enterprise Architect 7.0 (or later) might not be correctly imported into earlier versions of Enterprise Architect
- When performing Enterprise Architect-to-Enterprise Architect transfers, ensure that XMI version 1.1, XMI version 2.1 or Enterprise Architect's Native XML is selected

Export to XML

You use the 'Export Package to XML' dialog to export a Package from your model to a file in one of several XMI (XML-based) formats. The dialog, by default, allows exporting to either XMI 1.1, XMI 2.1, or Enterprise Architect's Native XML format. The exported XML file contains all the information required for completely round-tripping the Package within Enterprise Architect; that is, performing Enterprise Architect-to-Enterprise Architect transfers.

Access

Select a Package in the Browser window, then:

Ribbon	Publish > Model Exchange > Export XML > Export XML for Current Package
Keyboard Shortcuts	Ctrl+Alt+E

Export a Package to an XML file

Option	Action
Package	Displays the name of the currently-selected Package. If this is not the required Package, click on the button and select the correct Package.
Filename	Type in the file path of the XMI file to be generated, or click on the button and browse for the location.
Export Type	• 'XMI 1.1' - Select this option to export the selected Package to XMI 1.1 • 'XMI 2.1' - Select this option to export the selected Package to XMI 2.1 • 'Native' - Select this option to export the selected Package to Enterprise Architect's Native XML format • 'Publish' - Click on this button to open the 'Publish Model Package' dialog for exporting to other versions of XML
Generate Merge file using Baseline Version	This option is enabled when: • 'Export Type' is set to 'XMI 1.1' and • The selected Package has a baseline Click on the button to open the 'Baselines' dialog and select the baseline. Once the export is complete, the merge file will be generated by comparing the selected Package with the selected baseline. The merge file will be generated in the same location as the XMI file, with the same name as the XMI file but with the suffix _Merge.xml. This file is used to merge the contents of a Package with that of the XMI file, using the 'Merge Package with XMI' dialog.
View XML	Click on this button to view the exported XML file.

Export	Click on this button to initiate the XML export.
Close	Click on this button to close this dialog.
Help	Click on this button to display this Help topic.
Progress	Monitor the progress of the XML Export.

Notes

- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Export XML' permission to export to XML
- Alternative Images used in the Package being exported are not included in the exported XMI file, unless the 'Export Alternate Images' option is selected in the 'XML Specifications' section of the 'Preferences' dialog
- The Log file for the Package being exported is not generated unless the 'Write Log' option is selected in the 'XML Specifications' section of the 'Preferences' dialog
- XMI 2.1 exported by Enterprise Architect 7.0 (or later) might not be correctly imported into earlier versions of Enterprise Architect

Import from XML

You can copy Enterprise Architect model elements between models, for distributed development, manual Version Control and other benefits. You do so by importing the parent Package from an XMI (XML-based) file in any of these formats:

- UML 1.3 (XMI 1.0)
- UML 1.3 (XMI 1.1)
- UML 1.4 (XMI 1.2)
- UML 2.x (XMI 2.1)
- MOF 1.3 (XMI 1.1)
- MOF 1.4 (XMI 1.2)
- Enterprise Architect's Native XML

You can also import the *.emx and *.uml2 files generated by tools such as Rational Software Architect (RSA) and Rational Software Modeler (RSM), as well as Canonical XMI 2.1 files, BPMN 2.0 XML files, Rhapsody and MagicDraw models, and XML files exported by ArcGIS.

Access

Select your target Package in the Browser window, then:

Ribbon	Publish > Model Exchange > Import XML > Import Package from XML
Keyboard Shortcuts	Ctrl+Alt+I

Import a Package from an XML file

Option	Action
Filename	Type the directory path and filename from which to import the XML file.
Import diagrams	Select the checkbox to import diagrams.
Strip GUIDs	Select the checkbox to remove Universal Identifier information from the file on import. By removing the GUID, you can import a Package twice into the same model; the second import requires the checkbox to be selected, to apply new GUIDs to avoid element collisions.
Write log file	Select the checkbox to write a log of import activity (recommended). The log file is saved in the directory from which the file is being imported, with the same name as that of the imported file plus the suffix _ import.log.
Import using single transaction	This option defaults to the setting of the 'Import using single transaction' checkbox in the 'XML Specifications' page of the 'Preferences' dialog. If you prefer, you can change the option from the default setting. If the checkbox is selected, the XML file is imported in one transaction. This is not

	recommended for large imports. If the checkbox is not selected the data items are imported separately; you can identify problem items without the whole import being blocked. If the import is likely to encounter locking issues, or if you are importing a large XML file, deselect the checkbox.
Merge XMI	Click on this button to display two options for merging the content of the XMI file with the content of the selected Package. • 'Use Merge File' - Merge the contents of the XMI file with the contents of the Package using a Merge File • 'Direct Merge' - Merge the contents of the XMI file directly with the contents of the Package, without a Merge File
Treat Imported Datatypes	If you are importing from Rose XMI 1.1, click on the drop-down arrow and select the datatypes to add to the model.
Baseline Package after Import	Select this checkbox to open the 'Create Baseline' dialog, through which to baseline the imported Package once the import is complete. Selecting this option also generates a merge file when exporting a Package to XMI 1.1 using the 'Export Package to XML' dialog.
Import	Click on this button to start the import.
Close	Click on this button to close the dialog.
Help	Click on this button to display this Help page.
Import Progress	Indicates the progress of the import.

Notes

- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Import XML' permission to import Packages from XML
- If you are connected to a SQL Server repository, you require ALTER permission on the t_image table in Enterprise Architect, to be able to import model images
- When you import an XML file over an existing Package, ALL information in the current Package is deleted first, unless you use the Use Merge File button; before you import the XML file, please make sure you do not have important changes that you do not want to lose
- If you are importing an XMI 1.1 file that was previously exported with a UML_EA.DTD file, the UML_EA.DTD file must be present in the directory into which the XMI file is being written; an error occurs if the UML_EA.DTD file is absent

Merge Package with XMI Using Merge File

If you are working in a distributed environment, each modeler could be working on a separate file copied (as an XMI export/import) from the master model. At intervals you would want to bring each person's work back into the master model. One way of doing this is to also export each modeler's copy as an XMI file, and import and merge each file in turn with the corresponding Package in the master model.

The logical next step would be to again export the master model as an XMI file so that each modeler could then import that into their copy to synchronize their model with the latest version of the whole team's work. However, if any of the team have continued to work on their copy, they can also merge the 'master' XMI file with their copy so that they do not overwrite their latest work.

Access

Select your target Package in the Browser window, then use one of the methods outlined here to open the 'Merge Package with XMI' dialog.

Ribbon	Publish > Model Exchange > Import XML > Merge Model XML into Current Package
Keyboard Shortcuts	Ctrl+Alt+I : Merge XMI > Use Merge File

Merge Package options

Option	Action
Package	Displays the name of the currently-selected Package, the contents of which will be merged with the imported XMI file. If this is not the required Package, click on the button and select the correct Package.
XMI File	Type in the directory path and filename of the XMI file, or click on the Browse button and locate the file.
Merge File	Type in or browse to the directory path and filename of the merge file, generated using the 'Export Package to XMI' dialog. The field defaults to show the merge file in the same location as the XMI file.
Baseline Package before Merge	Select the checkbox to show the 'Create Baseline' dialog, to baseline the selected Package before merging the XMI file. You can use this baseline to roll back to the content of the pre-merged Package, if required.
Compare Package with Baseline after Merge	Select the checkbox to automatically compare the Package with the Baseline once the merge is complete. This checkbox is enabled when the 'Baseline Package before Merge' option has been selected.

Merge	Click on this button to merge the Package and its contents with the contents of the XMI file.
Close	Click on this button to close the 'Merge Package with XMI' dialog.
Help	Click on this button to display this Help page.

Merge Package Directly with XMI

You have two options for importing a Package into a model from XMI, where that Package already exists in the model:

- Merging the Package directly, as documented here, where Enterprise Architect simply merges the differences between the XMI file and the existing Package in the model
- Using a merge file, as documented in the *Merge Package with XMI Using Merge File* topic, where Enterprise Architect deletes the existing Package from the model and imports the new Package information from XMI

Access

Select your target Package in the Browser window, then use one of the methods outlined here to open the 'Import Model from XML' dialog.

On the 'Import Model from XML' dialog, click on the Merge XMI button, then choose the option 'Direct Merge'.

Ribbon	Publish > Model Exchange > Import XML > Import Package from XML : Merge XMI > Direct Merge
Keyboard Shortcuts	Ctrl+Alt+I : Merge XMI > Direct Merge

Merge Package Options

Option	Action
Package	Displays the name of the currently-selected Package, the contents of which will be merged with the imported XMI file. If this is not the required Package, click on the button and select the correct Package.
XMI File	Type in the directory path and filename of the XMI file, or click on the button and locate the file.
Baseline Package before Merge	Select this checkbox to open the 'Create Baseline' dialog, to create a baseline of the selected Package before merging the XMI file. You can use this baseline to roll back to the content of the pre-merged Package, if necessary.
Compare Baseline with Package after Merge	Select this checkbox to automatically compare the Package with the Baseline once the merge is complete. The checkbox is enabled when the 'Baseline Package before Merge' checkbox is selected.
Merge	Click on this button to begin the merge of the Package content with the XMI file content.
Close	Click on this button to close the 'Merge Package with XMI' dialog.

Help	Click on this button to display this Help page.

Import EMX/UML2 Files

In Rational Software Architect (RSA) you can add many UML models under a single root. These models can have cross references between them. However, RSA cannot save the entire root as one file - it saves each UML model as a separate EMX file. This means that an EMX file with cross-references is not self-contained as it references elements in another EMX file.

In releases earlier than release 7.0, Enterprise Architect treats each EMX file as a separate model and hence does not allow for cross-references between them. From release 7.0, Enterprise Architect enables these cross-references.

You therefore have the options of:

- Importing a single EMX/UML2 file or
- Importing a group of related EMX/UML2 files together, thereby retaining the cross-references between the different files

Access

Select your target Package in the Browser window, then use one of the methods outlined here to open the 'Import Model from XML' dialog.

On the 'Import Model from XML' dialog, click on the Other XML File Formats button, then choose the option 'EMX/UML2'.

Ribbon	Publish > Model Exchange > Import XML > Import Package from XML : Other XML Formats > EMX/UML2
Keyboard Shortcuts	Ctrl+Alt+I : Other XML File Formats > EMX/UML2

Import Files

Option	Action
Package	Displays the name of the currently-selected Package. If this is not the required Package, click on the button and select the correct Package.
Directory	Click on the button. The 'Select Import EMX/UML2 File(s)' dialog displays, from which you can select multiple files. Select the file or files (use Ctrl+click or Shift+click to select several files) and click on the Open button to return to the 'Import Package from EMX/UML2' dialog.
Selected Files	Lists the selected *.emx/*uml2 files.
Write Log File	Select this checkbox to write a log of the import activity (recommended). The log file is saved in the directory from which the files are being imported, with the name import.log.

Import	Click on this button to import the *.emx/*uml2 files.
Close	Click on this button to abort the import and close the dialog.
Help	Click on this button to display this Help topic.
Import Progress	Monitor the progress of the import.

Import a Rhapsody Model

If you have developed a UML model in IBM Rational Rhapsody, you can import it into an Enterprise Architect project.

Each Rhapsody project contains one Project file (with the file extension .rpy), which is associated with a folder with the same name, ending in _rpy. For example, if the Rhapsody project file is called CDPlayer.rpy, it is associated with a folder called CDPlayer_rpy.

The associated folder contains all the project-related files. It could also contain a file named filesTable.dat, which lists all the files related to the Rhapsody project.

Access

Select your target Package in the Browser window, then use one of the methods outlined here to open the 'Import Model from XML' dialog.

On the 'Import Model from XML' dialog, click on the Other XML Formats button, then choose the option 'Rhapsody'.

Ribbon	Publish > Model Exchange > Import XML > Import Package from XML : Other XML Formats > Rhapsody
Keyboard Shortcuts	Ctrl+Alt+I : Other XML File Formats > Rhapsody

Import UML Model from Rhapsody Project Files

Option	Action
Package	Displays the name of the currently-selected Package. If this is not the required Package, click on the button and select the correct Package.
Rhapsody Project	Click on the button. The 'Select Import Rhapsody Project' dialog displays. Select a Rhapsody Project file, then click on the Open button to return to the 'Import Model From Rhapsody' dialog.
Rhapsody Files	Shows the name of the file located in the associated project folder.
Import	Click on this button to import the Rhapsody model into Enterprise Architect.
Close	Click on this button to abort the import and close the dialog.
Help	Click on this button to display this Help topic.
Import Progress	Indicates the progress of the import.

Import a MagicDraw MDZIP File

Enterprise Architect supports importing UML models from MDZIP files generated by MagicDraw 17.0.1 and above.

Access

Select your target Package in the Browser window, then use one of the methods outlined here to open the 'Import Model from XML' dialog.

Ribbon	Publish > Model Exchange > Import XML > Import Package from XML : Other XML Formats > MDZIP File
Keyboard Shortcuts	Ctrl+Alt+I : Other XML File Formats > MDZIP File

Import UML Model from MDZIP File(s)

Option	Action
Package	Displays the name of the currently-selected Package. If this is not the required Package, click on the button and select the correct Package.
Filename	Click on the button. The 'Select MDZIP File(s)' dialog displays, from which you can select multiple files. Select the required MagicDraw MDZIP file or files (use Shift+click or Ctrl+click to select several files), then click on the Open button to return to the 'Import From MDZIP File(s)' dialog.
Selected File(s)	Lists the *.MDZIP files you have selected for import.
Write Log File	Select this checkbox to write a log of import activity. The log file is saved in the directory from which the files are being imported, with the name import.log.
Import	Click on this button to import the MDZIP file(s) into Enterprise Architect.
Close	Click on this button to close this dialog.
Help	Click on this button to display this Help page.
Import Progress	Indicates the progress of the import.

Notes

- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Import XMI' permission to import Packages from XML

Limitations of XMI

Whilst XMI is a valuable means of defining a UML model in a common format, it is relatively limited in the amount of additional information it can tolerate using the standard syntax.

Notes on Enterprise Architect

A lot of information from an Enterprise Architect model must be converted to Tagged Values, which import into other modeling systems as additional information or are ignored completely. Enterprise Architect can both generate and read:

- XMI 1.0 and 1.1 using UML 1.3 format
- XMI 1.2 using UML 1.4 format, and
- XMI 2.1 using UML 2.x format

Round-tripping model elements using XMI in Enterprise Architect is possible using XMI 1.1 or XMI 2.1; XMI 1.1 uses the additional Tagged Values to store the UML 2.x information - this ensures model completeness when round-tripping UML 2.x model elements using XMI 1.1.

Enterprise Architect exclusively uses XMI 1.1 for round-tripping models using Version Control.

Notes for Exporting to Rose and Other Tools

There are discrepancies in the Unisys/Rose implementation with regard to spelling mistakes and slightly different syntax to the official XMI 1.1 specification, so problems might occur. The way Packages are arranged in different models can impact successful import into other systems; experimentation is the only work around for this problem.

Some parts of the XMI import/export process do not work as expected in products such as Rational Rose; for example, Note Links are not supported, and State Operations import but do not appear in diagrams. Rational Rose only supports import of a full project, not a single Package.

For best results, it is recommended that you keep the model elements to export to Rose simple and that they conform as closely as possible to the UML 1.3 specification.

The UML DTD

When you import or export Packages from an Enterprise Architect model to XMI, the import or export process can be validated using a Data Type Definition (DTD). Several DTDs for XMI/UML exist; the OMG defines a standard UML1.3 DTD for use in XMI 1.1, and Enterprise Architect uses an extension of this with some additional element extensions for non-standard UML types, such as testing details.

The XML parser uses the DTD to validate the correctness of the model and to check that no syntactical errors have occurred. It is always best to use a DTD when moving Packages between Enterprise Architect models, as it ensures correctness of the XMI output and prevents attempted imports of incorrect XML.

Whenever you read an XML file, the XML parser looks in the current directory for the DTD - if specified - using the DOCTYPE element in the XML file. If the parser cannot find the DTD, it records an error and aborts processing; the UML_EA.DTD file must be in the current XML output path (generated by default).

Generate Model Document XML

You generally use a Model Document element to create a document report containing information from separate Packages in your model. However, you can use the same concept, structure and processes to generate an Enterprise Architect Native XML file for export to another model. This helps you to select Packages from any part of the model and transport them to another model without having to process them individually or create special structures to combine them. You could use this to, for example, define a model subset that can be included in a restricted-user WebEA view.

You create a Model Document element, add the individual Packages to it, and generate the XML from that element to an external file location. The XML will contain all the Packages (and their child structures) specified in the Model Document element. You can then use the normal Import XML facilities to import the file into another model.

You can generate an XML file from a Model Document element set up to generate a document report from a Package list; the XML generator ignores the Tagged Values of the element. You could generate a report to accompany the file, to show its content.

Set up the Model Document

Work through these procedures:

- Create a Model Document element on a diagram (as described in the *Create Model Document* Help topic); you don't need to set any Tagged Values
- Drag the required Packages into it (as described in the *Add Packages to Model Document* Help topic); you don't use a model search to populate the element
- If necessary, organize the Packages into an appropriate sequence (as described in the *Document Order* Help topic, *Change Sequence of Packages...* section)

Generate XML

Step	Action
1	When you have set up the Model Document element, right-click on it in its parent diagram and click on the 'Documentation | Generate XML' option.
2	On the 'Generate Model Document XML' dialog, type in the file path of the XML file to be generated, or click on the button and browse for the location. Click on the Generate button to generate the XML into the file.
3	The XML Generator works through the defined content of the Model Document element, pulls in the information from the listed Packages and generates a Native XML file, showing the progress of the operation in the Progress field. Click on the Close button. You - or another user - can now import the XML file into a different model using the 'Import Package from XML' dialog.

Notes

- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Export

XML' permission to export to XML

- The generated XML file cannot be imported into a version of Enterprise Architect earlier than version 15.0
- A Log file for the Model Document being exported is not generated unless the 'Write Log' option is selected in the 'XML Specifications' section of the 'Preferences' dialog
- When you import the XML file into a model, Enterprise Architect will create a Package (with the same name as the Model Document element) that will act as a container for the Packages specified in the Model Document element

CSV Import and Export

Within Enterprise Architect, you can import and export information about elements to and from comma-separated value (CSV) text files. This involves up to three possible actions.

Actions

Action	Detail
Set Up Specifications	To import and export element data from Enterprise Architect using CSV files, you must first set up one or more file specifications. You do this because the specification defines what types of value from the spreadsheet are to be imported, and how the information is translated between the spreadsheet and Enterprise Architect.
Import From CSV	Once you have defined a CSV import specification, you can read in major element characteristics from a CSV text file.
Export To CSV	Once you have defined a CSV export specification it is possible to write out major element characteristics to a CSV text file.

CSV Specifications

To import and export element data to and from Enterprise Architect using CSV files, you must first set up one or more CSV file specifications. A file specification defines the:

- Fields from the spreadsheet in the order they are imported or exported
- Source or target filename (optional) and
- Delimiter between columns

Once you have defined one or more specifications, you can select one in the 'CSV Import/Export' dialog as the current specification to apply during an import or export action. The facility only imports and exports elements (within Packages) and their properties; items such as Class attributes cannot be imported or exported through this mechanism.

XMI import/export provides a solution to this limitation, as does use of the Automation Interface.

Access

Ribbon	Publish > Model Exchange > CSV > CSV Exchange Specification

Set Up a CSV Specification

Field	Action
Specification Name	If creating a new specification, type in a unique specification name. If editing an existing specification, click on the drop-down arrow and select the specification name.
Delimiter	Click on the drop-down arrow and select the character delimiter to use between record fields. If a field contains an instance of the delimiter, the field is exported wrapped in " (quotation marks) and any instances of " in the field are doubled (that is, " becomes "").
Notes	Type in a brief description of the specification.
Default Filename	Type in the default file location and file name to be used when importing and exporting. Alternatively, click on the button and browse for the location.
Default Direction	Click on the drop-down arrow and select the default action - 'Import' or 'Export'. Each specification can be used in either direction, but this field provides the default.
Default Types	Type in a comma-separated list to limit the element types being exported; for example: class,requirement,component,node,object. • If you specify element types, ONLY elements of those types are exported or imported; so, for the 'Preserve Hierarchy' option to operate (if selected) you must include Package as an element type, otherwise there are no Packages in

	which to preserve the hierarchy • If you do not specify any default element types, all elements including Packages are exported or imported and the hierarchy can be preserved
Preserve Hierarchy	Select this checkbox to include fields generated by Enterprise Architect, to embed/reconstruct the Package hierarchy.
Available Fields	Click on the name of an available field, and double-click on it to add it to the Specification (it displays at the end of the 'File Specification' list). Press and hold Ctrl while you select several fields, but use the Add field button to transfer them all to the 'File Specification' list.
File Specification	Review the record fields already assigned, listed in the order in which they are plotted across the spreadsheet. If you want to change the sequence of fields, click on a field name and click on the or button to move the field name up or down the list.
Add Tagged Value Field	Click on this button to add a Tagged Value column to the CSV Specification, to import or export the value that an element has for a particular tag. A prompt displays to select one of two options: • Value - to import or export the content of the Tagged Value 'Value' field; a column heading with the prefix 'TagValue_' is added to the Specification • Notes - to import or export the content of the Tagged Value 'Notes' field (some Tagged Values use the 'Notes' field to accommodate long values, such as <memo> text); a column heading with the prefix 'TagNotes_' is added to the Specification In each case, the 'Add Tag Value Field' dialog displays. Select either the: • 'Global Tagged Values' radio button, or • 'Tagged Values from the selected Element' radio button, click on the Other Element button and browse for the name of the element that contains the Tagged Value Click on the 'Tagged Value' field drop-down list and select the required Tagged Value, then click on the OK button.
Add Field	Click on this button to move all selected fields from the 'Available Fields' list to the 'File Specification' list.
Remove Field	Click on this button to move all selected fields from the 'File Specification' list back to the 'Available Fields' list.
New	Click on this button to clear all the dialog fields to create a new specification.
Save	Click on this button to save all changes to the currently selected specification.
Save As	Click on this button to save the current specification under a new name.
Delete	Click on this button to delete the current specification.
Close	Click on this button to close this dialog.

Notes

- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Export XMI', 'Import XMI' and 'Configure Resources' permissions to use the 'CSV Import/Export Specifications' option
- In 'Available Fields' and 'File Specification', the record fields 'Created Date' and 'Modified Date' are not set when imported from CSV

Using Preserve Hierarchy

The 'Preserve Hierarchy' option on the 'CSV Import/Export Specification' dialog includes fields generated by Enterprise Architect to embed/reconstruct the Package hierarchy in a CSV import or export.

When selected, the 'Preserve Hierarchy' option inserts two fields into the CSV specification that are:

- automatically populated by Enterprise Architect on export and
- used to reconstruct the exported Package's hierarchy upon import

It is highly recommended that you do not change these fields if they have been automatically generated by Enterprise Architect's CSV exporter.

Inserted Fields

Field	Action
CSV_KEY	A unique identifier for the current element. This key is unique per export; subsequent exports produce different keys for the same set of elements.
CSV_PARENT_KEY	The corresponding CSV_KEY of the current element's parent. If the field is left blank or references a non-existent CSV_KEY, the element is added to the top level of the Package.

External Data

If you intend to import hierarchical information from a spreadsheet that was not populated by exporting data from Enterprise Architect, you must add these two fields to your spreadsheet as the last two columns, and populate the columns yourself. For example:

NAME	TYPE	NOTES	PRIORITY	STATUS	CSV_KEY	CSV_PARENT_KEY
Requirement Package	Package	Notes Package1			Package1	
REQ1	Requirement	Notes on REQ1	High	Approved	REQ1	Package1
REQ2	Requirement	Notes on REQ2	High	Approved	REQ2	Package1
REQ2.1	Requirement	Notes on REQ2.1	High	Approved	REQ2.1	REQ2
REQ2.2	Requirement	Notes on REQ2.2	Med	Approved	REQ2.2	REQ2
REQ2.3	Requirement	Notes on REQ2.3	High	Approved	REQ2.3	REQ2
REQ3	Requirement	Notes on REQ3	High	Approved	REQ3	Package1
REQ3.1	Requirement	Notes on REQ3.1	High	Approved	REQ3.1	REQ3
REQ3.2	Requirement	Notes on REQ3.2	High	Approved	REQ3.2	REQ3
REQ4	Requirement	Notes on REQ4	High	Approved	REQ4	Package1
REQ4.1	Requirement	Notes on REQ4.1	High	Approved	REQ4.1	REQ4
REQ4.2	Requirement	Notes on REQ4.2	High	Approved	REQ4.2	REQ4
REQ4.3	Requirement	Notes on REQ4.3	High	Approved	REQ4.3	REQ4

CSV Export

It is possible to export information about elements from your project in Enterprise Architect to a CSV text file. In this operation you make use of a CSV export specification.

If you intend to re-import the exported information into Enterprise Architect at some point, it is recommended that you include the 'GUID' field in the CSV export specification. This helps Enterprise Architect to identify and update existing elements, rather than create duplicates.

Access

Ribbon	Publish > Model Exchange > CSV > CSV Import/Export

Export Data in CSV Format

Field	Action
Package	Confirm the name of the current selected Package.
Specification	Click on the drop-down arrow and select the name of the existing export specification to use.
Edit/New	Click on this button to edit the export specification or create a new one. The 'CSV Import/Export Specification' dialog displays.
File	Type in the name and path of the file to export to, or click on the button and browse for the file.
Types	Type in the element types to export: leave blank for all, or enter a comma-separated list of types. If you specify element types, ONLY elements of those types are exported; therefore, to enable the 'Preserve Hierarchy' option in the specification to operate (if selected) you must include 'Package' as an element type, otherwise no Packages are exported in which to preserve the hierarchy. If you do not specify any element types, all elements including Packages are exported and the hierarchy can be preserved.
Code Page	Displays the Code Page used when importing and exporting. This can be changed via the 'Source Code Engineering' page of the 'Manage Project Options' dialog.
Action	Click on the 'Export' radio button to export to file.
Export Column Names	Select this checkbox to include the column names of the fields in the export file.
Include Subfolders	Select this checkbox to include subfolders and their child elements in the export.
Print Results	Click on this button to print out the result list.

View File	Click on this button to view the resultant CSV file with the default Windows application for CSV files.
Run	Click on this button to execute the export.
Close	Click on this button to cancel the export and exit the dialog.

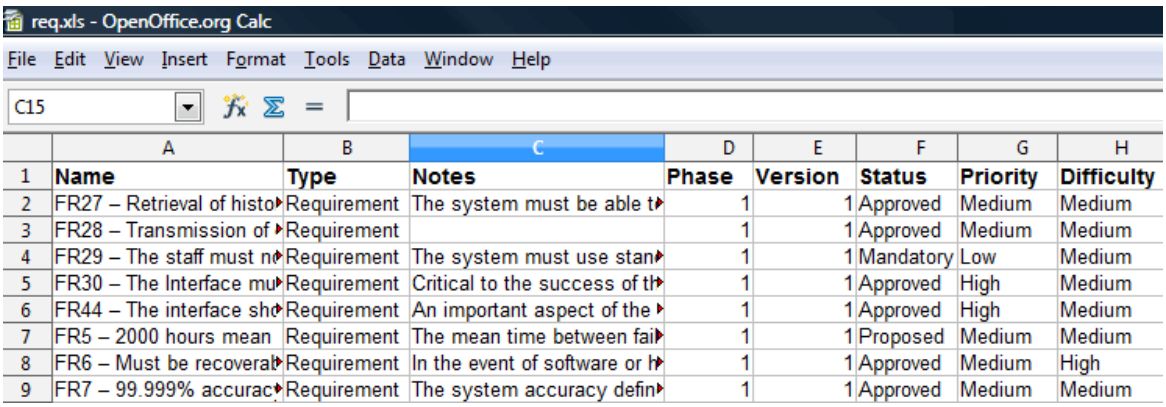
Notes

- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have both 'Export XMI' and 'Import XMI' permissions to use the 'CSV Import/Export' option

CSV Import

It is possible to import information about elements into your project in Enterprise Architect from a CSV text file. In this operation you make use of a CSV import specification. You import the CSV file into a selected Package; if this Package or any element within the Package has a lock on it, you cannot import the CSV file into it. The 'Import' option on the dialog is grayed out.

The format and content of the CSV source data file should resemble this:



	A	B	C	D	E	F	G	H
1	**Name**	**Type**	**Notes**	**Phase**	**Version**	**Status**	**Priority**	**Difficulty**
2	FR27 – Retrieval of histo	Requirement	The system must be able t	1	1	Approved	Medium	Medium
3	FR28 – Transmission of	Requirement		1	1	Approved	Medium	Medium
4	FR29 – The staff must n	Requirement	The system must use stan	1	1	Mandatory	Low	Medium
5	FR30 – The Interface mu	Requirement	Critical to the success of th	1	1	Approved	High	Medium
6	FR44 – The interface sh	Requirement	An important aspect of the	1	1	Approved	High	Medium
7	FR5 – 2000 hours mean	Requirement	The mean time between fai	1	1	Proposed	Medium	Medium
8	FR6 – Must be recoverab	Requirement	In the event of software or h	1	1	Approved	Medium	High
9	FR7 – 99.999% accurac	Requirement	The system accuracy defin	1	1	Approved	Medium	Medium

Access

Ribbon	Publish > Model Exchange > CSV > CSV Import/Export

Import Data in CSV Format

Field	Action
Package	Confirm the name of the current selected Package.
Specification	Specify the name of the import specification to use.
Edit/New	Edit the import specification or create a new one.
File	Specify the spreadsheet filename to import from.
Types	Not used for import.
Code Page	Displays the Code Page used when importing and exporting. This can be changed via the 'Source Code Engineering' page of the 'Manage Project Options' dialog.
Action	Select the 'Import' radio button to import from the file (grayed-out if the Package or a child item in the Package is locked).
Print Results	Print out the result list.

View File	View the source CSV file with the default Windows application for CSV files.
Run	Perform the import.
Close	Click on this button to close this dialog.

Notes

- When importing, Enterprise Architect checks the specification to see if there is a 'GUID' field included; if there is, Enterprise Architect attempts to locate the element identified by the GUID and, if successful, updates the current element rather than creating a new one
- If no 'GUID' field is defined, or Enterprise Architect cannot locate the identified element, a new element is created and placed in the current Package; during import, 'Type' is a mandatory field in the source file and must match one or more of the legal Enterprise Architect element types: for example: Requirement, or Class
- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have both 'Export XMI' and 'Import XMI' permissions to use the 'CSV Import/Export' option

Controlled Packages

A Controlled Package is a Package configured to save and load in XML format to a named file; the XML output is UML 1.3 compliant XMI, with Enterprise Architect extensions to support diagrams and additional model elements. Controlled Packages are a powerful means of 'externalizing' parts of an Enterprise Architect model.

Package XML is standard XMI-compliant output that can be loaded into any XML viewer, or used by any XML-based tool to perform manipulations and extracts, such as document or code generators.

Controlled Packages appear in the Browser window with a small colored rectangle to the left of the Package icon, as shown for the CIM Package:

Using Controlled Packages you can support:

- Widely distributed development by having team members submit Packages in the form of XML for import into a central Enterprise Architect repository
- Version Control, by writing model elements in XML text files suitable for Version Control using standard Version Control software
  Using XMI this way, you can manually connect to third-party Version Control software outside the Enterprise Architect environment; Enterprise Architect internally supports the configuration of Version Control through SCC and CVS
- Import and export of model elements between different models
  For example, a Class library can be re-used in many models and kept up to date in target models using Controlled Packages, reloading Packages as required when new versions of the Class model become available

Notes

- If you are importing an XMI 1.1 file that was previously exported with a UML_EA.DTD (Data Type Definition) file, the UML_EA.DTD file must be present in the directory into which the XMI file is being written; an error occurs if the UML_EA.DTD file is absent
- When you select to apply a DTD during an XMI 1.1 export, the UML_EA.DTD file is written to the output directory into which the XML files are written (unless the UML_EA.DTD file is already present in the directory); no error is generated if the UML_EA.DTD file is not present in this directory during the XMI export

Controlled Package Menu

If you are working on a Package that is not under Version Control, you can select certain options on the 'Controlled Package' context menu.

(Further options are available from the 'Model Exchange' panel of the Publish ribbon, and for a Package that is directly under Version Control you use the 'Package Version Control' menu.)

Access

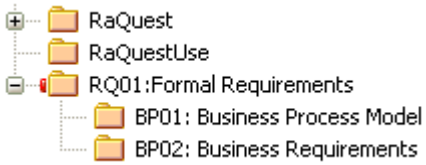
Context Menu	Browser window > Right-click on Package > Package Control

Package Control Options

Option	Action
Lock Package	Select this option to apply a lock on the selected Package. (This option is only displayed when user security is enabled in User/Group locking mode.)
Apply/Release User Lock	Select this option to apply or release a user lock on the selected Package. (This option is only displayed when user security is enabled in 'Require User Lock to Edit' locking mode)
Set Visibility Level	This menu item is only available in a model that has been set up for Visibility Levels, and when it is being accessed via a Pro Cloud server connection. It is primarily used by System Administrators to manage user access to Packages within the model. You use this option to set a Visibility Level on a Package, which applies to the Package and its child structures. The Visibility Level has a matching user access level set in User Security. A user with a given access level can only see, access and update Packages with the equivalent Visibility Level or lower. Select from the list of values, which start at 0 (no restriction on access) and can go up to 5 (for Packages requiring high security of access). You will only be able to set Visibility Levels at or below the access level to which you have been assigned. To remove a Visibility Level from a Package (and all its children), simply set the Visibility Level back to zero. Any user can then view and update the Package (within the limitations of any user security controls on their access to *functions*).
Import a Model Branch	Select this option to retrieve a model branch and import it into either the source model or another model.
Version Control Settings	Select this option to display the 'Version Control Settings' dialog.

Configure Packages

In order to configure a Package to save and load in XML format to a named file, you use the 'Package Control Options' dialog to flag the Package as being controlled and to set a number of options. These options include setting the XMI filename to save to/load from, the type of XMI to import and export, and whether to export and/or import the XMI in a batch process. When the Package is configured, this is indicated by a small colored rectangle on the left of the 'Package' icon in the Browser window, as shown for the RQ01: Formal Requirements Package.



Access

Select a Package in the Browser window, then:

Ribbon	Configure > Version Control > Package-VC or Publish > Model Exchange > Package Control > Configure > Package Control
Keyboard Shortcuts	Ctrl+Alt+P

Configure a controlled Package

Option	Description
Control Package	Select the checkbox to indicate that this is a controlled Package.
For all packages, create placeholders for external references	Select to force all XMI 1.1 imports of this Package to exclude incoming relationships and instead create external references. This overrides the 'Create placeholders for missing External References during XMI 1.1/2.1 Import' checkbox in the XML Specifications options for a user, if that checkbox is not selected.
Version Control	Leave this field set to '(None)', to manage the Package under XMI control. The 'Package Control Options' dialog is also used in adding a Package to Version Control and, in this context, is described under the *Version Control* section.
XMI Filename	Type or browse for the path and XMI file name into which to export the Package data and from which to import it. You can also enter Local Path Substitution strings; for example, an XMI local path definition where: myLocalPath="C:\Documents and Settings\John\Desktop\EA Models" So that %myLocalPath%\CIM.xml is equivalent to: C:\Documents and Settings\John\Desktop\EA Models\CIM.xml

UML/XMI Type	Click on the drop-down arrow and select the type of XMI to be generated; options include: • Enterprise Architect XMI 1.1 • Enterprise Architect XMI 2.1 For complete import/export round tripping of Packages, currently only Enterprise Architect XMI 1.1 is supported. This format uses additional Tagged Values to store the model's UML 2.x information.
Version ID	Type the version number you want to apply to the Package. This field is the same as the 'Version' field on the Package 'Properties' dialog; any change to either field updates the other.
Owner	Defaults to the name of the Package owner; if necessary, type or select a different name.
Use DTD	(Optional) Select the checkbox to use a Data Type Definition (DTD) for the imports and exports. (This option is not available for the Enterprise Architect XMI/UML 1.3 or Rational Rose/Unisys UML 1.3 types.)
Log Import/Export	(Optional) Select the checkbox to log import and export activity to a log file.
Batch Import	(Optional) Select the checkbox to mark the Package as a Batch Import Package.
Batch Export	(Optional) Select the checkbox to mark the Package as a Batch Export Package.
Include sub-packages	(For an Enterprise Architect XMI/UML 1.3 export) Select the checkbox to include the entire sub-Package hierarchy of this branch in the exported XMI (default). Deselect the checkbox to include only the immediate contents of the Package in an XMI export (XMI stubs).
OK	Click on this button to set the Package Control options and close the dialog.

Notes

- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Configure Packages' permission to configure controlled Packages and Package properties
- For batch import, the file date of the XMI file is stored; you can bypass the batch import if there is no change - that is, the file date of the last import matches that of the current file

Remove Package from Control

If required, you can remove the control from a Package. Before removing the Package control, and if it is being used for Version Control, you must check in the Package.

Access

Select a Package in the Browser window, then:

Ribbon	Configure > Version Control > Package-VC or Publish > Model Exchange > Package Control > Configure > Package Control
Keyboard Shortcuts	Ctrl+Alt+P

Remove control from a Package

Step	Action
1	Select the Package and click on the 'Configure' menu option. The 'Package Control Options' dialog displays.
2	Deselect the 'Control Package' checkbox. If the Package is under Version Control, this sets the 'Version Control' field to '(None)'.
3	Click on the OK button to remove Package control. Package control for the selected Package has now been removed.

Notes

- When disconnecting a Package from Version Control, the association between the Package and the exported XML file is removed from your model; however, the XML file itself is not removed from Version Control, nor is it deleted from your local Version Control working copy folder

  This is because it is possible for another model to be using the Version Controlled Package and still referencing the associated Version Controlled XML file

Save a Package

Once you have correctly configured a Package, you can save the controlled Package to the designated XMI file.

Access

Select a Package in the Browser window, then:

Ribbon	Publish > Model Exchange > Package Control > Save to File
Context Menu	Right-click on Package > Package Control > Save Package to File
Keyboard Shortcuts	Ctrl+Alt+S

Save a controlled Package to file

Step	Action
1	Select the Package and the Save Package to File menu option. The export process executes automatically according to your configured preferences, overwriting any existing file.

Notes

- If you are using a Version Control Package in conjunction with the exported Package files, you must check out the XMI file first to enable Enterprise Architect to overwrite the existing version

Load a Package

If a Package has been marked for control it is displayed in the Browser window with a red rectangle to the left of the Package icon. If you have previously saved the controlled Package, you can reload it.

Access

Select a Package in the Browser window, then:

Ribbon	Publish > Model Exchange > Package Control > Load from File
Keyboard Shortcuts	Ctrl+Alt+L

Load a controlled Package from an XMI file

Step	Action
1	Select the Package and the 'Load from file' ribbon option. If you have configured the Package Control details, the system prompts you to confirm the import.
2	Click on the Yes button to confirm the import. The current Package is deleted and the saved Package is imported.

Notes

- Importing deletes the current Package entirely from the model, and the action cannot be undone; you must be careful not to lose any current changes or information

Batch XMI Export

You can export a group of Controlled Packages to XMI in one step.

Access

Ribbon	Publish > Model Exchange > Export XML > Batch Export Controlled Packages

Export a group of Controlled Packages to XMI

Step	Action
1	Open the 'Batch XMI Export' dialog using one of the access methods.
2	The 'Batch XMI Export' dialog lists all of the Controlled Packages in the current Project. Select the checkbox against each Package to include in this export run. Select the 'Select All' checkbox to select all Packages in the list.
3	Select the 'Restore Cross References Without Prompting' checkbox to automatically restore any missing cross-Package references without displaying a prompt.
4	To save this configuration as the default, click on the Save Settings button.
5	Click on the Run Export button. Enterprise Architect cycles through each checked Package and exports it using the options specified in the 'Package Control Options' dialog. As long as a valid filename exists, Enterprise Architect exports the Package to XMI and proceeds to the next Package.

Notes

- The 'Restore Cross References Without Prompting' checkbox is enabled only if the option 'Report Cross Package Reference Deletions (XMI 1.1)' is set on the 'XML Specifications' page of the 'Preferences' dialog
- The option is applicable only to XMI 1.1 Controlled Packages

Batch XMI Import

You can import a group of Controlled Packages from XMI into Enterprise Architect in one step.

As the system processes each Package, it updates the 'Status' column against each Package name on the 'Batch XMI Import' dialog.

- If the import is successful, Enterprise Architect updates the Package status to 'Imported'
- If the import is unsuccessful, Enterprise Architect updates the Package status to 'Not Imported'

Common reasons for an import to fail include:

- The Package not being correctly configured
- The last import file date matches the import date of the file currently on disk

Access

Ribbon	Publish > Model Exchange > Import XML > Batch Import Controlled Packages

Import a group of Controlled Packages from XMI

Step	Action
1	Open the 'Batch XMI Import' dialog using one of the access methods.
2	The 'Batch XMI Import' dialog lists all of the Controlled Packages in the current Project. Select the checkbox against each Package to include in the import. Select the 'Select All' checkbox to select all Packages in the list.
3	To save this configuration as the default, click on the Save Settings button.
4	Click on the Run Import button. Enterprise Architect cycles through each checked Package and imports it.

Notes

- To avoid re-importing the same module multiple times, select the Check file date before import checkbox; Enterprise Architect then does not import a file if the last import file date matches that of the one currently on disk

Manual Version Control with XMI

You can use XMI to support Version Control by writing model elements in XML text files suitable for use with standard Version Control software.

Using XMI in this manner enables you to manually connect to third-party Version Control software outside the Enterprise Architect environment.

Enterprise Architect internally supports the configuration of Version Control through SCC and CVS configurations.

Prepare for using XMI for Version Control

Step	Action
1	Select suitable Packages in the Browser window, to be marked as Controlled Packages.
2	Configure these with filenames that are visible to a Version Control system of your choice.
3	Save the Controlled Packages to establish a model base and check these into the Version Control system.

Apply Version Control

Step	Action
1	Continue working on a Package until versioning is required.
2	Check out the Package XMI file from the Version Control system.
3	Save the relevant Package using the Controlled Package support.
4	Check the Package back into the Version Control system.

Recover an earlier version

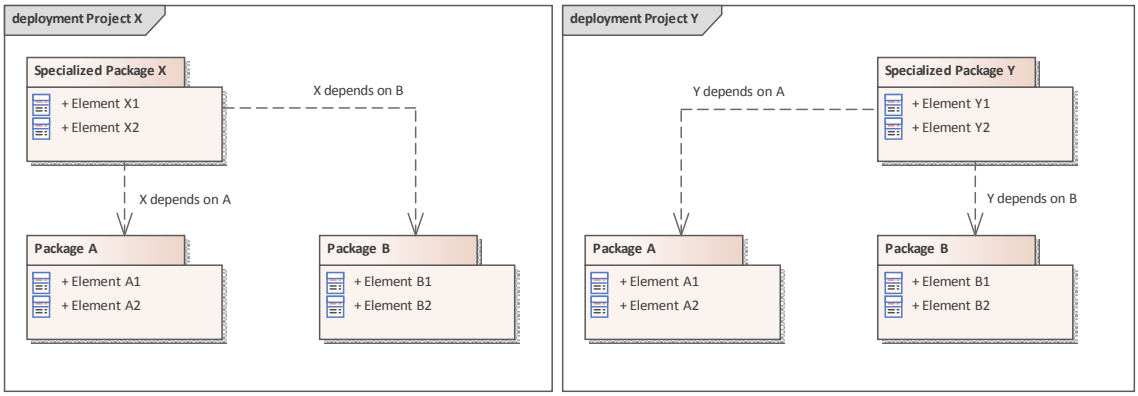
Step	Action
1	Save the current version first. This is important, because the Package is completely deleted during the import process. If necessary, manually update the Version Control system.
2	Get the required Package version from the Version Control system.
3	Select the Package to reload.

4	Select the 'Package Control | Load package from file' menu option to import the previous version. Enterprise Architect deletes the Controlled Package and restores the previous version.

Report Deletion of Cross Package References

Your model might contain at least one XMI 1.1 Controlled Package that is also used in other models, but not necessarily in the same context.

For example, consider the combination of Projects and Packages described in this figure:



Two common packages, 'Package A' and 'Package B', are shared across two separate projects, 'Project X' and 'Project Y', through the use of XMI Package files. From the point of view of the common Packages, each of these projects is **'incomplete'**. Project X does not contain 'Specialized Package Y' and similarly, Project Y does not contain 'Specialized Package X'.

Problem

When 'Package B' is exported from 'Project X', its XMI file will **not** contain the cross-package reference 'Y depends on B', as that relationship does not exist in 'Project X'. If the XMI file is subsequently imported into 'Project Y', the relationship 'Y depends on B' will be removed from 'Project Y'.

Solution

You can easily check for and preserve the cross-Package relationships by selecting the option 'Report Cross Package Reference Deletions (XMI 1.1)' in the 'Preferences' dialog ('Start > > Desktop > Preferences > Preferences' ribbon option, then select the 'XML Specifications' tab). When you save a controlled Package, Enterprise Architect compares the XMI for that save with the most recent XMI 1.1 revision of the Package. Any items that are missing from the Package are listed on the 'Missing Cross References' dialog.

Actions

Action	Detail
Decide which cross-references to merge	In some cases Enterprise Architect cannot determine whether a cross-reference is missing or intentionally deleted by the user. When the 'Missing Cross References' dialog displays, the basic analysis process should be: • If the item was deleted intentionally, deselect the checkbox beside it • If the item was not deleted intentionally, its presence in the list suggests it is a

	missing cross reference and you should leave the checkbox selected
Merge missing items	Items missing from the exported Package are listed in the 'Missing Cross References' dialog. To regenerate them into the XMI file that is being saved: • Select the checkbox against each item type • Click on the OK button Items of any type that you do not select are omitted from the saved XMI file.
Abort or cancel this XMI Export	If you do not want to proceed with the export (or Check-in or Put Latest) operation: • Click on the Cancel button
Review the details of an entry	To display the details of an entry on the 'Missing Cross References' dialog: • Double-click on the type name The details of each item are shown on the 'Missing <item type>' dialog. For any items where information is missing from the XMI file, the missing details are grayed-out. To find the item with the missing cross-reference in the Browser window, either: • Right-click on the entry in the list and select the 'Find in Project Browser' option, or • Click on the item and press Alt+G
Copy a value from a column on the dialog to the clipboard	To preserve a copy of an item from the dialog on the clipboard: • Click on the column value to highlight it; the selected value is shown in the bottom left corner of the dialog • Select the text in the bottom left corner and press Ctrl+C to copy that value to the clipboard

Notes

- If you are not sharing any common packages between multiple projects, then detection of missing cross references is not necessary, and you should disable the feature by deselecting the 'Report Cross Package Reference Deletions (XMI 1.1)' checkbox.

Project Data Transfer

In normal system maintenance, it is likely that at some point you need to relocate data between storage systems. In any edition of Enterprise Architect, you might need to transfer all records from one project file to another (recommended after serious network crash or repeated database corruption). Project files can be either .eap (Access) files or .feap (Firebird) files, and you can transfer from one file type to the other.

In the Corporate, Unified and Ultimate editions of Enterprise Architect, you might need to:

- Transfer an existing project file to a DBMS repository such as SQL Server or MySQL
- Transfer a DBMS repository to an existing project file
- Move a repository from one DBMS to another (including moving between servers using the same DBMS)
- Copy all records from a JET 3.5 to JET 4 (Access 2000 or XP) repository - or back the other way

Access

Ribbon	Configure > Model > Transfer > Project Transfer

Perform a project data transfer

Step	Action
1	Click on the radio button for the required transfer type: • File to File • DBMS to File • File to DBMS • DBMS to DBMS
2	In the 'Source Project' and 'Target Project' fields, type or select the name or connection string for the Source and Target projects.
3	If you want to capture the transfer in a log file, select the 'Logfile' checkbox and browse for the appropriate log file location.
4	Click on the Transfer button.
5	It is good practice to do a Project Compare after this process to verify that all records are written.

Notes

- Take a backup of the target project to ensure that you can recover any important information it already contains; in a transfer, all records in the target repository are overwritten
- You cannot move a model from a source .eap file from an Enterprise Architect version earlier than 3.5.0

- When performing a .eap file to DBMS transfer, if the .eap file has replication enabled, the replication must be removed before performing the transfer
- When transferring a model to a DBMS, you cannot transfer the data into an empty database - the tables must already exist; if they do not, run the corresponding script supplied by Sparx Systems to create the required tables
- When transferring a model into a project file, similarly, the target project file must already exist, to provide the data structures to transfer data into
- In the Corporate, Unified and Ultimate editions of Enterprise Architect, if security is enabled you must have 'Transfer Data' permission to transfer project data between repositories

Data Miner

The Data Miner provides a comprehensive means of extracting data from a range of external data sources including: databases (ODBC, ADO, OLEDB, JET), text files (XML, JSON, plain text), Excel (xls, CSV), and online files or URLs.

The goal is to create a reproducible import process defined in a model format. This consists of:

- Data configuration process to hold the complex data connections and information
- Combined with the ability to run Javascript over the data set

This feature is available in the Unified and Ultimate editions of Enterprise Architect, from Release 15.0.

Access

The Perspective for the Data Miner is: Perspectives > Management > Data Miner.

The Data Miner diagram and several model patterns can be accessed through the Model Wizard, while a number of model templates, model elements and connectors specific to the Data Miner facility can be accessed from the Diagram Toolbox.

Data Miner Model

The Data Miner Model allows you to define three core element types:

Element Type	Description
DMConnection	A DMConnection element is used to define a connection to an external data source. Any number of DMConnections can be defined.
DMSet	A DMSet provides the link between the connection and the script that processes the data. It can define a query that will be applied on the connection for connection types that require it. For example, an ODBC DMConnection will require a DMSet that specifies an SQL Statement in the Query custom property, where a File DMConnection does not require the DMSet Query to be used. When performing data mining using SQL expressions (via ODBC or from an EA repository), you can visualize the retrieved data in a grid view, by right clicking on the DMSet element, and selecting 'Open Data Miner Visualizer'. This will display the returned data in a table form.
DMScripts	A DMScript element can be used to process the raw data returned from a DMSet. It can contain one or more Javascript scripts to process the retrieved data using the Automation Interface.

Multiple connections

A full Data Miner is defined by a DMConnection connected to a DMSet, optionally connected to a DMScripts. The mining capability can be extended in numerous ways:

- Multiple DMSet elements can query the same DMConnection
- Each DMSet can be connected to multiple DMConnection elements
- Each DMScripts can process multiple DMSet elements
- Each DMScripts element can have multiple scripts to be run on the data

Notes

- The Data Miner is available in the Unified and Ultimate editions

Data Miner Toolbox

To create Data Miner elements and relationships on Data Miner diagrams, you can use the 'Data Miner' page of the Diagram Toolbox. The Data Miner diagram and several model patterns can be accessed through the Model Wizard, while a number of model templates, model elements and connectors specific to the Data Miner facility can be accessed from the Diagram Toolbox.

Access

Use the methods outlined here for displaying the Diagram Toolbox for the Data Miner and accessing Model Wizard patterns.

Perspective	Perspective > Management > Data Miner
Model Wizard	Set the Perspective: Perspective > Management > Data Miner Use the Model Wizard (Ctrl+Shift+M): • Model Patterns > Data Miner > (select pattern) or • Diagram > Type > Management > Data Miner > (select Data Miner diagram)
Ribbon	Design > Diagram > Toolbox - to display the 'Find Toolbox Item' dialog and specify 'Data Miner'.
Keyboard Shortcuts	Ctrl+Shift+3 : | Data Miner

Data Miner Elements

Item	Use to
DMConnection	Defines a connection to an external data source.
DMSet	Defines an intermediate element in the link between a DMconnection and a DMscript which is used to process the data.
DMScripts	The element type that contains Javascript script(s) for retrieving data using the Automation Interface.

Data Miner Connectors

Item	Use to
Data Source	Used for setting a connection from a DMSet to a DMConnection.
Data Harvester	Defines a connection from a DMScript to a DMSet.

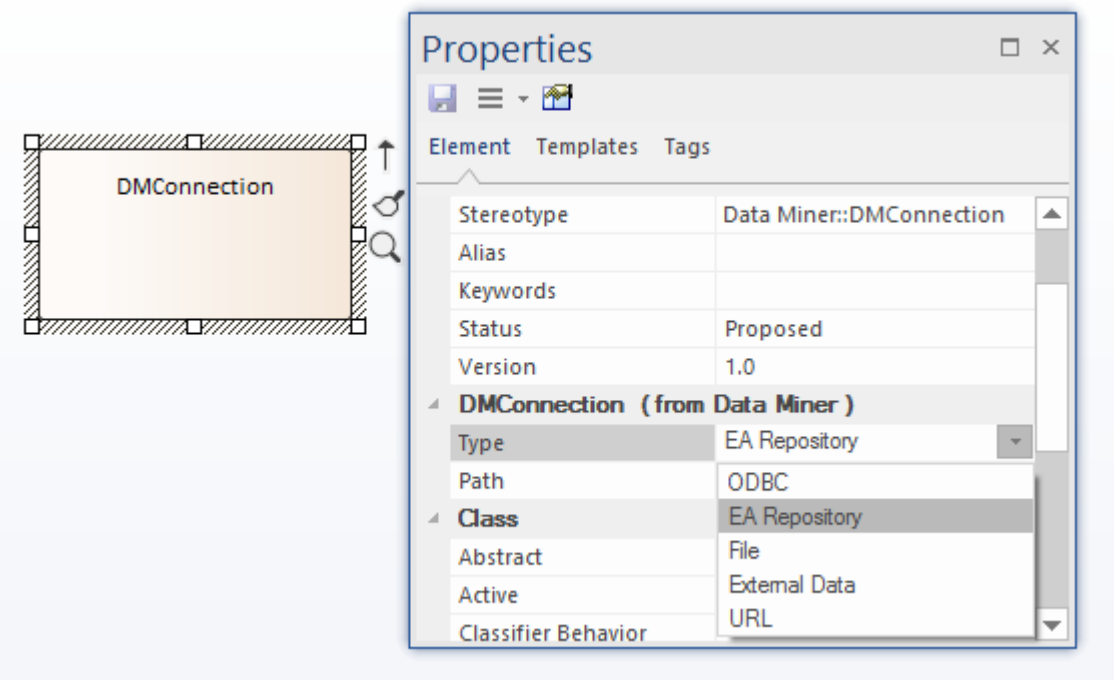
Data Sources

A DMConnection element sets the connection to the external data source. The connection types that are supported include:

- ODBC - for connecting external databases
- EA Repository - sets a connection to an Enterprise Architect repository
- File - for file types like CSV and XML
- External Data - access to Pro Cloud Integration
- URL - HTTP GET and POST.

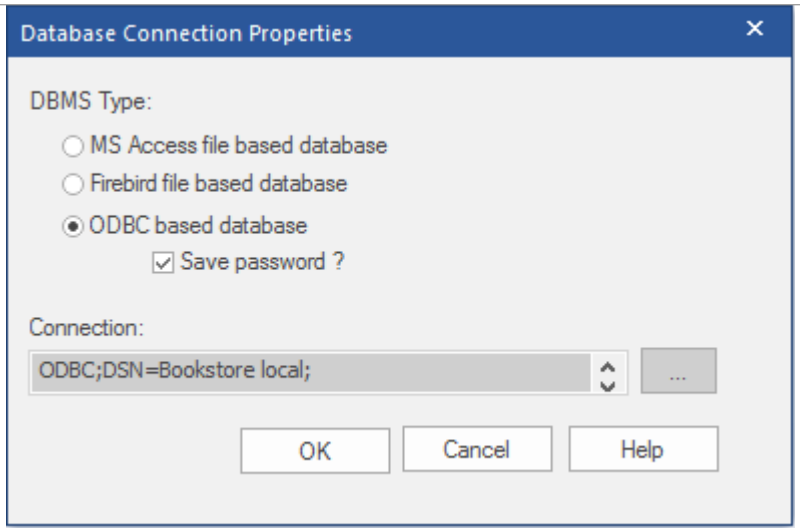
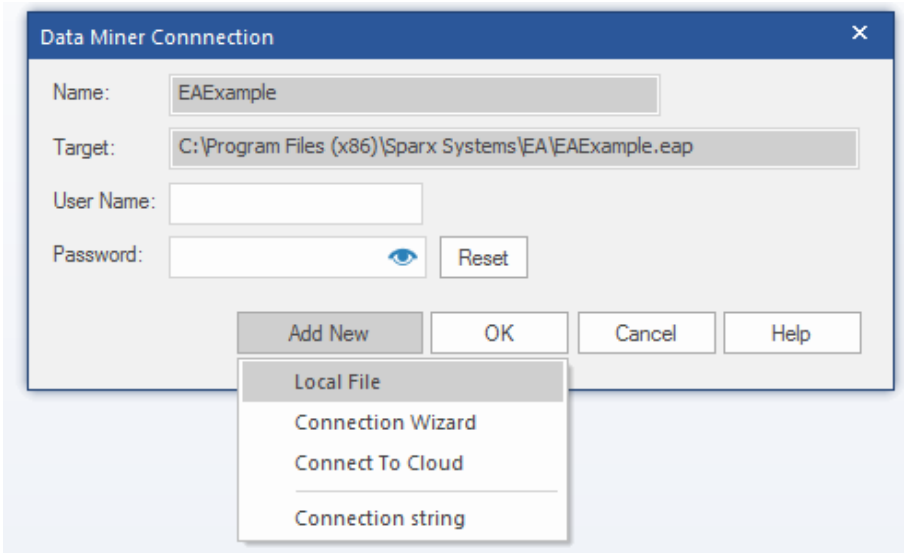
Setting a Data Type

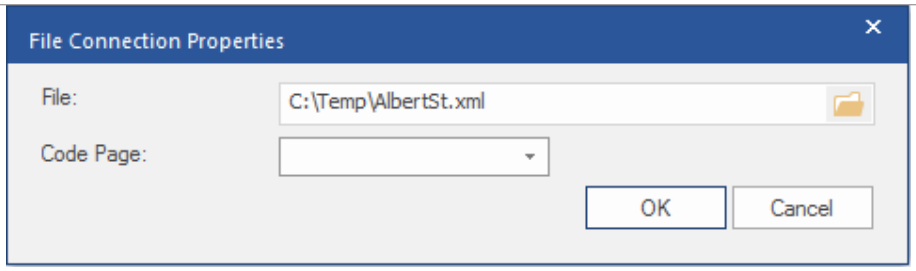
To set the Data Source Type, in the Properties window, under DMConnection, select the Type from the drop-down:



With the DMConnection Type selected, you can now enter the connection details based on the type selected.

Type	Description
ODBC (Open Database Connectivity)	An ODBC connection can be used to connect to external databases or database-like providers. Direct connections can be made to local Microsoft Access or Firebird files, or an existing ODBC connection can be used to connect to any other ODBC database provider. To set an ODBC connection: • Right-click on the DMConnection element • Select 'Edit Data Miner Connection'.

	 Select the type of database to connect to and follow the prompts to select the database.
Enterprise Architect Repository	Directly connect to another Enterprise Architect repository by selecting this type. To set a connection to a repository: • Right-click the DMConnection element • Select 'Edit Data Miner Connection' • Click on the Add New button to select the connection type. 
File	Some file types can be used in the Data Miner. In general the DMScripts processor will be given the text from the file. The Data Miner doesn't attempt to interpret the file in any way, so the script must ensure it's in the expected format. To set a connection to a file: • Right-click the DMConnection element • Select 'Edit Data Miner Connection'

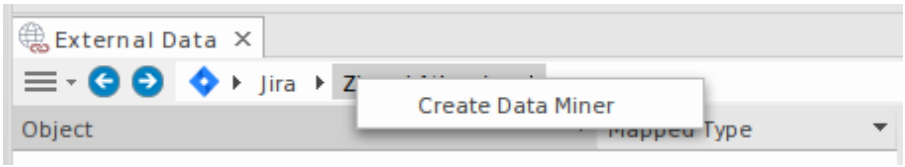


External Data

The Data Miner External Data connection is for linking to an existing Enterprise Architect Integration external source. This requires that the Pro Cloud Integration feature has been configured to access an external source.

To configure an External Data connection:

- Select from the Ribbon : Specialize > Tools > System Integration > Open External Data
- Browse to the list of items to be retrieved
- right-click on the Integrations menu item and select 'Create Data Miner'.

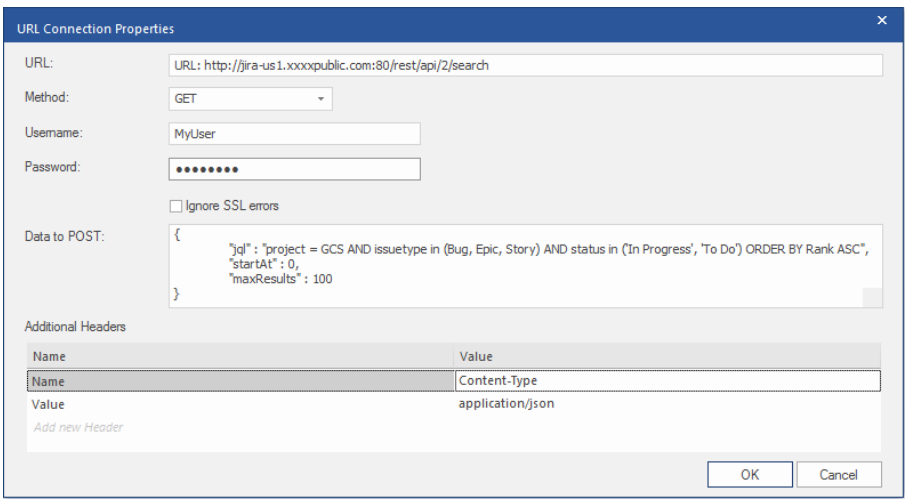


This will create a DMConnection element with all the required connection settings to retrieve the external data.

URL

Text can be retrieved from online by specifying a URL. It's possible to add simple authentication and extra headers to the request and to send as a HTTP 'GET" or 'POST' request.

- Right-click the DMConnection element
- Select 'Edit Data Miner Connection'



The Data Miner will not attempt to interpret the data. It will pass it to the DMScripts as simple text.

Properties:

URL - Set the URL to access the data.

Method - Options:

- GET
- POST

	• PUT **User** - Sets the User Name for authorized access. **Password** - Sets the user access password. **Ignore SSL Errors** - Set this to ignore returned SSL errors. **Data to POST** - Send additional data along with the request when the server requires it. Setting this is usually only required when a 'method' is 'POST' or 'PUT'. **Additional Headers** - Set any additional headers required in the URL. Standard headers will be included automatically. Note: Check the API documentation of the server for any required headers.

Notes

- The settings are stored in the Data Miner section in the Element Properties, in the 'Path' field. While this memo field can be edited directly, we recommended that you avoid doing so.
- Each DMConnection can be harvested by multiple DMSet elements
- Multiple DMConnection elements can be harvested by a single DMConnection

Data Miner Set

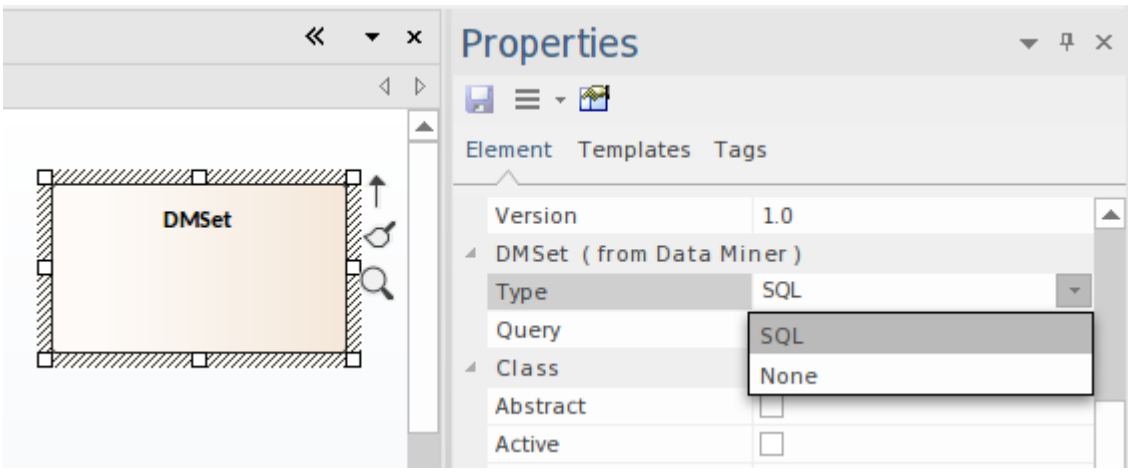
A Data Miner Set element (DMSet) can be used to return a set of data from a DMConnection element. It will retrieve data from all DMConnection elements that it is connected to, and optionally run a query on connections that support or require it.

Data Miner Set - Type

The Data Miner has two options for the Type:

- SQL
- None

The SQL Type setting can be used with Data Sources that are set to the Type - 'ODBC' or 'EA Repository'. For the other Data Source types, set this option to None. The DMSet Type is set in the Properties window (Ctrl+2) > DMSet > Type.



Data Miner Visualizer

For a Data Miner Set that is typed as SQL, you can access the Data Miner Visualizer. This is used for setting a SQL query to be run, that returns the set of data to be processed in the Data Miner Script. The Visualizer also shows the results of the SQL query.

To access this:

- Right-click on a DMSet element
- From the context menu, select Open Data Miner Visualizer

For more details see the *Data Miner Visualizer* Help topic.

Notes

- Each DMSet can harvest data from multiple DMConnection elements
- Multiple DMSet elements can harvest data from a single DMConnection

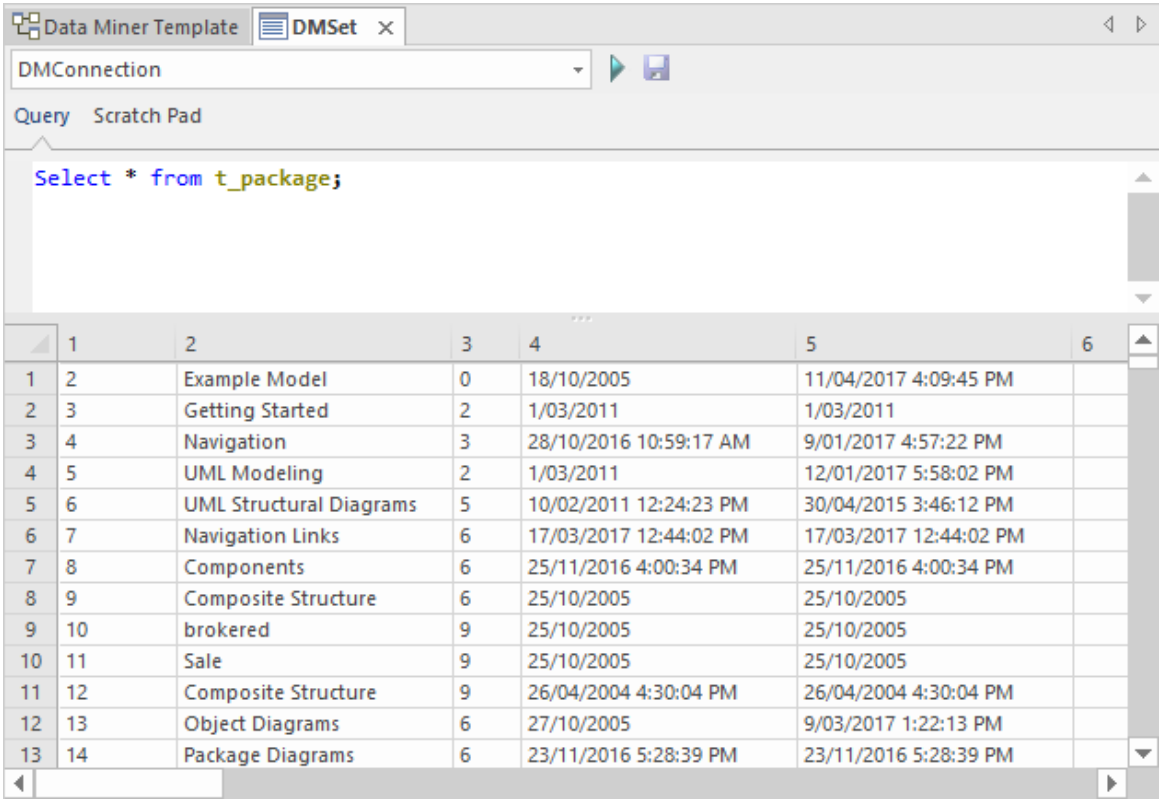
Data Miner Visualizer

If you are using an SQL query, the Data Miner Visualizer is a handy way to see the data that will be retrieved by the Data Miner. It provides a quick and easy means to modify the SQL query and check the returned data.

To create a query:

- Right click the DMSet element
- Select 'Open Data Miner Visualizer'.
- Type in the query to be run
- Click the play button.

For a correct SQL statement this will return a set of rows containing the retrieved data.



	1	2	3	4	5	6
1	2	Example Model	0	18/10/2005	11/04/2017 4:09:45 PM	
2	3	Getting Started	2	1/03/2011	1/03/2011	
3	4	Navigation	3	28/10/2016 10:59:17 AM	9/01/2017 4:57:22 PM	
4	5	UML Modeling	2	1/03/2011	12/01/2017 5:58:02 PM	
5	6	UML Structural Diagrams	5	10/02/2011 12:24:23 PM	30/04/2015 3:46:12 PM	
6	7	Navigation Links	6	17/03/2017 12:44:02 PM	17/03/2017 12:44:02 PM	
7	8	Components	6	25/11/2016 4:00:34 PM	25/11/2016 4:00:34 PM	
8	9	Composite Structure	6	25/10/2005	25/10/2005	
9	10	brokered	9	25/10/2005	25/10/2005	
10	11	Sale	9	25/10/2005	25/10/2005	
11	12	Composite Structure	9	26/04/2004 4:30:04 PM	26/04/2004 4:30:04 PM	
12	13	Object Diagrams	6	27/10/2005	9/03/2017 1:22:13 PM	
13	14	Package Diagrams	6	23/11/2016 5:28:39 PM	23/11/2016 5:28:39 PM	

Where there are connections to multiple DMConnection elements, use the drop-down to select another DMConnection.

The Data Miner Visualizer has two tabs:

- **Query**
  This is where the SQL query is defined.
  Click on button to test the query.
  Click on the button to save the query to the DMSet - Query.
- **Scratch Pad**
  The Scratch Pad can be used to test out new queries without having them saved to the DMSet element.
  Click on button to test the query.

Data Miner Scripts

A Data Miner Scripts element (DMScripts) can be used to process the raw data returned from a DMSet. The script is written in Javascript and will receive the data in a number of different formats depending on the source.

Add a new script

The scripts to be run are defined as 'Operations' on the DMScripts element. Add one or more operations and define the javascript code to be run on the Data Miner data.

For access to starter scripts you can use a Pattern or use the Model Wizard to create a new Data Miner model:

- Select a package in the Browser
- Set the Perspective to: Perspective > Management > Data Miner.

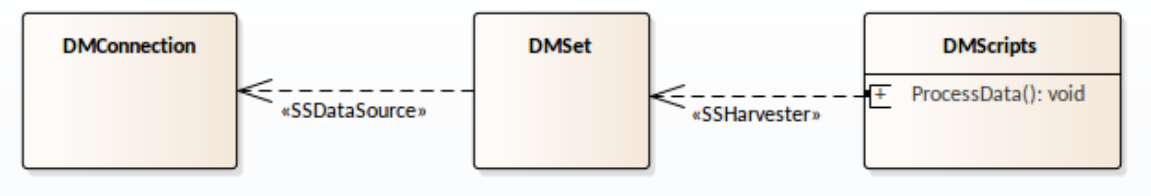
Then either:

- Create a new Data Miner diagram
- Drag a Pattern from the Toolbox

Or:

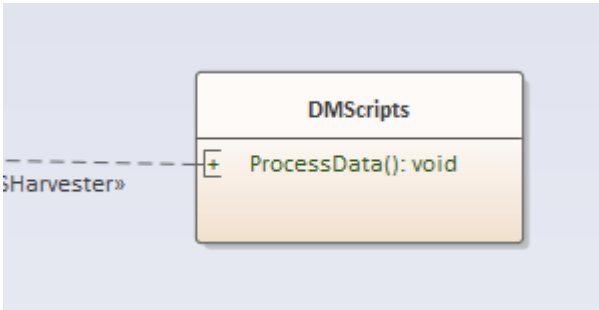
- Open the Model Wizard (Ctrl+Shift+M)
- Click on the Create Patterns button to create one of the Data Miner models in your package.

The DMScript element will contain sample javaScript code to use as a starter for creating your own Data Miner.



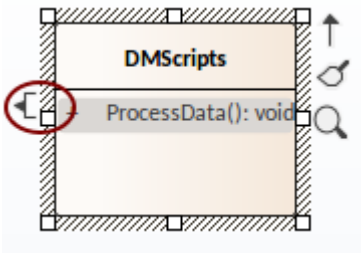
Connecting a script operation to a DMSet

The connection between a DMScript and a DMSet must be a connection to a specific operation in the DM Script element, not just to the DM Script element itself. The connector type is 'Harvester'.



To set this connection:

- Select the **DMScripts** element
- Click on the operation in the element
  This will show the **Feature Linker** on the side of the element:



- Drag the **Feature Linker** to the **DM Set** element
- Select **Harvester** in the context menu.

Each script operation can be connected to multiple DMSet elements and, when run, will receive each data set in turn.

Script

The script is written in JavaScript and uses the Data Miner Package automation classes. To access the Script for editing:

- Select the DMScripts element
- Right-click on the element
- Select **Edit Data Miner Processor**.

For more details on using the Data Miner automation, see the *Data Miner Package* Help topics. For more details on using the automation to create elements and connectors in the model see the *Element Package* and *Connector Package* under the automation *Reference* Help topic.

Run the Data Miner

Run all scripts:

- Right click on the DMScripts element
- Select **Run Data Miner Processor**.

Run a specific script:

- Select the script operation in the DMScripts element
- Right click the script operation and select **Run**.