Ecore modeling

Diagrams and elements in Ecore models

There are no specific diagrams for editing Ecore models in MagicDraw. You can use the same Class diagrams as you use for your UML models. Since Ecore is almost a subset of UML (with a few additions), familiar UML elements are used for the modeling. You can also develop Ecore models without using the Ecore profile at all. If your Ecore model uses only UML-specific information, you can develop it using plain UML and export it to Ecore without any problem.

Ecore is even more similar to EMOF. You can export the same model to both Ecore and EMOF.

Class, DataType, Enumeration, Package, Operation, Parameter have a direct one-to-one correspondence between UML and Ecore.

Ecore has two flavors of structural features, EAttribute and EReference, while UML has just one – Property. Fortunately a differentiation between an attribute and a reference is unambiguous and automatically resolved: the property, whose type is a data type is treated as EAttribute; the property, whose type is a class is treated as EReference. Hence the user does not need to worry about this - he/she can simply use properties.

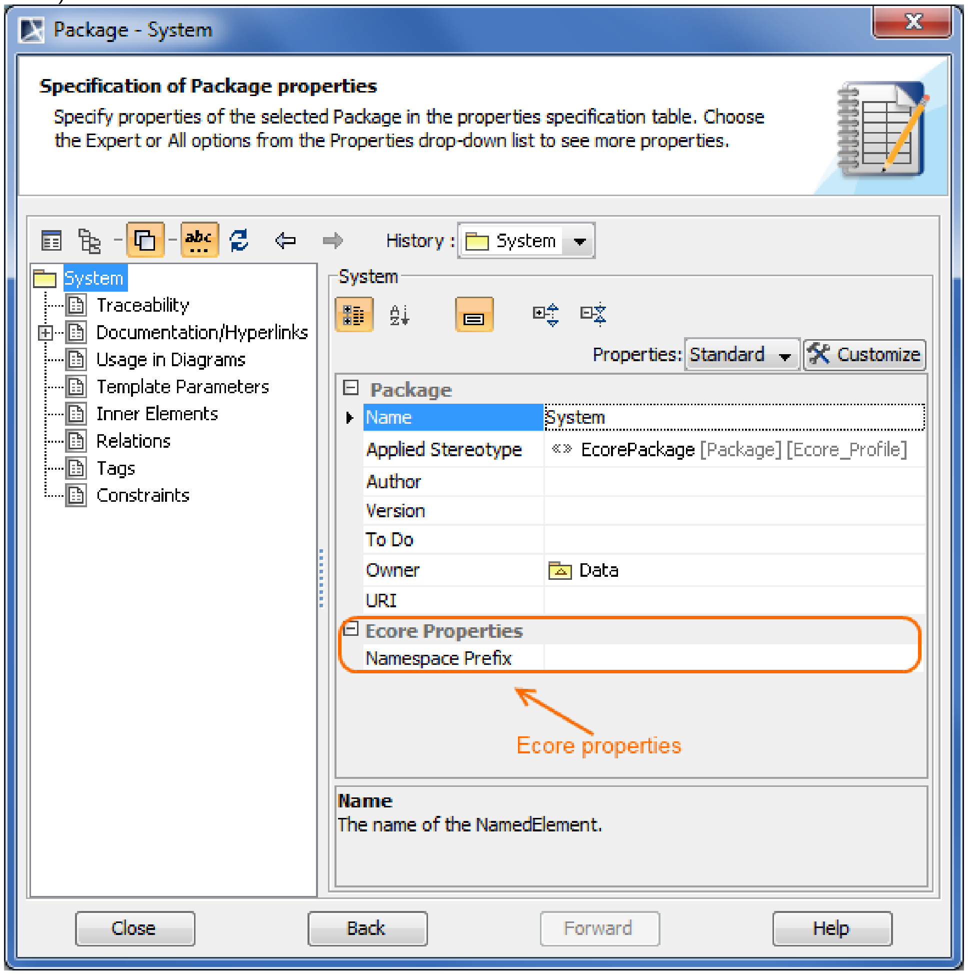
There are no standalone Association and Generalization model elements in Ecore, but there is analogous information in Ecore: two EReferences, pointing to each other by their **opposite** property is equivalent to the association; the EClass::**eSuperTypes** property is equivalent to a generalization. Hence it is possible and meaningful to draw associations and generalizations in your model for exporting this information to Ecore.

Ecore generics (templates) are also supported. You can use the UML template support to model Ecore generics. While the modeling is not trivial (and not one-to-one due to weak semantics of Ecore's EGenericType), it is possible to model all cases of template types, even ones with complexly nested type bounds like, for example, **SortedList<T extends Comparable<? super T>>**.
Your models can also contain any other UML elements, which are not present in Ecore. These elements are simply skipped during the export to Ecore. A warning is given about these elements.

Element properties in Ecore models

There are few Ecore-specific properties, which are brought in when the Ecore profile is used. These properties are used to capture Ecore specific information, not existing in UML. MOF-specific properties are also relevant for Ecore. These special properties are as follows:

- The Ecore package has the additional properties: nsPrefix (**Namespace Prefix**) and nsURI (corresponds to the **URI** property specified in the UML v2.4.1).



Package - System

Specification of Package properties

Specify properties of the selected Package in the properties specification table. Choose the Expert or All options from the Properties drop-down list to see more properties.

History : System

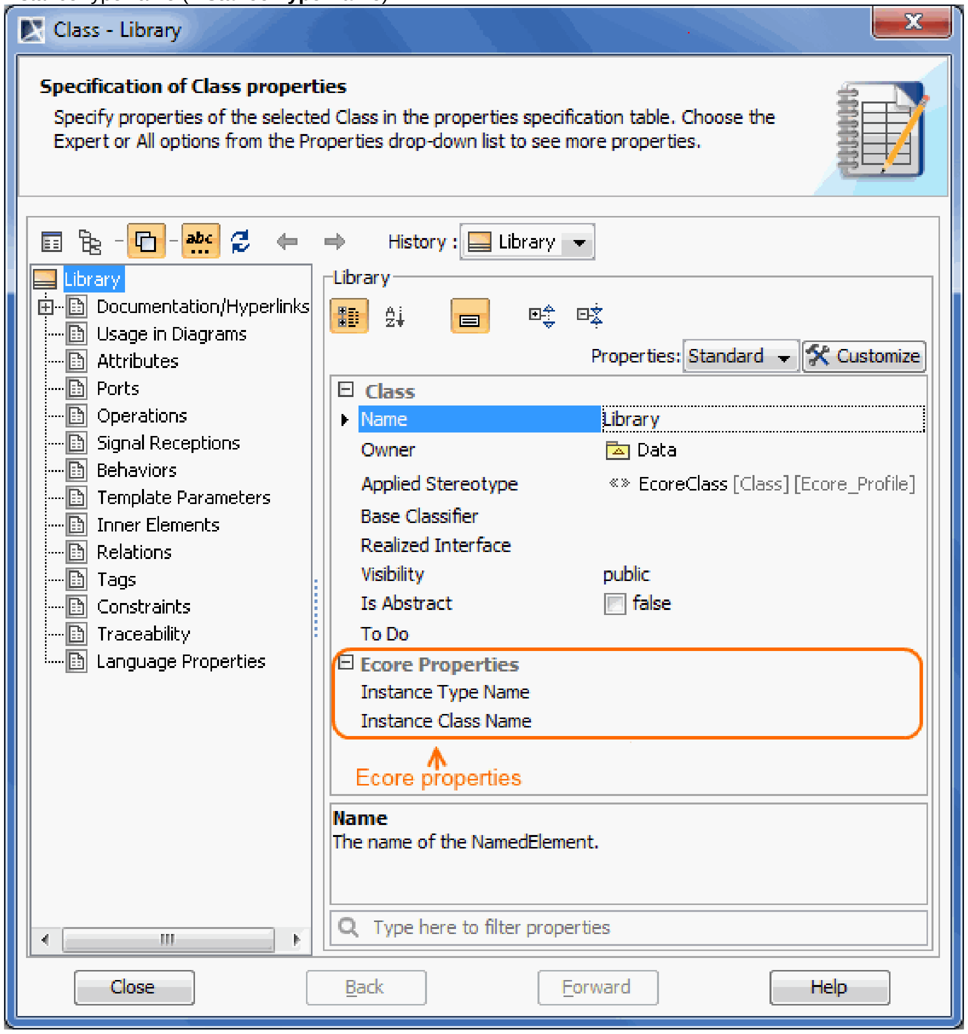
System

Properties: Standard

Package	
Name	System
Applied Stereotype	«» EcorePackage [Package] [Ecore_Profile]
Author	
Version	
To Do	
Owner	Data
URI	
Ecore Properties	
Namespace Prefix	

Name
The name of the NamedElement.

- The Ecore classifier (class, data type, enumeration) has the additional properties: instanceClassName (**Instance Class Name**) and instanceTypeName (**Instance Type Name**).



Class - Library

Specification of Class properties

Specify properties of the selected Class in the properties specification table. Choose the Expert or All options from the Properties drop-down list to see more properties.

History : Library

Library
- Documentation/Hyperlinks
- Usage in Diagrams
- Attributes
- Ports
- Operations
- Signal Receptions
- Behaviors
- Template Parameters
- Inner Elements
- Relations
- Tags
- Constraints
- Traceability
- Language Properties

Library

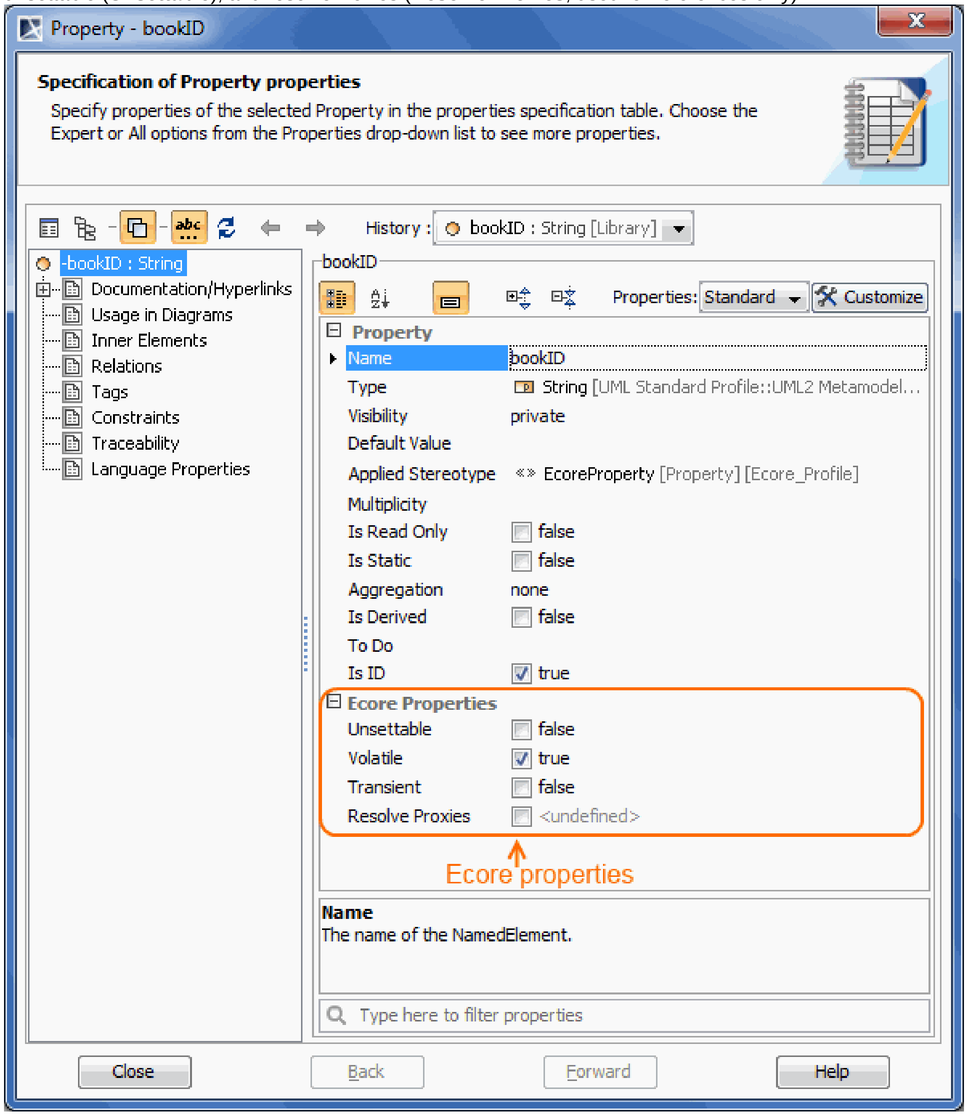
Properties: Standard | Customize

Class	
Name	Library
Owner	Data
Applied Stereotype	«» EcoreClass [Class] [Ecore_Profile]
Base Classifier	
Realized Interface	
Visibility	public
Is Abstract	false
To Do	
Ecore Properties	
Instance Type Name	
Instance Class Name	

Name
The name of the NamedElement.

Type here to filter properties

- Ecore attributes and references (modeled as the UML property) have the additional properties: volatile (**Volatile**), transient (**Transient**), unsettable (**Unsettable**), and resolveProxies (**Resolve Proxies**, used for references only).


Property - bookID

Specification of Property properties

Specify properties of the selected Property in the properties specification table. Choose the Expert or All options from the Properties drop-down list to see more properties.

History : bookID : String [Library]

-bookID : String
- Documentation/Hyperlinks
- Usage in Diagrams
- Inner Elements
- Relations
- Tags
- Constraints
- Traceability
- Language Properties

bookID

Properties: Standard | Customize

Property	
Name	bookID
Type	String [UML Standard Profile::UML2 Metamodel...
Visibility	private
Default Value	
Applied Stereotype	«» EcoreProperty [Property] [Ecore_Profile]
Multiplicity	
Is Read Only	false
Is Static	false
Aggregation	none
Is Derived	false
To Do	
Is ID	✓ true
Ecore Properties	
Unsettable	false
Volatile	✓ true
Transient	false
Resolve Proxies	<undefined>

Name
The name of the NamedElement.

Type here to filter properties

Annotation modeling

Ecore annotations are modeled as UML comments. For simple annotations no additional actions are necessary.

However, Ecore annotations have more powerful semantic than UML comments – they can have an internal substructure. In particular they can have an additional key-value map. For this additional information, there is a special «EcoreAnnotation» stereotype, that can be applied on an annotating comment. After applying the stereotype, the key-value map can be entered in a separate node of the annotating comment Specification window. Key-value pairs are stored as internal subcomment elements of the annotation.

To create an Ecore annotation

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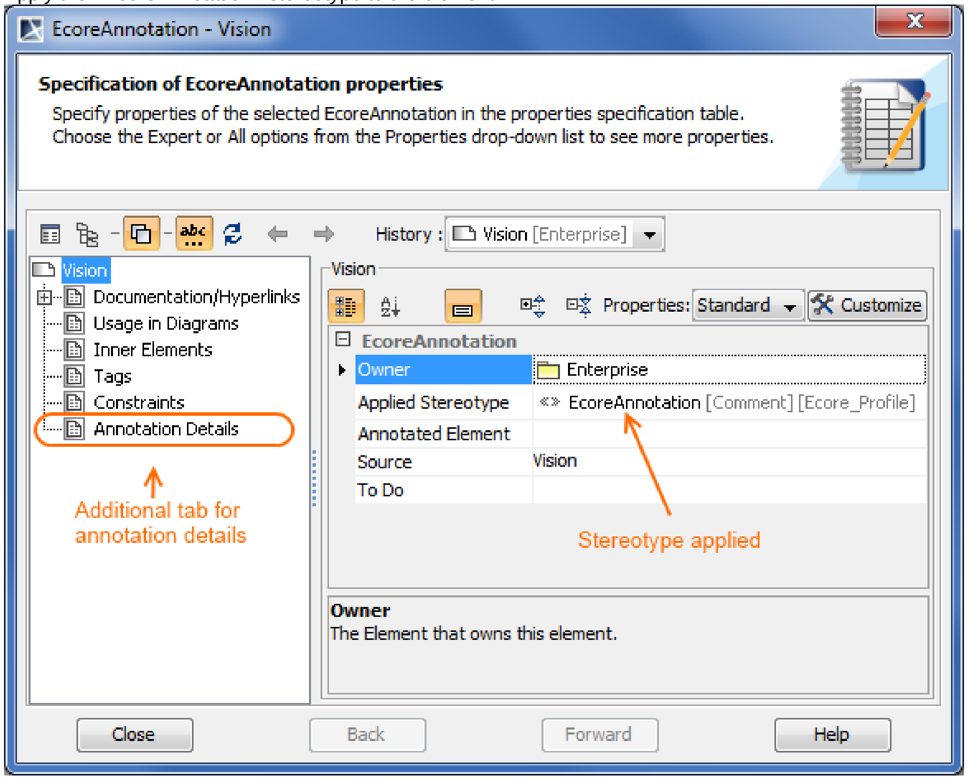
1. In the Ecore model, create a Comment element.

2. Apply the «EcoreAnnotation» stereotype to the element.



EcoreAnnotation - Vision

Specification of EcoreAnnotation properties

Specify properties of the selected EcoreAnnotation in the properties specification table.
Choose the Expert or All options from the Properties drop-down list to see more properties.

History : Vision [Enterprise]

Vision
- Documentation/Hyperlinks
- Usage in Diagrams
- Inner Elements
- Tags
- Constraints
- Annotation Details

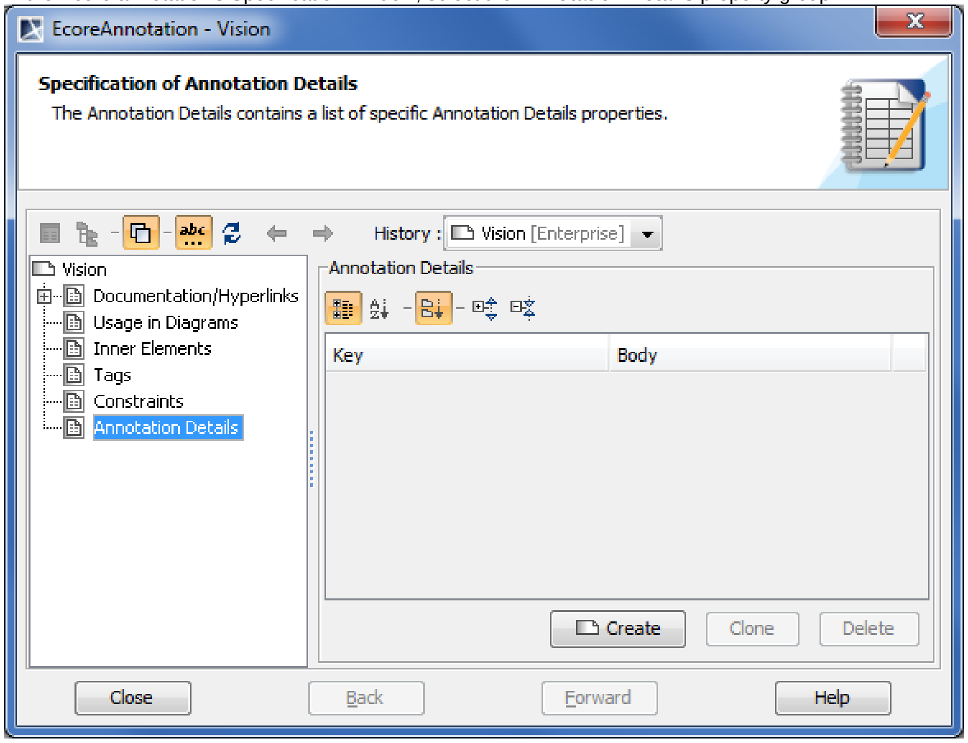
Properties: Standard

EcoreAnnotation	
Owner	Enterprise
Applied Stereotype	«» EcoreAnnotation [Comment] [Ecore_Profile]
Annotated Element	
Source	Vision
To Do	

Owner
The Element that owns this element.

To create a key-value pair

1. In the Ecore annotation's Specification window, select the **Annotation Details** property group.



EcoreAnnotation - Vision

Specification of Annotation Details

The Annotation Details contains a list of specific Annotation Details properties.

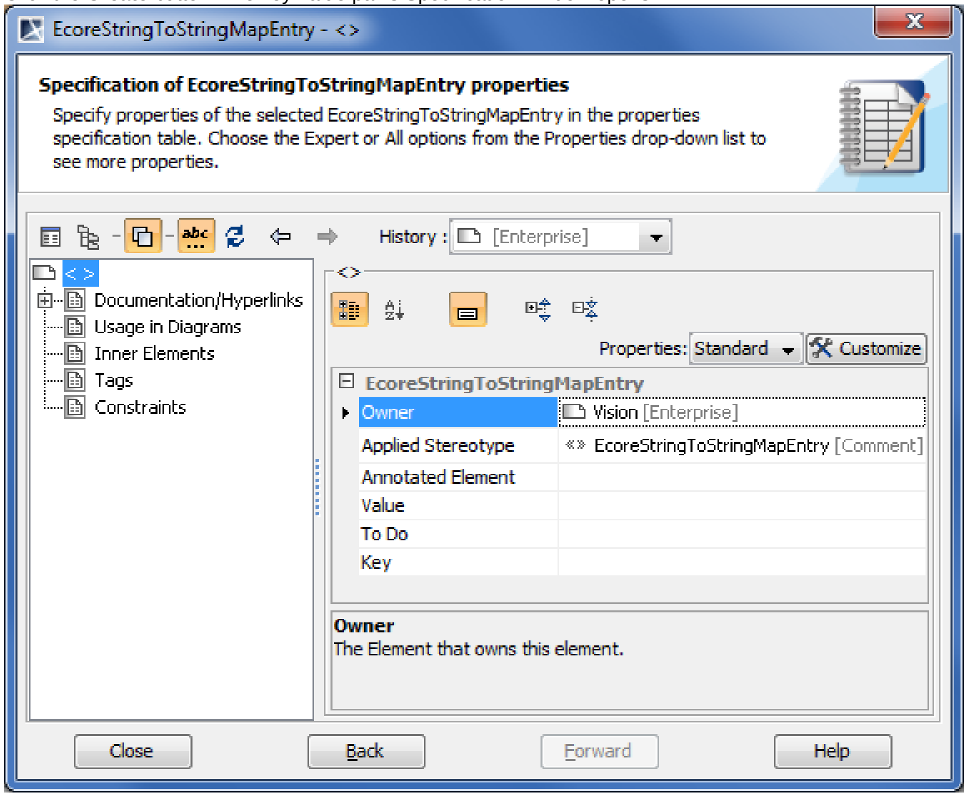
History : Vision [Enterprise]

Vision
- Documentation/Hyperlinks
- Usage in Diagrams
- Inner Elements
- Tags
- Constraints
- Annotation Details

Annotation Details

Key	Body

2. Click the **Create** button. The key-value pair's Specification window opens.



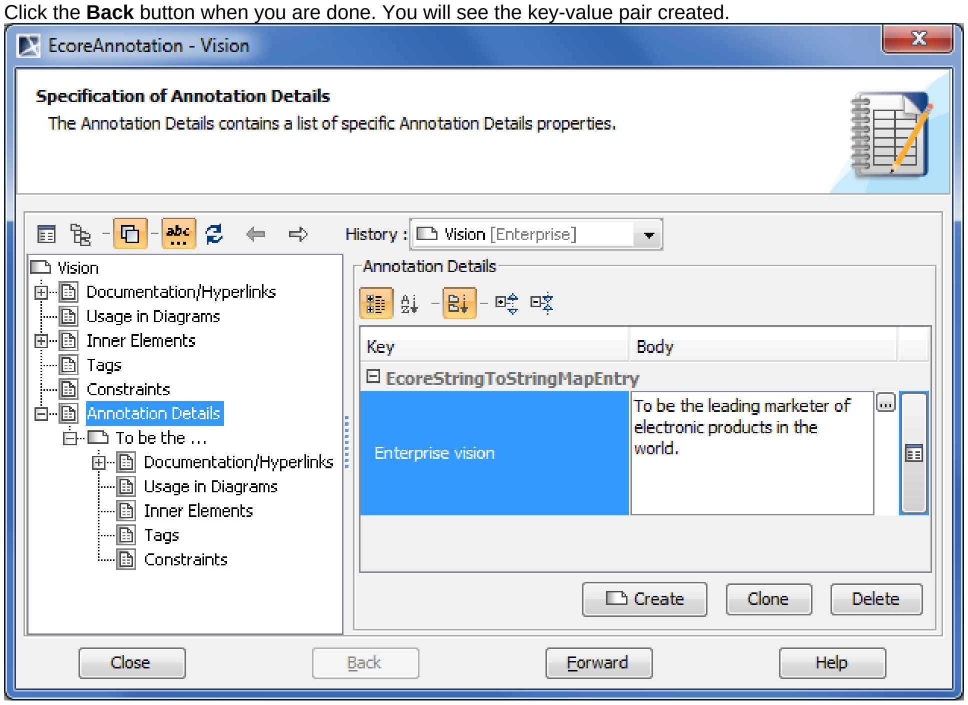
Specification of EcoreStringToStringMapEntry properties

Specify properties of the selected EcoreStringToStringMapEntry in the properties specification table. Choose the Expert or All options from the Properties drop-down list to see more properties.

EcoreStringToStringMapEntry	
Owner	Vision [Enterprise]
Applied Stereotype	«» EcoreStringToStringMapEntry [Comment]
Annotated Element	
Value	
To Do	
Key	

Owner
The Element that owns this element.

3. Enter values for both the **Value** and **Key** properties.
4. Click the **Back** button when you are done. You will see the key-value pair created.



Specification of Annotation Details

The Annotation Details contains a list of specific Annotation Details properties.

Key	Body
EcoreStringToStringMapEntry	
Enterprise vision	To be the leading marketer of electronic products in the world.