

## Architecture Validation Extension

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## Disclaimer

Version 2.0.x of the *Architecture Validation Extension* has been successfully tested for deployment with EA version 12.1, 13.0 and 13.5.

This deployment, as well as the guidelines, may or may not be applicable to any later version of the tool as released by the vendor, Sparx Systems. If required, updates to this software will be made available to support future versions of Enterprise Architect.

There is no guarantee that versions prior to EA 12.1 will work properly. No effort will be made to support earlier releases of Enterprise Architect.

Great care has been taken during development to use SQL statements that are supported across the common backend database platforms. Nonetheless, should a statement fail to execute correctly, please refer to the [Troubleshooting](#) part of this User Guide for assistance.

If any other problems are encountered, either during installation or operation of this software, please [contact us](#) through any of the channels listed at the bottom of this document.

## Dependencies

The add-in depends on the following components being installed on the system:

- Interop.EA.dll (part of the standard Sparx installation files).
- Microsoft .Net Framework 4 Client Profile.

## Limitations of the trial version.

The following limitations apply to the trial version:

- The software activation is granted for five (5) consecutive days only.
- Only the first ten (10) rule matches for any rule are reported back to the User, for a maximum of 250 total.
- Custom rules are not supported (i.e. only the [default rule set](#) can be executed).

## Supported rule types

A global property for the entire rule configuration file can be set to exclude all Packages with a particular Status value (see the [default rule set](#)). This allows filtering out sandbox or other non-production models from the result set.

**This filter is applied only when the validation is [performed at the Package level](#) (i.e. not when performed against the entire repository).**

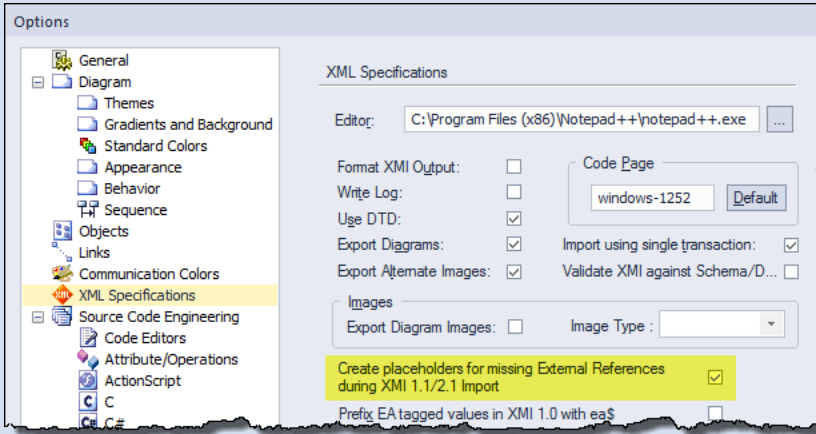
To see the specific ways in which each rule type can be customized, or additional rules defined for the type, please follow the hyperlinks.

## **Connector related rules**

<b>Rule Type</b>	<a href="#">Connector Ends</a>
<b>Description</b>	Validates that only certain connector types/stereotypes are used between specified element types/stereotypes.
<a href="#">Default Rule/s</a>	Use Case-to-Use Case connector types Use Case-to-Use Case connector stereotypes Actor-to-Use Case connector types

<b>Rule Type</b>	<a href="#">Sequence Messages Operations</a>
<b>Description</b>	Validates that Sequence diagram Messages trace back to a defined Operation in the model, and/or that the specified Operation still exists in the model. Filters are available at the Message stereotype and target element type/stereotype levels.
<a href="#">Default Rule/s</a>	Sequence Messages with no defined Operation Sequence Messages with a broken Operation reference

<b>Rule Type</b>	<a href="#">Orphan connectors</a>
<b>Description</b>	Locates relationships in the repository which are not visible on any diagram. Filters are available at the connector type/stereotype, source element type/stereotype, and target element type/stereotype levels.
<a href="#">Default Rule/s</a>	All orphan connectors

<b>Rule Type</b>	<a href="#">Unresolved connector ends</a>
<b>Description</b>	<p>Locates relationships in the repository in which either the source or the target element is missing from the repository. Missing connector end references typically occur during the import (manually or through version control) of incomplete models from other repositories.</p> <p><b>Caveat:</b> the rule can only detect this condition if the <i>Create Placeholders for Missing External References</i> property is set!</p> 
<b>Default Rule/s</b>	All unresolved connectors

<b>Rule Type</b>	<a href="#">Association End Properties</a>
<b>Description</b>	<p>Validates that an association end has one or more of the following properties defined:</p> <ul style="list-style-type: none"> <li>- Multiplicity.</li> <li>- Role name.</li> </ul> <p>Filters are available at the following levels:</p> <ul style="list-style-type: none"> <li>- Source &amp; target element type/stereotype.</li> <li>- Connector type/stereotype, direction, and navigability.</li> </ul> <p>Multiple connector types can be specified per rule.</p>
<b>Default Rule/s</b>	UML Class association end properties

**Diagram related rules**

<b>Rule Type</b>	<a href="#">Empty Diagrams</a>
<b>Description</b>	Reports diagrams with no elements present.
<b>Default Rule/s</b>	All empty diagrams.

<b>Rule Type</b>	<a href="#">Diagram Objects with no Connectors</a>
<b>Description</b>	<p>Reports elements present on a diagram with no relationships to another element on the same diagram. Filters are available at the diagram type and element type levels.</p> <p>Note: by default sequence diagrams are excluded from the search, but this can be overridden in a custom rule.</p>
<b>Default Rule/s</b>	Locates all unconnected UML Class and Use Case elements that are present on one or more diagrams.

<b>Rule Type</b>	<a href="#">Diagram Objects with no Classifiers</a>
<b>Description</b>	Intended for diagrams which are modeled at the object/instance level, this rule reports diagram elements with no associated classifier (i.e. orphan objects). Filters are available at the diagram type and element type levels.
<b>Default Rule/s</b>	Locates all elements on Sequence diagrams that do not have an associated classifier (e.g. a UML Class, Interface, or Component).

**Element related rules**

<b>Rule Type</b>	<a href="#">Orphan Elements</a>
<b>Description</b>	Finds elements which are not present on any diagram AND have no relationships. This rule is an expansion of the built-in “Find Orphans” search definition. A filter is available at the element type/stereotype level.
<a href="#">Default Rule/s</a>	Locates all orphan elements.

<b>Rule Type</b>	<a href="#">Elements with no Description</a>
<b>Description</b>	Finds elements which do not have a description text in their Notes field. A filter is available at the element type/stereotype level.
<a href="#">Default Rule/s</a>	Actors with no description. Use Cases with no description. Components with no description. Classes with no description.

<b>Rule Type</b>	<a href="#">Elements with Duplicates Names</a>
<b>Description</b>	Reports elements <u>of the same type</u> (e.g. Actors) with the same name. A filter is available at the element type/stereotype level.
<a href="#">Default Rule/s</a>	Duplicate Actor names.

<b>Rule Type</b>	<a href="#">Unrealized Elements</a>
<b>Description</b>	Reports elements (e.g. Requirements) which are not realized by any other element through a specific connector type (typically a Realization relationship). Filters are available at the element type/stereotype, related element type/stereotype, and connector type/stereotype levels.
<a href="#">Default Rule/s</a>	Unrealized Requirements. Unrealized Interfaces.



<b>Rule Type</b>	<a href="#">Missing Relationships</a>
<b>Description</b>	Finds elements which are not connected (as a source) to other elements (as a target) through one or more relationships. Filters are available at the source element type/stereotype, target element type/stereotype, and connector type/stereotype levels.
<a href="#">Default Rule/s</a>	Missing Use Case to Requirement relationships.

<b>Rule Type</b>	<a href="#">Missing Relationships - Extended</a>
<b>Description</b>	<p>Finds elements which are not connected (as a source) to other elements (as a target) through one or more relationships. This rule targets elements such as UML Components where the relationship can be either:</p> <ul style="list-style-type: none"> <li>- Direct (element to element).</li> <li>- Indirect (element to Port, Port to element, or Port to Port).</li> </ul> <p>Filters are available at the source element type/stereotype, target element type/stereotype, and connector type/stereotype levels.</p>
<a href="#">Default Rule/s</a>	Missing Component to Component relationships.

<b>Rule Type</b>	<a href="#">Missing Interfaces</a>
<b>Description</b>	<p>Finds elements such as UML Components which are not realizing a UML Interface. This rule targets elements where the realization can be either:</p> <ul style="list-style-type: none"> <li>- Direct (Realization connector from element to Interface).</li> <li>- Indirect (element with provided or required Interface, Port with provided or required Interface, or Port classified by an Interface).</li> </ul> <p>Filters are available at the element type/stereotype level.</p>
<a href="#">Default Rule/s</a>	Missing Component to Interface relationships.

<b>Rule Type</b>	<a href="#">Unresolved Classifiers</a>
<b>Description</b>	<p>Reports elements for which the classifier specified is not (or no longer) in the repository. Missing classifier references typically occur during the import (manually or through version control) of incomplete models from other repositories.</p> <p><b>Caveat:</b> the rule can only detect this condition if the <i>Create Placeholders for Missing External References</i> property is set!</p> <p>Filters are available at the element type/stereotype level.</p>
<a href="#">Default Rule/s</a>	All unresolved classifiers.

### ***Attribute related rules***

<b>Rule Type</b>	<a href="#">Unresolved Attribute Data Types</a>
<b>Description</b>	<p>Finds Attributes for which the classifier specified is not (or no longer) in the repository. Missing data type classifier references typically occur during the import (manually or through version control) of incomplete models from other repositories.</p>
<a href="#">Default Rule/s</a>	All unresolved Attribute data types.

### ***Operation related rules***

<b>Rule Type</b>	<a href="#">Unresolved Operation Argument Data Types</a>
<b>Description</b>	<p>Finds Operation arguments for which the classifier specified is not (or no longer) in the repository. Missing argument data type classifier references typically occur during the import (manually or through version control) of incomplete models from other repositories.</p>
<a href="#">Default Rule/s</a>	All unresolved Operation argument data types (including the return type).

## Installation

The installation process is the same for both the trial and the full version.

First, **exit any running instances of Enterprise Architect**, then launch the “setup.exe” program and follow the on-screen instructions.

The installation will attempt to update the Windows registry, so the User needs to ensure that s/he has sufficient privileges to run the setup program.

The recommended install path is to place the DLL and any supporting files in an *Addins* folder in the Sparx Systems installation directory, e.g.

C:\Program Files (x86)\Sparx Systems\Addins.

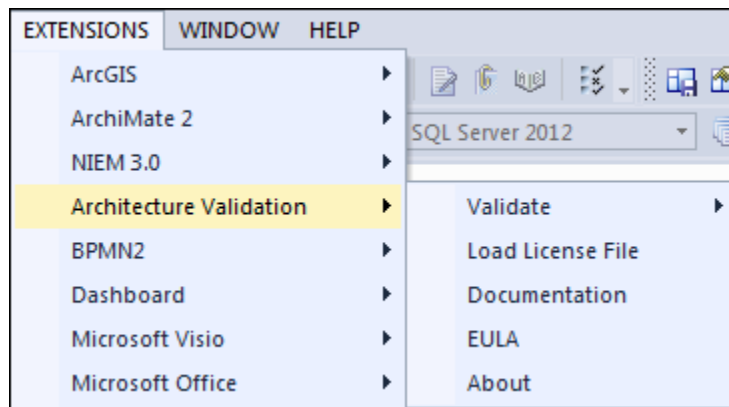
Note that older versions of the software are automatically removed and replaced.

Should the installation fail for any reason other than insufficient User privileges, please take appropriate screenshots and email the data to the [support](#) address listed at the bottom of this document.

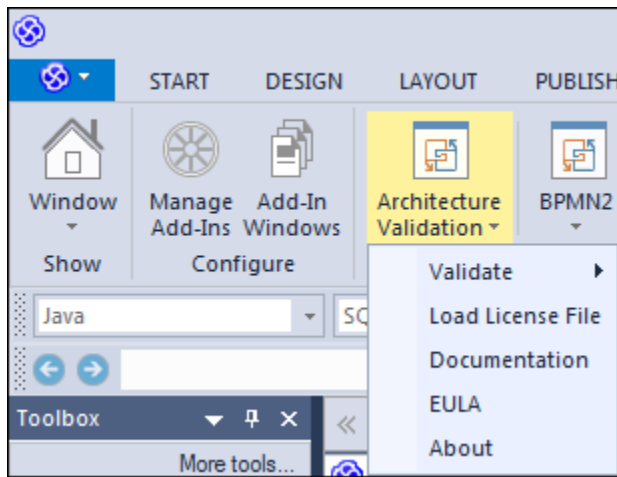
## Verifying the installation

Bring up Enterprise Architect, without necessarily opening a repository, and verify that the *Architecture Validation* extension has been loaded:

In EA 12.1, locate the EXTENSIONS menu:



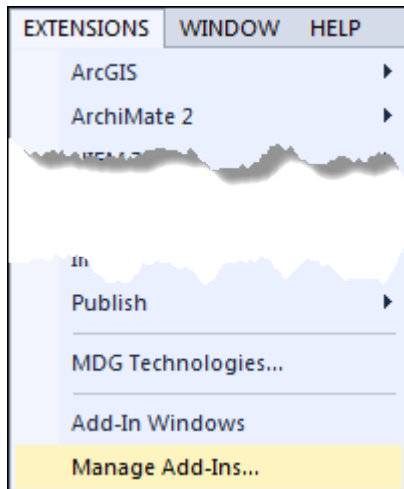
In EA 13.x, locate the EXTEND ribbon:



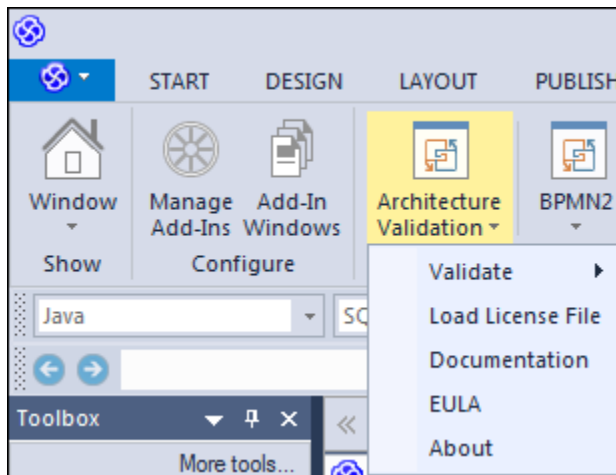
Note that the other extensions shown in the above screenshot may or may not be present, depending on your Enterprise Architect version and configuration.

Should the extension not be present:

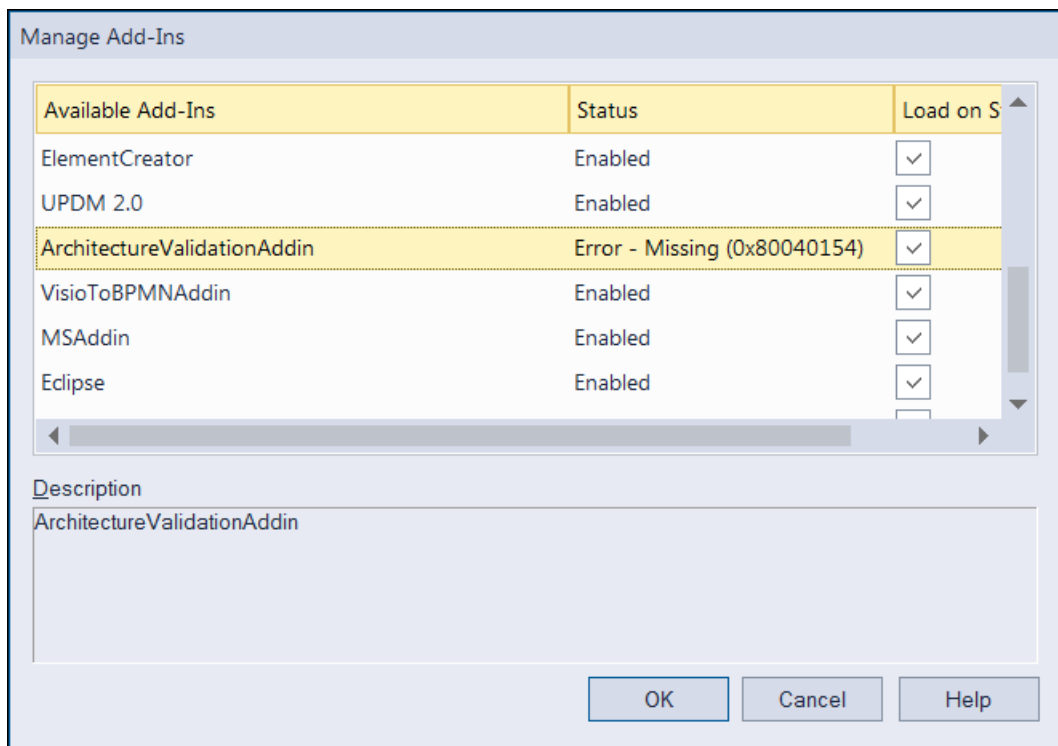
In EA 12.1, select the “EXTENSIONS → Manage Add-Ins” menu:



In EA 13.x, select “Manage Add-Ins” from the EXTEND ribbon:



And confirm that the *Architecture Validation* extension is loaded and enabled:



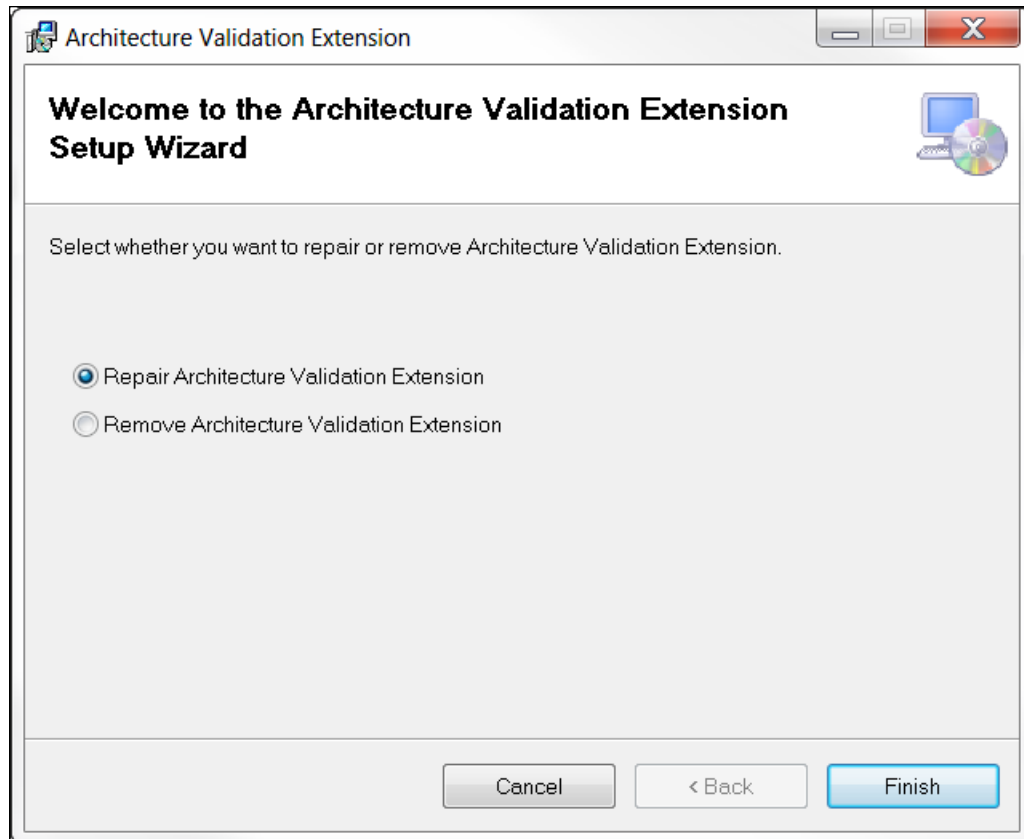
If an error status is shown, as in the example above, this typically means that either:

- The installation process failed and that the DLL cannot be located in the Windows registry, or in the file system.
- The installation did succeed but the DLL file was later moved or deleted.

If the *Architecture Validation* entry itself is not found then the extension installation did not complete successfully.

To fix an incorrect installation:









- Exit out of all instances of Enterprise Architect.
- Launch the setup process again. The installer will automatically provide a repair option:



## Architecture Validation User Guide

If, after the repair procedure, the *Architecture Validation* extension is still not loaded correctly in Enterprise Architect, remove the program through the Windows control panel and start the installation process over.

At the completion of a successful installation the following files are installed in the selected directory:

Name	Type	Size
 ArchitectureValidationAddin.dll	Application extension	103 KB
 ArchitectureValidationExtension.pdf	Adobe Acrobat Document	186 KB
 Cephass_Software_EULA.pdf	Adobe Acrobat Document	60 KB
 Cephass_Software_EULA.rtf	Rich Text Format	126 KB
 EA.TLB	TLB File	215 KB
 Interop.EA.dll	Application extension	296 KB
 register_ArchitectureValidationAddin.bat	Windows Batch File	1 KB
 Unregister_ArchitectureValidationAddin.bat	Windows Batch File	1 KB

## ***Installing the license key file***

### **Trial version**

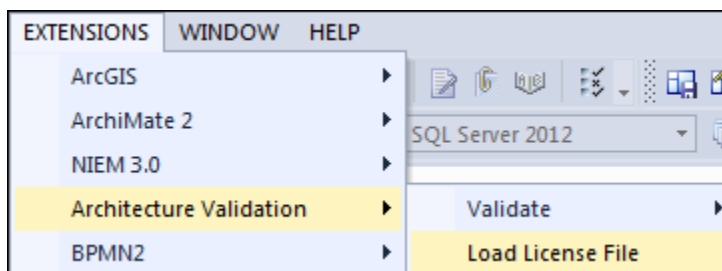
The software installation automatically loads the trial version license key. Skip to the [Adding the User license key](#) section.

### **Licensed version**

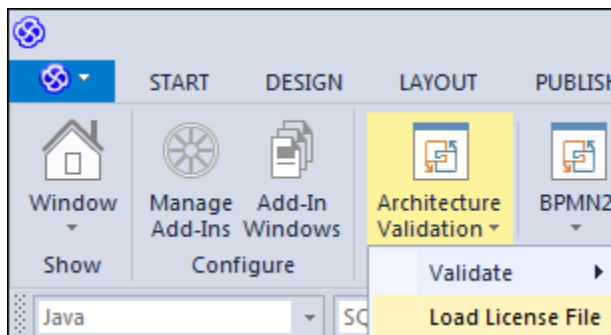
**Once the full version of the product has been purchased, a <license type>.keys file will be provided by Cephass Consulting which needs to be installed **by each licensed User of the software**, even if floating license keys are purchased.**

To install the license key file, select “Load License File”.

In EA 12.1:

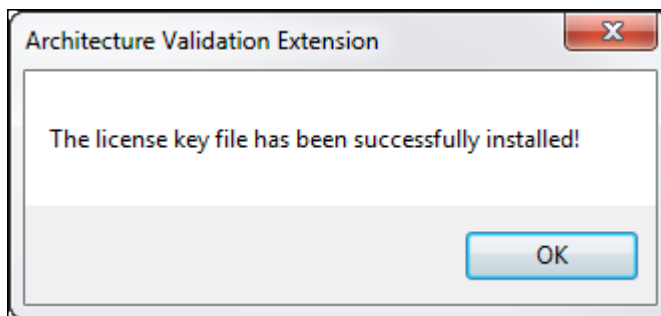
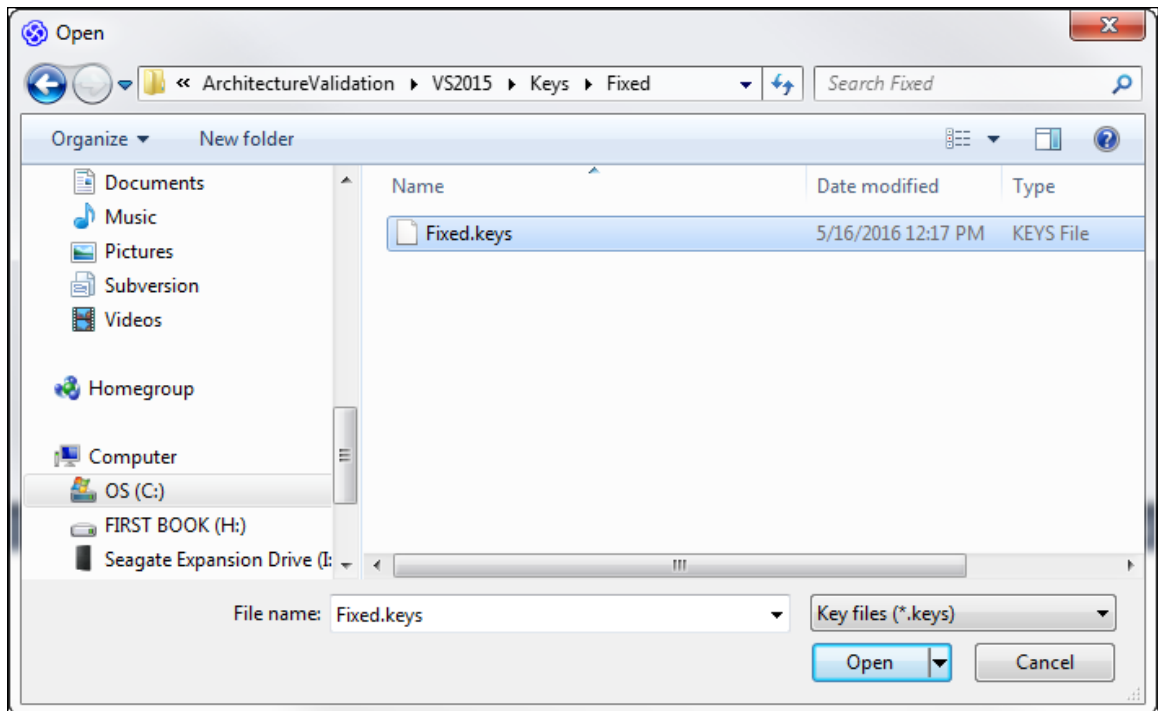


In EA 13.x:





Next, select the provided file. For example, for a fixed license key:



**After installing the license key file**, continue with the next section.

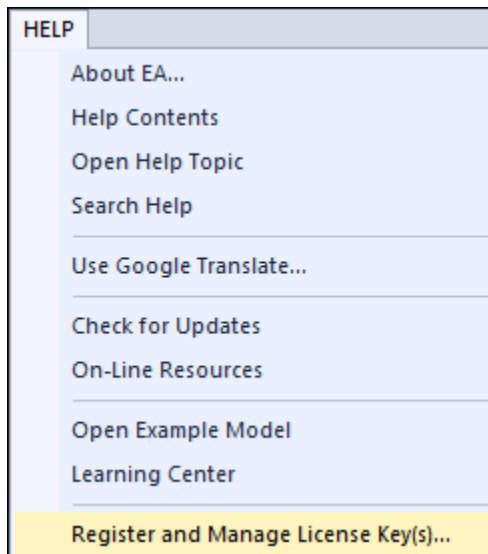
## ***Adding the User license key***

### **Trial and Fixed Licenses**

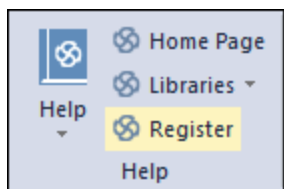
The following step is required for both the trial and the fixed version of the software (in the latter case, after installing the license key file as described in the previous section) in order to make Enterprise Architect verify the software license.

See [here](#) for how to install a floating license.

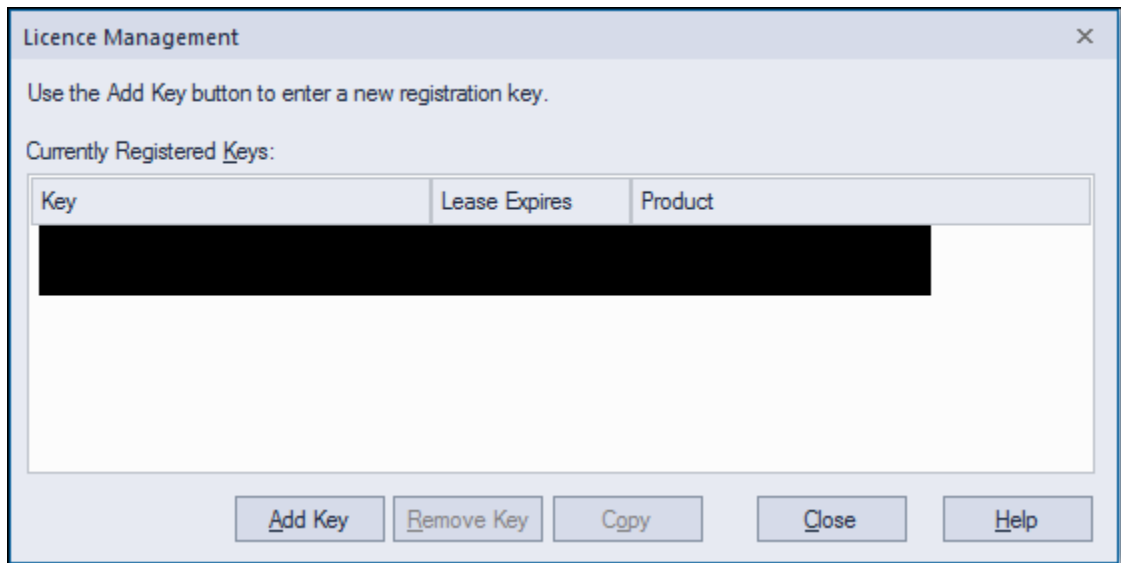
In EA 12.1, under the HELP menu, select:



In EA 13.1, open the START ribbon and select:



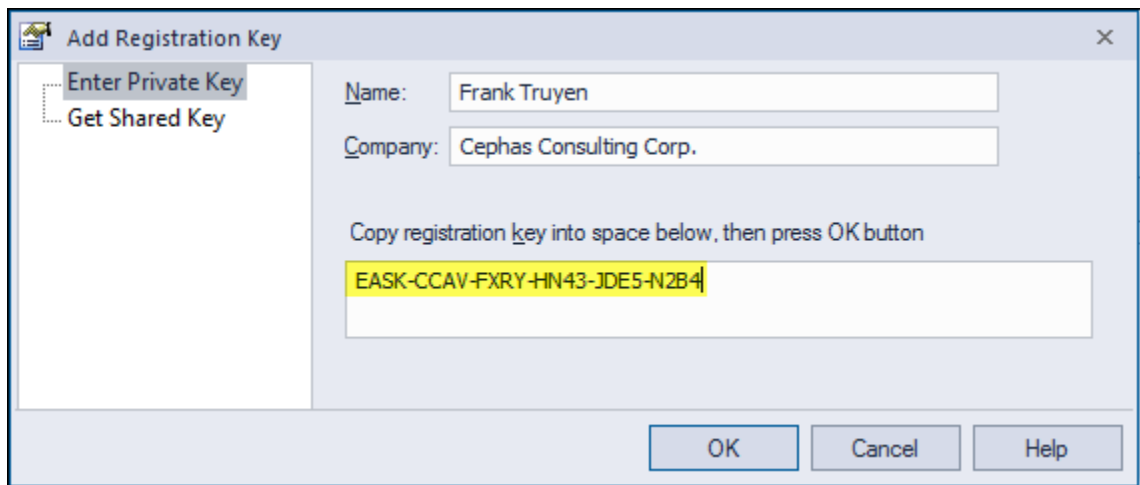
Next, click “Add Key”:



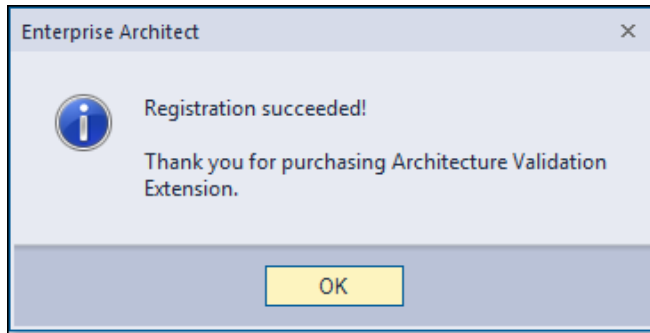
Enter or copy/paste, either the trial key:

EASK-CCAV-FXRY-HN43-JDE5-N2B4

Or one of the fixed license keys provided as part of the software purchase.

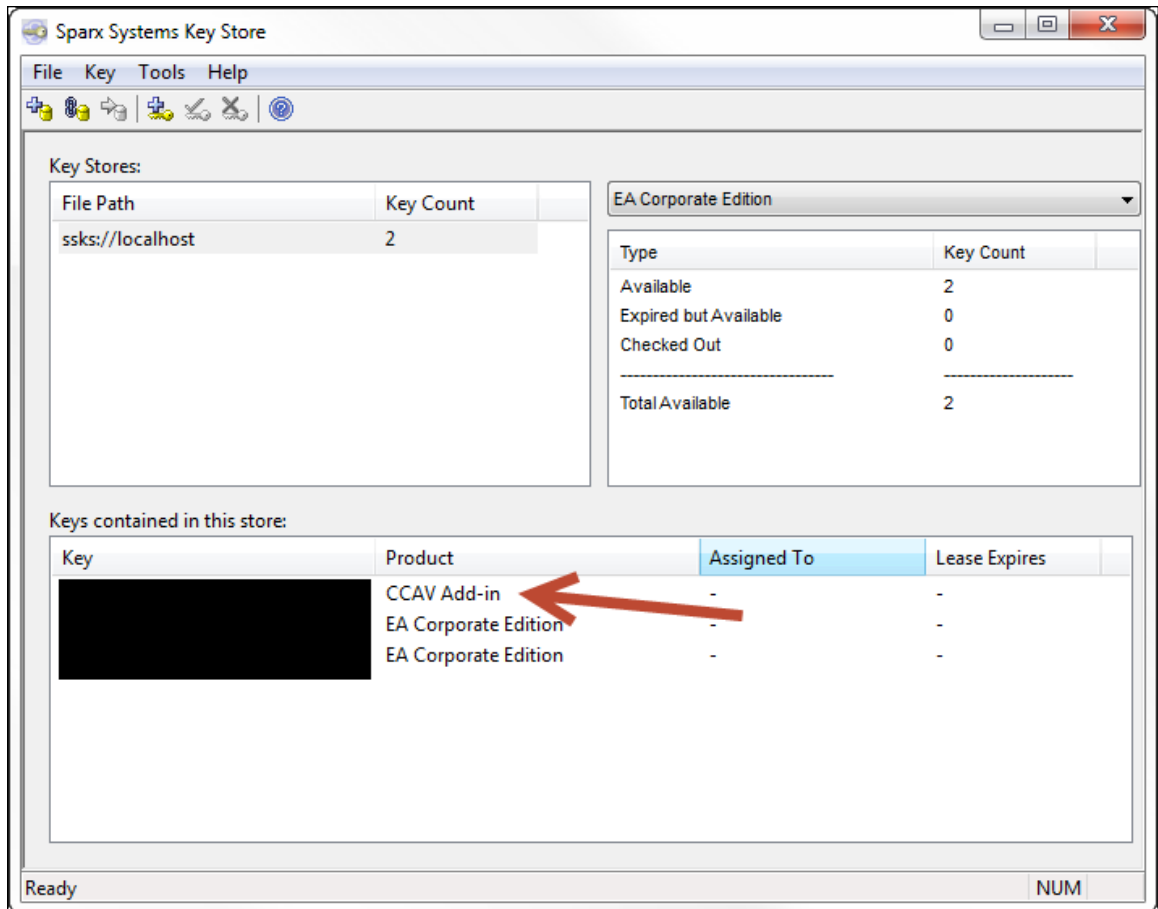


Enterprise Architect will confirm the successful addition of a key:

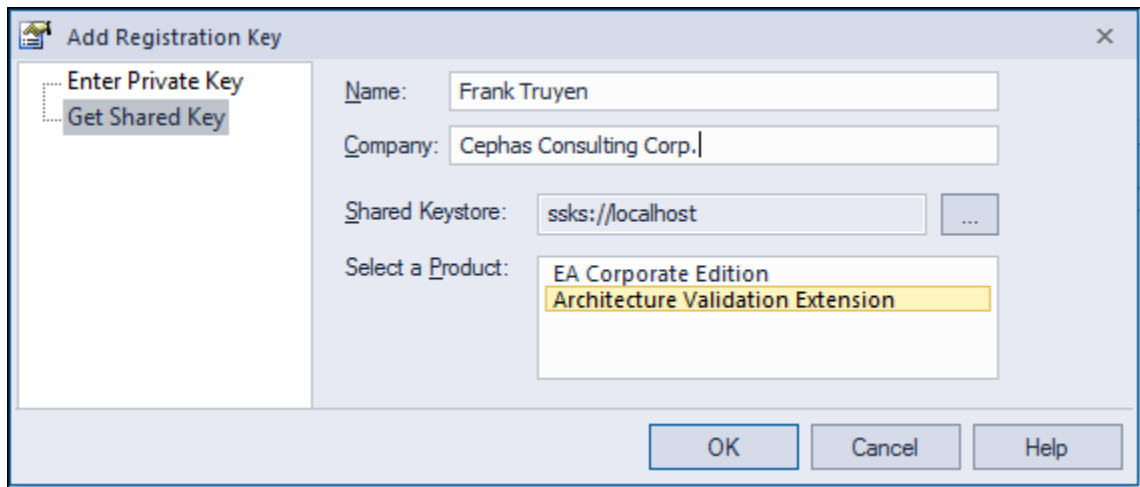


## Floating Licenses

First the administrator needs to add the key/s to the Sparx System key store (**version 2.3 or higher**), using the same process as for Enterprise Architect license keys:



Individual Users can then obtain a key from the store using the “Get Shared Key” tab:



**Add Registration Key**

Enter Private Key  
Get Shared Key

Name: Frank Truyen

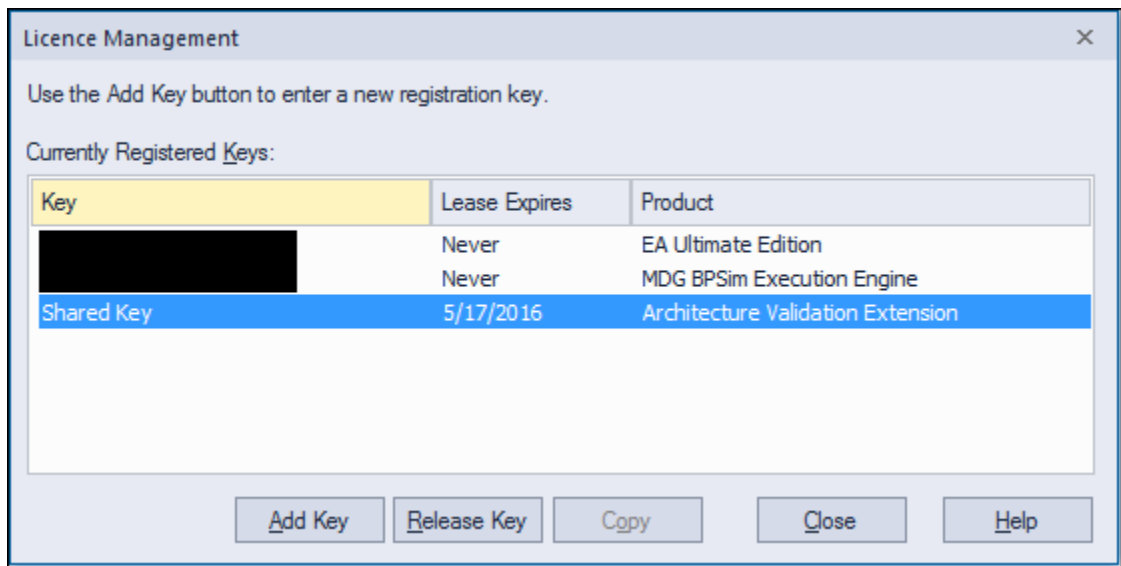
Company: Cephas Consulting Corp.

Shared Keystore: ssk://localhost

Select a Product:

- EA Corporate Edition
- Architecture Validation Extension**

OK Cancel Help



**Licence Management**

Use the Add Key button to enter a new registration key.

Currently Registered Keys:

Key	Lease Expires	Product
[REDACTED]	Never	EA Ultimate Edition
[REDACTED]	Never	MDG BPSim Execution Engine
Shared Key	5/17/2016	Architecture Validation Extension

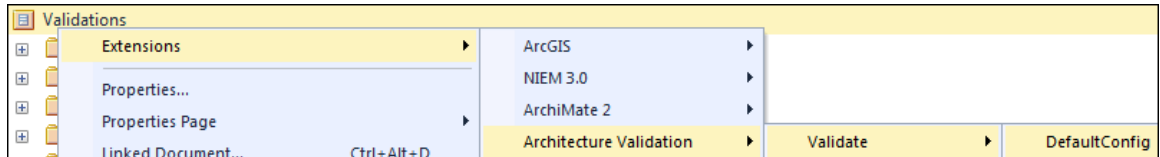
Add Key Release Key Copy Close Help

## Running the validation

The validation can be performed in two possible contexts:

- At the package level: all child packages in the hierarchy (if any) are included by default (Packages can be filtered out by setting the [IgnorePackageWithStatus](#) property in the rule set).

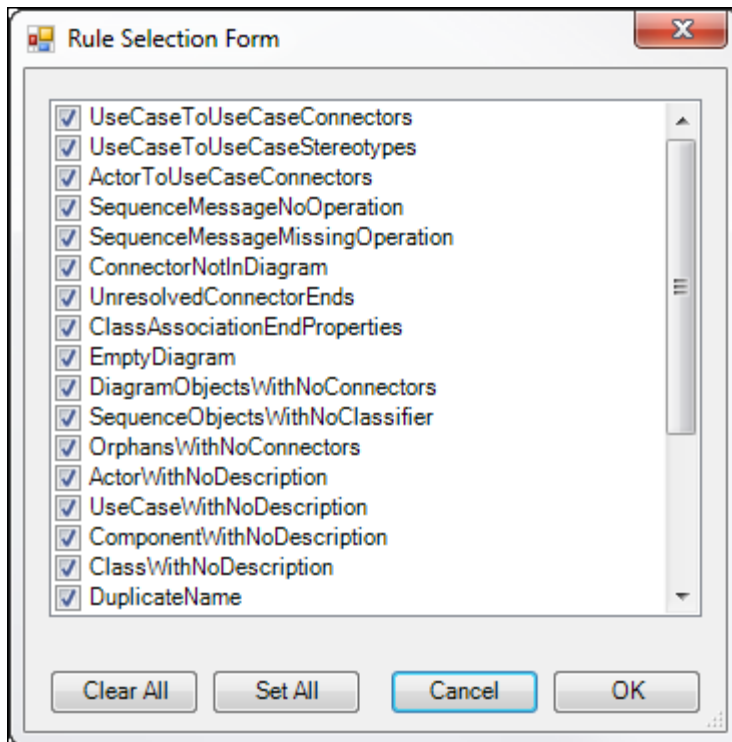
**Right click** a Package, or the top of a Package hierarchy, and select:



- In any other context (element, diagram,...): the entire model is validated.

Caveat: the larger the package hierarchy the slower the execution of the SQL statements. To validate the entire model, select a non-package context as opposed to the model root node.

Unless the [RunSilent](#) option is enable for the rule set, the following prompt will display when launching the validation:



This allows rules to be enabled/disabled for a specific validation. To disable rules by default, create a [custom rule set](#).

## Default Rule Set

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<!DOCTYPE Validations >
<Validations Version="4" RunSilent="False" VerboseLevel="1" IgnorePackageWithStatus="">
  <Connectors>
    <ConnectorEnds Enabled="True" ID="UseCaseToUseCaseConnectors" AnyDirection="True">
      <ConnectorType MatchFilterCriteria="False" Name="'UseCase','Generalization'" />
      <ConnectorStereotype MatchFilterCriteria="False" Name="" Subtype="" />
      <Source Type="'UseCase'" Stereotype="" />
      <Target Type="'UseCase'" Stereotype="" />
    </ConnectorEnds>
    <ConnectorEnds Enabled="True" ID="UseCaseToUseCaseStereotypes" AnyDirection="True">
      <ConnectorType MatchFilterCriteria="True" Name="'UseCase'" />
      <ConnectorStereotype MatchFilterCriteria="False" Name="'include','extend'" Subtype="'Includes','Extends'" />
      <Source Type="'UseCase'" Stereotype="" />
      <Target Type="'UseCase'" Stereotype="" />
    </ConnectorEnds>
    <ConnectorEnds Enabled="True" ID="ActorToUseCaseConnectors" AnyDirection="True">
      <ConnectorType MatchFilterCriteria="False" Name="'UseCase','Association'" />
      <ConnectorStereotype MatchFilterCriteria="False" Name="" Subtype="" />
      <Source Type="'Actor'" Stereotype="" />
      <Target Type="'UseCase'" Stereotype="" />
    </ConnectorEnds>
    <SequenceMessageOperation Enabled="True" ID="SequenceMessageNoOperation" Stereotype="">
      <Target Type="" Stereotype="" />
    </SequenceMessageOperation>
    <SequenceMessageOperation Enabled="True" ID="SequenceMessageMissingOperation" Stereotype="">
      <Target Type="" Stereotype="" />
    </SequenceMessageOperation>
    <OrphanConnectors Enabled="True" ID="ConnectorNotInDiagram" MatchFilterCriteria="True" Type="" Stereotype="">
      <Source Type="" Stereotype="" />
      <Target Type="" Stereotype="" />
    </OrphanConnectors>
    <UnresolvedConnectorEnds Enabled="True" ID="UnresolvedConnectorEnds" MatchFilterCriteria="True" Type="" Stereotype="" />
  </Connectors>
  <AssociationEndProperties>
    <CompleteProperties Enabled="True" ID="ClassAssociationEndProperties" MatchFilterCriteria="True" Type="'Class'" Stereotype="" />
  </AssociationEndProperties>
</Validations>
```

In the default rule set:

- All rules are enabled.
- The *RunSilent* option is set to false.
- The *VerboseLevel* value is set to 1 (default setting).
  - A value of 2 adds the number of matches found for each rule.
  - A value of 3 adds the time taken by each rule execution.
- No status value is defined in the *IgnorePackageWithStatus* property.

## ***Customizing the Rule Set***

**Note:** this option is not available in the trial version!

**Caveat:** it is strongly recommended not to modify the default rule set!

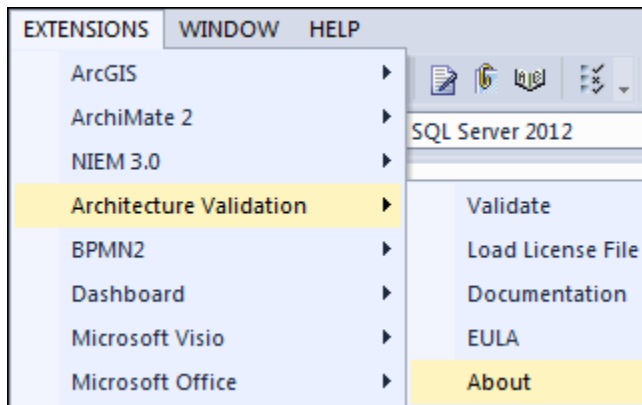
Instead:

- Make a copy of the *DefaultConfig.xml* file **in the same** folder.
- Open the file in any XML editor and make the required changes in that copy.

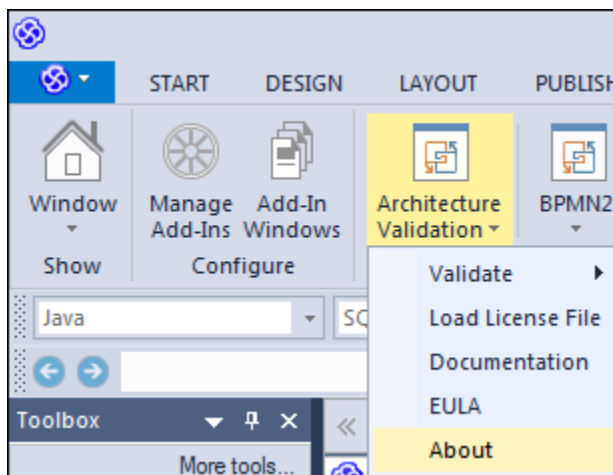
When adding a new rule to a set, ensure that it is given a unique ID (i.e. name) value.

To determine the location of the rules folder on your system, select the *About* menu item.

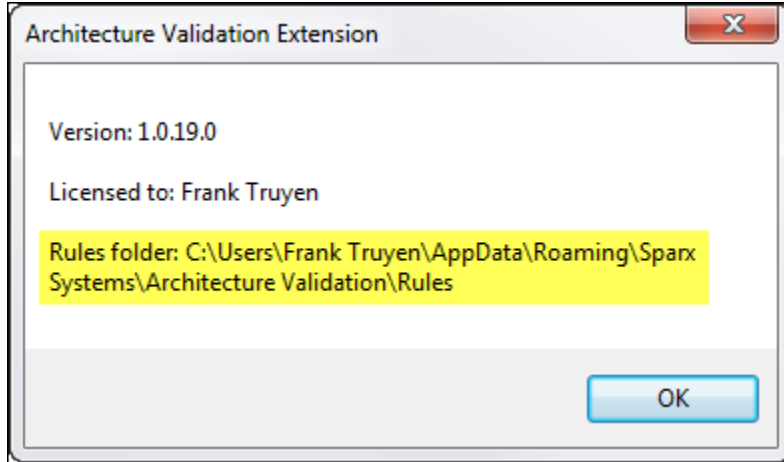
In EA 12.1:



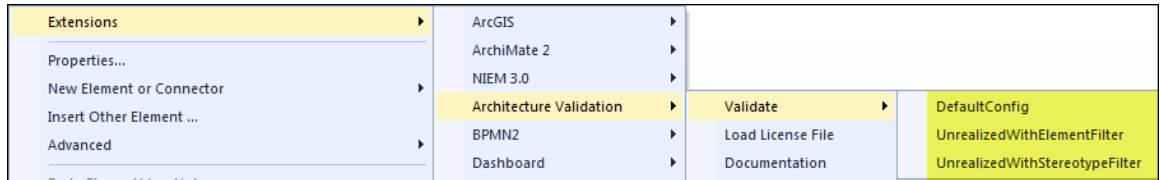
In EA 13.x:







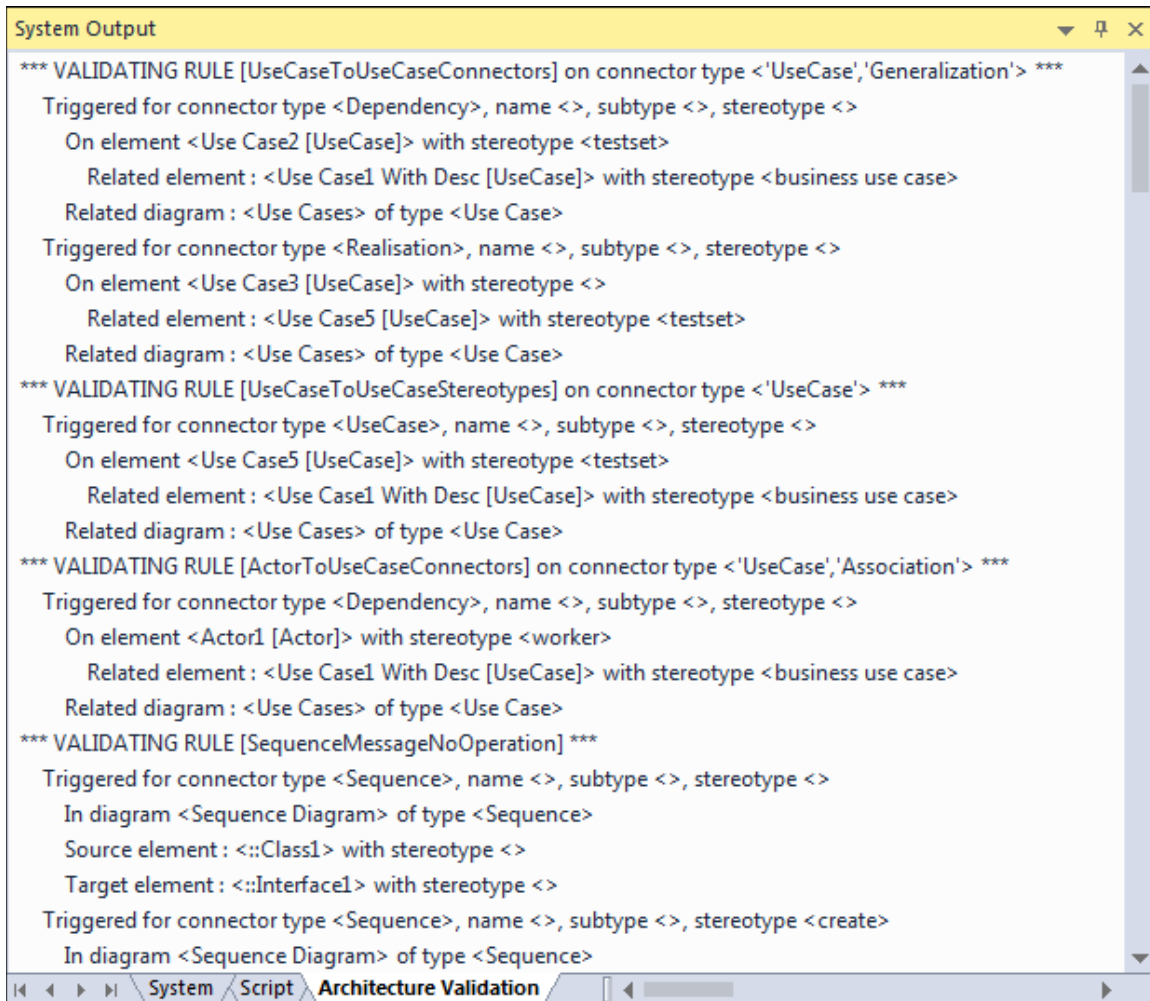
Custom rule sets are automatically detected and made available for selection. For example:



Rule changes can be made in between validations, while EA is running!

## Verifying the result set

During execution the “Architecture Validation” tab in the System Output window will automatically open and display the results of the validation:



```

System Output
*** VALIDATING RULE [UseCaseToUseCaseConnectors] on connector type <'UseCase','Generalization'> ***
  Triggered for connector type <Dependency>, name <>, subtype <>, stereotype <>
    On element <Use Case2 [UseCase]> with stereotype <testset>
      Related element : <Use Case1 With Desc [UseCase]> with stereotype <business use case>
      Related diagram : <Use Cases> of type <Use Case>
    Triggered for connector type <Realisation>, name <>, subtype <>, stereotype <>
      On element <Use Case3 [UseCase]> with stereotype <>
        Related element : <Use Case5 [UseCase]> with stereotype <testset>
        Related diagram : <Use Cases> of type <Use Case>
*** VALIDATING RULE [UseCaseToUseCaseStereotypes] on connector type <'UseCase'> ***
  Triggered for connector type <UseCase>, name <>, subtype <>, stereotype <>
    On element <Use Case5 [UseCase]> with stereotype <testset>
      Related element : <Use Case1 With Desc [UseCase]> with stereotype <business use case>
      Related diagram : <Use Cases> of type <Use Case>
*** VALIDATING RULE [ActorToUseCaseConnectors] on connector type <'UseCase','Association'> ***
  Triggered for connector type <Dependency>, name <>, subtype <>, stereotype <>
    On element <Actor1 [Actor]> with stereotype <worker>
      Related element : <Use Case1 With Desc [UseCase]> with stereotype <business use case>
      Related diagram : <Use Cases> of type <Use Case>
*** VALIDATING RULE [SequenceMessageNoOperation] ***
  Triggered for connector type <Sequence>, name <>, subtype <>, stereotype <>
    In diagram <Sequence Diagram> of type <Sequence>
    Source element : <::Class1> with stereotype <>
    Target element : <::Interface1> with stereotype <>
  Triggered for connector type <Sequence>, name <>, subtype <>, stereotype <create>
    In diagram <Sequence Diagram> of type <Sequence>
  
```

Every rule match is listed in this window using the format:

Triggered for <connector, element, Attribute, Operation or diagram name>  
{additional information}

For rules relating to connectors, the associated objects (source and/or target) and diagram/s are reported on additional output lines.

Where applicable, additional output lines may be added to include related diagrams.

**Single click** a line to automatically locate its related element, Attribute, Operation or diagram in the Project Browser (note that some element types in EA are not included in the Project Browser). For connector related rules, click a related diagram (if provided) to

automatically open it and select the connector in that diagram (you may need to scroll the window to see the selection).

**Double click** a line to open the element, Attribute or Operation properties, or to open the diagram associated with the rule.

## Rule Type Properties

### ConnectorEnds

#### Properties

Property/Sub-property	Value
<b>AnyDirection</b>	If <b>false</b> , the validation of the element types is specific to the source and target values specified in the XML file (e.g. Actor-to-Use Case, where Actor must be the source and Use Case the target). If <b>true</b> , either source or target end of the connector can match the specified element type (e.g. Actor can be source or target).
<b>ConnectorType</b>	
<b>MatchFilterCriteria</b>	If <b>false</b> , the connectors that do NOT match the specified type name are evaluated. If <b>true</b> , the connectors that DO match the specified type name are evaluated for a rule match.
<b>Name</b>	The connector types that the rule filters on. One or more values can be specified, enclosed in single quotes, and comma separated. <b>At least one type must be specified!</b>
<b>ConnectorStereotype</b>	The <u>optional</u> connector stereotypes that are either allowed or not allowed between the source and target element types. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>MatchFilterCriteria</b>	If <b>false</b> , the connector stereotypes that do NOT match the specified name are evaluated. If <b>true</b> , the connector stereotypes that DO match the specified stereotype values are evaluated for a rule match.
<b>Name</b>	The connector stereotypes that the rule filters on. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>Subtype</b>	The connector subtypes that the rule filters on. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>Source</b>	<b>Either a type or a stereotype (or both) must be provided!</b>
<b>Type</b>	One or more source element types can be specified, enclosed in single quotes, and comma separated.

<b>Stereotype</b>	One or more source element stereotypes can be specified, enclosed in single quotes, and comma separated.
<b>Target</b>	<b>Either a type or a stereotype (or both) must be provided!</b>
<b>Type</b>	One or more target element types can be specified, enclosed in single quotes, and comma separated.
<b>Stereotype</b>	One or more target element stereotypes can be specified, enclosed in single quotes, and comma separated.

## Default Rules

```

<Connectors>
  <ConnectorEnds Enabled="True" ID="UseCaseToUseCaseConnectors" AnyDirection="True">
    <ConnectorType MatchFilterCriteria="False" Name="'UseCase', 'Generalization'" />
    <ConnectorStereotype MatchFilterCriteria="False" Name="" Subtype="" />
    <Source Type="'UseCase'" Stereotype="" />
    <Target Type="'UseCase'" Stereotype="" />
  </ConnectorEnds>
  <ConnectorEnds Enabled="True" ID="UseCaseToUseCaseStereotypes" AnyDirection="True">
    <ConnectorType MatchFilterCriteria="True" Name="'UseCase'" />
    <ConnectorStereotype MatchFilterCriteria="False" Name="'include', 'extend'" Subtype="'Includes', 'Extends'" />
    <Source Type="'UseCase'" Stereotype="" />
    <Target Type="'UseCase'" Stereotype="" />
  </ConnectorEnds>
  <ConnectorEnds Enabled="True" ID="ActorToUseCaseConnectors" AnyDirection="True">
    <ConnectorType MatchFilterCriteria="False" Name="'UseCase', 'Association'" />
    <ConnectorStereotype MatchFilterCriteria="False" Name="" Subtype="" />
    <Source Type="'Actor'" Stereotype="" />
    <Target Type="'UseCase'" Stereotype="" />
  </ConnectorEnds>

```

## SequenceMessageOperation

### Properties

Property/Sub-property	Value
<b>Stereotype</b>	An optional connector stereotype to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>Target</b>	Optional target element filters
<b>Type</b>	Filters the Sequence Messages by their target element type. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>Stereotype</b>	Filters the Sequence Messages by their target element stereotype. One or more values can be specified, enclosed in single quotes, and comma separated.

### Default Rules

```
<SequenceMessageOperation Enabled="True" ID="SequenceMessageNoOperation" Stereotype="">
  <Target Type="" Stereotype="" />
</SequenceMessageOperation>
<SequenceMessageOperation Enabled="True" ID="SequenceMessageMissingOperation" Stereotype="">
  <Target Type="" Stereotype="" />
```

## OrphanConnectors

### Properties

Property/Sub-property	Value
<b>MatchFilterCriteria</b>	If <b>false</b> , the connectors that do NOT match the specified type/s and stereotype/s (if any) are evaluated. If <b>true</b> , the connectors that DO match the specified type and stereotype values (if any) are evaluated for a rule match.
<b>Type</b>	Optional connector type to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>Stereotype</b>	Optional connector stereotype to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>Source</b>	<b>Optional</b> source element filter
<b>Type</b>	One or more source element types can be specified, enclosed in single quotes, and comma separated.
<b>Stereotype</b>	One or more source element stereotypes can be specified, enclosed in single quotes, and comma separated.
<b>Target</b>	<b>Optional</b> target element filter
<b>Type</b>	One or more target element types can be specified, enclosed in single quotes, and comma separated.
<b>Stereotype</b>	One or more target stereotypes can be specified, enclosed in single quotes, and comma separated.

### Default Rules

```
<OrphanConnectors Enabled="True" ID="ConnectorNotInDiagram" MatchFilterCriteria="True" Type="" Stereotype="">
  <Source Type="" Stereotype="" />
  <Target Type="" Stereotype="" />
</OrphanConnectors>
```

## ***UnresolvedConnectorEnds***

### **Properties**

<b>Property/Sub-property</b>	<b>Value</b>
<b>MatchFilterCriteria</b>	If <b>false</b> , the connectors that do NOT match the specified type/s and stereotype/s (if any) are evaluated. If <b>true</b> , the connectors that DO match the specified type and stereotype values (if any) are evaluated for a rule match.
<b>Type</b>	Optional connector type to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>Stereotype</b>	Optional connector stereotype to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.

### **Default Rules**

```
<UnresolvedConnectorEnds Enabled="True" ID="UnresolvedConnectorEnds" MatchFilterCriteria="True" Type="" Stereotype="" />
```



## AssociationEndProperties

Currently this rule type has a single sub-type (*CompleteProperties*). Additional sub-types may be added in future releases.

### Properties

Property/Sub-property	Value
<b>MatchFilterCriteria</b>	If <b>false</b> , the source and target elements that do NOT match the specified type/s and stereotype/s (if any) are considered for this rule. If <b>true</b> , the source and target elements that DO match the specified type and stereotype values (if any) are considered.
<b>Type</b>	Optional source and target element type to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>Stereotype</b>	Optional source and target element stereotype to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>&lt;Connector Type&gt;</b>	A valid (recognized by EA) connector type, e.g. Association.
<b>MatchFilterCriteria</b>	If <b>false</b> , the connectors that do NOT have the specified stereotype, direction and navigability properties are considered for this rule. If <b>true</b> , the connectors that DO have these specified properties are considered.
<b>WithStereotype</b>	Optional connector stereotype to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>WithDirection</b>	Optional connector direction as specified in EA (e.g. 'Source -> Destination') to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>OnNavigableEndOnly</b>	If <b>true</b> , only the connector ends where the navigability value in EA is set to "Navigable" are checked for conformance. If false, all connector ends are validated regardless of navigability.
<b>Properties</b>	The properties of the association end that are validated in this rule
<b>HasMultiplicity</b>	If true, the rule verifies that the connector end multiplicity is set.
<b>HasRoleName</b>	If true, the rule verifies that the connector end role name is set.

## Default Rules

```
<AssociationEndProperties>  
  <CompleteProperties Enabled="True" ID="ClassAssociationEndProperties" MatchFilterCriteria="True" Type="Class" Stereotype="">  
    <Association Enabled="True" MatchFilterCriteria="True" WithStereotype="" WithDirection="" OnNavigableEndOnly="True">  
      <Properties HasMultiplicity="True" HasRoleName="True" />  
    </Association>  
  </CompleteProperties>  
</AssociationEndProperties>
```

## *EmptyDiagram*

No properties are currently associated with this rule.

## Default Rules

```
<EmptyDiagram Enabled="True" ID="EmptyDiagram" />
```

## *DiagramObjectsWithNoConnectors*

### Properties

Property/Sub-property	Value
<b>Diagram</b>	Optional diagram filter.
<b>MatchFilterCriteria</b>	If <b>false</b> , the diagrams that do NOT match the specified type/s (if any) are evaluated. If <b>true</b> , the diagrams that DO match the specified type values (if any) are evaluated for a rule match.
<b>Type</b>	One or more diagram type values can be specified, enclosed in single quotes, and comma separated.
<b>Element</b>	Optional element filter.
<b>MatchFilterCriteria</b>	If <b>false</b> , the elements that do NOT match the specified type/s (if any) are evaluated. If <b>true</b> , the elements that DO match the specified type values (if any) are evaluated for a rule match.
<b>Type</b>	One or more values can be specified, enclosed in single quotes, and comma separated.

### Default Rules

```
<DiagramObjectsWithNoConnectors Enabled="True" ID="DiagramObjectsWithNoConnectors">
  <Diagram Type="" MatchFilterCriteria="True" />
  <Element Type="'Class','UseCase'" MatchFilterCriteria="True" />
</DiagramObjectsWithNoConnectors>
```

## *DiagramObjectsWithNoClassifier*

### Properties

Property/Sub-property	Value
<b>Diagram</b>	Optional diagram filter.
<b>MatchFilterCriteria</b>	If <b>false</b> , the diagrams that do NOT match the specified type/s (if any) are evaluated. If <b>true</b> , the diagrams that DO match the specified type values (if any) are evaluated for a rule match.
<b>Type</b>	One or more diagram types can be specified, enclosed in single quotes, and comma separated.
<b>Element</b>	Optional element filter.
<b>MatchFilterCriteria</b>	If <b>false</b> , the elements that do NOT match the specified type/s (if any) are evaluated. If <b>true</b> , the elements that DO match the specified type values (if any) are evaluated for a rule match.
<b>Type</b>	One or more element types can be specified, enclosed in single quotes, and comma separated.

### Default Rules

```
<DiagramObjectsWithNoClassifier Enabled="True" ID="SequenceObjectsWithNoClassifier">
  <Diagram Type="'Sequence'" MatchFilterCriteria="True" />
  <Element Type="'Sequence','Object'" MatchFilterCriteria="True" />
</DiagramObjectsWithNoClassifier>
```

## Orphans

### Properties

Property/Sub-property	Value
<b>MatchFilterCriteria</b>	If <b>false</b> , the elements that do NOT match the specified type/s and stereotype/s (if any) are evaluated. If <b>true</b> , the elements that DO match the specified type and stereotype values (if any) are evaluated for a rule match.
<b>Type</b>	Optional element type to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>Stereotype</b>	Optional element stereotype to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.

### Default Rules

```
<Orphans Enabled="True" ID="OrphansWithNoConnectors" MatchFilterCriteria="True" Type="" Stereotype="" />
```

## NoDescription

### Properties

Property/Sub-property	Value
MatchFilterCriteria	<p>If <b>false</b>, the elements that do NOT match the specified type/s and stereotype/s are evaluated. If <b>true</b>, the elements that DO match the specified type and stereotype values are evaluated for a rule match.</p> <p><b>Either the type or the stereotype (or both) must be set!</b></p>
Type	<p>Element type to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.</p>
Stereotype	<p>Element stereotype to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.</p>

### Default Rules

```

<NoDescription Enabled="True" ID="ActorWithNoDescription" MatchFilterCriteria="True" Type="'Actor'" Stereotype="" />
<NoDescription Enabled="True" ID="UseCaseWithNoDescription" MatchFilterCriteria="True" Type="'UseCase'" Stereotype="" />
<NoDescription Enabled="True" ID="ComponentWithNoDescription" MatchFilterCriteria="True" Type="'Component'" Stereotype="" />
<NoDescription Enabled="True" ID="ClassWithNoDescription" MatchFilterCriteria="True" Type="'Class'" Stereotype="" />

```

## *DuplicateName*

### Properties

Property/Sub-property	Value
<b>MatchFilterCriteria</b>	<p>If <b>false</b>, the elements that do NOT match the specified type/s and stereotype/s are evaluated. If <b>true</b>, the elements that DO match the specified type and stereotype values are evaluated for a rule match.</p> <p><b>Either the type or the stereotype (or both) must be set!</b></p>
<b>Type</b>	<p>Element type to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.</p>
<b>Stereotype</b>	<p>Element stereotype to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.</p>

### Default Rules

```
<DuplicateName Enabled="True" ID="DuplicateActorName" MatchFilterCriteria="True" Type="'Actor'" Stereotype="" />
```

## Unrealized

### Properties

Property/Sub-property	Value
<b>MatchFilterCriteria</b>	If <b>false</b> , the <b>target</b> elements of the relationship that do NOT match the specified type/s and stereotype/s are evaluated. If <b>true</b> , <b>target</b> the elements that DO match the specified type and stereotype values are evaluated for a rule match. <b>Either the type or the stereotype (or both) must be set!</b>
<b>Type</b>	Target element type to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>Stereotype</b>	Target element stereotype to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>RelatedElement</b>	Optional filter on the <b>source</b> element (i.e. the other side of the relationship which realizes the target).
<b>Type</b>	One or more source element type values enclosed in single quotes and comma separated.
<b>Stereotype</b>	One or more source element stereotype values enclosed in single quotes and comma separated.
<b>Connector</b>	Filter on the connector representing the realization relationship.
<b>Type</b>	Single type value (i.e. <u>no single quotes</u> ). <b>Must be set!</b>
<b>Stereotype</b>	Optional connector stereotype to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.

### Default Rules

```
<Unrealized Enabled="True" ID="UnrealizedRequirements" MatchFilterCriteria="True" Type="'Requirement'" Stereotype="">
  <RelatedElement Type="" Stereotype="" />
  <Connector Type="Realisation" Stereotype="" />
</Unrealized>
<Unrealized Enabled="True" ID="UnrealizedInterfaces" MatchFilterCriteria="True" Type="'Interface'" Stereotype="">
  <RelatedElement Type="" Stereotype="" />
  <Connector Type="Realisation" Stereotype="" />
</Unrealized>
```



## MissingRelationship

### Properties

Property/Sub-property	Value
<b>MatchFilterCriteria</b>	<p>If <b>false</b>, the <b>source</b> elements of the relationship that do NOT match the specified type/s and stereotype/s are evaluated. If <b>true</b>, the <b>source</b> elements that DO match the specified type and stereotype values are evaluated for a rule match.</p> <p><b>Either the type or the stereotype (or both) must be set!</b></p>
<b>Type</b>	Source element type to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>Stereotype</b>	Source element stereotype to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>RelatedElement</b>	<p>Filter on the <b>target</b> element (i.e. the other side of the relationship).</p> <p><b>Either the type or the stereotype (or both) must be set!</b></p>
<b>Type</b>	One or more target element type values enclosed in single quotes and comma separated.
<b>Stereotype</b>	One or more target element stereotype values enclosed in single quotes and comma separated.
<b>Connector</b>	Optional filter on the connector representing the desired relationship. If omitted, any relationship is valid.
<b>Type</b>	One or more connector type values can be specified, enclosed in single quotes, and comma separated.
<b>Stereotype</b>	One or more connector stereotype values can be specified, enclosed in single quotes, and comma separated.

### Default Rules

```
<MissingRelationship Enabled="True" ID="MissingUseCaseToRequirement" MatchFilterCriteria="True" Type="'UseCase'" Stereotype="">
  <RelatedElement Type="'Requirement'" Stereotype="" />
  <Connector Type="'Realisation'" Stereotype="" />
</MissingRelationship>
```

## MissingRelationshipEx

### Properties

Property/Sub-property	Value
<b>MatchFilterCriteria</b>	<p>If <b>false</b>, the <b>source</b> elements of the relationship that do NOT match the specified type/s and stereotype/s are evaluated. If <b>true</b>, the <b>source</b> elements that DO match the specified type and stereotype values are evaluated for a rule match.</p> <p><b>Either the type or the stereotype (or both) must be set!</b></p>
<b>Type</b>	Source element type to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>Stereotype</b>	Source element stereotype to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>RelatedElement</b>	<p>Filter on the <b>target</b> element (i.e. the other side of the relationship).</p> <p><b>Either the type or the stereotype (or both) must be set!</b></p>
<b>Type</b>	One or more target element type values enclosed in single quotes and comma separated.
<b>Stereotype</b>	One or more target element stereotype values enclosed in single quotes and comma separated.
<b>Connector</b>	Optional filter on the connector representing the desired relationship. If omitted, any relationship is valid
<b>Type</b>	One or more connector type values can be specified, enclosed in single quotes, and comma separated.
<b>Stereotype</b>	One or more connector stereotype values can be specified, enclosed in single quotes, and comma separated.

### Default Rules

```

<MissingRelationshipEx Enabled="True" ID="MissingComponentToComponent" MatchFilterCriteria="True" Type="'Component'" Stereotype="">
  <RelatedElement Type="'Component'" Stereotype="" />
  <Connector Type="'Association','Connector','Assembly','Delegate'" Stereotype="" />
</MissingRelationshipEx>

```

## ***MissingInterface***

### **Properties**

<b>Property/Sub-property</b>	<b>Value</b>
<b>MatchFilterCriteria</b>	<p>If <b>false</b>, the elements that do NOT match the specified type/s and stereotype/s are evaluated. If <b>true</b>, the elements that DO match the specified type and stereotype values are evaluated for a rule match.</p> <p><b>Either the type or the stereotype (or both) must be set!</b></p>
<b>Type</b>	<p>Element type to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.</p>
<b>Stereotype</b>	<p>Element stereotype to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.</p>

### **Default Rules**

```
<MissingInterface Enabled="True" ID="MissingComponentToInterface" MatchFilterCriteria="True" Type="'Component'" Stereotype="" />
```

## ***UnresolvedClassifiers***

### **Properties**

Property/Sub-property	Value
<b>MatchFilterCriteria</b>	<p>If <b>false</b>, the elements that do NOT match the specified type/s and stereotype/s are evaluated. If <b>true</b>, the elements that DO match the specified type and stereotype values are evaluated for a rule match.</p> <p><b>Either the type or the stereotype (or both) must be set!</b></p>
<b>Type</b>	Element type to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.
<b>Stereotype</b>	Element stereotype to be used as a filter. One or more values can be specified, enclosed in single quotes, and comma separated.

### **Default Rules**

```
<UnresolvedClassifiers Enabled="True" ID="UnresolvedClassifiers" MatchFilterCriteria="True" Type="" Stereotype="" />
```

## ***UnresolvedDataType***

No properties are currently associated with this rule.

### **Default Rules**

```
<Attributes>
  <UnresolvedDataType Enabled="True" ID="UnresolvedAttributeDataType" />
</Attributes>
```

## ***UnresolvedArguments***

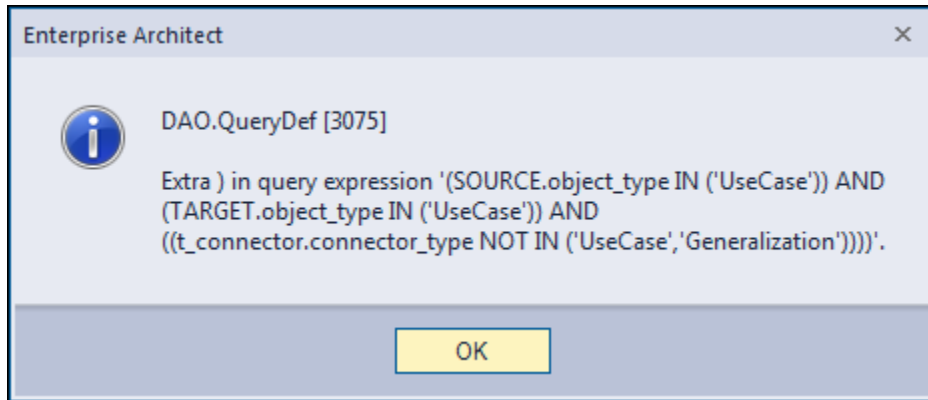
No properties are currently associated with this rule.

### **Default Rules**

```
<Operations>
  <UnresolvedArguments Enabled="True" ID="UnresolvedOperationArgument" />
</Operations>
```

## Troubleshooting

Should a SQL statement fail to execute properly, Enterprise Architect will display an error message dialog similar to this:



As of version 13.x of Enterprise Architect this type of error is not relayed back to the application which is unaware that a problem occurred.

Please follow this procedure:

- Take a screenshot of the error message.
- Locate the DBError.txt file in %APPDATA%\Sparx Systems\EA and include it in your message.
- Before dismissing the dialog box, look at the System Output window to determine the rule being executed at the time of the error. For example:

```
*** VALIDATING RULE [UseCaseToUseCaseConnectors] on connector type <'UseCase','Generalization'> ***
```

- If you are validating the repository using a [customized rule set](#), please include that xml file in the data provided back to Cephass.
- Also provide your database type (Microsoft Access, SQL Server, Oracle, etc.) and version number.

## Support and contact information

Use the contact information below for any installation or runtime issues with the extension.

Feature requests or suggestions for improvement are also welcome!

Contact: Frank Truyen

Email: [support@enterprisemodelingsolutions.com](mailto:support@enterprisemodelingsolutions.com)

Phone : 714-573-7112.