



ENTERPRISE ARCHITECT IMPORT PLUGIN

version 17.0.1

user guide

No Magic, Inc.
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ENTERPRISE ARCHITECT IMPORT PLUGIN FOR MAGICDRAW

1. Introduction

MagicDraw has the functionality to import UML models that conform to various XMI versions (including XMI 2.1) from Sparx Systems Enterprise Architect (EA), a modeling and visualization tool based on the UML 2.3 standard. EA has the ability to import and export XMI compliant models; therefore, you can use EA to import UML2.1(XMI2.1). However, the XMI models exported from EA contain some XMI conflicts and EA-specific data that do not conform to the UML standards.

Enterprise Architect Import Plugin for MagicDraw allows you to migrate the XMI models from EA to MagicDraw flawlessly by using an additional transformation process with a set of mapping rules.

The main purpose of Enterprise Architect Import Plugin is to help MagicDraw users who need to import models from EA by managing the conflicts that can cause problems during loading the XMI models to MagicDraw and transforming some EA-specific data into UML elements with stereotypes.

Apart from the ability to import model elements, the plugin also allows for the import of diagrams. The current plugin version supports:

- Class diagrams
- Package diagrams
- Object diagrams
- Component diagrams
- Deployment diagrams
- Use Case diagrams
- Activity diagrams
- Sequence diagrams
- Communication diagrams
- StateMachine diagrams
- CompositeStructure diagrams
- InteractionOverview diagrams

2. Plugin Information

Enterprise Architect Import Plugin for MagicDraw supports Enterprise Architect Versions 7.1, 7.5, and 8.0 (most of the testing procedures performed on EA 7.1.833 and EA 7.5.847). The plugin helps you import and transform an EA exported XML using the UML2.1(XMI2.1) option into a MagicDraw file (*.mdxml).

Your imported models will include the following details:

- UML models
- Profiles
- Stereotype usage information
- EA-specific data:
 - Constraints
 - Requirements
 - Scenarios
 - Files
 - Requirements (External)
 - Changes
 - Issues
- Diagram information
 - Class diagrams
 - Package diagrams
 - Object diagrams
 - Component diagrams
 - Deployment diagrams
 - Use Case diagrams
 - Activity diagrams
 - Sequence diagrams
 - Communication diagrams
 - StateMachine diagrams
 - CompositeStructure diagrams

- InteractionOverview diagrams
- SysML (SysML 1.1 model from EA will be transformed to MagicDraw SysML.)

3. Working with Enterprise Architect Import Plugin

Enterprise Architect Import Plugin will be automatically loaded when you start MagicDraw.

To open the **Import Enterprise Architect Files** dialog:

- On the MagicDraw main menu, click **File > Import From > Enterprise Architect UML2.1 XMI2.1 File** (Figure 1). The **Import Enterprise Architect Files** dialog will open (Figure 2).

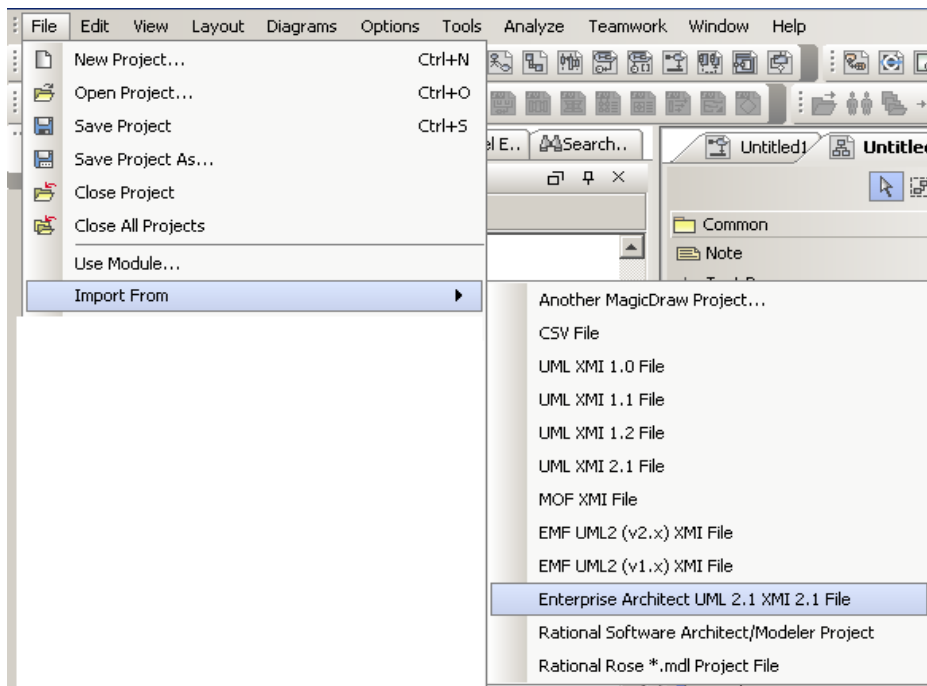


Figure 1 -- Enterprise Architect Import Menu

ENTERPRISE ARCHITECT IMPORT PLUGIN FOR MAGICDRAW

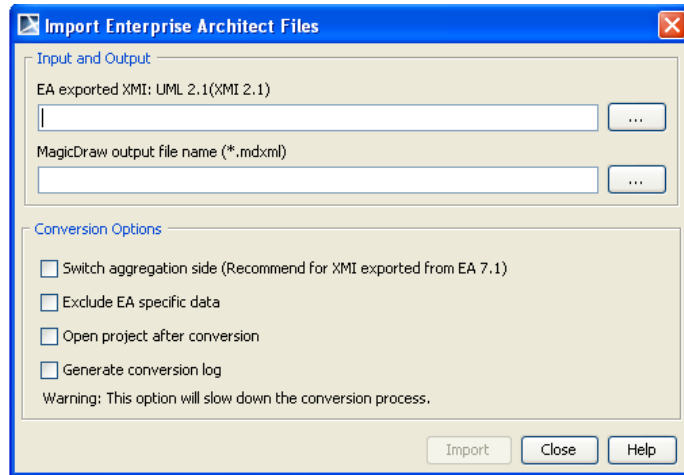


Figure 2 -- Import Enterprise Architect Files Dialog

Table 1 -- Import Enterprise Architect Files Dialog Properties

Property name	Function
EA exported XMI: UML 2.1(XMI 2.1)	To specify an EA exported XMI file. You can click the “...” button to select the file.
MagicDraw output file name (*.mdxml)	To specify a MagicDraw output filename. You can click the “...” button to select the file.
Switch aggregation side	To configure the aggregation switch-side . This option is recommended for XMI files exported from EA 7.1.
Exclude EA specific data	To exclude all EA-specific data from being imported (see “Transforming EA Specific Data” on page 13 to see a list of EA specific-data that can be transformed into UML elements with stereotypes).
Open project after conversion	To load the output project file once the conversion process has been completed.
Generate conversion log	To generate a conversion log and save it in the same folder as the MagicDraw output file. The same conversion information will also be displayed on the MagicDraw messages window.

To import an EA project:

1. Either type an EA exported XMI file or click the “...” button to select the file (Figure 2).

NOTE	Enterprise Architect Import Plugin supports the EA XMI files exported with the option specified as: XMI Type = UML2.1(XMI 2.1) .
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2. Either type a MagicDraw output filename or click the “...” button to select the file.
3. Select the conversion options.
4. Click the **Import** button to start importing the file.

3.1 Conversion Options

Apart from the options that you have in the **Import Enterprise Architect File** dialog, you can also find several other conversion options in the MagicDraw **Environment Options** dialog.

To view the Enterprise Architect Import other options in the **Environment Options** dialog:

1. Click **Option > Environment** on the MagicDraw main menu. The **Environment Options** dialog will open (Figure 3).
2. Select **Enterprise Architect Import** from the tree menu on the left-hand side. The transformation options are classified into two groups: (i) General and (ii) Activity element mapping.

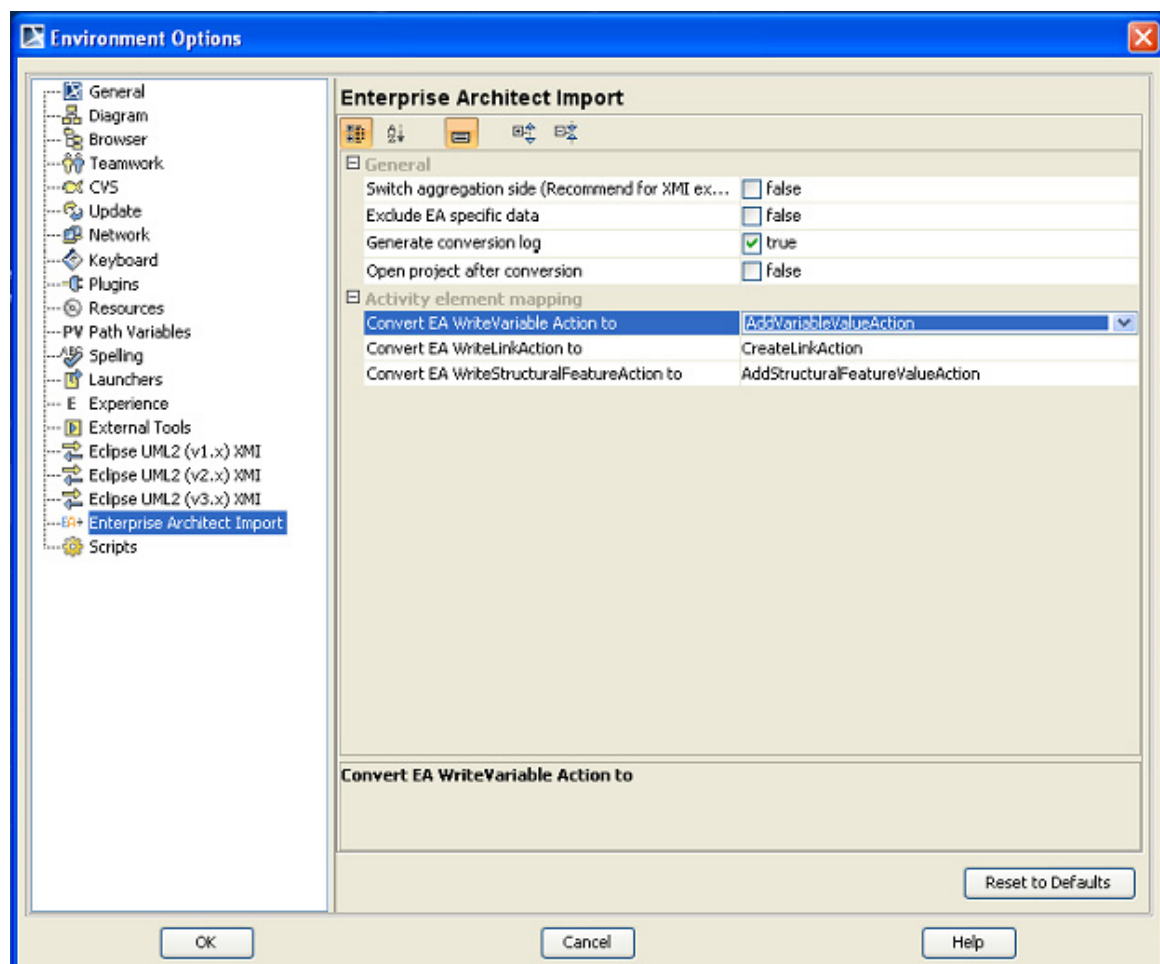


Figure 3 -- Environment Options Dialog

(i) General

The options available in the **General** group are the same as those in the **Import Enterprise Architect Files** dialog.

(ii) Activity element mapping option

The Activity element mapping group provides you with the options to convert the EA elements to other element types.

Table 2 -- Activity Element Mapping Options

Property name	Function
Convert EA WriteVariableAction to	To convert EA WriteVariableAction to either AddVariableValueAction or RemoveVariableValueAction.
Convert EA WriteLinkAction to	To convert EA WriteLinkAction to either CreateLinkAction or DestroyLinkAction.
Convert EA WriteStructuralFeatureAction to	To convert EA WriteStructuralFeatureAction to either AddStructuralFeatureValueAction or RemoveStructuralFeatureValueAction.

3.2 Conversion Messages

Enterprise Architect Import Plugin consists of a series of XML conversions. Each conversion will be reported to the MagicDraw **Messages** window and also saved to a log file if the **Generate conversion log** option is selected.

The conversion log will be saved in the same directory as the MagicDraw output file using the same name but a different `.log` extension.

NOTE	You can open the MagicDraw Messages window by pressing Ctrl + M .
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4. Transforming EA Specific Data

Besides UML data, each EA-exported XMI also contains EA-specific information. Enterprise Architect Import Plugin can transform this particular information into UML elements with the stereotypes applied if you select to include EA-specific data before importing the XMI file. The EA-specific data that will be transformed include:

- (4.1) Constraints: name, description, type, weight, and status
- (4.2) Requirements: name, description, type, status, difficulty, priority, and last update
- (4.3) Scenarios: name, description, type, and weight
- (4.4) Files: file path type
- (4.5) Requirements (External): type, status, difficulty, priority, last update, created, and note
- (4.6) Changes: type, status, difficulty, priority, last update, created, and note
- (4.7) Issues: type, status, difficulty, priority, last update, created, and note

NOTE	You can access and specify the EA information in the Property dialog in EA.
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ENTERPRISE ARCHITECT IMPORT PLUGIN FOR MAGICDRAW

To include the EA-specific data in the transformation process, the plugin will create a set of stereotypes and tag definitions as the EA Profile (Figure 4).

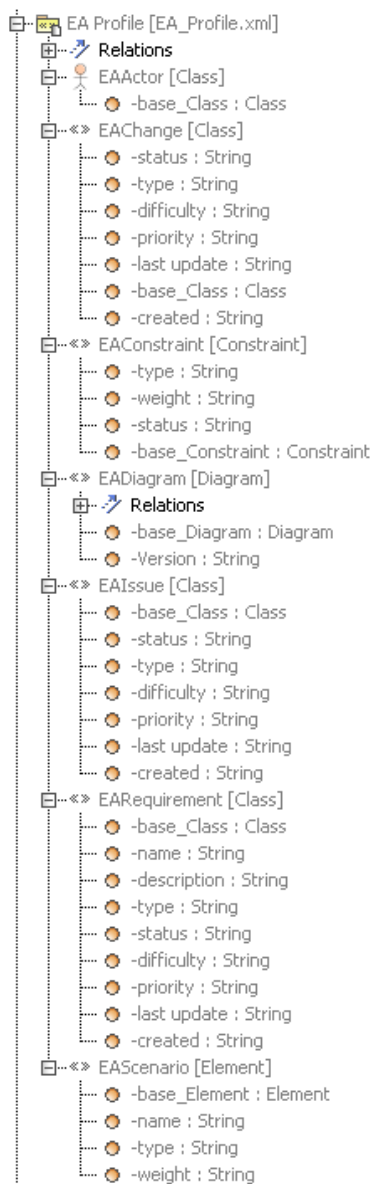


Figure 4 -- EA Profile

4.1 Constraints

Each EA constraint will be transformed into a UML constraint and <<EAConstraint>> will be applied to the constraint. The properties of an EA constraint will be mapped either to the properties of a UML constraint or to the tag values of <<EAConstraint>>. Table 3 below shows the constraints mapping details.

Table 3 -- Constraints Mapping

EA	MagicDraw
name	The name property of a UML constraint.
description	EAConstraint::type tag value
type	EAConstraint::weight tag value
weight	EAConstraint::status tag value
Constraint owner	Constrained Element property point to the constraint owner.

4.2 Requirements

Each EA requirement will be transformed into a UML Class. In EA, since a requirement cannot be created in an element, which is the owner of a Class, the transformed requirement will be kept in a separate Package, named **EA Requirement**, and a Realization will be created from the owner of the requirement into a transformed requirement. See Table 4 below for details.

Table 4 -- Requirements Mapping

EA	MagicDraw
name	EALrequirement :: name tag value
description	EALrequirement :: description tag value
type	EALrequirement :: type tag value
status	EALrequirement :: status tag value
difficulty	EALrequirement :: difficulty tag value
priority	EALrequirement :: priority tag value
last update	EALrequirement :: name update value

4.3 Scenarios

Each EA scenario will be transformed into a UML Comment and <<EAScenario>> will be applied to the comment. The properties of a scenario will be mapped either to the properties of each UML Comment or to the tag values of <<EAScenario>>. See Table 5 below for details.

Table 5 -- Scenarios Mapping

EA	MagicDraw
name	EAScenario::name tag value
description	The Body property of a UML Comment.
type	EAScenario::type tag value
weight	EAScenario::weight tag value
subject	An annotated Element property pointing to an EA subject element.

4.4 Files

EA is capable of adding files to a UML element. The information will be transformed into a Hyperlink in MagicDraw.

Table 6 -- Files Mapping

EA	MagicDraw
Local file	File
Web address	Web page

4.5 Requirements (External)

A Requirement created by EA is different from the one you create as an internal element for each element. EA requirements will appear in the Project Browser and can be pasted on a diagram. Each EA Requirement will be transformed into a Class and <<EARequirement>> will be applied to the requirement.

Table 7 -- Requirements (External) Mapping

EA	MagicDraw
type	EARequirement::type tag value
status	EARequirement::status tag value
difficulty	EARequirement::difficulty tag value
priority	EARequirement::priority tag value
last update	EARequirement::last update tag value
created	EARequirement::created tag value
note	Documentation

4.6 Changes

EA can create a Change and will export it as a Class. The Class information will be transformed into the <<EAChange>> tag values. See Table 8 below for details.

Table 8 -- Changes Mapping

EA	MagicDraw
type	EChange::type tag value
status	EChange::status tag value
difficulty	EChange::difficulty tag value
priority	EChange::priority tag value
last update	EChange::last update tag value
created	EChange::created tag value
note	Documentation

4.7 Issues

EA can create an Issue and will export it as a Class. The Issue information will be transformed into the <<EAIssue>> tag values. See Table 9 below for details.

Table 9 -- Issues Mapping

EA	MagicDraw
type	EAIssue::type tag value
status	EAIssue::status tag value
difficulty	EAIssue::difficulty tag value
priority	EAIssue::priority tag value
last update	EAIssue::last update tag value
created	EAIssue::created tag value
note	Documentation

5. Importing Diagrams

Enterprise Architect Import Plugin allows you to import diagrams. The diagram information that will be imported include:

- (5.1) Geometry properties
- (5.2) Color properties
- (5.3) Display properties

5.1 Geometry Properties

The geometry properties that will be imported to MagicDraw are as follows:

- Positions on a diagram (for shape elements)
- Width and height (for shape elements)
- Path break points (for link elements)

NOTE	Geometry information can be overridden by other display properties. For example, if an imported element width is shorter than the required width to display text on the element, the width will be adjusted automatically.
-------------	--

5.2 Color Properties

The color properties will be imported along with the diagrams to MagicDraw. The name of each color property is called differently in MagicDraw.

Table 10 -- Color Properties Mapping

EA	MagicDraw
Background color	Fill color
Border color (for shape element)	Pen color
Font color	Text color
Line color (for link element)	Pen color

5.3 Display Properties

The display properties in EA can be categorized into three groups: (i) shape, (ii) link, and (iii) diagram properties. Only those that have similar properties to the MagicDraw's will be imported, for example, the **Show Diagram Details** property in EA will be imported as the **Show Diagram Info** property in MagicDraw.

6. Special Transformation

An EA-exported XMI contains some non-standard UML elements and many elements that can break the XMI schema. To retain the standard UML elements and keep the XMI schema intact, Enterprise Architect Import Plugin applies some particular transformation rules. The following sections will describe how the plugin transforms each model element so that you can import a complete XMI model that conforms to the UML standards.

6.1 Use Case Diagram Elements

6.1.1 Actor with Properties

An Actor with properties will be transformed into a Class with the **EAActor** stereotype (Figure 5).

EA (Before Conversion) MD (After Conversion)

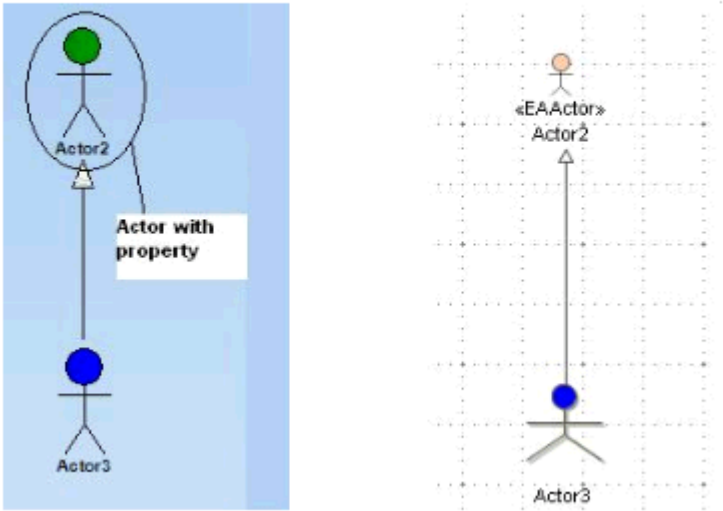


Figure 5 -- Actor with Property

NOTE

An Actor that has been converted to a Class with <<EAActor>> will not display some properties accordingly such as Fill Color because the stereotype image will be shown instead.

6.1.2 Use Case with Invalid Inner Elements

A NestedClassifier, ownedComment, ownedRule, ownedAttribute, or ownedOperation cannot be an inner element of a uml:UseCase. It will be moved to a new created realized Class.

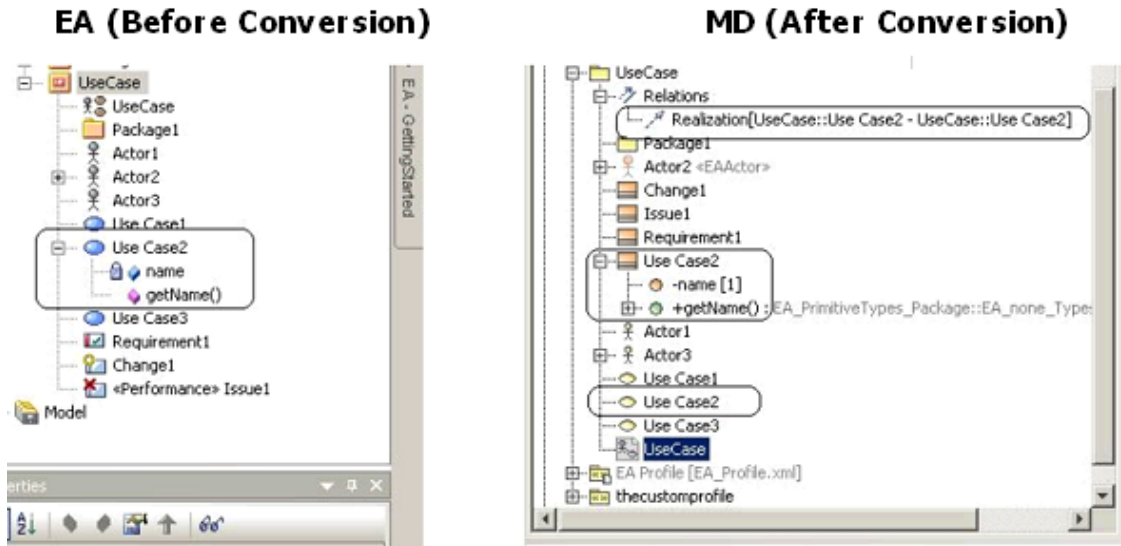


Figure 6 -- Use Case with Invalid Inner Elements

6.1.3 Boundary

A boundary in EA will be converted into a rectangle with rounded corners in MagicDraw. The boundary can contain inner elements. Unlike the rectangular boundary in MagicDraw, the boundary in EA will take all the inner elements with it whenever it is moved (Figure 7).

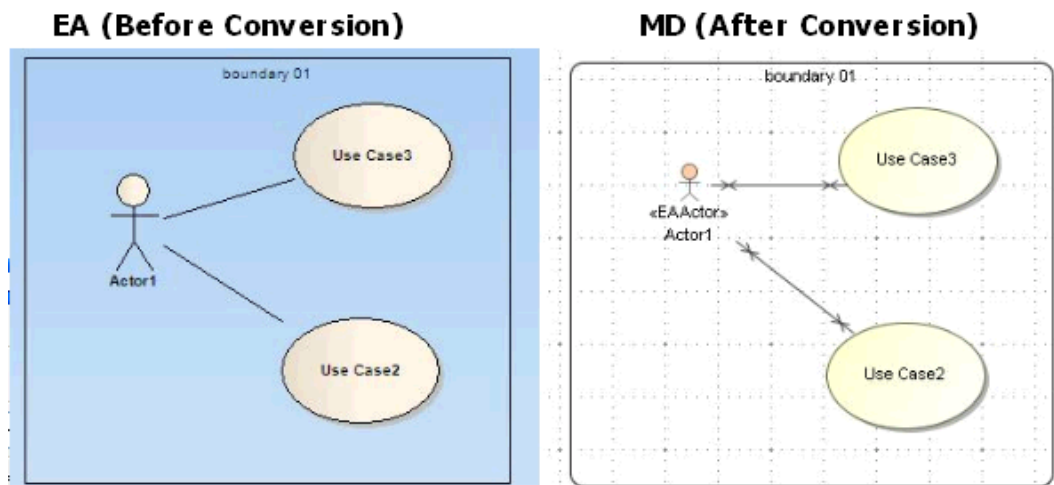


Figure 7 -- Boundaries

6.2 Activity Diagram Elements

6.2.1 Activity

An Activity element in EA can be directly placed as an element view on an Activity diagram. However, this behavior conflicts with the MagicDraw and UML notation. In MagicDraw, if you drag an Activity from the containment tree to an Activity diagram, a new CallBehaviorAction view will be created and the 'Behavior' property of the CallBehaviorAction will be set to the Activity. This same behavior will be used in the import process.

An Activity element created in EA, which is placed on an Activity diagram, will be transformed into two elements: (i) Activity, and (ii) CallBehaviorAction elements. Both of them will have the same name and will be linked through the property of a CallBehaviorAction element called 'Behavior'.

After the element has been transformed, the following transformation message will open:

Updated element <xmi:id>: A new CallBehaviorAction was created and its Behavior was set to the element.

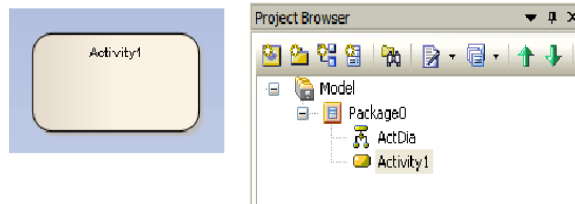


Figure 8 -- EA Activity

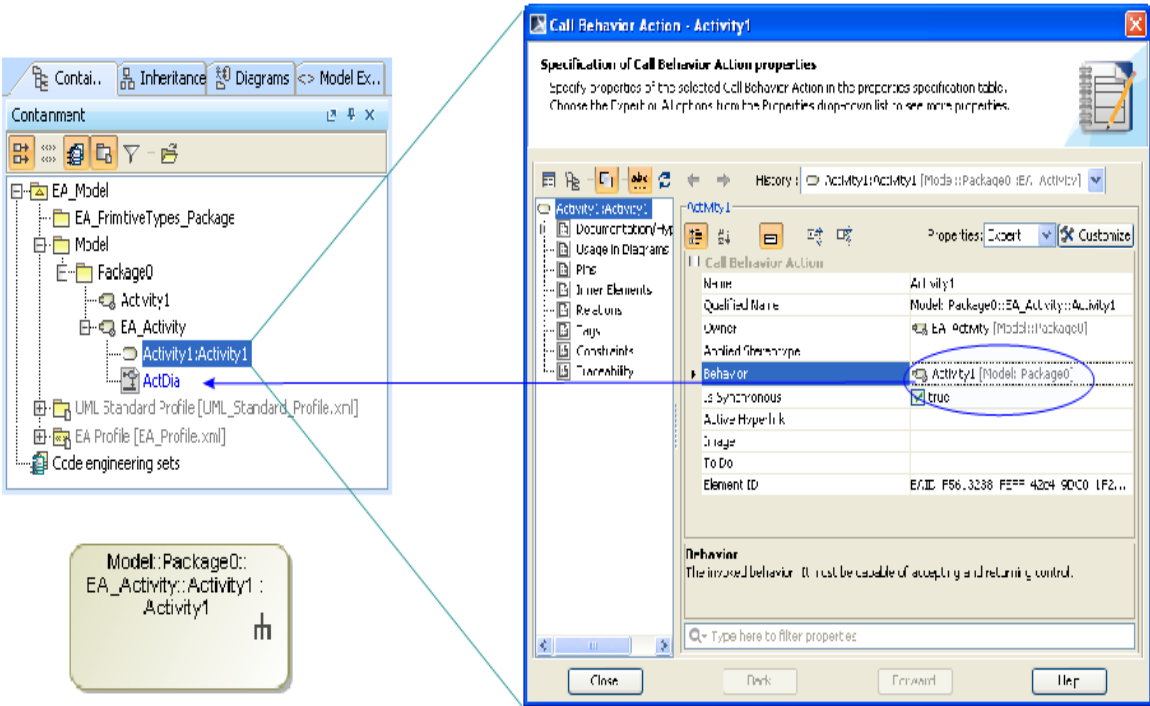


Figure 9 -- Activity with a New CallBehavior in MagicDraw

NOTE The EA Activity and CallBehaviorAction elements have a similar characteristic, that is, you can attach a control flow to it and others. EA has its own CallBehaviorAction element.

Additionally, any ObjectNode elements that are attached to the Activity element will be transformed into InputPin elements and attached to the newly created CallBehaviorAction element (Figure 10).

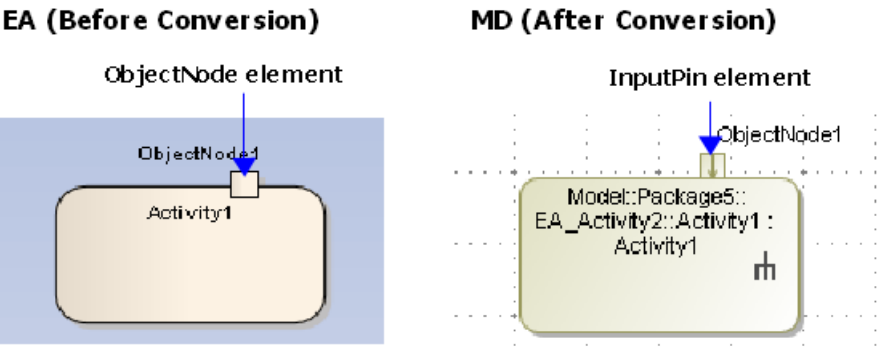


Figure 10 -- An ObjectNode Converted into an InputPin

6.2.2 Activity Diagram

Every Activity Diagram element from EA will be placed inside an Activity element that has the same name (Figure 11).



Figure 11 -- Activity diagram placement in MD

NOTE	In MagicDraw, every Activity diagram element must be placed inside an Activity element that has the same name, but this is not the case in EA.
-------------	--

6.2.3 Object as the Inner Element of an Activity

Object elements, which are inside an Activity element in EA, will be removed (Figure 12).

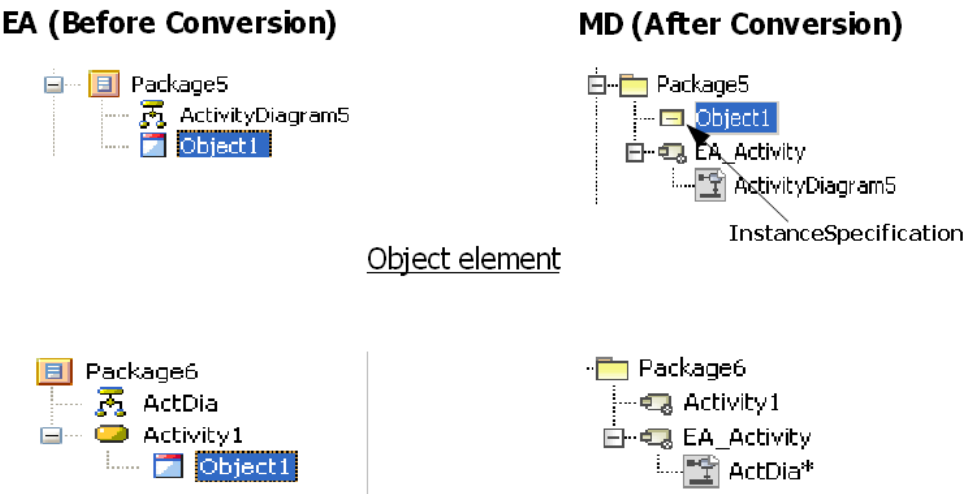


Figure 12 -- Object Element Transformation

NOTE	Object elements in MagicDraw have their XMI types defined as 'uml:Central-BufferNode' but, those in EA have their XMI types defined as 'uml:InstanceSpecification', which do not belong to an Activity diagram.
------	---

An Object element that contains any ActivityDiagram-related elements will be removed (Figure 13).

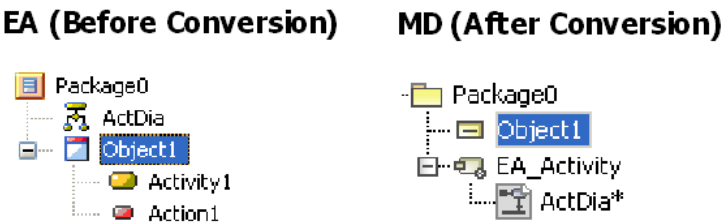


Figure 13 -- Object Containing Activity-related Elements

Note	In MagicDraw, an Object element (CentralBufferNode) is not allowed to contain any other elements besides comments and hyperlinks.
-------------	---

6.2.4 Synch Node

A Synch element in EA will be transformed into a Join element in MagicDraw and it will look exactly like a Fork/Join element (Figure 14).

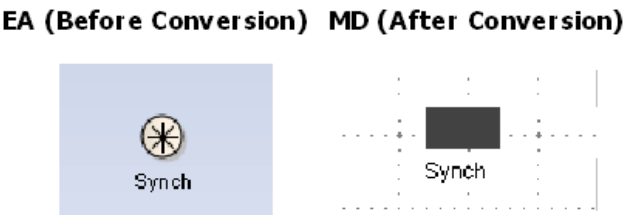


Figure 14 -- Synch Element

Note	A MagicDraw Fork/Join element (whose type is <code>uml:ForkNode</code>) can be used to construct either a Fork and Join node in an Activity diagram. The JoinNode element (whose type is <code>uml:JoinNode</code>) is allowed to be placed in the Activity diagram, but the element's image will be displayed as the Fork/Join element's default image.
-------------	--

6.2.5 Activity Parameter

If you create an ActivityParameter element, MagicDraw will automatically create an ActivityParameterNode element to represent it. Every ActivityParameterNode element in EA will be transformed into a Pin element (Figure 15).

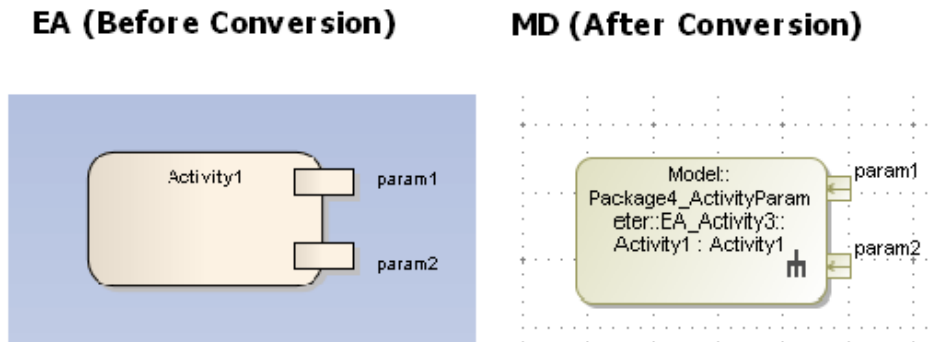


Figure 15 -- ActivityParameterNode

There are four parameter types that you can specify for each Activity Parameter element: (i) in, (ii) out, (iii) inout, and (iv) return.

The ActivityParameterNode element of an ActivityParameter element, whose parameter type is either 'in' or 'inout', will be transformed into an InputPin element. The ActivityParameterNode element of an ActivityParameter element, whose parameter type is either 'out' or 'return', will be transformed into an OutputPin element (Figure 16).

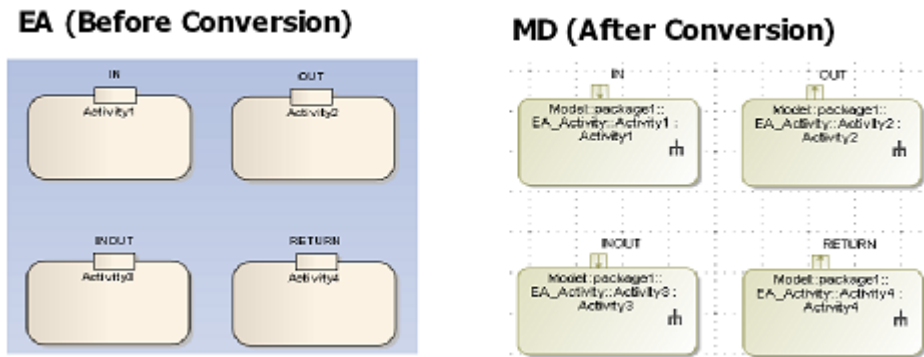


Figure 16 -- ActivityParameter Type

Note	Usually, if you specify the parameter type of an ActivityParameter element as 'inout', two Pin elements (InputPin and OutputPin elements) will be created for the element. Since EA will only create one ActivityParameterNode element, this element will be transformed into an InputPin element.
-------------	--

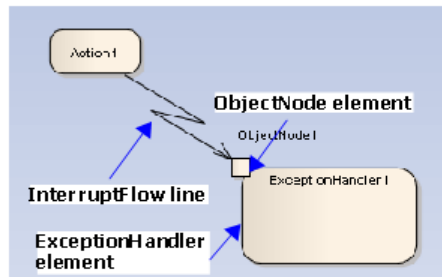
6.2.6 Exception Handler

The Exception Handler element in EA is different from the UML's ExceptionHandler. This EA element will be transformed into a CallBehaviorAction element. Any ObjectNode element that is attached to it will be transformed into an InputPin element and any InterruptFlow line will be transformed into an ExceptionHandler line in MagicDraw (Figure 17).

After the transformation has been completed, the following transformation messages will open:

- Updated element <xmi:id>: EA ExceptionHandler is transformed to an CallBehaviorAction with and input pin.
- Updated element <xmi:id>: EA InterruptFlow was transformed to an ExceptionHandler.

EA (Before Conversion)



MD (After Conversion)

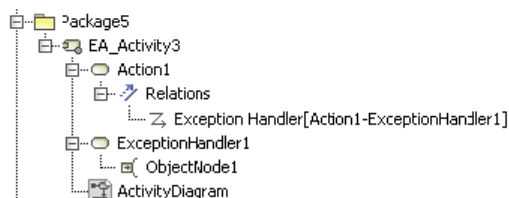
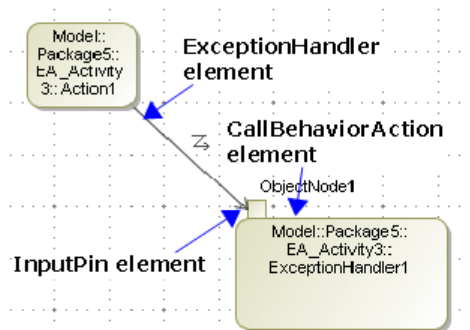


Figure 17 -- ExceptionHandler

6.2.7 ObjectFlow

An ObjectFlow line whose both ends are not attached to any of the following elements, will be transformed into a ControlFlow.

- InputPin
- OutputPin

- ObjectNode
- CentralBufferNode
- DataStoreNode

After the transformation has been completed, the following transformation message will open:

Updated element <xmi:id>: `uml:ObjectFlow` updated to `uml:ControlFlow`.

6.2.8 ExpansionRegion

Most of the elements that are placed inside any ExpansionRegion elements in EA will stay in their original place (Figure 18).

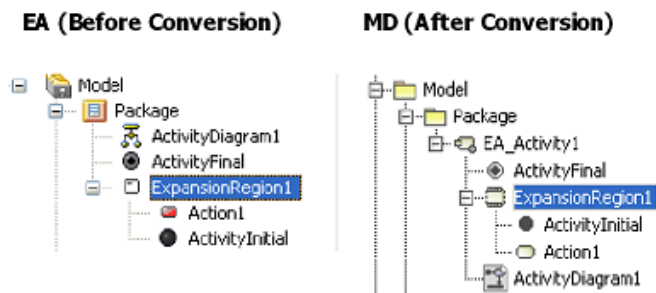


Figure 18 -- ExpansionRegion Tree View

However, if there is any Activity, Swimlane, InterruptibleActivityRegion, StructuredActivityNode, LooNode, SequenceNode, ConditionalNode, or another ExpansionRegion contained within an ExpansionRegion, then it will be placed within a dummy Activity element. The created dummy will have the same name, and placed at the same level as the ExpansionRegion element (Figure 19).

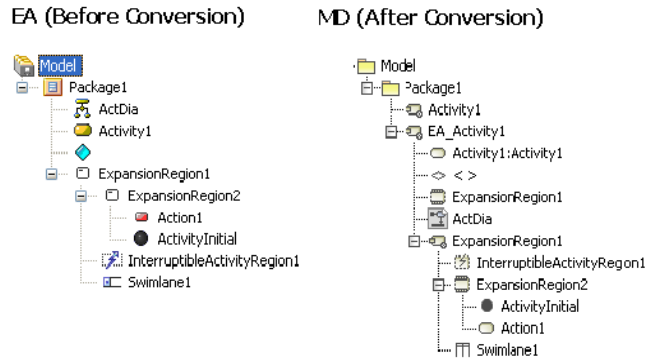


Figure 19 -- Nested ExpansionRegion Tree View

After the transformation has been completed, the following transformation message will open:

Updated element <xmi:id>: ExpansionRegion cannot contain some inner elements. An Activity with the same name as the ExpansionRegion was created to contain inner elements.

6.2.9 InterruptibleActivityRegion

Most of the elements that are placed inside an InterruptibleActivityRegion element in EA will be placed at the same level as the InterruptibleActivityRegion element (Figure 20).



Figure 20 -- InterruptibleActivityRegion Tree View

However, if there is any Activity, Swimlane, ExpansionRegion, StructuredActivityNode, LoopNode, SequenceNode, ConditionalNode, or another InterruptibleActivityRegion contained within an InterruptibleActivityRegion, then it will be placed within a dummy Activity. The created dummy will have the same name, and placed at the same level as the InterruptibleActivityRegion (Figure 21).

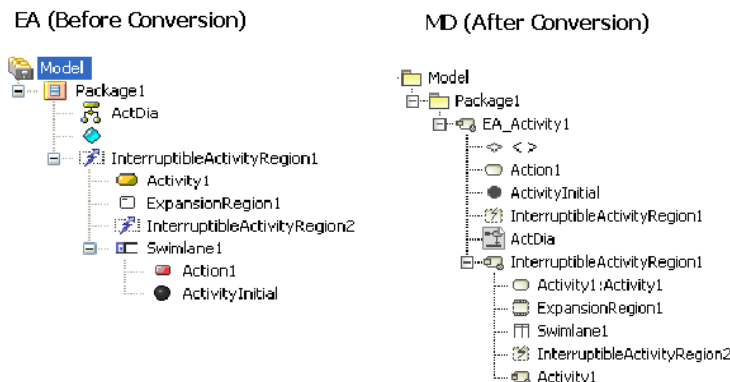


Figure 21 -- Nested InterruptibleActivityRegion Tree View

After the process has been completed, the following transformation message will open:

```
Updated element <xmi:id>: InterruptibleActivityRegion cannot contain  
some inner elements. An Activity with the same name as the  
InterruptibleActivityRegion was created to contain inner elements.
```

6.2.10 Swimlane

Most of the elements that are placed inside any Swimlane element in EA will be placed at the same level as the Swimlane element (Figure 22).

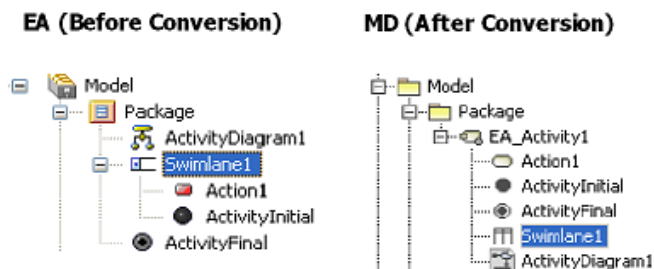


Figure 22 -- Swimlane Tree View

A dummy Activity will also be created to hold any other Swimlanes that it may contain. The dummy activity will have the same name and placed at the same level as the Swimlane.

If two or more Swimlanes are nested together, then every element (except Swimlane element) that is contained within either of them will be taken and placed at the same level as the Swimlane that tops the nested-Swimlane-elements hierarchy (Figure 23).

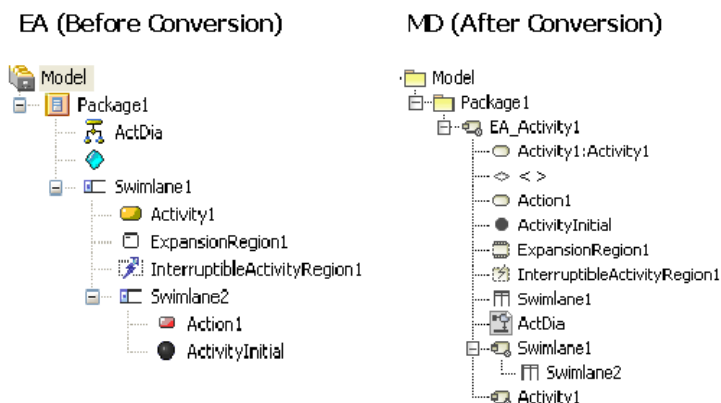


Figure 23 -- Nested Swimlane Tree View

After the process has been completed, the following transformation message will open:

```
Updated element <xmi:id>: Swimlane cannot contain some inner elements.  
The XMI structure was fixed.
```

6.2.11 StructuredActivity

There are four elements that are classified as Structured Activity elements in EA:

- (i) StructuredActivityNode element
- (ii) LoopNode element
- (iii) SequenceNode element
- (iv) ConditionalNode element

Most of the elements that are placed inside any StructuredActivityNode, LoopNode, SequenceNode, or ConditionalNode elements in EA will stay in their original place (Figure 24).

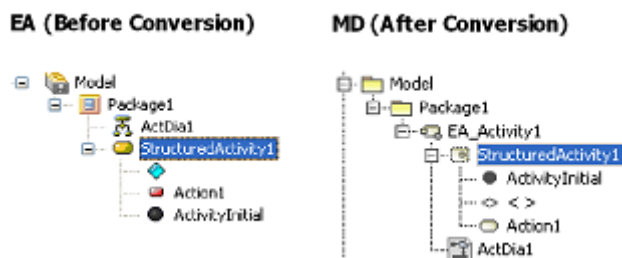


Figure 24 -- StructuredActivityNode Tree View

However, if there is any Activity, Swimlane, InterruptibleActivityRegion, ExpansionRegion, or another StructuredActivity contained within a StructuredActivity, then it will be placed within a dummy Activity. The created dummy will have the same name, and placed at the same level as the StructuredActivity (Figure 25).

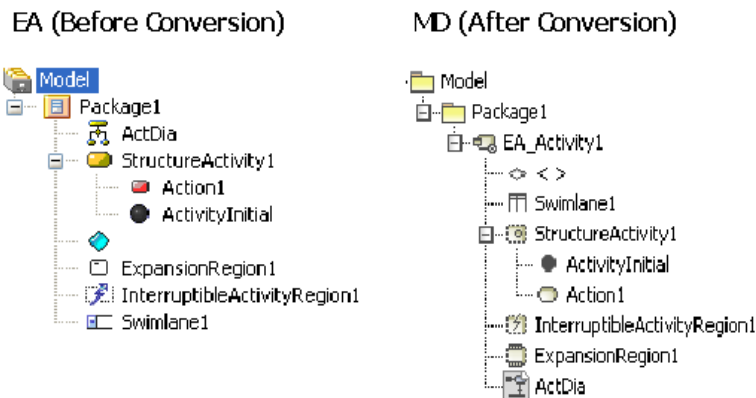


Figure 25 -- Nested StructuredActivityNode Tree View

After the process has been completed, the following transformation messages will open depending on the Structured Activity elements that are involved:

- Updated element `<xmi:id>`: StructuredActivityNode cannot contain some inner elements. An Activity with the same name as the StructuredActivityNode was created to contain inner elements.
- Updated element `<xmi:id>`: ConditionalNode cannot contain some inner elements. An Activity with the same name as the ConditionalNode was created to contain inner elements.
- Updated element `<xmi:id>`: LoopNode cannot contain some inner elements. An Activity with the same name as the LoopNode was created to contain inner elements.
- Updated element `<xmi:id>`: SequenceNode cannot contain some inner elements. An Activity with the same name as the SequenceNode was created to contain inner elements.

6.2.12 InterruptFlow

EA InterruptFlows, in some cases, are ControlFlow lines, and their image will be displayed as that of the InterruptFlow line in the Activity diagram. An InterruptFlow is not a ControlFlow line if the InterruptFlow line is drawn from one element, which is in an InterruptibleActivityRegion, to another outside that InterruptibleActivityRegion. If there is such line in an XMI file, it will be imported as a ControlFlow line, and its image will be changed to that of the ControlFlow line.

However, if either end of the lines is any of the following elements, it will be transformed into an ObjectFlow line (Figure 26).

- InputPin element
- OutputPin element
- ObjectNode element
- CentralBufferNode element
- DataStoreNode element

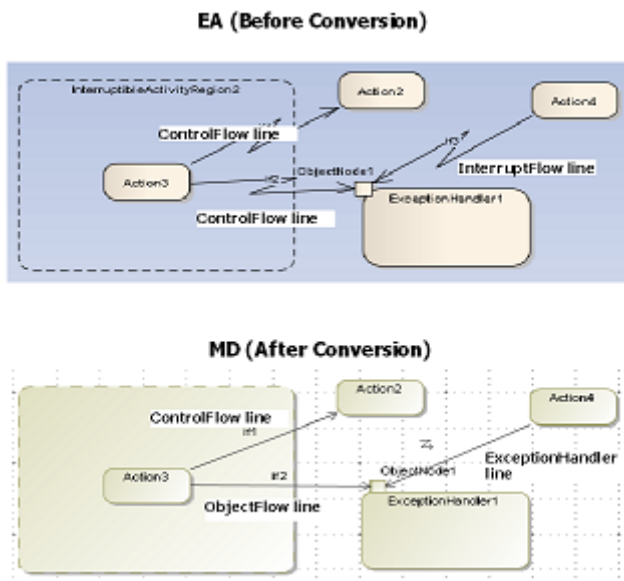
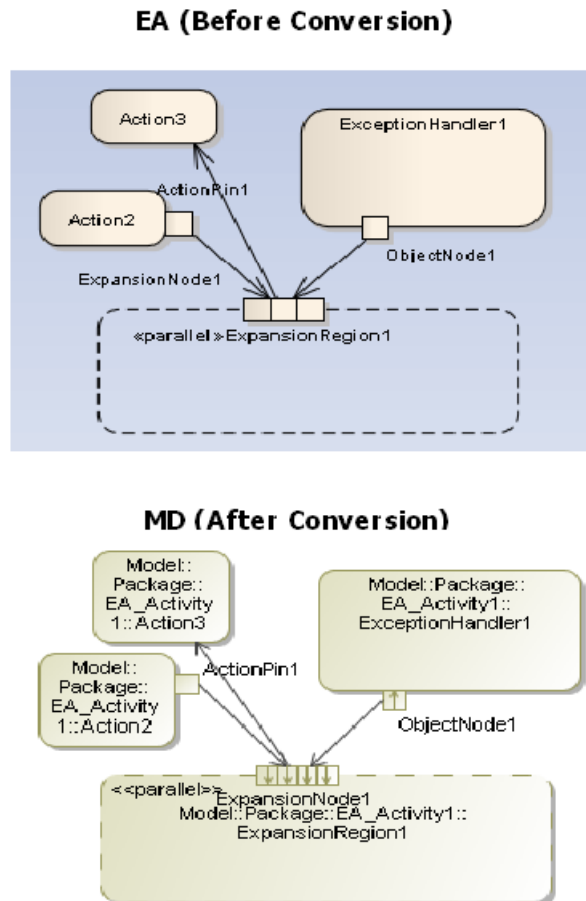


Figure 26 -- InterruptFlow

6.2.13 ExpansionNode

An ExpansionNode is a Pin which can only be contained within an ExpansionRegion and will be imported like any other Pin elements. However, if an ExpansionNode in EA is created inside another element rather than an ExpansionRegion, that particular ExpansionNode will not be imported (Figure 27).



6.3 Sequence Diagram Elements

6.3.1 Lifelines

All of the EA Lifelines will be imported, but a part or port within a Lifeline will be transformed into a new separate Lifeline.

6.3.1.1 Gaps between Lifelines

The position and width of any Lifeline created in EA will not be imported. Every Lifeline will be given a fixed value and position in MagicDraw. MagicDraw will place the first Lifeline on the left-hand side of the diagram and the second Lifeline on the right-hand side next to the first one. The length of the gap

between the Lifelines will be fixed (Figure 28).

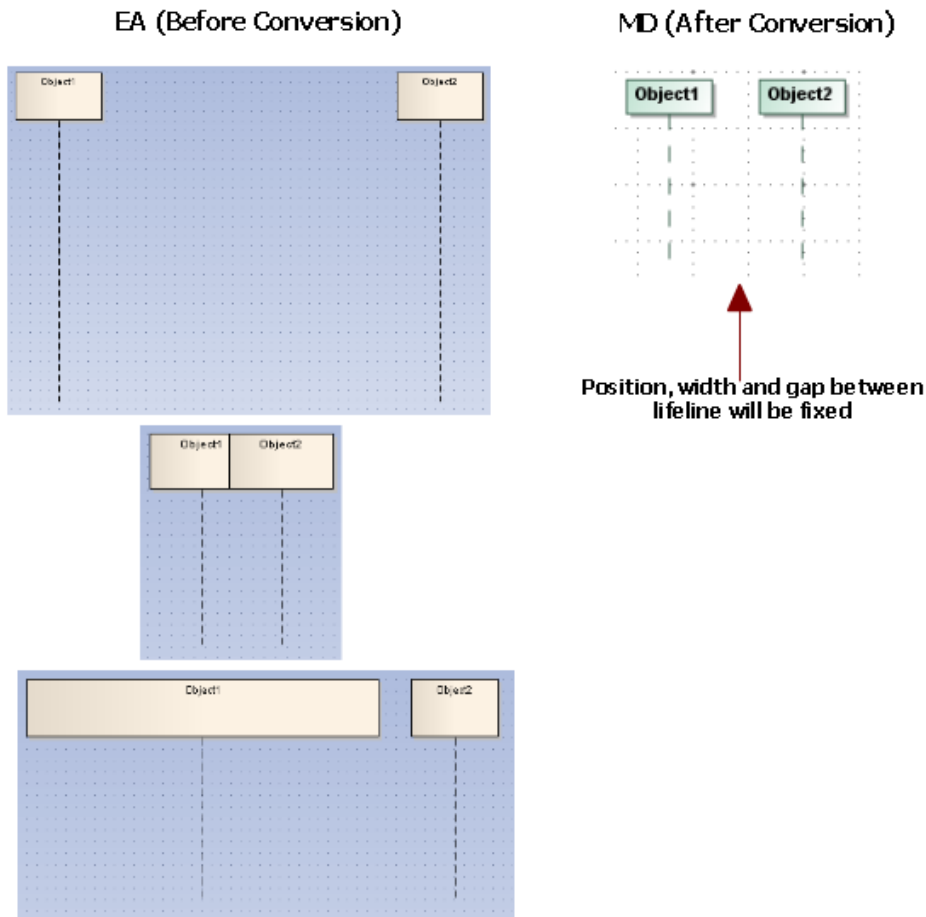


Figure 28 -- Gaps between Lifelines

6.3.1.2 Lifelines Arrangement

A Lifeline can be nested within another component such as a Part or Port. If this is the case, every component that is nested within the Lifeline and the Lifeline itself will be drawn separately in MagicDraw, and they will be arranged in order depending on the position of their Lifeline lines (Figure 29).

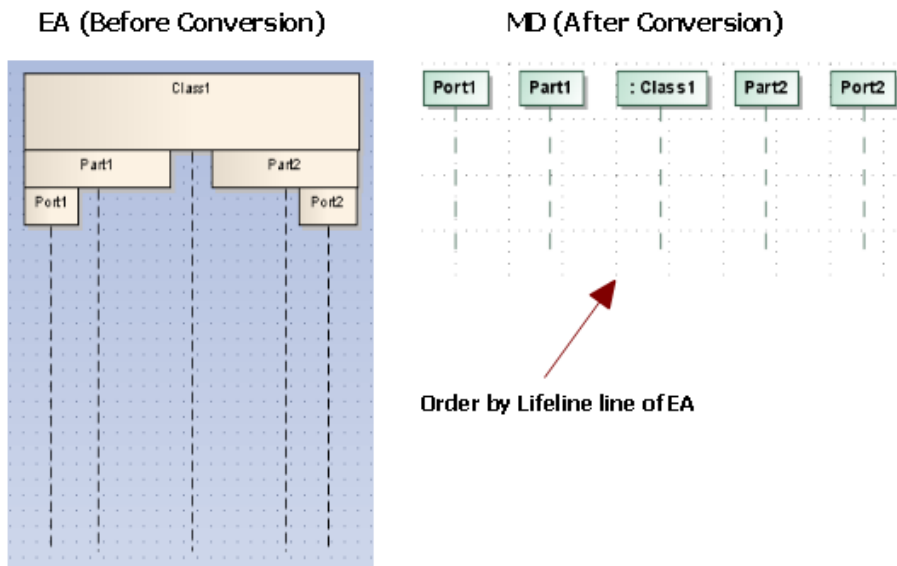


Figure 29 -- Lifelines Arrangement

6.3.1.3 Class, Part, and Port

Classes, Parts, and Ports have different characteristics from the others when they are represented as Lifelines. They will be bundled according to their relationships. One convenient way to create a Class, Part, or Port is through a Composite Structure diagram (Figure 30).

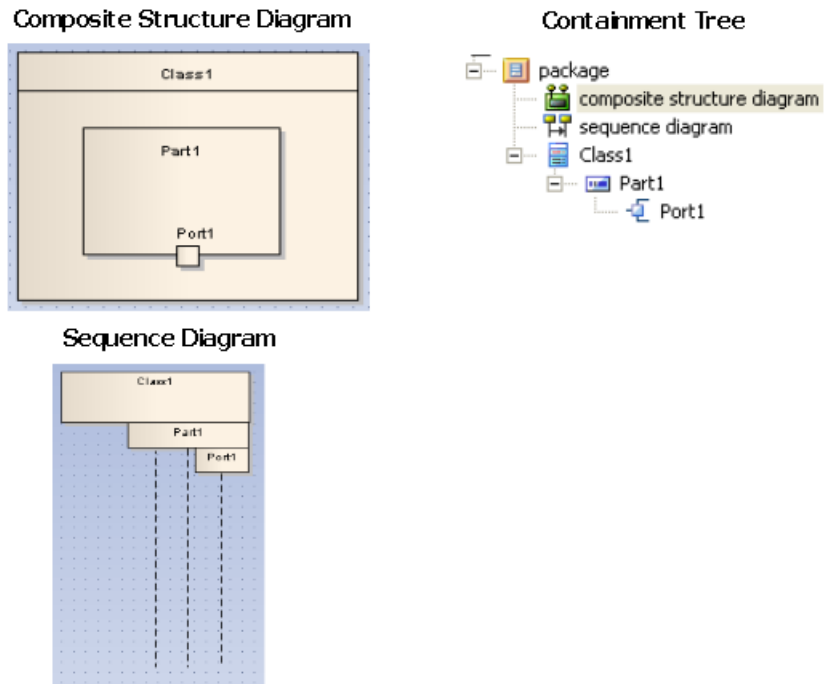


Figure 30 -- Class, Part, and Port

6.3.2 Gate

A Sequence Message whose tail is connected to a Gate (and the head connected to a Lifeline) in EA will be transformed into a Sequence Message with its tail connected to one of the boundary lines of

the diagram in which it is contained, and the Gate itself will be removed (Figure 31).

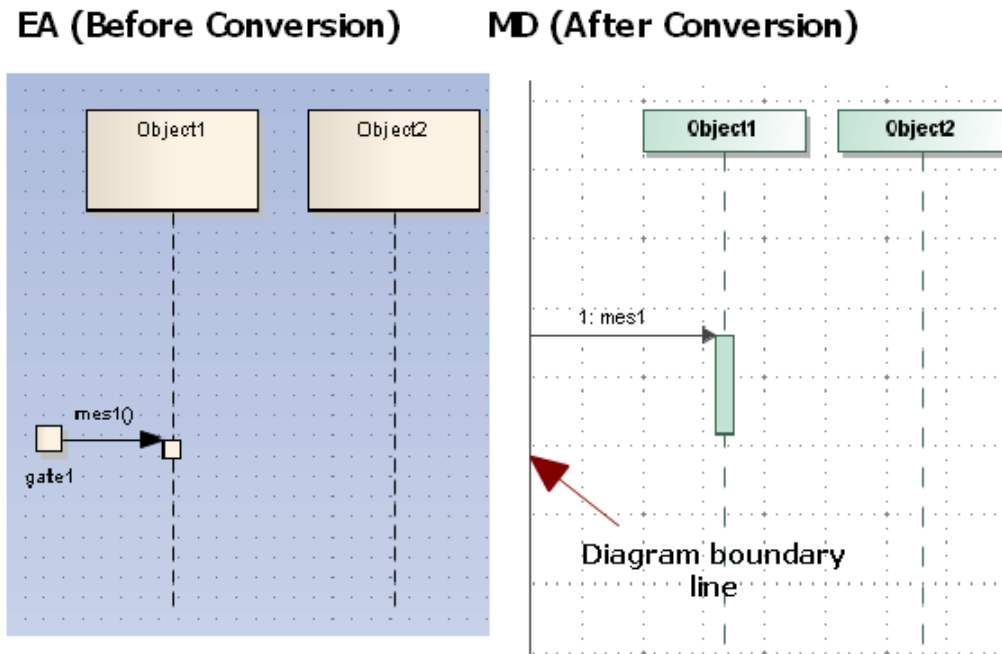


Figure 31 -- Gate

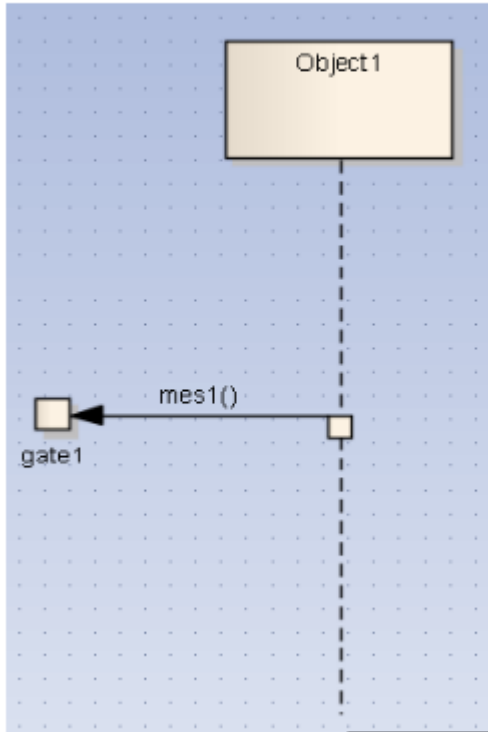
Once the Gate has been removed and the transformation process has been completed, the following transformation message will open:

```
Removed element <xmi:id>: uml:Gate.
```

A Sequence Message whose head is connected to a Gate (and tail connected to a Lifeline line) in EA will be transformed into a Reply Message with its tail connected to one of the boundary lines of the

diagram in which it is contained, and the Gate itself will be removed (Figure 32).

EA (Before Conversion)



MD (After Conversion)

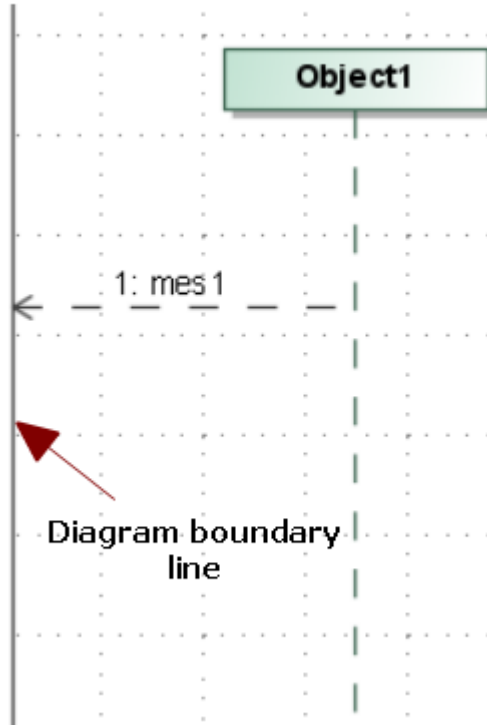


Figure 32 -- Gate (EA) and Reply Message (MagicDraw)

The Diagonal Message and Reply Message will be connected to the nearest diagram boundary (Figure 33).

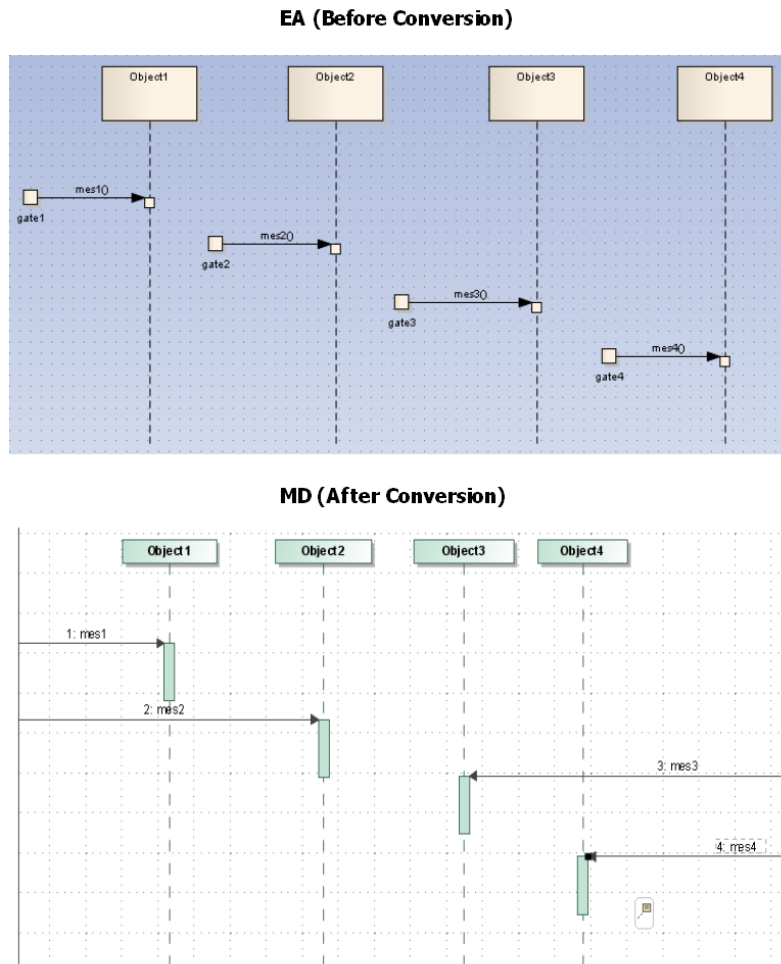


Figure 33 -- Gate (EA) and Direction of Diagonal Message (MagicDraw)

Anything else connected to a Gate, except the tail of a Sequence Message, will also be removed. For example, if the head of a Sequence Message is connected to a Gate, the Message will be removed. If the tail of a Message is connected to a Gate, but the head is connected to anything rather than a Lifeline line, the Message will be removed.

6.3.3 Endpoints

A Sequence Message whose head connected to an Endpoint and tail connected to a Lifeline line in EA, will be transformed into a Lost Message, and the Endpoint element itself will be removed. Once the process has been completed, the following transformation message will open:

Removed element <xmi:id>: EndPoint.

A Message whose head connected to a Lifeline line and tail connected to an Endpoint, will be transformed into a Found Message (Figure 34).

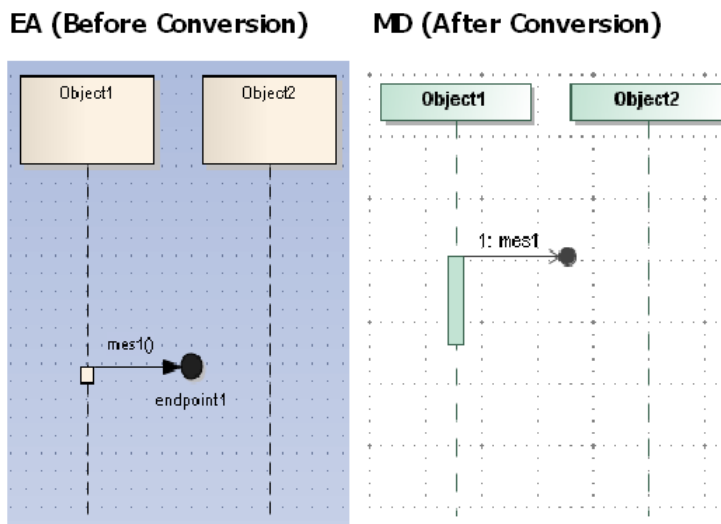


Figure 34 -- Endpoint

Anything else connected to an endpoint, except the head of a Sequence Message, will also be removed. For example, if the tail of a Sequence Message is connected to an endpoint, the Message will be removed.

If the head of a Message is connected to an endpoint, but the tail is connected to anything rather than a Lifeline line, the Message will be removed. Once the process has been completed, the following transformation message will open:

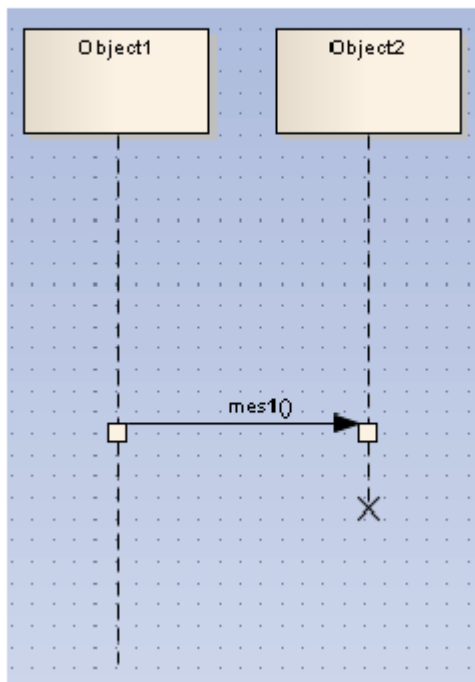
Removed element <xmi:id>: Invalid Message. Source and Target of the Message are not connected to any Lifeline.

6.3.4 Delete Messages

A Sequence Message whose property 'Lifecycle' is set to 'Delete' (that causes the Lifeline, which is being targeted by the Message, to end at some range after the point of contact), will be transformed into a Delete Message, and the Lifeline that is connected to its head will end at the point of contact, and all Messages will be removed after that point of contact of the Lifeline. MagicDraw will report the following transformation message once each process has been completed:

Removed element <xmi:id>: Message is under Delete Message.

EA (Before Conversion)



MD (After Conversion)

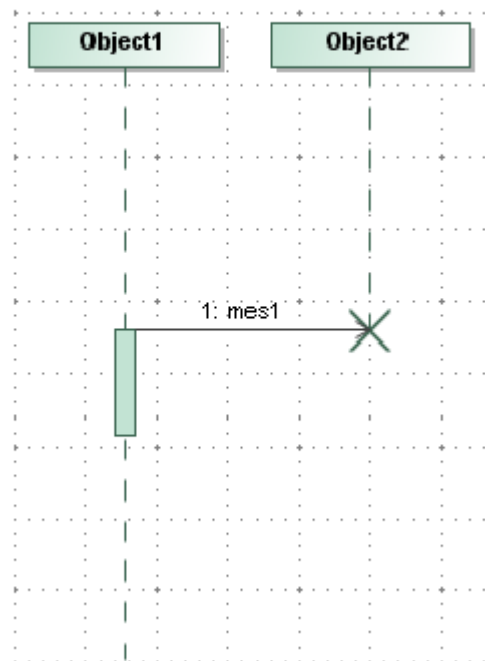


Figure 35 -- Delete Message

Under certain circumstances a Lifeline, which is connected to the head of a Delete Message, does not end at the point of contact. Instead, an Activation will be created and started from the point of contact, and then the Lifeline will just end at the end of the Activation. However, that Activation should not interact with any Message (Figure 36).

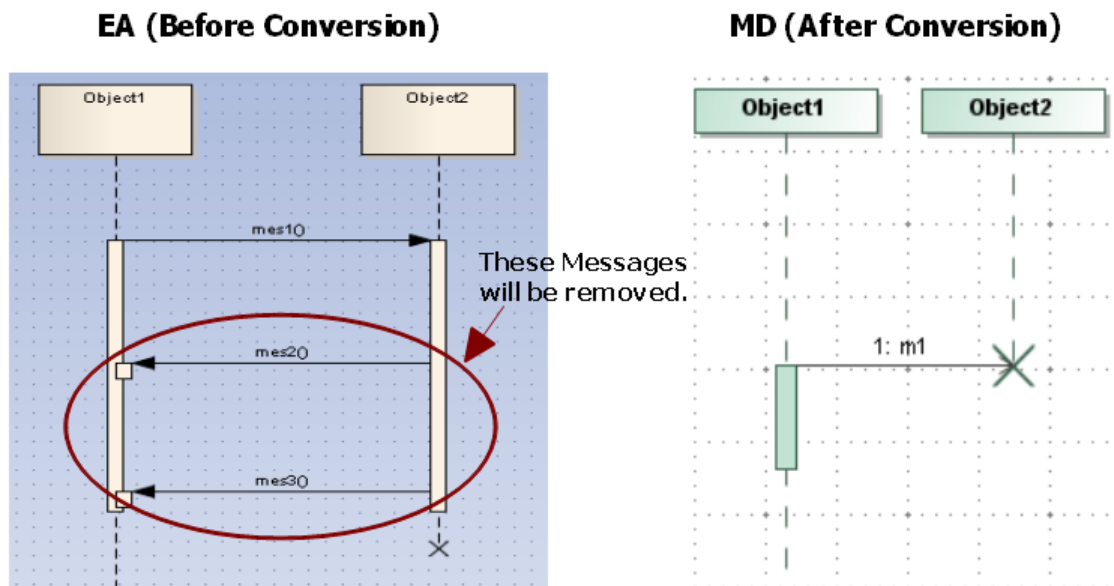


Figure 36 -- Special Case of Delete Message

Under certain circumstances, an 'X' sign (normally will be drawn after a Delete Message) in EA will be drawn on a Lifeline line whose Lifeline is being pointed by a Create Message. If this is the case, the

'X' sign has no significant meaning and can be ignored (Figure 37).

EA (Special Case)

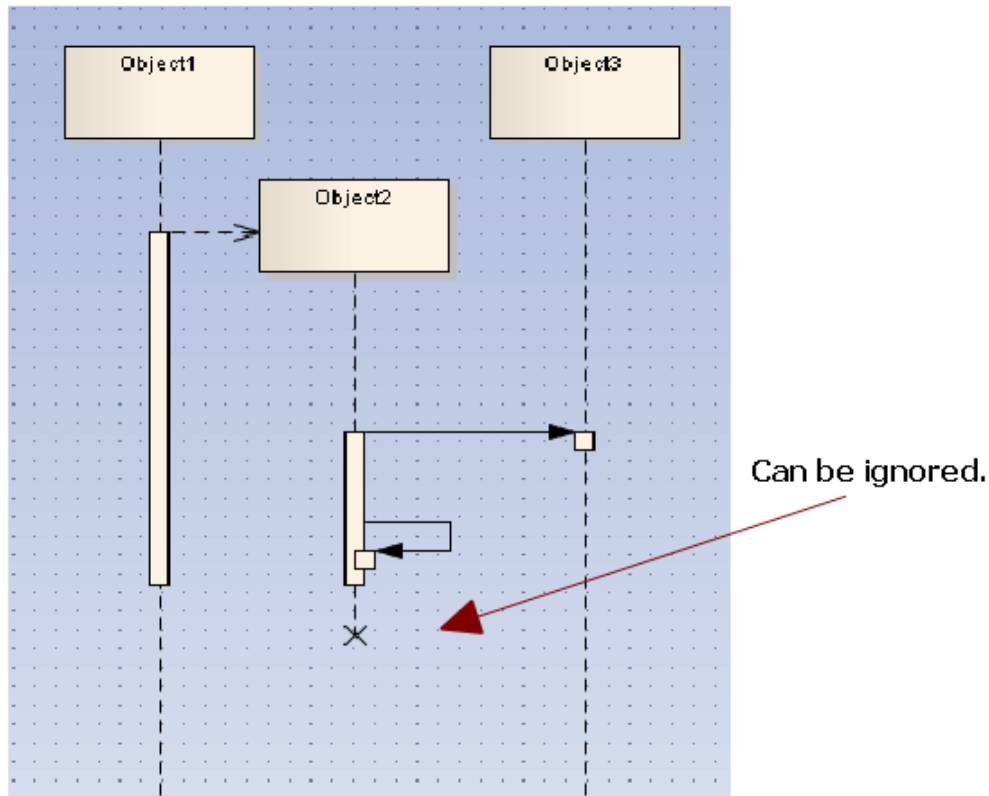


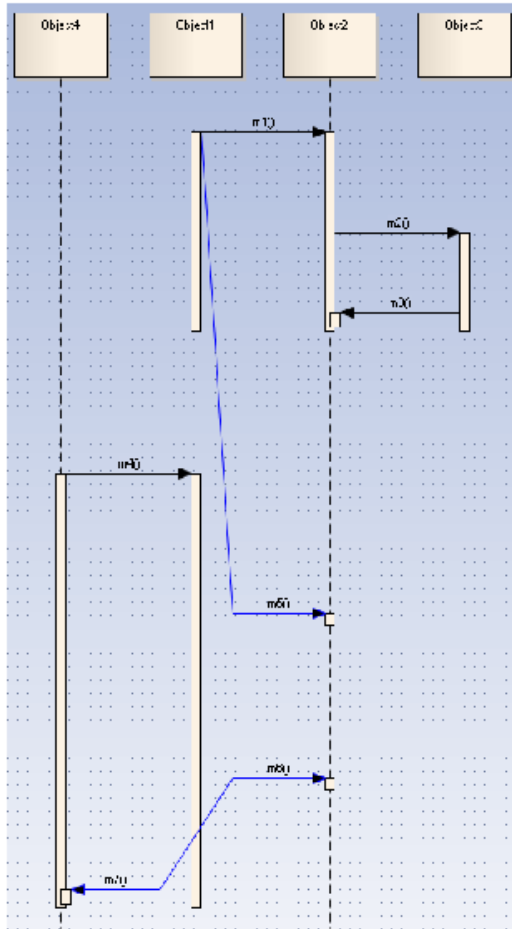
Figure 37 -- 'X' Sign

6.3.5 Branch Messages

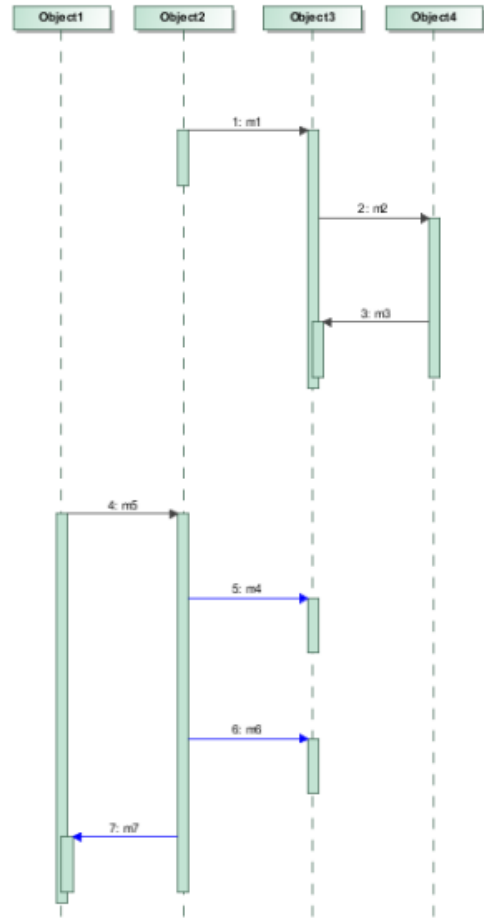
If the **Branch with previous Message** option of a Sequence Message is enabled, the tail of the message will be connected to the tail of its previous Message on the same Lifeline line. The message will be called 'Branch Message' from that time on.

Every Branch Message in EA will be transformed into a normal Message in MagicDraw (Figure 38).

EA (Before Conversion)



MD (After Conversion)



(Branch Message are in blue color)

Figure 38 -- Branch Message

After the transformation process has been completed, the following transformation message will open:

Updated element <xmi:id>: Branch Message updated to regular Message.

6.3.6 Boundaries, Controls, and Entities

The Boundary, Control, and Entity elements in a Sequence diagram context in EA are Lifeline elements whose stereotype property type is set to 'Boundary', 'Control', or 'Entity'. They will be imported like any other normal Lifelines (Figure 39). However, an XMI exported from EA has a <<entity>> stereotype problem that causes the Lifeline with the <<entity>> stereotype applied unable to show the stereotype icon. You can solve this problem by placing an <<entity>> stereotype in EA_Profile.xml so that the converted model can use it instead of the one from EA.

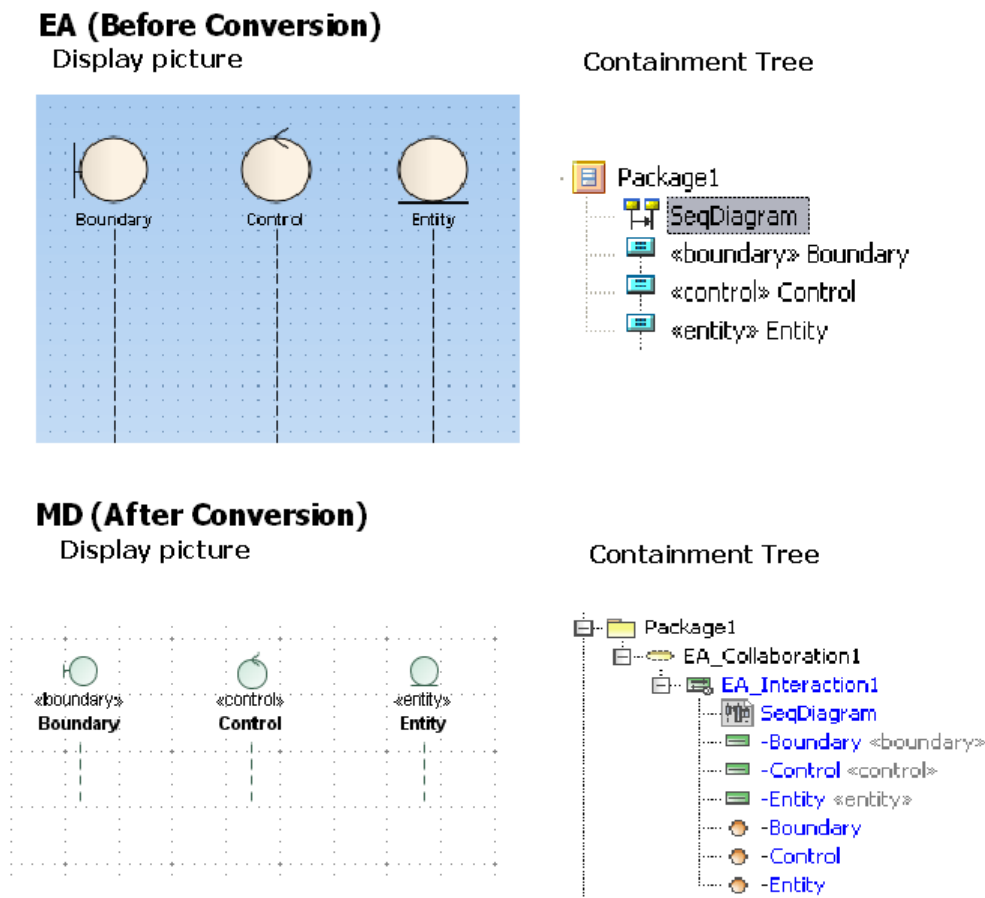


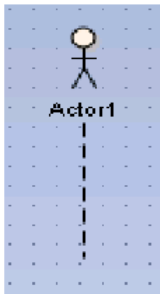
Figure 39 -- Boundary, Control, and Entity

6.3.7 Actors

An Actor element in the Sequence diagram context in EA is not a regular Lifeline element. It is a special Lifeline element whose property type is 'uml:Actor'. It will be transformed into a regular Actor and a Lifeline element will be created to represent it. Figure 40 below shows an Actor element in the MagicDraw containment tree.

EA (Before Conversion)

Display picture

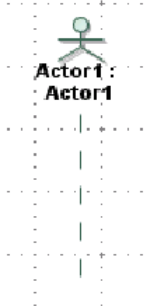


Containment Tree



MD (After Conversion)

Display picture



Containment Tree

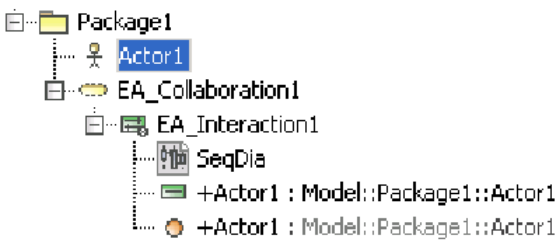


Figure 40 -- Actor

6.3.8 General Ordering

Every General Ordering element in EA will not be imported because MagicDraw does not support it in the current release (Figure 41).

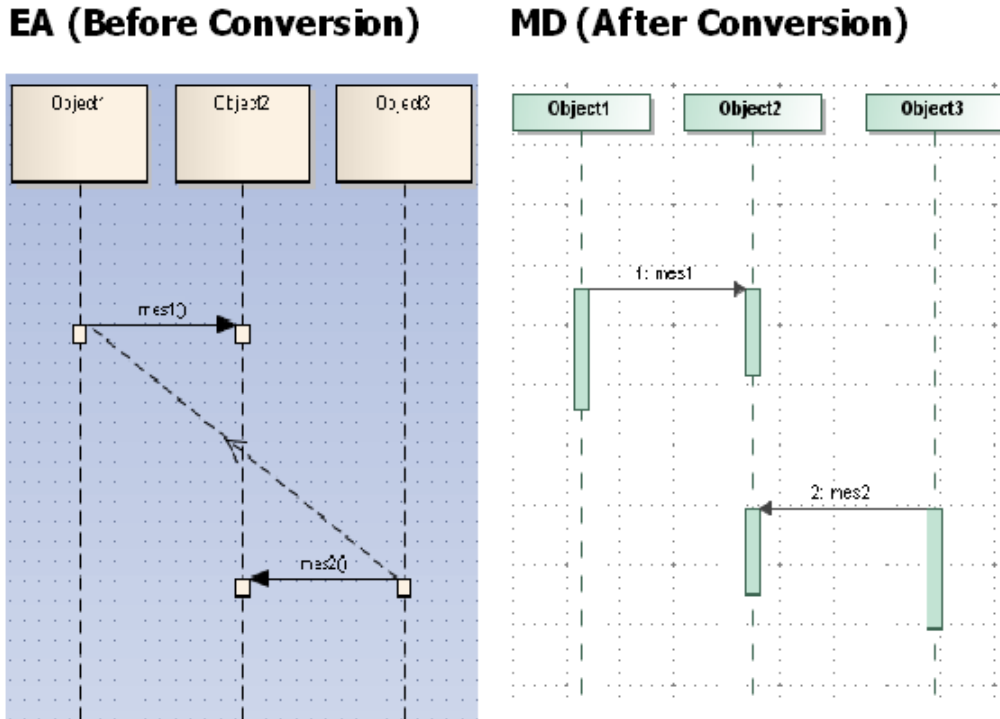


Figure 41 -- General Ordering

After the transformation process has been completed, the following transformation message will open:

Updated element <xmi:id>: General Ordering will not be imported.

6.3.9 State Invariant

A State Invariant in EA will be transformed as it is (Figure 42). MagicDraw does not support State Invariants in the current release.

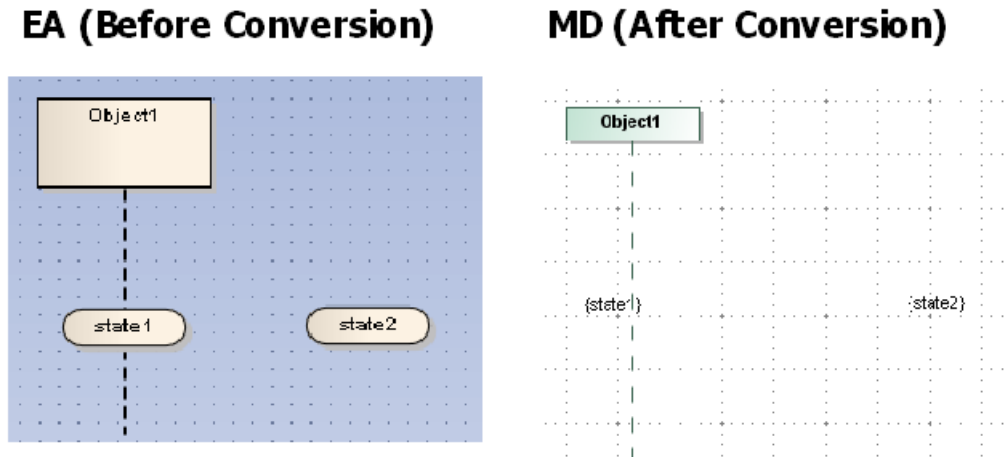


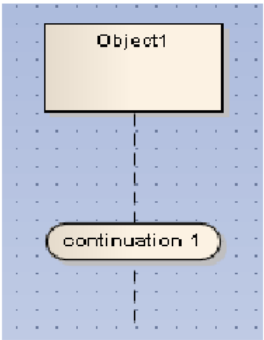
Figure 42 -- State Invariant

6.3.10 Continuation

Continuations from EA can be imported to MagicDraw. They are viewable in the containment tree in MagicDraw, but without a picture displayed in the diagram (Figure 43). MagicDraw does not support

Continuations in the current release.

EA (Before Conversion)



MD (After Conversion)

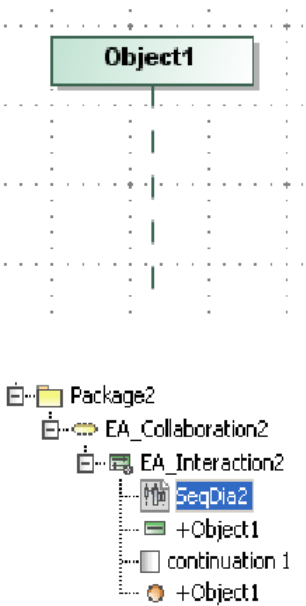


Figure 43 -- Continuation

After the transformation process has been completed, the following transformation message will open:

Updated element <xmi:id>: Continuation will not be displayed.

6.3.11 Diagonal Message

A Diagonal Message is a Message whose destination's height is adjustable (Figure 44). A diagonal Message may change Activations.

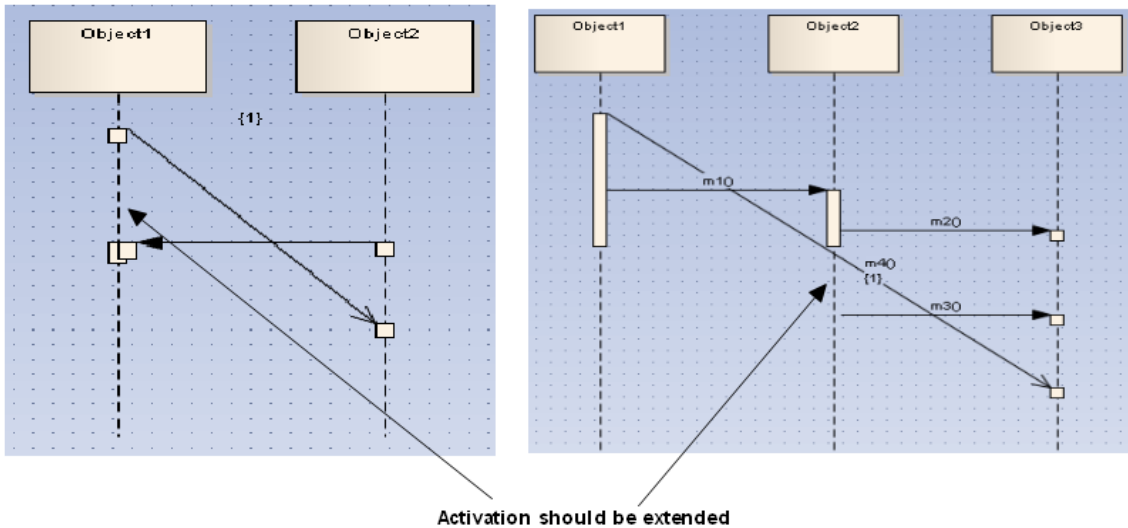


Figure 44 -- Diagonal Message

To create a Diagonal Message in EA, you need to specify the Timing Details property of the Message and add a numeric value to the Duration Constraint input field (Figure 45).

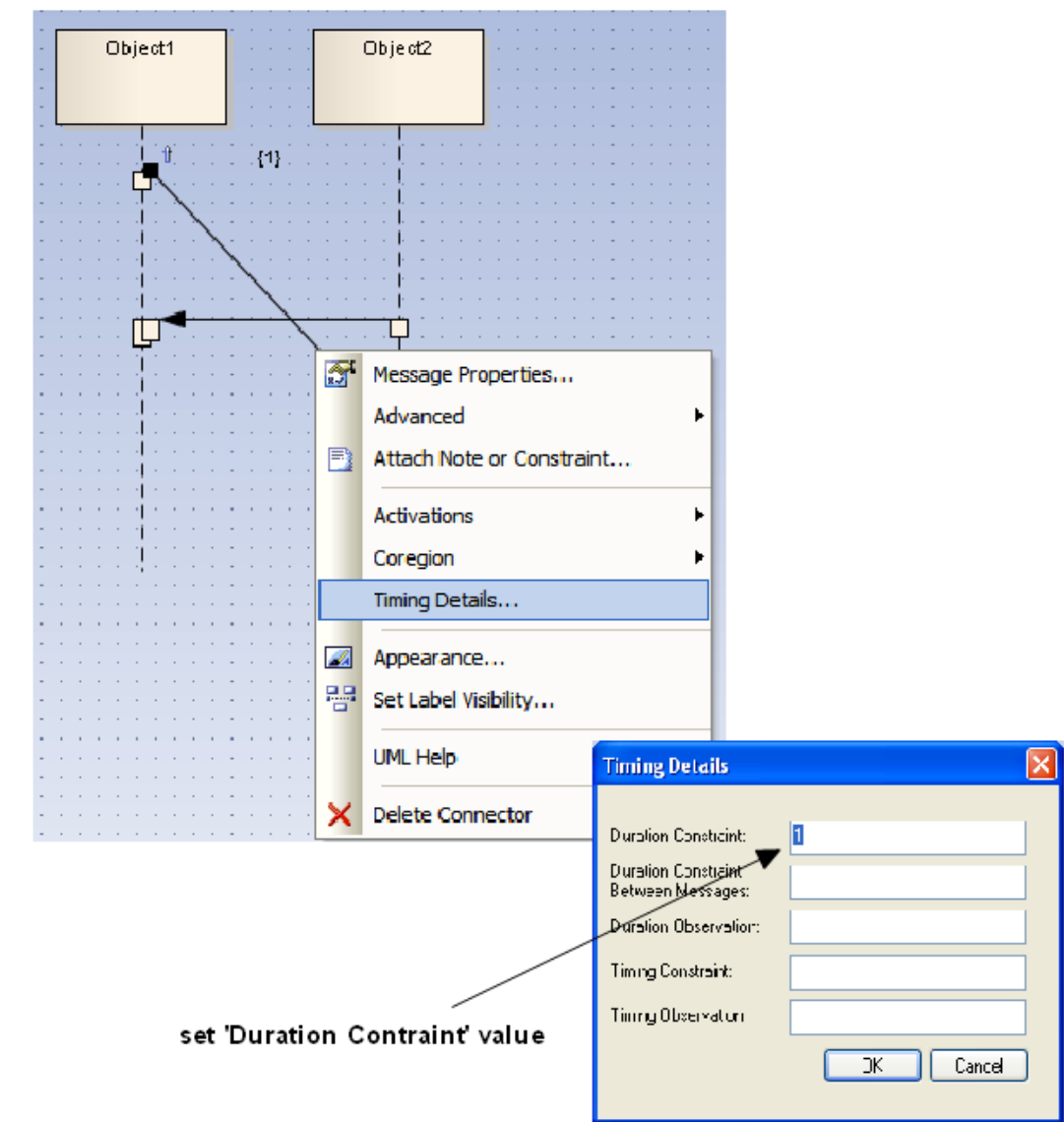


Figure 45 -- Creating a Diagonal Message

6.3.12 Synchronous Message Behavior

The placement of Synchronous Messages in EA will affect the way Activations are created.

6.3.12.1 Order

A Message in EA has a 'Sequence Number' that indicates the order of the message in the diagram. This information can be found in the exported XMI file and knowing it helps predicting the way how Activations will be created. The order starts from the top and goes downward, so the first Message in the diagram is the one that is drawn at the top of the diagram and it will have its Sequence Number set to '1' (Figure 46).

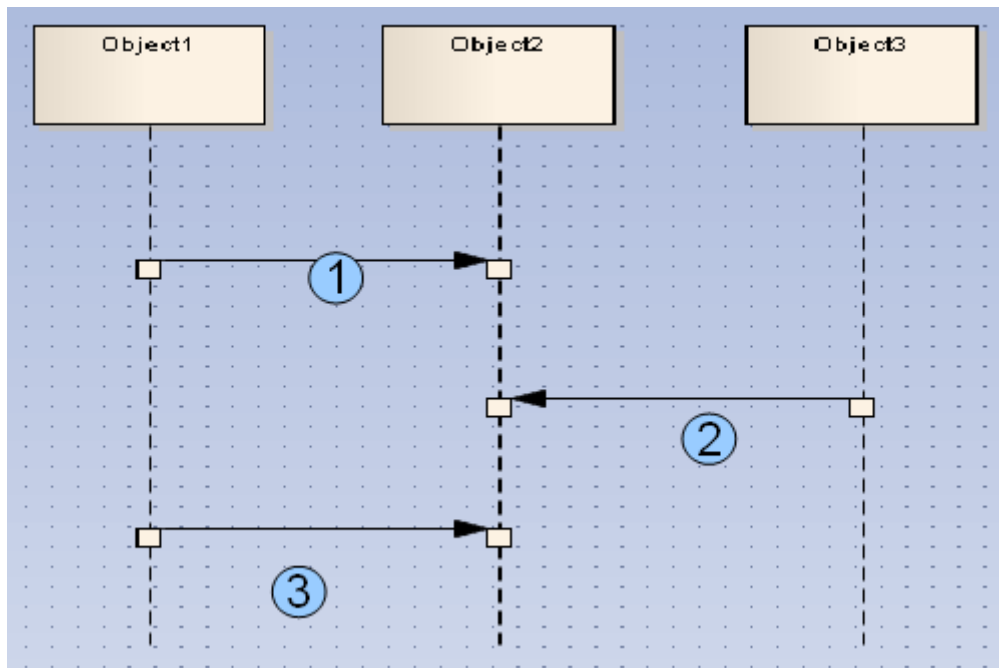
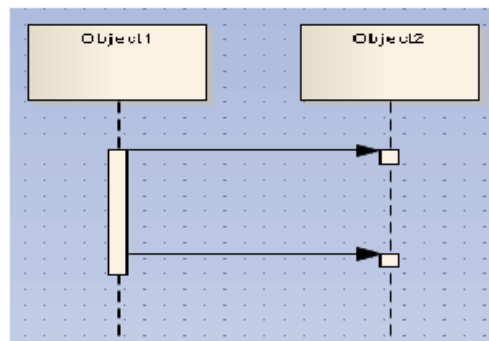


Figure 46 -- Message Sequence Number

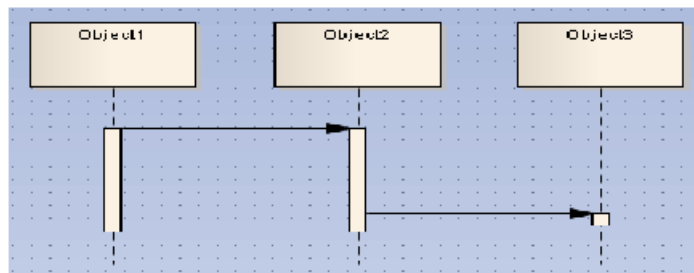
6.3.12.2 Process

Generally, in EA, any two Synchronous Messages will be in the same process if they meet the following conditions (Figure 47):

- Both of their tails placed on the same Lifeline.
- The head of the upper Message and the tail of the lower Message are on the same Lifeline.



condition 1



condition 2

Figure 47 -- Process

6.3.12.3 Activation Level

The Activation Level starts from level 0 and will be increased in increments of 1 as an ongoing process receives a Message that is not a Return Message (Reply Message in MagicDraw) (Figure 48).

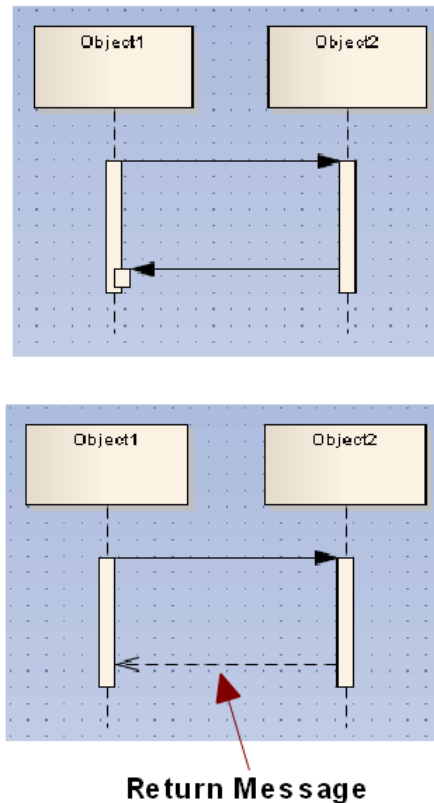


Figure 48 -- Activation Level

6.3.13 Asynchronous Message Behavior

If a Message is an Asynchronous Message in EA, then its source Activation will end if there is no other Message in the same group that has a higher Sequence Number, and its source will be

attached to the same Lifeline (Figure 49).

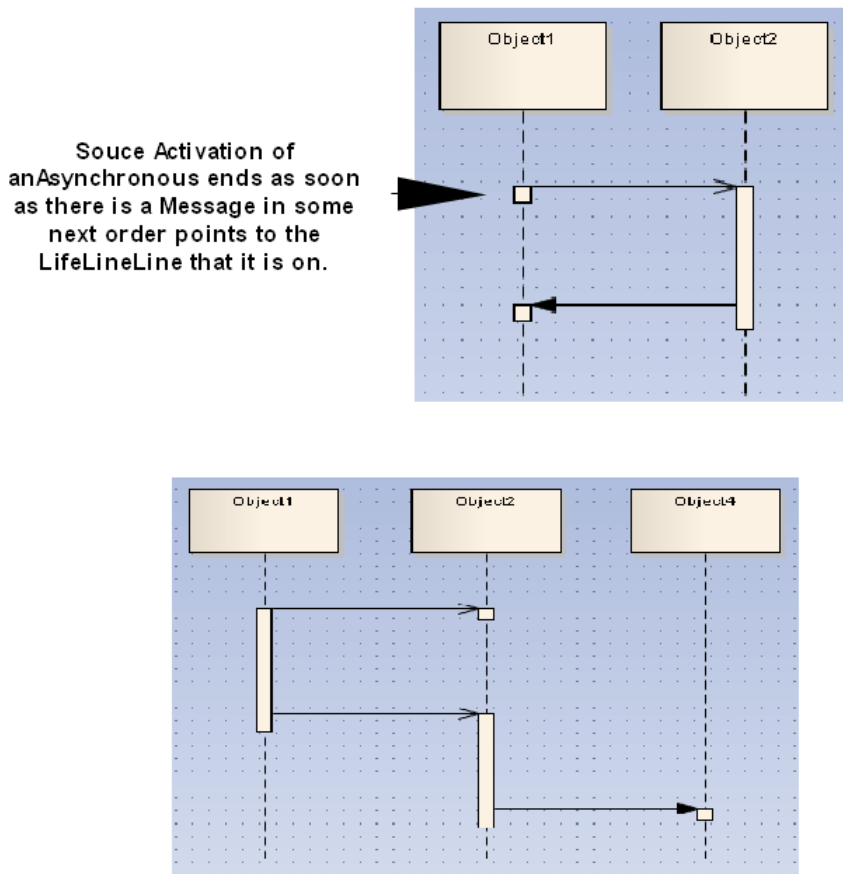


Figure 49 -- Asynchronous Message

6.3.14 Return Message Behavior

A Return Message in EA is called a Reply Message in MagicDraw. One of its characteristics is that when it is pointed to an Activation, it will not create an Activation at the top of the existing Activation

(unlike other normal Synchronous Messages) (Figure 50).

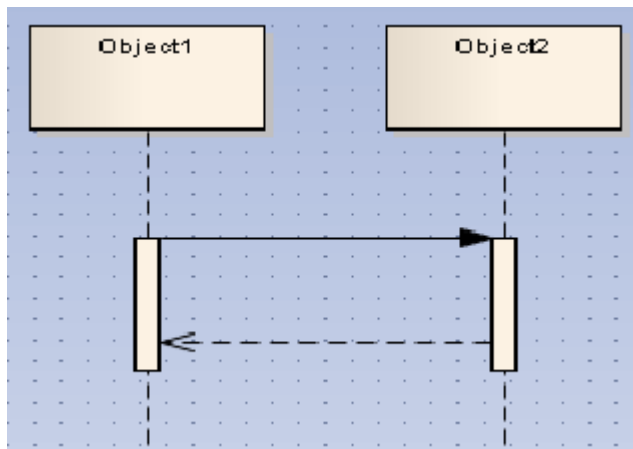


Figure 50 -- Return Message

6.3.15 Activation Options

You can control how Activations behave at some level through the Message options, which you can access by right-clicking any Message, and then select the **Activations** option. However, MagicDraw does not support Activation Options in the current release.

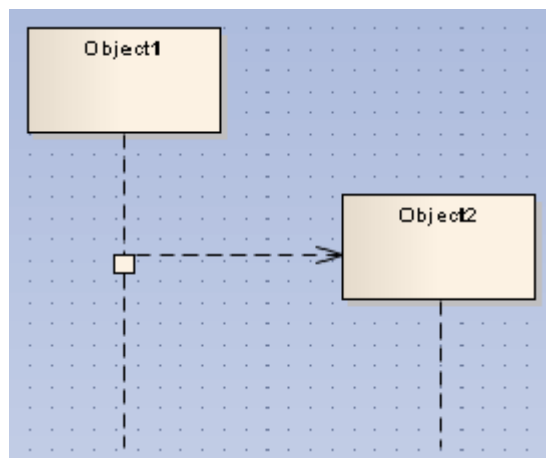


Figure 51 -- Activation Options

6.4 Communication Diagram Elements

6.4.1 Object, Boundary, Entity, and Control

All of the Object, Boundary, Entity, Control elements in EA are InstanceSpecifications. After conversion, their UML element types will remain, and a Lifeline and an OwnedAttribute element will be created to represent each of them in the Communication diagram in which they are in.

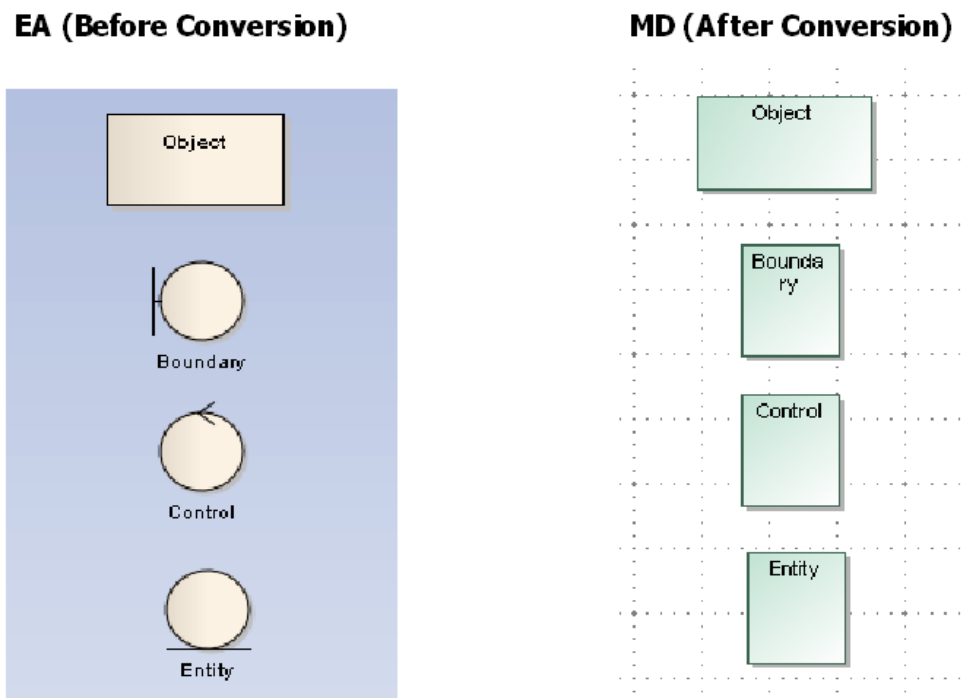
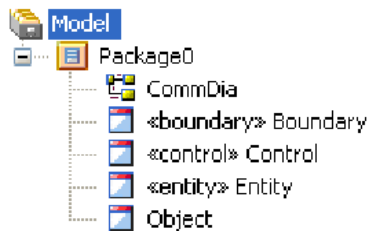


Figure 52 -- Object, Boundary, Entity, and Control (Diagram View)

EA Containment Tree



MD Containment Tree

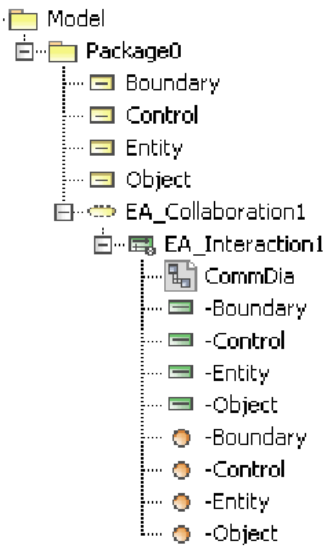


Figure 53 -- Object, Boundary, Entity, and Control (Containment Tree)

Other elements that can be drawn in a Communication diagram will be handled in a similar manner.

6.4.2 Exception Elements

Some of the elements that can be drawn in a Communication diagram using EA are not supported by MagicDraw, consequently, their displaying parts will not be imported. Such elements are Package, Activity, Action, DiagramFrame, State, Interaction, ExceptionHandler, CentralBufferNode, InterruptibleActivityRegion, MergeNode, Trigger, ExpansionRegion, and InteractionFragment.

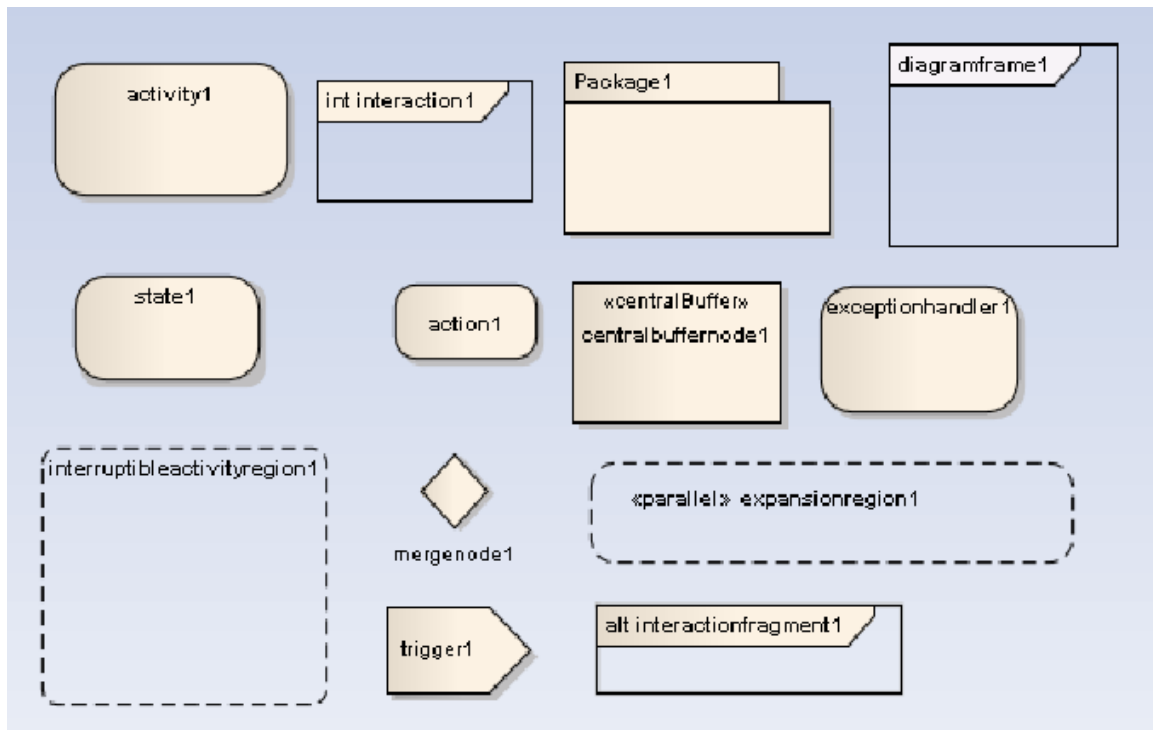


Figure 54 -- Exception Elements

6.4.3 Realization and Nesting

The Realization's element type in EA is 'uml:Realization' and the Nesting's element type in EA is exported in XML as 'uml:Dependency'.

The Realization and Nesting lines in EA are not supported in the Communication diagram; therefore, only their model data, not the displaying parts, that will be imported.

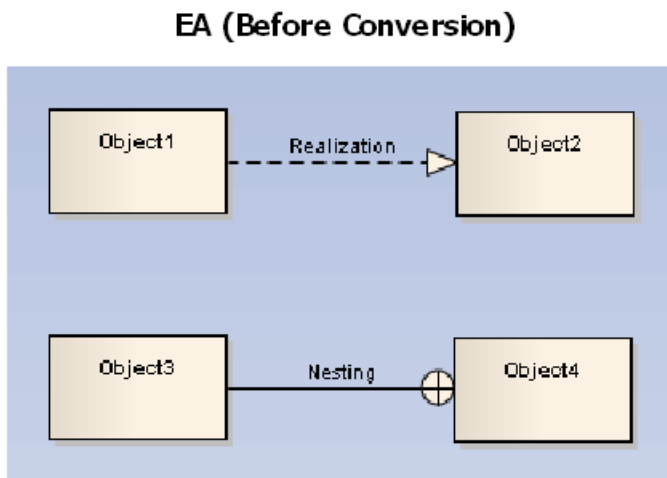
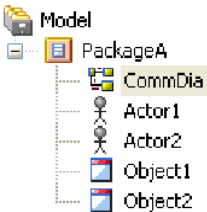
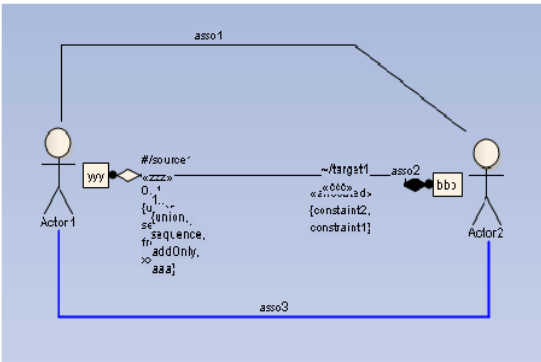


Figure 55 -- Realization and Nesting

6.4.4 Association

Every Association relationship that is drawn in a Communication diagram in EA will have a Connector line created for each of them, and the elements that are attached to the Association line's both ends will have a Lifeline element created to represent each of them. So, the Association lines and the elements that are attached to them will not be removed, but the elements that will be shown in the MagicDraw's diagram frame will be those of the Lifeline elements and the Connector lines that are created to represent them (Figure 56).

EA (Before Conversion)



MD (After Conversion)

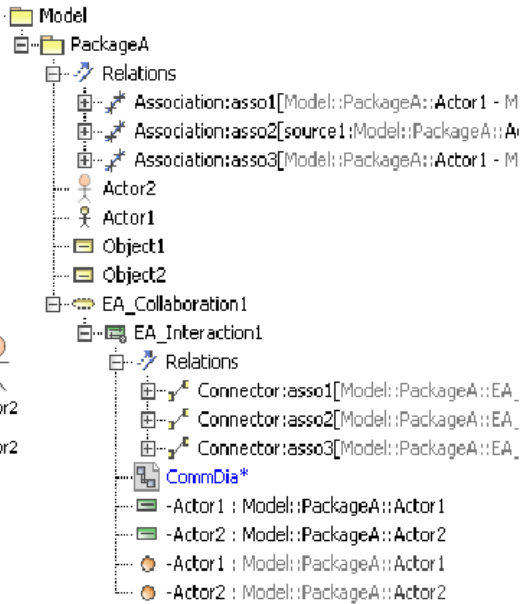
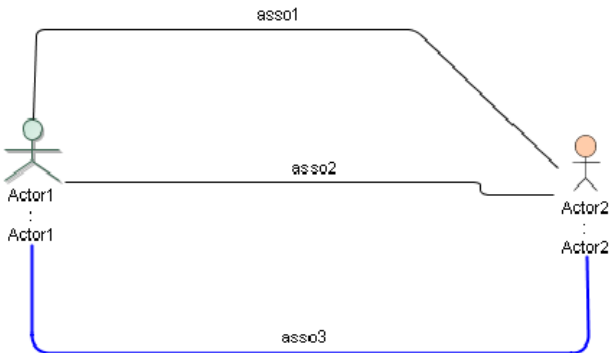
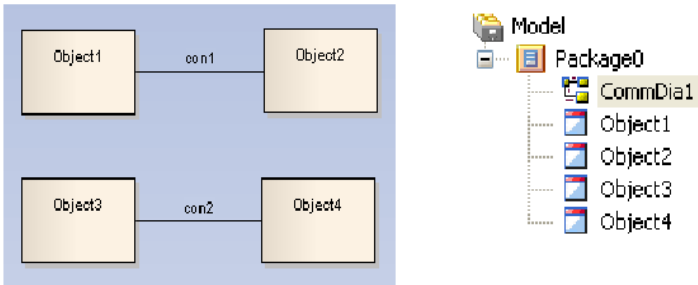


Figure 56 -- Association

If an Association line is connected to the InstanceSpecification elements, its data will be removed. If an Association line is linked between two InstanceSpecification elements, it will be transformed into an InstanceSpecification element. This is one of the constraints that belongs to the Communication diagram.

EA (Before Conversion)



MD (After Conversion)

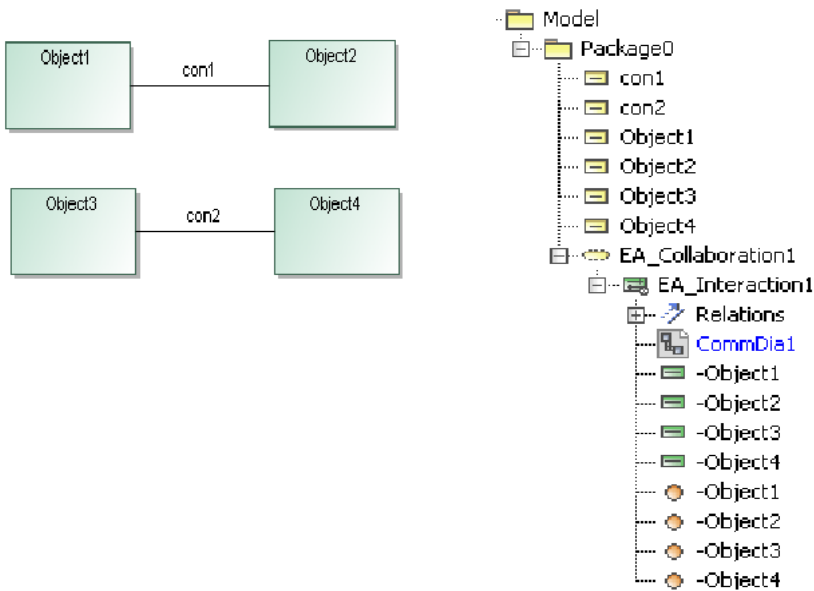


Figure 57 -- Association Line between InstanceSpecifications

6.4.5 Message

Messages can be created on Connectors and will be imported to MagicDraw (Figure 58).

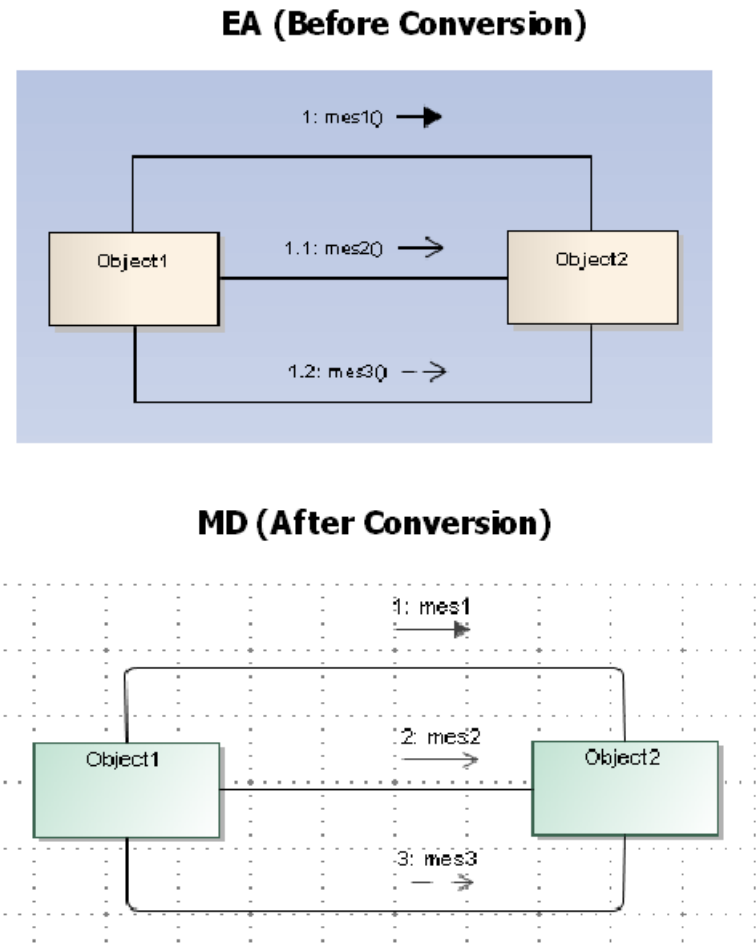


Figure 58 -- Message

6.4.6 Operations

An InstanceSpecification cannot contain Operation elements. If the XMI file from EA has some InstanceSpecification elements that contain Operation elements, those Operations will be removed (Figure 59).

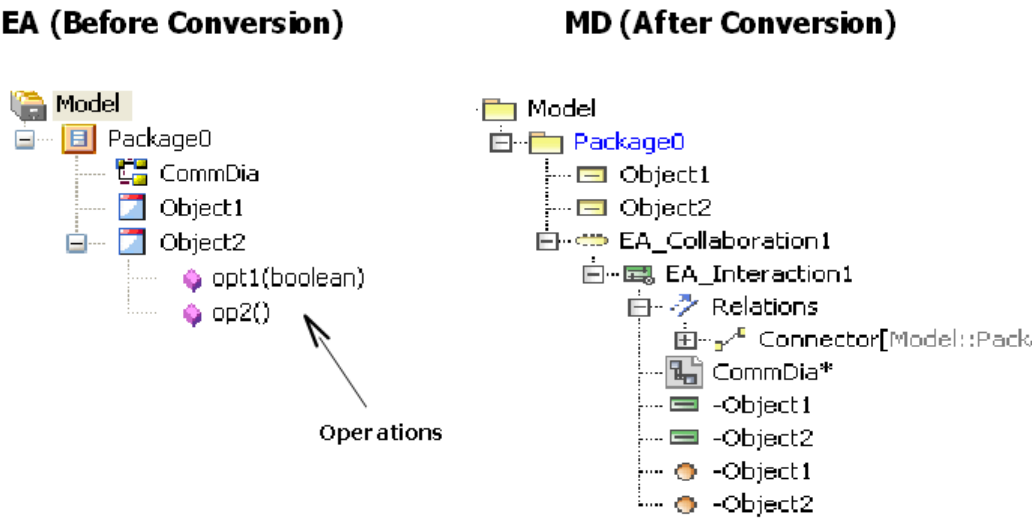


Figure 59 -- Operations

6.5 State Machine Diagram Elements

6.5.1 StateMachine

After conversion, a dummy StateMachine element will be created. The dummy StateMachine is either created by XML exporter from EA or by EA Import plugin. A StateMachine diagram will be placed inside the dummy StateMachine and a dummy Region element will be created to contain all of the StateMachine elements (Figure 60).

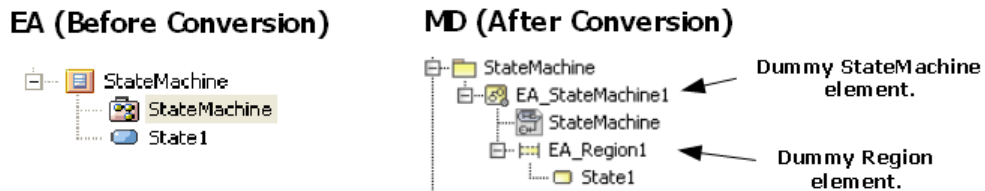


Figure 60 -- Dummy StateMachine Element and Dummy Region Element

6.5.2 State

6.5.2.1 State Containing Other Elements

A State element that contains other elements will be transformed to a Composite State and all of the contained elements will be placed inside the Region element of the State element (Figure 61).

Containment tree

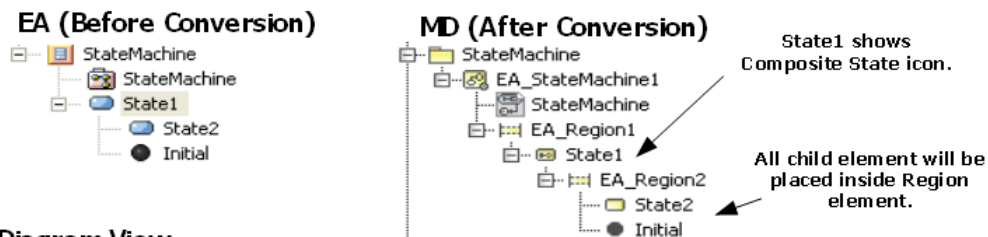


Diagram View

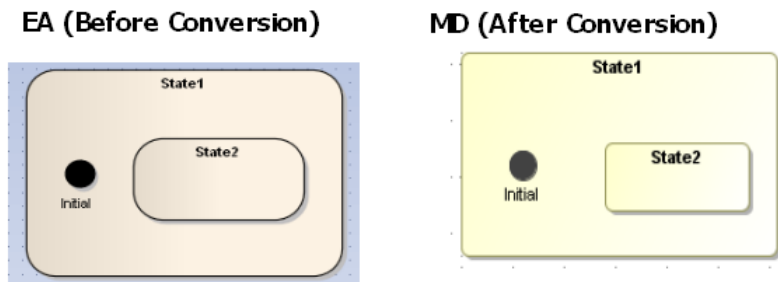


Figure 61 -- State Containing Other Elements

6.5.2.2 State Containing StateMachine

If a State element contains a StateMachine element, the StateMachine element will be brought out and placed at the same level of the Region element of the State element.

Containment tree

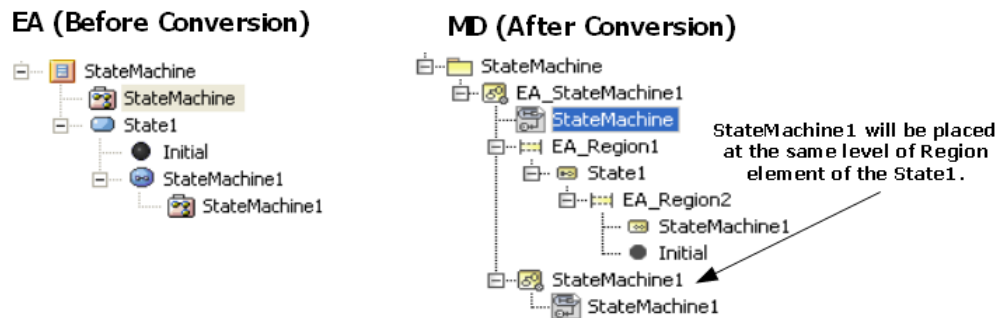


Diagram View

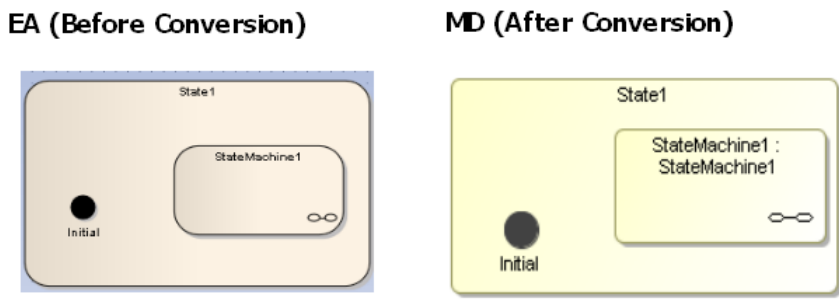


Figure 62 -- State Containing StateMachine

6.5.2.3 State Containing Attribute and Operation

If a State element contains Attribute and Operation elements. The Attribute and Operation elements will be removed both from the Diagram view and Containment tree (Figure 63).

Containment tree

EA (Before Conversion)



MD (After Conversion)

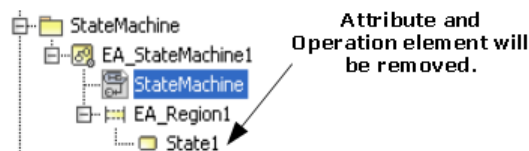
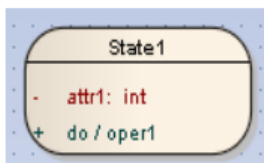


Diagram View

EA (Before Conversion)



MD (After Conversion)

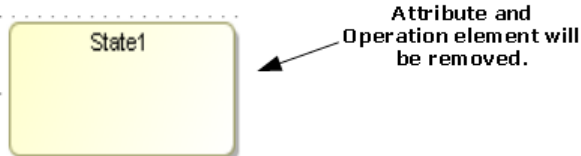


Figure 63 -- State Containing Attribute and Operation

The following transformation messages will open:

- Removed element <xmi:id>: State cannot contain Attribute.
- Removed element <xmi:id>: State cannot contain Operation.

6.5.2.4 State Containing Diagram Element

If a diagram element is placed inside a State element, it will be removed (Figure 64).

Containment tree

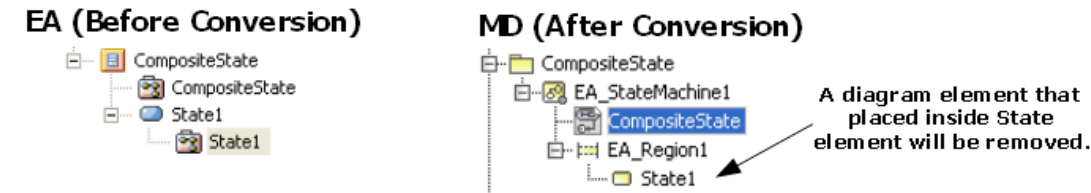


Diagram View

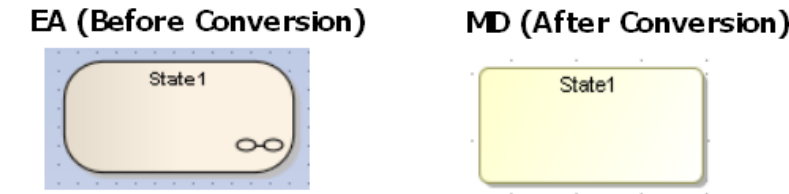


Figure 64 -- State Containing Diagram Element

The following transformation message will open:

Removed element <xmi:id>: State cannot contain diagram element.

6.5.3 StateMachine Placed on a Diagram

If a StateMachine element is drawn in a StateMachine diagram, an additional SubMachineState will be created to represent the StateMachine (Figure 65).

NOTE	A SubMachine State is a State whose SubMachine property is set to a StateMachine.
------	---

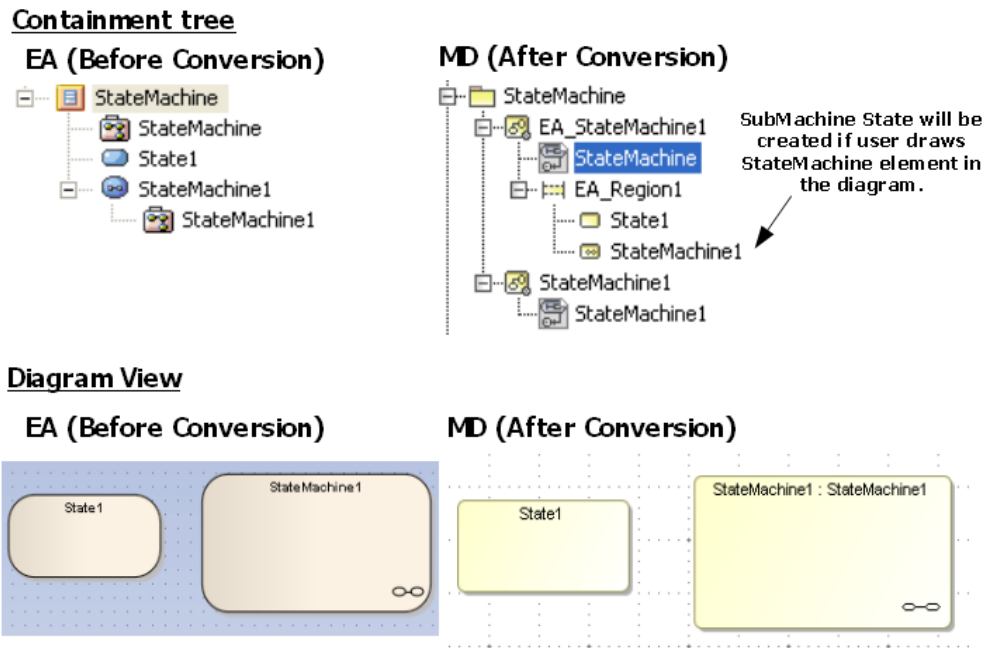


Figure 65 -- StateMachine Represented by a SubMachine State

6.5.4 Object

An Object element placed in a State Machine diagram will be removed from the Diagram view, however, its data will be preserved in the Containment tree as an InstanceSpecification (Figure 66).

Containment tree

EA (Before Conversion)



MD (After Conversion)

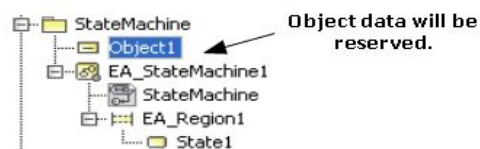
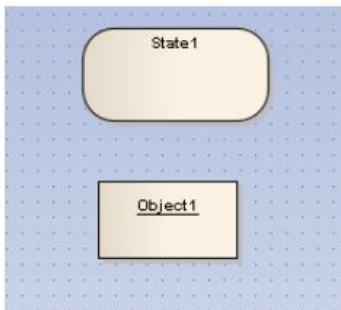


Diagram View

EA (Before Conversion)



MD (After Conversion)

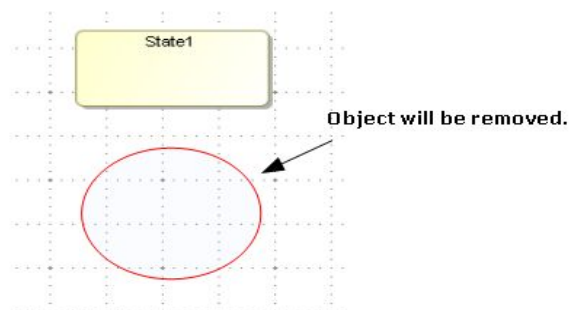


Figure 66 -- Object

The following transformation message will open:

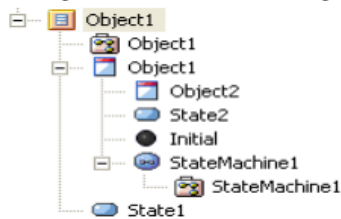
Removed view <xmi:id>: The view represents element that does not support in State Machine Diagram.

6.5.4.1 Object Containing State Machine Element

In EA, an Object element can contain a State Machine element. After being imported to MagicDraw, the State Machine element that is placed inside an Object element will be removed both from the Diagram view and Containment tree, however, the Object element data will be preserved. All of the Object element data will be placed at the closest owner package of the Object element (Figure 67).

Containment tree

EA (Before Conversion)



MD (After Conversion)

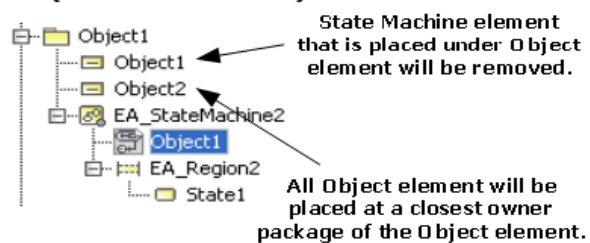
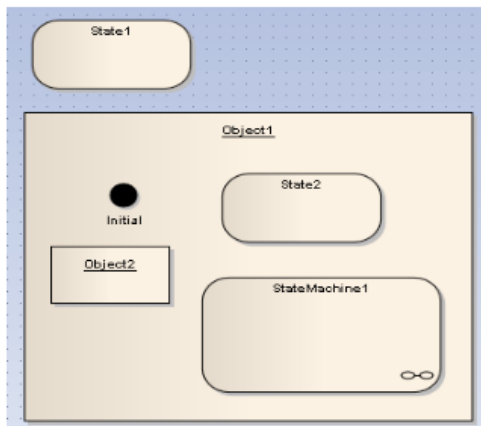


Diagram View

EA (Before Conversion)



MD (After Conversion)

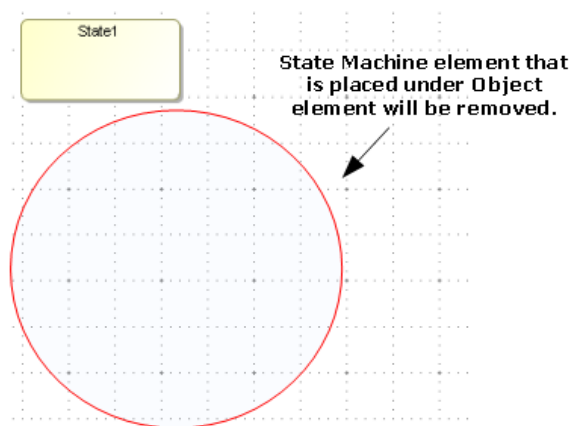


Figure 67 -- Object Containing State Machine Element

The following transformation message will open:

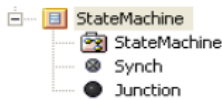
Removed element <xmi:id>: Invalid element. Instancespecification can not contain element from State Machine.

6.5.5 Synch

A Synch element will be transformed to a Junction element (Figure 68).

Containment tree

EA (Before Conversion)



MD (After Conversion)

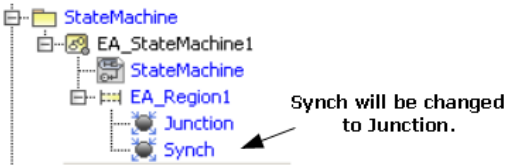
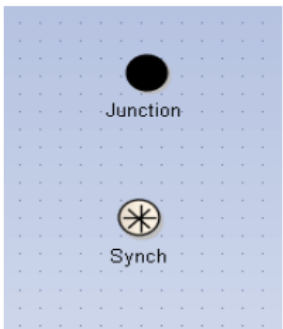


Diagram View

EA (Before Conversion)



MD (After Conversion)

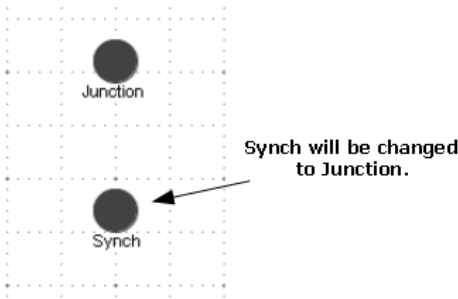


Figure 68 -- Synch

The following transformation message will open:

Updated element <xmi:id>: Synch updated to Junction.

6.5.6 EntryPoint / ExitPoint

An Entry or Exit point, which is placed inside a State (or StateMachine) element, will be placed outside a Region element of its parent element in the Containment tree and relocated to the nearest boundary of its parent element in the Diagram view (Figure 69).

Containment tree

EA (Before Conversion)



MD (After Conversion)

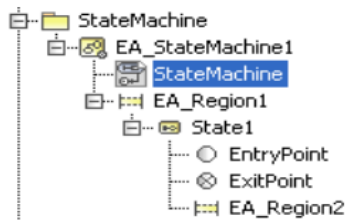
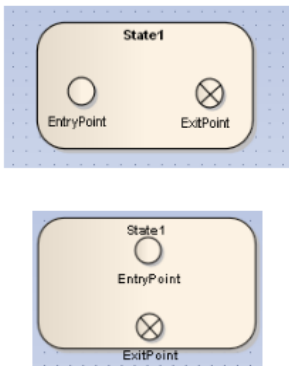


Diagram View

EA (Before Conversion)



MD (After Conversion)

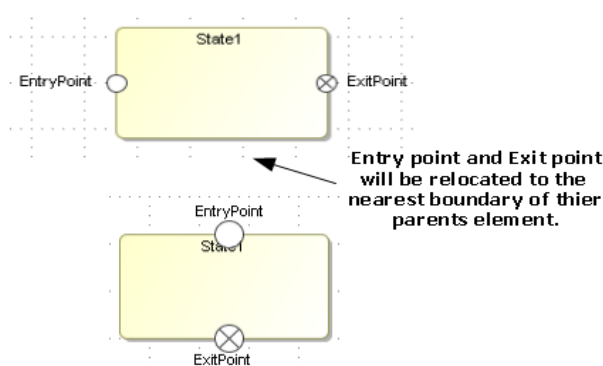


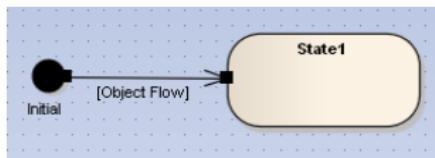
Figure 69 -- Entry/Exit Point

6.5.7 Object Flow Connecting State Machine Elements

An Object Flow connecting the elements in a State Machine will be removed both from the Diagram view and Containment tree (Figure 70).

Diagram View

EA (Before Conversion)



MD (After Conversion)

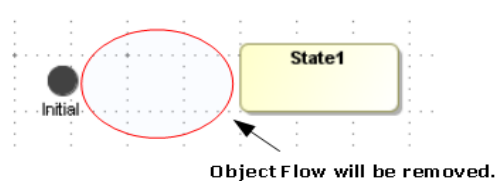


Figure 70 -- ObjectFlow Connecting State Machine Elements

The following transformation message will open:

```
Removed element <xmi:id>: Invalid ObjectFlow. Source or Target of the  
ObjectFlow are connected to element from State Machine.
```

6.5.8 Information Flow Connecting State Machine Elements

An Information Flow connecting the elements in a State Machine will be removed from the Diagram view, however, its data will be preserved.

Containment tree

EA (Before Conversion)



MD (After Conversion)

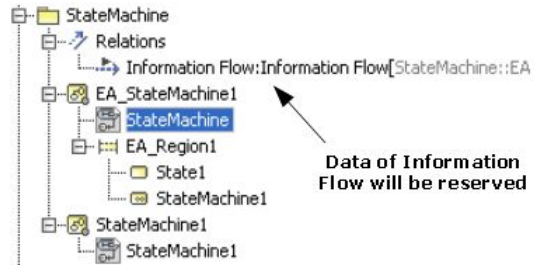
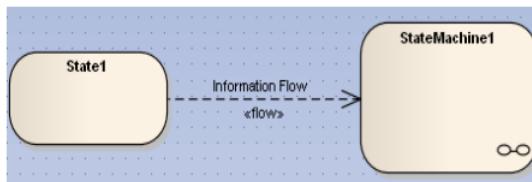
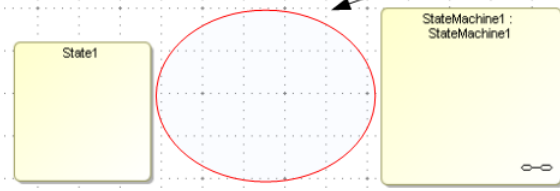


Diagram View

EA (Before Conversion)



MD (After Conversion)



Information Flow will be removed.

Figure 71 -- Information Flow, Trace, and Dependency

The following transformation message will open:

Removed element <xmi:id>: The view represents element that does not support in State Machine Diagram.

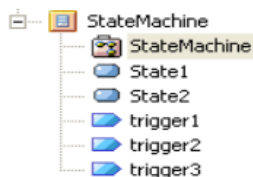
6.5.9 Trigger

If there is a Trigger element that is not related to any Transition line, a dummy StateMachine will be created to hold the Trigger element. The dummy StateMachine will be named after the parent package name concatenating with 'trigger'.

In the case of a Trigger element that is related to Transition, the data of the Trigger element will be placed inside its parent Transition. Each Trigger element will be given an event type, which is represented by an Event element. After conversion, the Event will be placed at the closest owner package of the Event.

Containment tree

EA (Before Conversion)



MD (After Conversion)

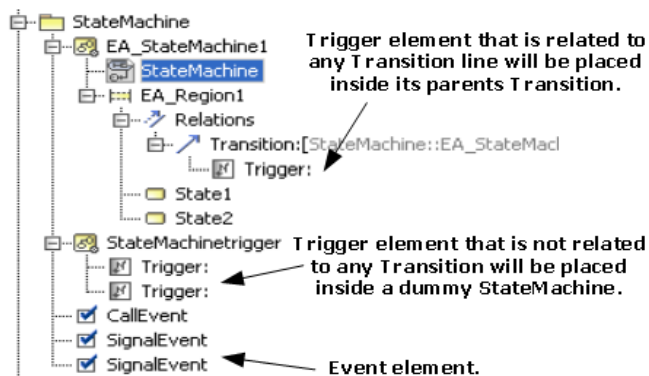
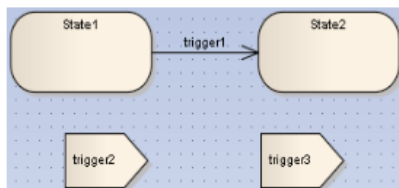


Diagram View

EA (Before Conversion)



MD (After Conversion)

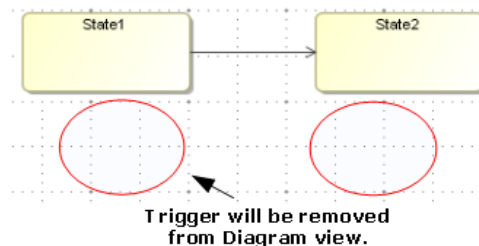


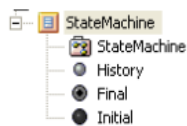
Figure 72 -- Trigger

6.5.10 Self Transition

Most of the elements in a StateMachine diagram can have a self transition, except for the Initial, Final, and History elements. The self transition in these three elements will be removed from the Diagram view, but the data of the self transition will be preserved in the Containment tree.

Containment tree

EA (Before Conversion)



MD (After Conversion)

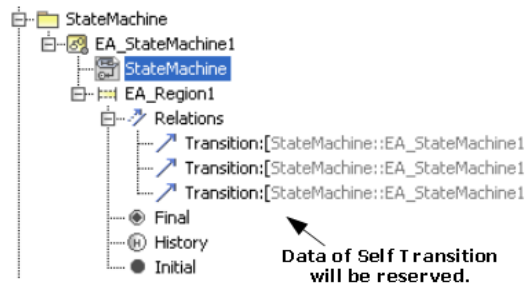
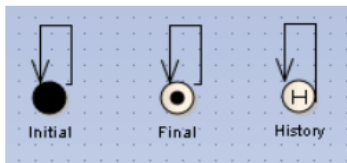


Diagram View

EA (Before Conversion)



MD (After Conversion)

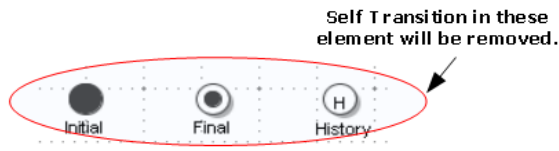


Figure 73 -- Self Transition

The following transformation messages will open:

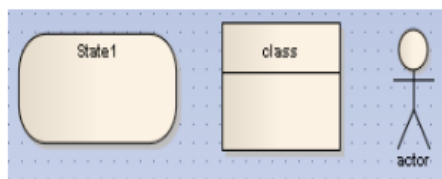
- Removed view <xmi:id>: Self Transition does not support for Initial.
- Removed view <xmi:id>: Self Transition does not support for Final.
- Removed view <xmi:id>: Self Transition does not support for History.

6.5.11 Removed Element

An element, which is not the element of a State Machine diagram, for example, Class, Actor, Use-case, or Action, and drawn in the State Machine diagram, will be removed from the Diagram view. However, its data will be preserved in the Containment tree.

Diagram View

EA (Before Conversion)



MD (After Conversion)

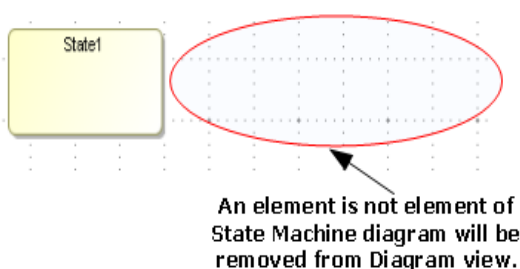
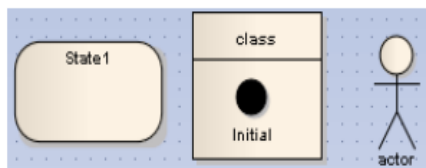


Figure 74 -- Removed Element

If an element, which is not the element of a State Machine diagram, has a child element and it is drawn in the State Machine diagram, the element will be removed from the Diagram view, however, its data will be preserved in the Containment tree.

Diagram View

EA (Before Conversion)



MD (After Conversion)

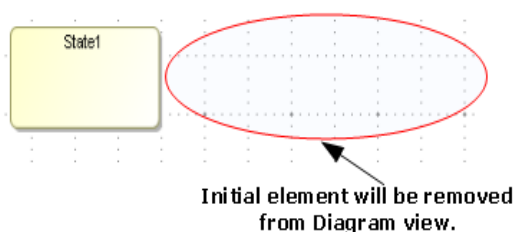


Figure 75 -- Removed Element with a Child Element

The following transformation message will open:

Removed view <xmi:id>:The view represents element that does not support in State Machine Diagram.

6.6 Composite Structure Diagrams

This section will describe some additional EA specific Composite Structure diagram information.

6.6.1 Import Elements

One way EA is different than MagicDraw is in how the Composite Structure diagram's content elements are designed. Table 11 below shows the differences by focusing on the EA's elements and how they will be transformed or converted into the format that MagicDraw can correctly load and display. The element names shown in the table are the same as those in both EA and MD 's GUI. The contents in the bracket ([...]) are the XMI element type references.

Table 11 -- Differences between EA and MagicDraw

Enterprise Architect	MagicDraw
Interaction	
Class [uml:Class]	Class [uml:Class]
Interface [uml:Interface]	Interface [uml:Interface]
Part [uml:Class] Part [uml:Property]	Part [uml:Property]
Port [uml:Port]	Port [uml:Port]
Collaboration [uml:Collaboration]	Collaboration Use [uml:Collaboration]
Expose Interface [not exist]	
Connector [element type is not exist]	Connector [uml:Connector]
Assembly [element type is not exist]	
Delegate [element type is not exist]	Connector [uml:Connector]
Role Binding [uml:Dependency]	Role Binding [uml:Dependency]
Represents [uml:Dependency]	Dependency [uml:Dependency]
Occurrence [uml:Dependency]	Dependency [uml:Dependency]

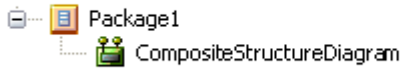
6.6.2 Conversion Details

6.6.2.1 Dummy Class

In MagicDraw, the Composite Structure diagram needs a Context element to contain itself, whereas in EA, there is no Context element. After conversion, a dummy Class element will be created to represent the Context element of Composite Structure diagram.

A dummy Class will be named after the closest owner package of the Composite Structure diagram. The Composite Structure diagram and all of the Composite Structure elements will be placed inside the dummy Class element.

EA (Before Conversion)



MD (After Conversion)



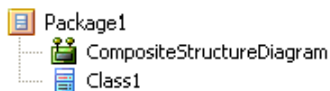
Figure 76 -- Dummy Class

6.6.2.2 Class

The Class element data will be normally copied even if the Class element is drawn in a Composite Structure diagram. A Property element will be created to represent the Class element. The Property element will be named after the Class element.

Containment tree

EA (Before Conversion)

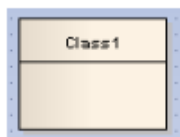


MD (After Conversion)



Diagram View

EA (Before Conversion)



MD (After Conversion)

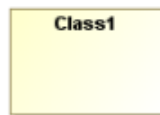


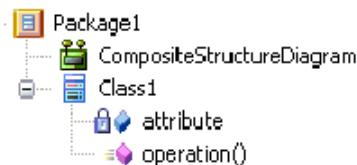
Figure 77 -- Property Representing a Class Element

Class with Attributes and Operations

The Class view in EA will be converted to a Part in MagicDraw; therefore, attributes and operations will not be shown in the Composite Structure diagram.

Containment tree

EA (Before Conversion)



MD (After Conversion)

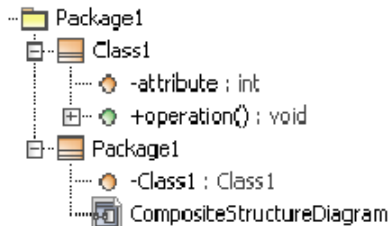
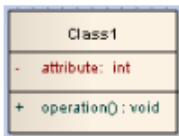
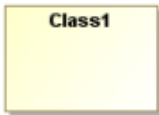


Diagram View

EA (Before Conversion)



MD (After Conversion)



Part element cannot show
Attribute and Operation.

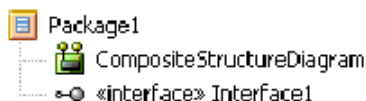
Figure 78 -- Part Element after Conversion

6.6.2.3 Interface

The Interface element data will be normally copied even if the Interface element is drawn in a Composite Structure diagram. A Property element will be created to represent the Interface element. The Property element will be named after the Interface element.

Containment tree

EA (Before Conversion)



MD (After Conversion)

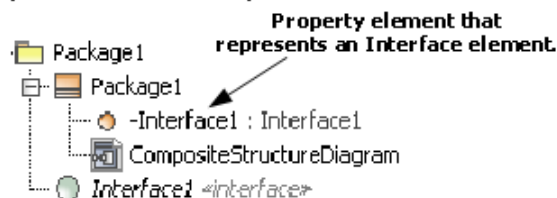
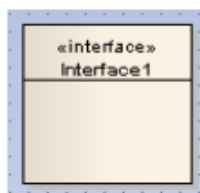


Diagram View

EA (Before Conversion)



MD (After Conversion)

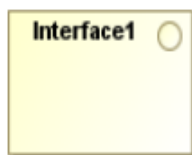


Figure 79 -- Property Representing Interface Element

6.6.2.4 Part

There are two types of Parts: (i) Part with port and (ii) Part that sets type to other elements.

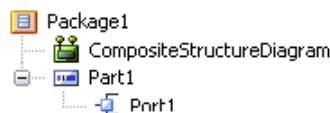
(i) Part with Port

If you assign the type of a Part element to a Class, Component, or Node, the Part element can have a Port (see 6.6.2.5 Port for more information).

In the case of a Part is not nested to any element, the Part element will be exported from EA as a Class; therefore, this Part element can have a Port.

Containment tree

EA (Before Conversion)



MD (After Conversion)

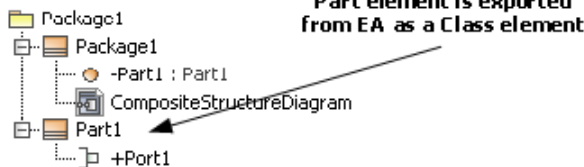
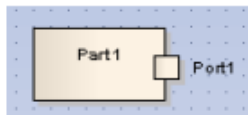


Diagram View

EA (Before Conversion)



MD (After Conversion)

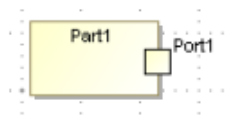


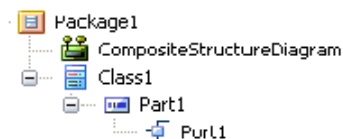
Figure 80 -- Part that does not Nest Element(s) with Posts

In the case of a Part is nested to an element and the type is not set, then the Part type will be used to set type to a dummy Class. This particular Part can have a Port.

A dummy Class will be created at the same level of the Part element that sets type to it. The dummy Class will be named after the Part concatenating with '_type'.

Containment tree

EA (Before Conversion)



MD (After Conversion)

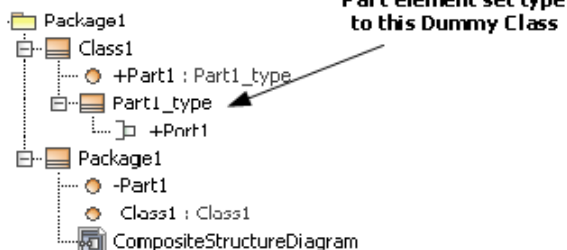
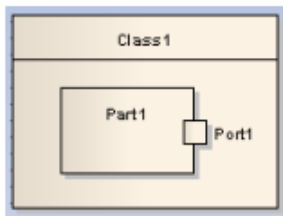


Diagram View

EA (Before Conversion)



MD (After Conversion)

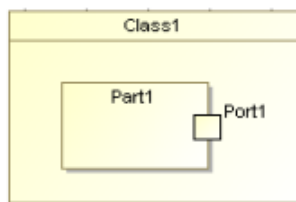


Figure 81 -- Part that Nests Element(s) with Post

(ii) Part that sets type to other elements

The type of Part can be set to another element, for example, a Class, Actor, Component, or Usecase by right-clicking the Part element and select **Advanced > Set Property Type > Select Property Type** (Figure 82).

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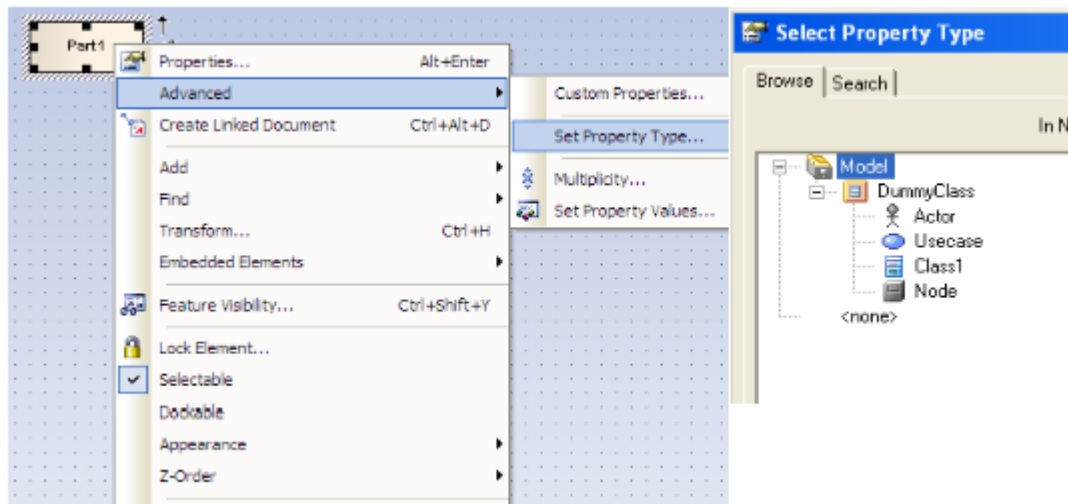


Figure 82 -- Setting Part Type

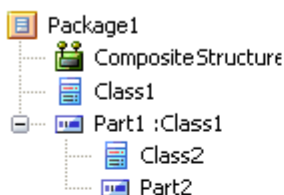
If the Part type is set to a type that cannot be the owner of a port, the port will be removed.

In MagicDraw, the Property element data cannot have any elements, whereas in EA, it can have any elementst; therefore, if you draw a Part element and it has an element inside it, that particular element will be relocated to an element, which is the Part type.

In the case of a Part is not nested to any element, the Part element will be exported from EA as a Class; therefore, the element inside the Part will not be relocated. If that particular Part assigns a type to other elements, its type will always be set to Class.

Containment tree

EA (Before Conversion)



MD (After Conversion)

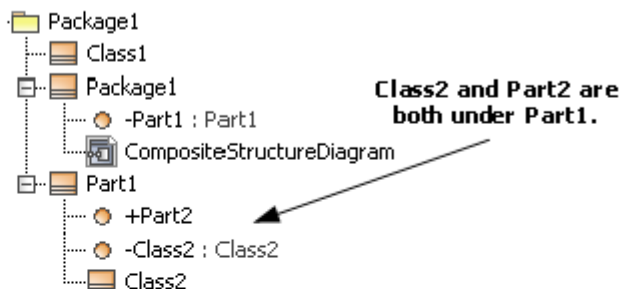
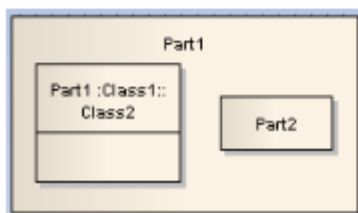


Diagram View

EA (Before Conversion)



MD (After Conversion)

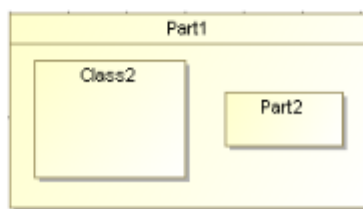
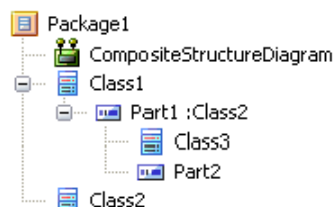


Figure 83 -- Part that Sets Type to Other Elements

In the case of a Nested Part whose type is set to another element, for example, a Class, Actor, or Usecase, and this Part contains Nested elements, all of the Nested elements of the Part will be relocated to the element that is the type of this Part.

Containment tree

EA (Before Conversion)



MD (After Conversion)

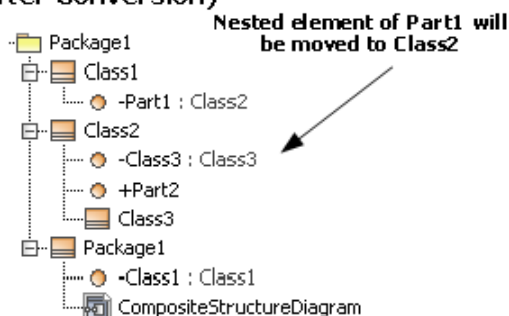
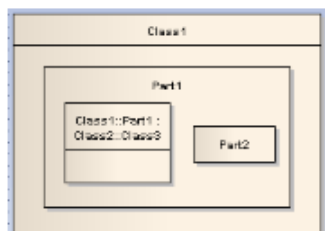


Diagram View

EA (Before Conversion)



MD (After Conversion)

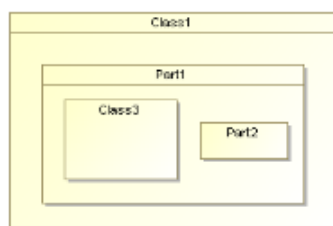


Figure 84 -- Part that Sets Type to Other Elements has Nested Element Inside Itself

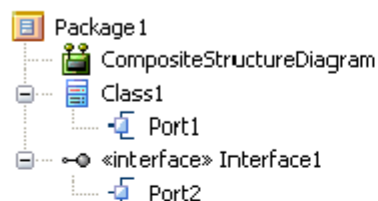
6.6.2.5 Port

In MagicDraw, a Property element that can have a Port is the Property that sets type to a Class, Component, or Node, and other elements cannot have a Port, whereas in EA, most of the elements can have a Port.

If a Port is created with an element that is not a Class, Component or Node, the Port will be removed from the diagram view, however, its data will be preserved.

Containment tree

EA (Before Conversion)



MD (After Conversion)

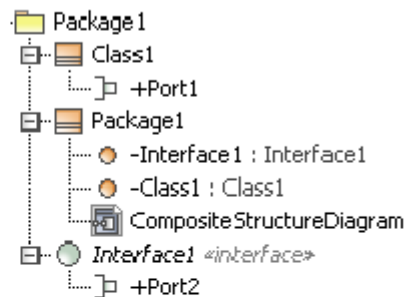
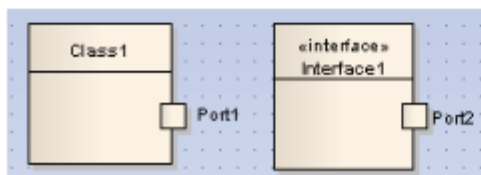


Diagram View

EA (Before Conversion)



MD (After Conversion)

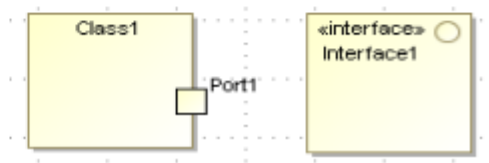


Figure 85 -- Only Class, Component, and Node Can Have a Port

The following transformation message will open:

Removed view <xmi:id>: Invalid Port. Port can be added to Part that its type is set to Class, Component and Node only.

(i) Port whose type is set to other elements

You can set the type of Port element to another element (a Class, Actor, Component, or Usecase) by right-clicking the Port element and select **Advanced > Set Property Type > Select Property Type** (Figure 86).

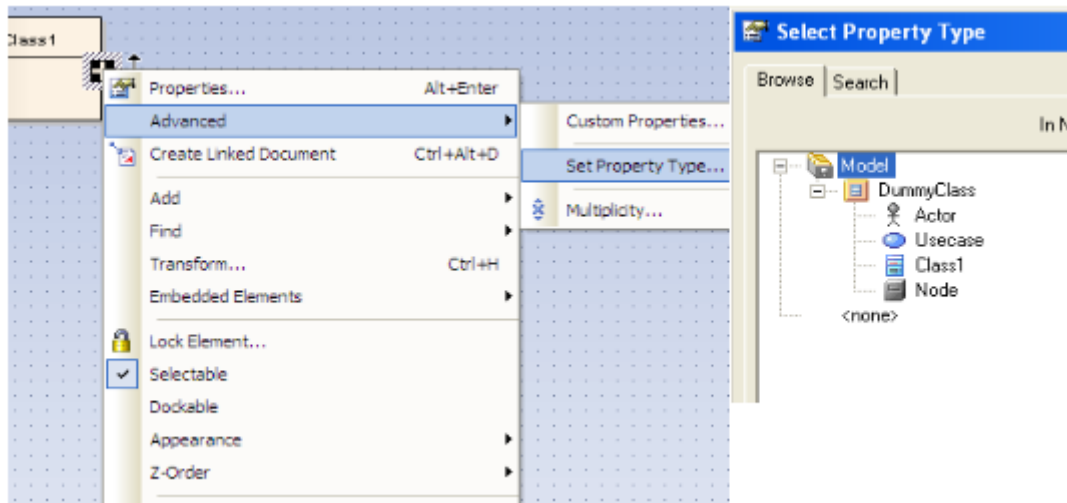


Figure 86 -- Setting Port Type

(ii) Port whose type is set to another element and containing Expose Interfaces

If an Expose Interface is created on a Port and the Port type is set to another element, the Expose Interface data will be relocated to the Port's type element. For example, if the Port1 type is set to Actor, after conversion, an Interface Realization (the Expose Interface data) will be placed inside the Actor.

Containment tree

EA (Before Conversion)

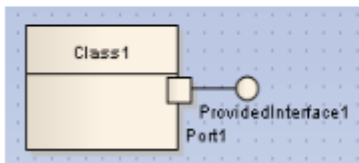


MD (After Conversion)



Diagram View

EA (Before Conversion)



MD (After Conversion)

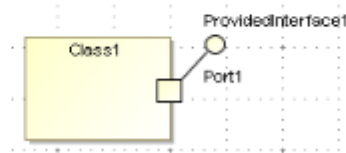


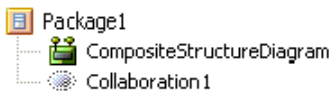
Figure 87 -- Port that Sets Type to Other Element Contains Expose Interface

6.6.2.6 Collaboration

The Collaboration element data and its nested data will be normally copied, however, if the Collaboration element is drawn in a Composite Structure diagram, a Collaboration use element will be created to represent the Collaboration element. The Collaboration use element will be named after the Collaboration element.

Containment tree

EA (Before Conversion)



MD (After Conversion)

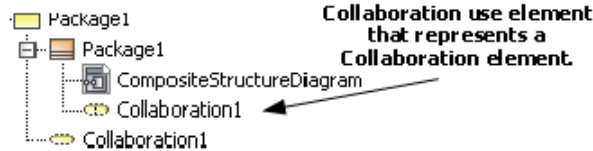


Diagram View

EA (Before Conversion)



MD (After Conversion)



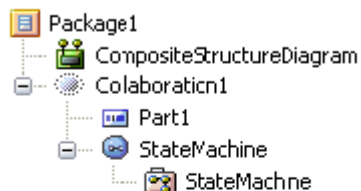
Figure 88 -- Collaboration Use

Collaboration containing other elements

A Collaboration can contain only Property, Activity, State Machine, and Interaction. Elements other than these will be removed. If any element is drawn inside the Collaboration, it will be removed from the diagram view (Figure 89).

Containment tree

EA (Before Conversion)



MD (After Conversion)

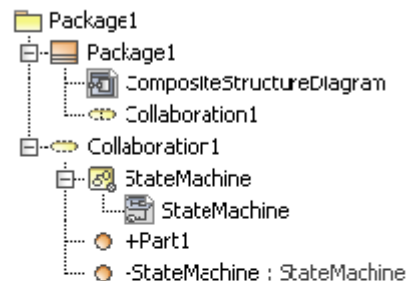
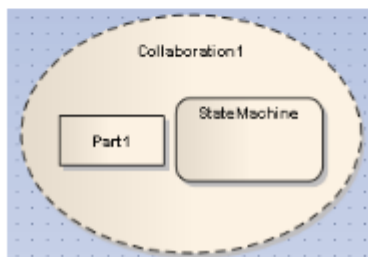


Diagram View

EA (Before Conversion)



MD (After Conversion)

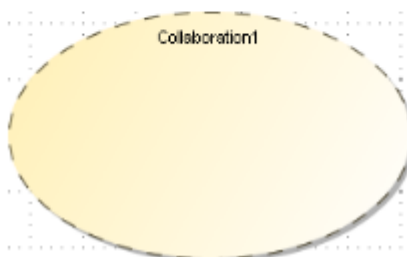


Figure 89 -- Collaboration Containing Other Elements

The following transformation messages will open:

- Removed element <xmi:id>: Invalid Element. Collaboration can contain Property, Activity, State Machine and Interaction only.
- Removed view <xmi:id>: Invalid Element view. Collaboration cannot be contained in any element view.

6.6.2.7 Expose Interface

Expose Interfaces are the Provided and Required interfaces in MagicDraw.

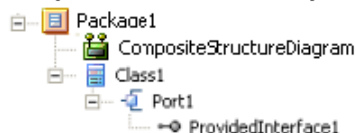
In MagicDraw, you can draw a Provided Interface or Required Interface in a Port only and set the type of the Port to another element (an Actor, Usecase, or Class). You can create that particular Port on a Part element whose type is set to a Class, Component, or Node only.

(i) Expose Interface with Port

If you draw an Expose Interface in a Port and the Port does not assign a type to any elements, that particular Port will be used to set type to a Dummy Class. The Dummy Class will be created and named after the Port concatenating with '_type'. The Interface element will be moved to the same level of the Port.

Containment tree

EA (Before Conversion)



MD (After Conversion)

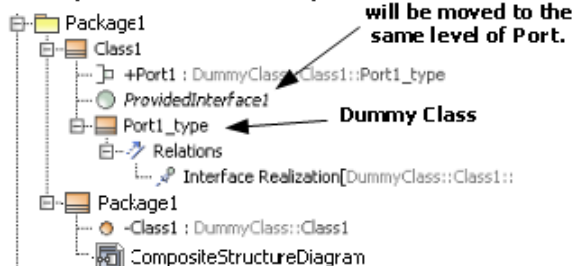
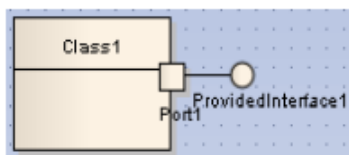


Diagram View

EA (Before Conversion)



MD (After Conversion)

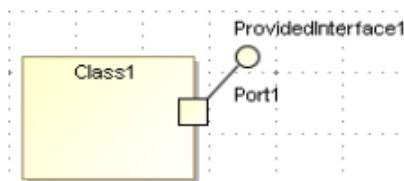


Figure 90 -- Expose Interface with Port

If an Expose Interface is created on a Port and the type of the Port is set to another element, the Expose Interface data will be relocated to the Port's type element (see (ii) Port whose type is set to another element and containing Expose Interfaces for more information).

In MagicDraw, there are some elements that can be used as a Port type. The element can have either a Provided Interface or Required Interface, or both.

The following is a list of the Port's type elements with specific conditions:

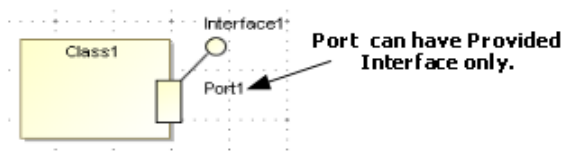
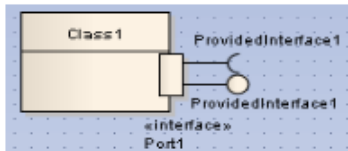
- Interfaces can only have a Provided Interface.
- Artifacts cannot have a Provided Interface.
- Information Items cannot have a Provided Interface.
- Signals cannot have a Provided Interface.
- Components always have both Provided and Required Interfaces.
- The other elements can have both Provided and Required Interfaces.
- After conversion, if the type of a Port is set to an Interface and the Port has an Expose Interface, only the Provided Interface will be shown and the Interface Realization data will be removed.
- Artifacts, Information Items, and Signals cannot hold Interface Realization. If the type of a Port is set to one of them, the Provided Interface will be removed. However, this does not affect the Required Interface.
- If the type of a Port is set to a Component and the Port has an Expose Interface, it will always show both the Provided and Required Interfaces.

Diagram View

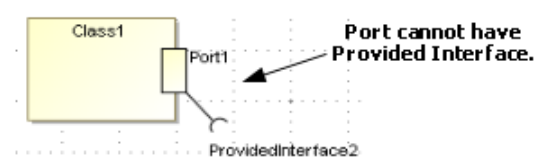
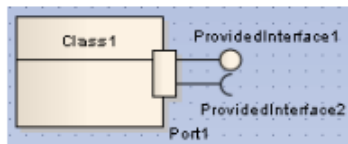
EA (Before Conversion)

MD (After Conversion)

Set Port type to Interface



Set Port type to Artifact, Information Item and Signal



Set Port type to Component

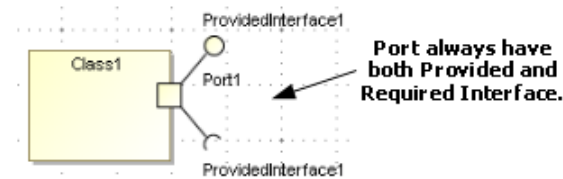
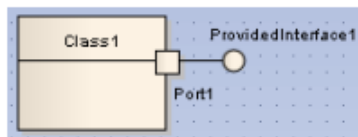


Figure 91 -- Port's Type Element with Specific Conditions

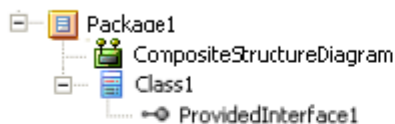
The following transformation message will open:

Updated element <xmi:id>: Provided Interface conflicts with Port type. The Port type is updated to an owner of Interface Realization.

If an Expose Interface is created with an element that is not a Port, the element will be removed both from the Containment tree and diagram view (Figure 92).

Containment tree

EA (Before Conversion)

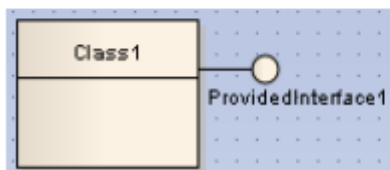


MD (After Conversion)



Diagram View

EA (Before Conversion)



MD (After Conversion)

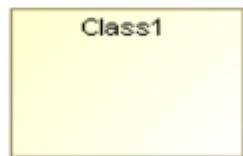


Figure 92 -- Expose Interface with Element that is not Port

The following transformation message will open:

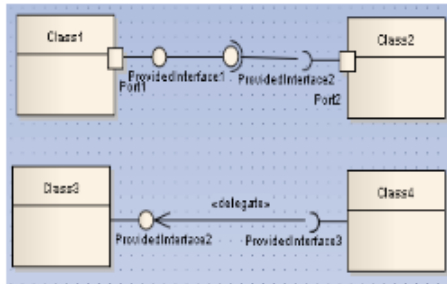
Removed element <xmi:id>: Invalid Element. Expose Interface can be added to Port only.

(ii) Expose Interface with relationship

In MagicDraw, the Provided and Required Interfaces cannot be connected with any relationship as is shown in Figure 93. If there is any relationship connecting to the Expose Interface, it will be removed both from the Containment tree and diagram view.

Diagram View

EA (Before Conversion)



MD (After Conversion)

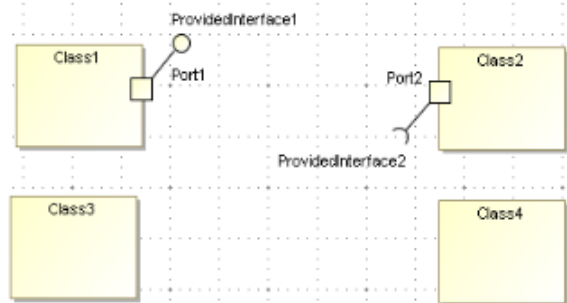


Figure 93 -- Expose Interface with Lines

The following transformation message will open:

Removed element <xmi:id>: Invalid Element. Expose Interface cannot be connected with the element.

6.6.2.8 Package

In MagicDraw, a Package cannot be drawn in a Composite Structure diagram. If it is drawn in EA, it will be removed from the diagram once it has been converted to MagicDraw.

Containment tree

EA (Before Conversion)



MD (After Conversion)

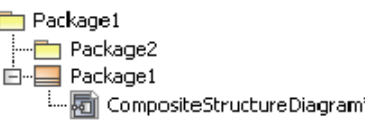
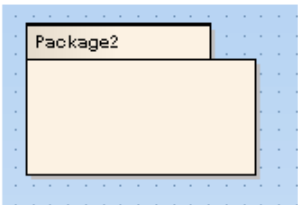


Diagram View

EA (Before Conversion)



MD (After Conversion)

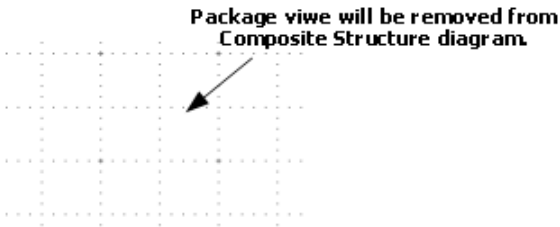


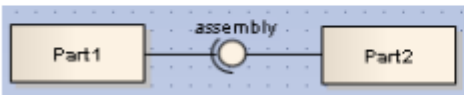
Figure 94 -- Package

6.6.2.9 Assembly

In MagicDraw, there is no Assembly line. It will be updated to a Connector.

Diagram View

EA (Before Conversion)



MD (After Conversion)

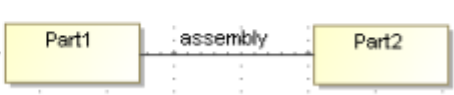


Figure 95 -- Updating the Assembly Line to the Connector Line

The following transformation message will open:

Updated element <xmi:id>: Assembly updated to Connector.

6.6.2.10 Dependency

There are many relationships that EA exporter exports to Dependency as the following elements:

- Delegate
- Role Binding
- Represents
- Occurrence
- Nest
- Derive
- Import
- Instantiate
- Usage
- Realize
- Trace

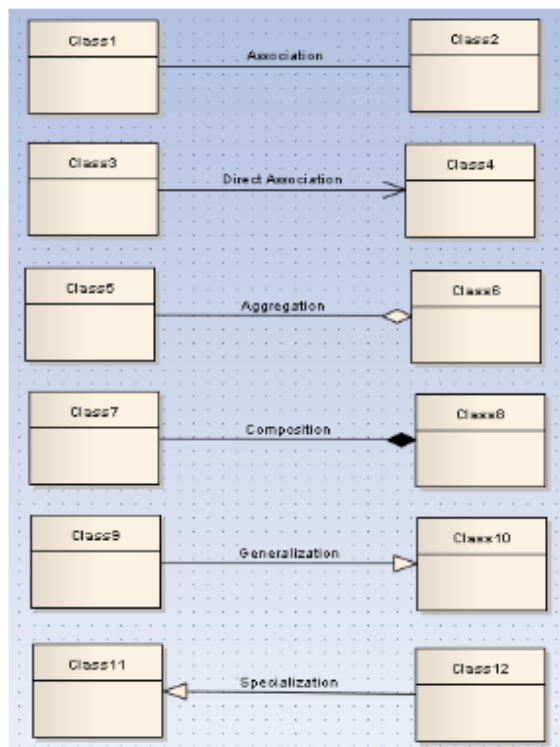
The above relationships will be shown in the diagram view as Dependencies with stereotype.

6.6.2.11 Removed Relationships

If an Association, Direct Association, Aggregation, Composition, Generalization, or Specialization is created in a Composite Structure diagram, it will be removed from the diagram view, but, its data will be preserved (Figure 96).

Diagram View

EA (Before Conversion)



MD (After Conversion)

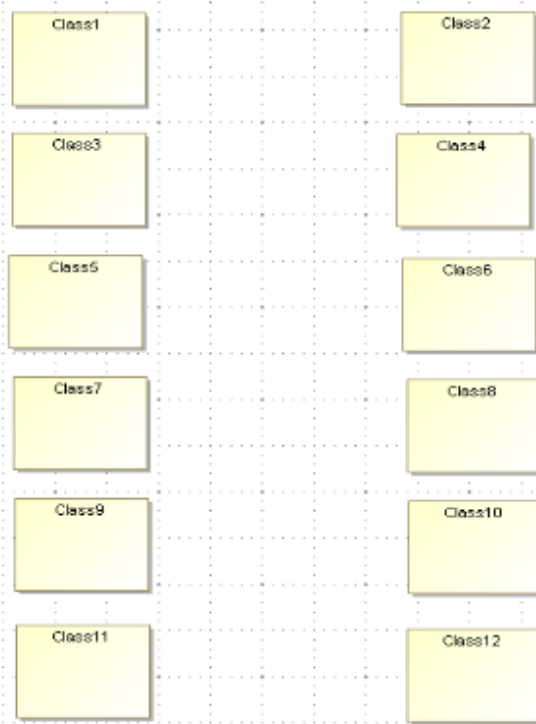


Figure 96 -- Removing Lines

The following transformation messages will open:

- Removed view <xmi:id>: Association cannot be shown in Composite Structure diagram.
- Removed view <xmi:id>: Direct Association cannot be shown in Composite Structure diagram.
- Removed view <xmi:id>: Aggregation cannot be shown in Composite Structure diagram.
- Removed view <xmi:id>: Composition cannot be shown in Composite Structure diagram.

- Removed view <xmi:id>: Generalization cannot be shown in Composite Structure diagram.

6.6.3 Transformation Report

A report containing the conflicts solved during transformation and other transformation information such as special mapping and removal of some irrelevant data, are required to be provided to the users.

The following is a list of the transformation messages:

- Removed view <xmi:id>: Invalid Port. Port can be added to Part that set type to Class, Component, and Node only.
- Removed element <xmi:id>: Invalid Element. Collaboration can contain Property, Activity, State Machine, and Interaction only.
- Removed view <xmi:id>: Collaboration cannot be contained in any element view.
- Removed view <xmi:id>: UseCase cannot be contained in any element view.
- Removed element <xmi:id>: Invalid Element. Expose Interface can be added to Port only.
- Removed element <xmi:id>: Invalid Element. Expose Interface cannot be connected with the element.
- Updated element <xmi:id>: Assembly updated to Connector.
- Updated element <xmi:id>: Provided Interface conflicts with Port type. The Port type is updated to an owner of Interface Realization.
- Removed view <xmi:id>: Association cannot be shown in Composite Structure diagram.
- Removed view <xmi:id>: Direct Association cannot be shown in Composite Structure diagram.
- Removed view <xmi:id>: Aggregation cannot be shown in Composite Structure diagram.
- Removed view <xmi:id>: Composition cannot be shown in Composite Structure diagram.

- Removed view <xmi:id>: Generalization cannot be shown in Composite Structure diagram.

6.7 Interaction Overview Diagrams

The following sections will describe some additional EA specific Interaction Overview diagram information.

6.7.1 Conversion Details

6.7.1.1 Interaction Overview Diagram

An Interaction Overview diagram is one of the four types of Interaction diagrams (the other three are Timing, Sequence, and Communication diagrams).

An Interaction Overview diagram, just like an Activity diagram, visualize a sequence of activities. Most of the notation elements for Interaction Overview diagrams are the same as those for Activity diagrams such as initial, decision, fork, join, and final nodes. Two new elements in the interaction overview diagrams are Interaction Occurrences and Interaction elements.

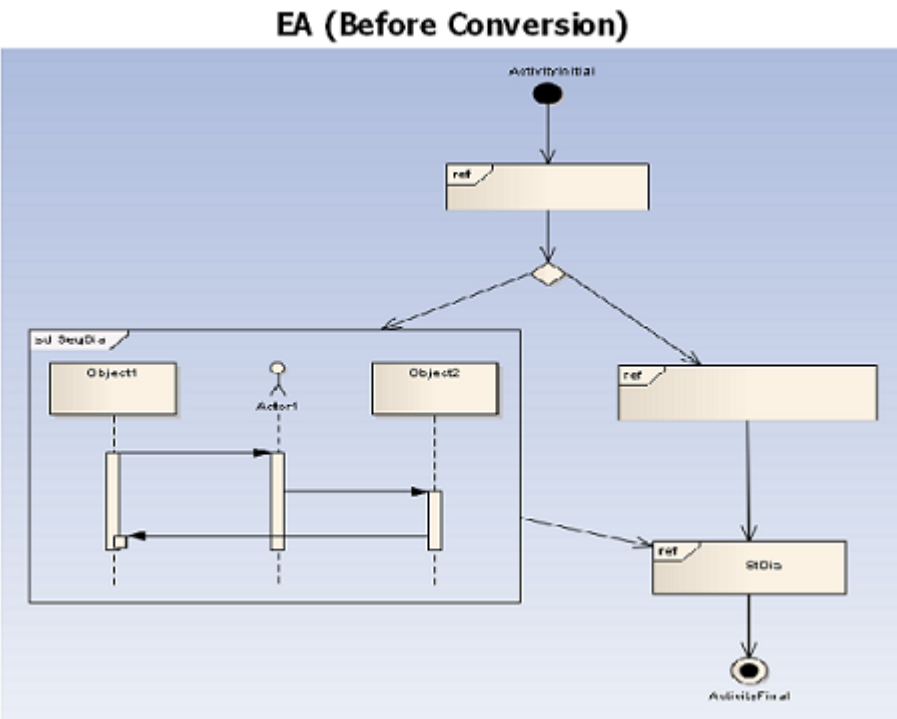


Figure 97 -- Interaction Overview Diagram

After conversion, the Interaction Overview diagram will be placed within an Activity element (Figure 98).



Figure 98 -- Interaction Overview Diagram Placement

6.7.1.2 Interaction Element

Interaction elements are elements that display an inline Interaction diagram (Interaction Overview, Timing, Sequence, or Communication diagram).

In EA, Interaction elements can be created to display other diagrams rather than those classified as Interaction diagrams (Figure 99).

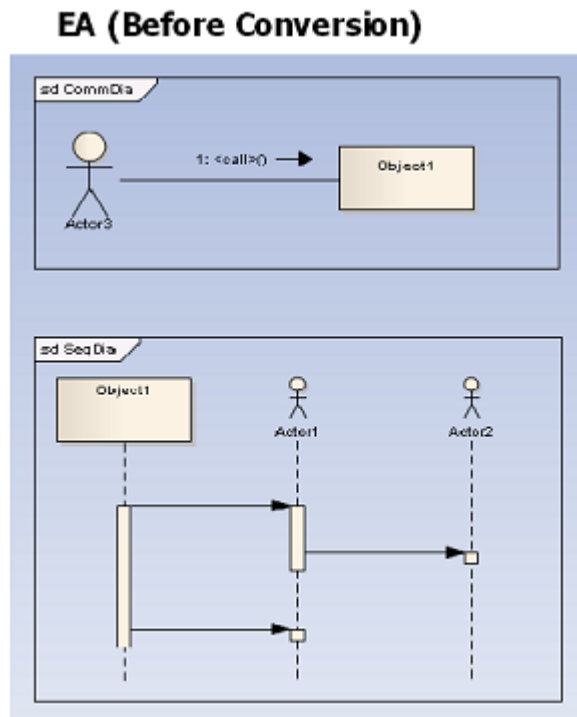


Figure 99 -- Interaction Element

Interaction elements will not be imported to MagicDraw.

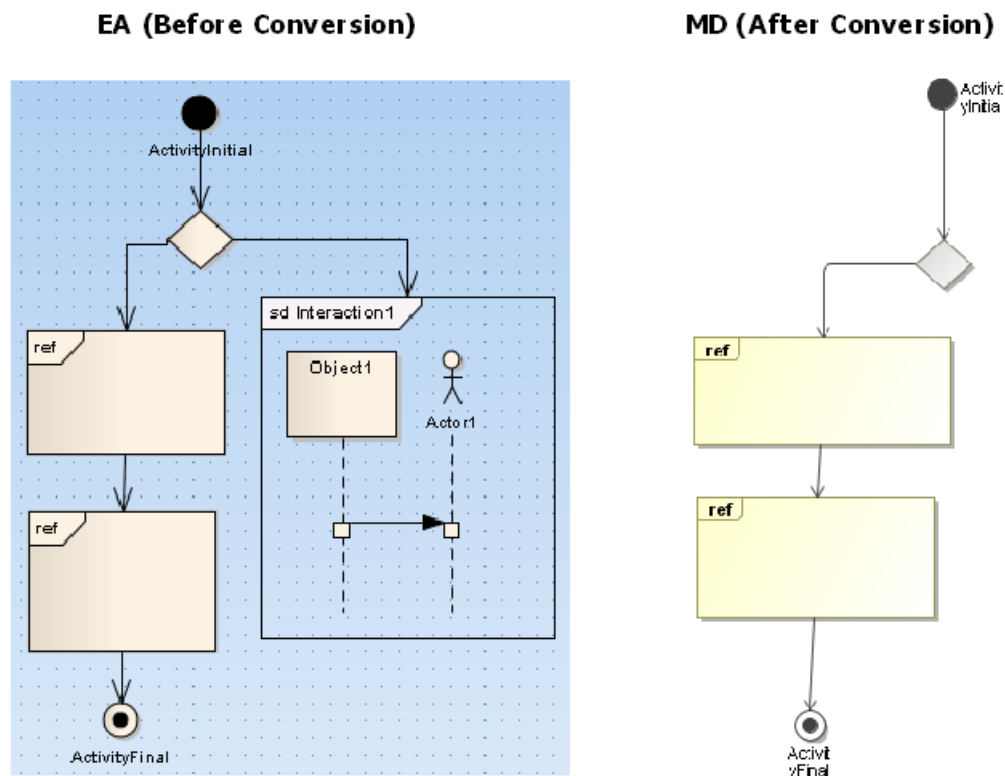


Figure 100 -- Interaction Element in Interaction Overview Diagram

6.7.1.3 Interaction Occurrence

Interaction Occurrence elements are references to an existing Interaction diagram. They are visually represented by a rectangular frame, which can be created by dragging the Interaction diagram from the project Browser to an Interaction Overview diagram and select the 'Interaction Occurrence' option from the pop-up dialog.

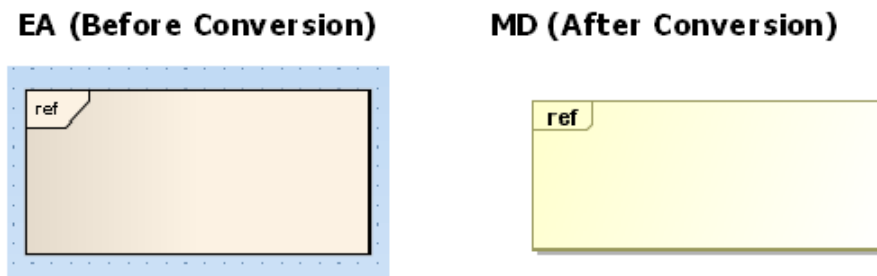


Figure 101 -- Interaction Occurrence Element

7. Known Limitations and Constraints

Table 12 shows the conversion limitations and constraints in EA exported XMI and EA Import Plugin.

Table 12 -- Limitations and Constraints

No.	Constraint name	Description
1	N-ary Association	Due to the difference between the EA exported XMI and MagicDraw XMI, the view of N-ary association will not be imported.
2	Diagram Legend	MagicDraw does not have a similar element. Diagram legends will not be imported.
3	Diagram Note	The element most similar to Diagram Note is the MagicDraw diagram information table (Option > Show diagram info). However, it will be mapped to the Option > show diagram details , in EA. So Diagram Notes will not be imported to MagicDraw.
4	Text size	The size of text displayed in EA and MagicDraw may vary. The text size in EA is mostly bigger.
5	Word wrap	Due to size constraints in text displayed in element blocks, the result of word wrap in EA and MagicDraw is likely to be different.
6	Contact point between element and link	The position of both ends of a link element cannot be mapped to MagicDraw because the last segments of the link element in MagicDraw always point to the center of connected elements.
7	Display alternative image	In EA, you can display an element in a diagram by using an alternative image. MagicDraw will not import that particular image. A default shape will be used instead.
8	Link label position	A Link element such as an association has many text labels, for example, multiplicity and role name labels. MagicDraw will not import the position of these labels. A default position will be used instead.
9	Pin position	A pin position in MagicDraw may have been slightly moved from its original position in EA. Especially if the pin is placed at the corner of its containing element, it will be shifted a little away from the corner (mostly in a clockwise direction).

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No.	Constraint name	Description
10	Nested CallBehavior-Action	A CallBehaviorAction element nested with another CallBehaviorAction element. The outermost part of the element will remain, the other will be removed.
11	DataStoreNode inner element	A DataStoreNode element that contains Activity-Diagram-related-elements. Every element inside that particular DataStoreNode element will be removed, only the DataStoreNode element will remain.
12	Object inner element	An Object element that contains Activity-Diagram-related-elements. Every element inside that particular Object element will be removed, only the Object element will remain.
13	Lifeline position	A position of Lifeline in MagicDraw will not correspond to the original position in EA. The position is fixed.
14	Diagonal Sequence Message	MagicDraw does not support Diagonal Sequence Messages.
15	Sequence Activation Options	MagicDraw does not support manipulating Sequence Activation through Sequence Activation Options.
16	State contains diagram	If a diagram element placed inside State element. It will be removed.
17	Region in Orthogonal State	EA exported XMI contains incorrect information when: <ul style="list-style-type: none">• more than one regions have identical name.• region was created and then removed before exported to XMI. This will result in an unexpected result after importing it into MagicDraw.
18	Assembly Relationship in Composite Structure diagram	Assembly relationships in EA are exported to XMI as Connectors. Consequently, they will be imported to MagicDraw as Connectors.
19	Interaction elements as diagram frame	MagicDraw does not import Interaction element displayed as diagram frame in Interaction Overview diagram.
20	Message timing details	Duration Observation, and Timing Observation do not be imported to MagicDraw.
21	Concurrent State Regions in StateMachine	Adding and removing multiple Concurrent State Regions to and from StateMachine in EA can cause the EA XMI to be incorrectly exported. If the EA exported XMI is in this state, the result of the StateMachine imported to MagicDraw cannot be determined. The same problem also occurs if there are multiple Concurrent State Regions with the same name.

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No.	Constraint name	Description
22	Combined Fragment	Adding and removing multiple Interaction Operands to and from Combined Fragment in EA can cause the EA XMI to be incorrectly exported. The problem can be fixed by impoting the EA XMI back to a new project in EA and export it back before importing it to MagicDraw.
23	Problem occur during conversion of Sequence diagram.	Importing EA XMI to MagicDraw sometime results in the message saying that "Problem occur during conversion of Sequence diagram". If this problem occurs, Please try to import the XMI back to a new project in EA and export it back again before importing it to MagicDraw.