

## **IBM® Rational® Rhapsody® Gateway Add On**



## **Rhapsody DOORS Synchronization**



***Rhapsody<sup>®</sup>***

**IBM<sup>®</sup> Rational<sup>®</sup> Rhapsody<sup>®</sup>  
Gateway Add On**

**Rhapsody DOORS Synchronization**



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# Introduction

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## Product Overview

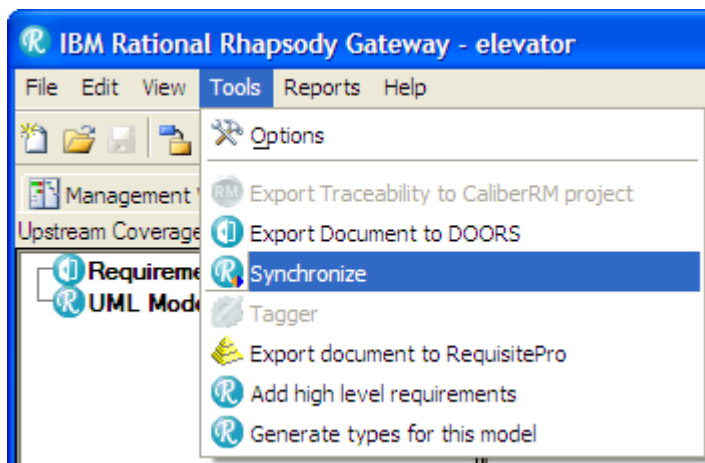
This document describes how to synchronize DOORS Modules and Rhapsody models.

The synchronization mechanism brings new synchronization features to enhance the process of the **DOORS Export** and **Add high level** features.

The process execution can call upon the DiffMerge Tool to decide which modifications to propagate in both sides. These synchronization operations are sequentially performed and it requires minimum user interaction.

## Add-on in the Tools Default Menu

The synchronize option concerning the Rhapsody DOORS synchronization is available from the following Rhapsody Gateway Tools menu.



This functionality is also available from the Rhapsody Gateway toolbar:



### Note

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These items are only available if one UML model is covering a DOORS module in a Rhapsody Gateway project.

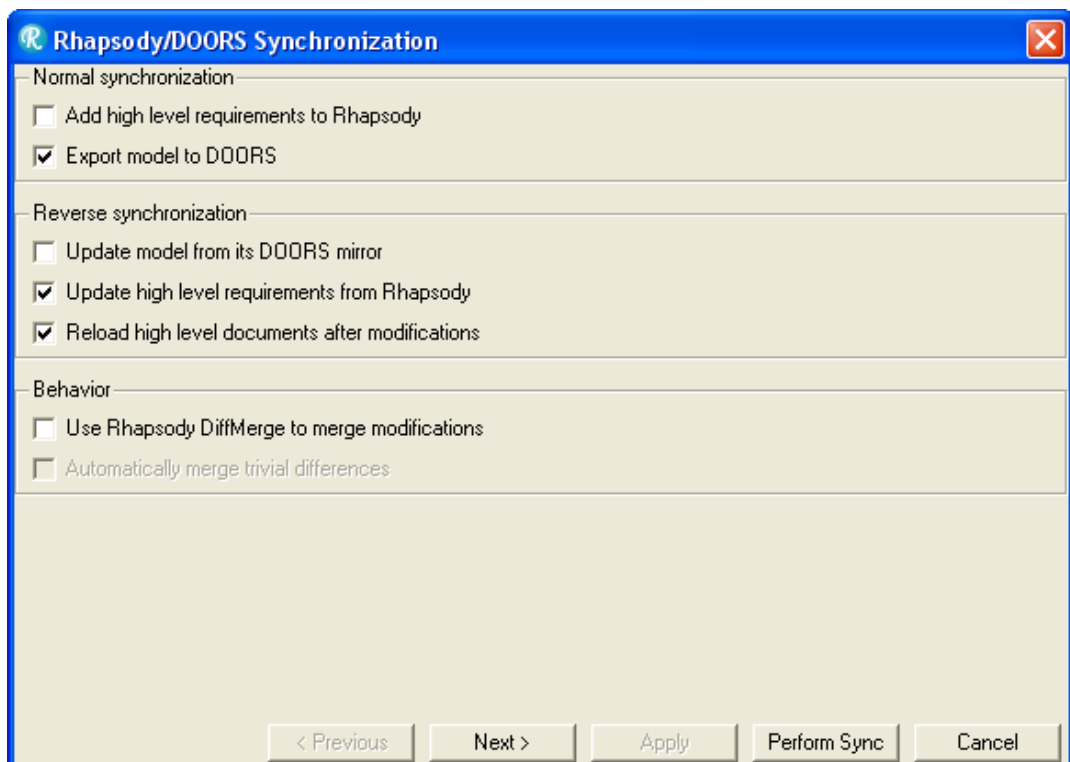
Once you have created your own project in the Project Editor, launch the setup action by selecting the **Synchronize** option. This opens the Synchronization Configuration box.



# Configuration Dialog Box

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The Rhapsody/DOORS Synchronization Setup dialog-box looks like the following one:



This box contains the following check-box options:

- ◆ **Add high level requirements to Rhapsody** option—This option has the same behavior as the Add high level requirements feature from the Tools menu. Requirements from documents covered by the model are imported into Rhapsody.
- ◆ **Export model to DOORS** option—This option has the same behavior as the Export document to DOORS feature from the Tools menu. That is to say it adds information into DOORS.
- ◆ **Update model from its DOORS mirror** option—This option brings back into Rhapsody the modifications applied on the version which have been exported into DOORS. Refer to **Reverse Synchronization to Rhapsody** in the **Mapping** chapter.
- ◆ **Update high level requirements from Rhapsody** option—This option brings back into DOORS the modifications applied on the high level requirements which

have been imported into Rhapsody. Refer to **Reverse Synchronization to DOORS** in the **Mapping** chapter.

- ◆ **Reload high level documents after modifications** option—This option automatically reloads DOORS requirements modules modified by the **Update high level requirements from Rhapsody** option. This option is only available if the **Update high level requirements from Rhapsody** option is activated.

If this option is activated, the **Navigate to Origin** option works directly after the requirement is created from Rhapsody to DOORS without any other synchronization or manual reload of the DOORS module in Rhapsody Gateway.

- ◆ **Use Rhapsody DiffMerge to merge modifications** option—This option is necessary when both normal and reverse synchronization operations are activated.
- ◆ **Automatically merge trivial differences** option—This option is only available if the **Use Rhapsody DiffMerge to merge modifications** is checked. This option allows the user to work with a hidden version of DiffMerge as long as there are no conflicts.

**DiffMerge** is the tool used to decide (automatically or not) the modifications that shall be retained from Rhapsody or from the DOORS tool. Some modifications might be overwritten by the DOORS side when DiffMerge is skipped in the sequence.

## First Usage Recommended Configuration

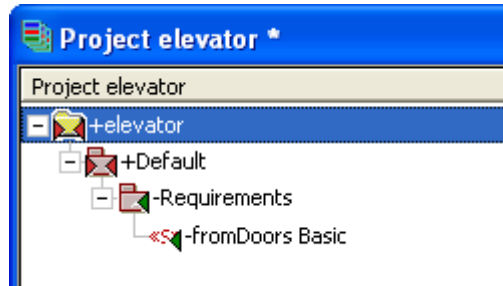
The recommended configuration for the first usage is to check only the following items:

- ◆ **Add high level requirements to Rhapsody** option
- ◆ **Export model to DOORS** option
- ◆ **Use Rhapsody DiffMerge to merge modifications** option

Once the first synchronization succeeded, a base version is kept up-to-date in order to make successive comparisons into DiffMerge. In consequence, you can activate the reverse features in the configuration dialog box.

## Note

Once the first synchronization has not been done, if no add high level has been executed and the project is not synchronized, the following DiffMerge view can appear:



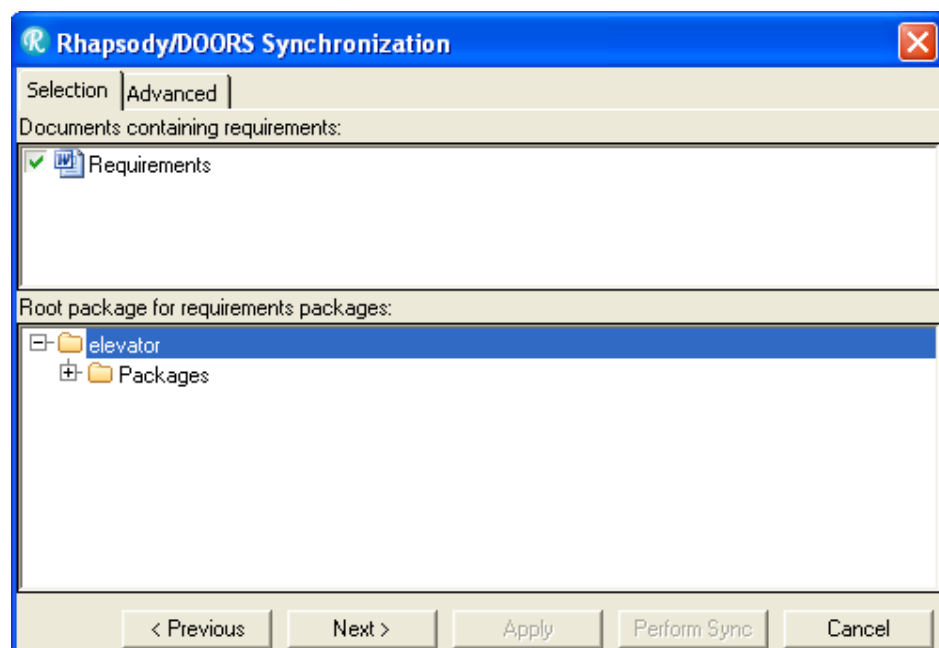
For DOORS incoming data, click right then choose the **Take from Right** option, before continuing.

## Configuration Process

As soon as the synchronization setting is done, the mechanism is the same as executing the **Add high level requirements** option followed by the **Export** one. See the *Coupling Rhapsody* and *Coupling DOORS*, for details on the **Add high level requirements** and **Export to DOORS** options.

1. Click **Next** from the Rhapsody/DOORS Synchronization first window.

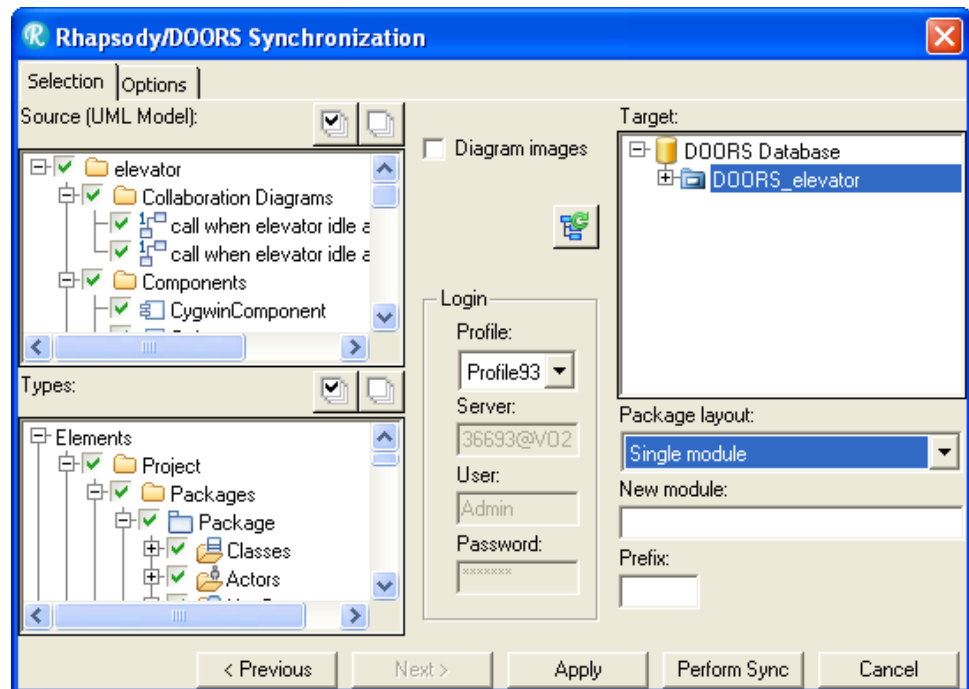
The usual **Add high level requirements** configuration is displayed, as shown below:



2. Select the upstream documents to import into Rhapsody and how to import them.

- Click on the **Next** button to access Export DOORS.

The usual **Export to DOORS** window is displayed:



- Configure the Export of the Rhapsody model using the available options.
- Validation of the synchronization settings:
  - Click on the **Apply** button to save all synchronization settings and close the dialog.
  - Click on **Perform Sync** to launch directly the synchronization. If the configuration has already been set, this button is accessible in the first dialog.

### Note

For any action to or from DOORS, keep open a DOORS client during the synchronization so that Rhapsody Gateway could reuse the existing connection.

To avoid unnecessary conversions of the exported model during DOORS Export and Update model from its DOORS mirror, check **Use cache** in the Options tab.

# Synchronization Execution

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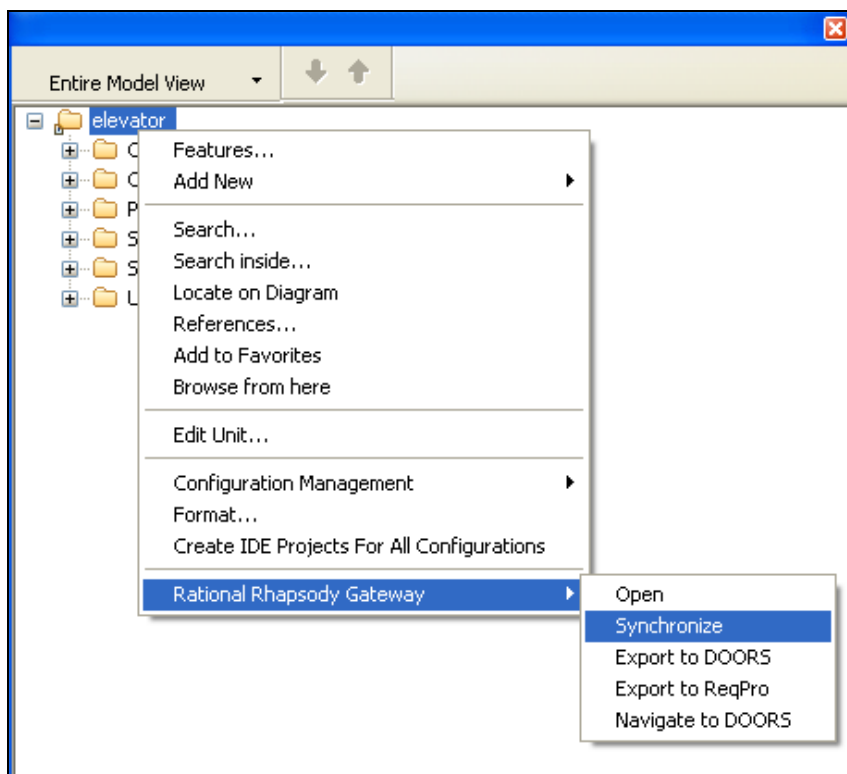
## Performing Synchronization

### From Rhapsody Gateway

The **Perform Sync** feature can be executed as soon as all parameters are well configured. This feature uses the parameters which are configured in the previous synchronization.

### From Rhapsody

The Synchronization process can also be directly launched from Rhapsody by clicking the **Rational Rhapsody Gateway > Synchronize** option from a Rhapsody project.



## From DOORS

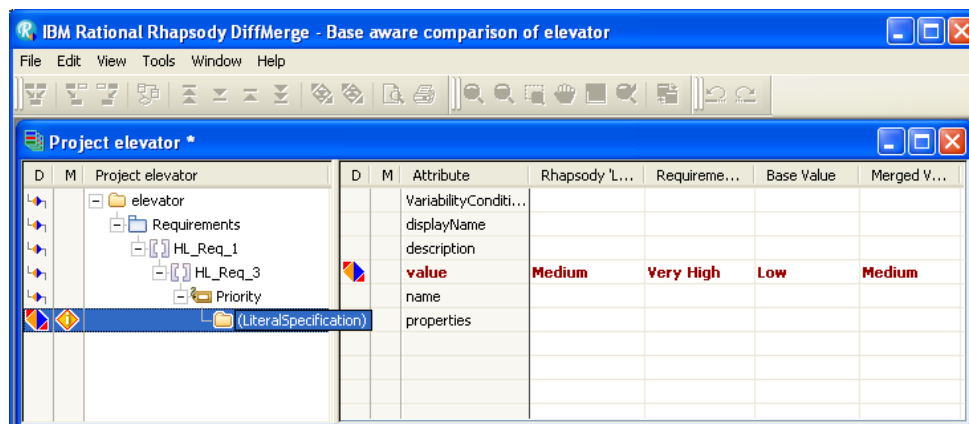
The Synchronization process can also be directly launched from DOORS by clicking the **RG > Synchronize** option from a DOORS module.



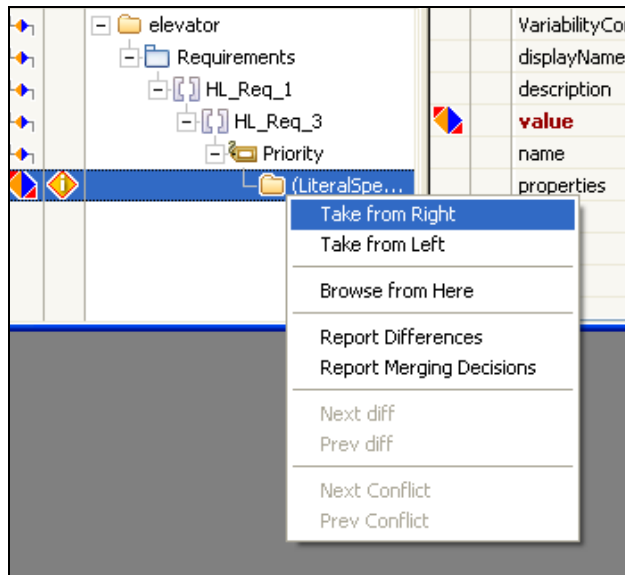
## Conflicts Resolution

The synchronization process is launched, as follows.

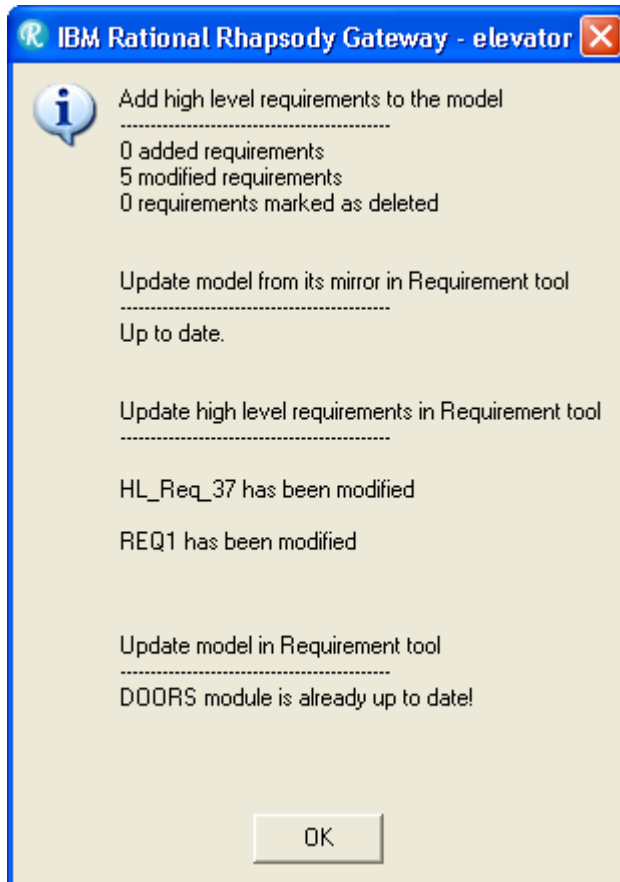
1. The DiffMerge window opens as soon as some conflicts are detected:



During synchronization, the DiffMerge gives a preview of the final result in both UML Model and DOORS modules. To solve conflicts, double-click on the value in the right area or select the value in the contextual menu as follows:



2. To finish the synchronization process, save and close the window when all conflicts are resolved. A final report summarizes the executed actions:





# Mapping

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## Normal Operations Mapping

For normal operations the mapping is the same as for **Add high level** and **Export to DOORS** features.

## Reverse Synchronization to DOORS

This operation is performed when the **Update high level requirements from Rhapsody** option is checked. It uses the **Add high level requirements** settings.

The following table lists the treated elements when modifying elements:

Rhapsody original elements	DOORS resulting elements
Text	Object Text
Attribute mapped to a DOORS type	Update Object attribute
Dependency with <<fromDoors...>> stereotype	Links in a link module

### Note 1

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DOORS requirements are synchronized using their Identifiers.

### Note 2

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The specification field as the text of the requirement unless the **Use description field instead of specification** option is checked in the Add high level options.

### Note 3

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Dependencies should have the <<fromDoors...>> stereotype associated and the **Create Dependencies instead of Anchors** option should be selected. Rhapsody Gateway will either create References or Links according to the other stereotypes and the **Add high level requirements** configuration. DOORS Links will be created in a link module that has the same name as the used Reference or Link type name.

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## High level requirements creation

During reverse synchronization, DOORS high level requirements can be created from the Rhapsody package tied to the DOORS document. Requirements created in Rhapsody must have the <<fromDoors...>> stereotype applied in order to be identified as high level requirements instead of UML Requirements.

The DOORS attributes of the Object created are automatically filled according to the DOORS Requirement XML type configuration. The resulting requirement keeps its identifier when it is added to a module with identifier attribute (such as “Doors Advanced”). Otherwise it will be renamed when it is added to a module using automatic Object ID (such as “Doors Basic”).

## Reverse Synchronization to Rhapsody

This operation is performed when the **Update model from its DOORS mirror** option is checked. It uses the **Export to DOORS** settings.

The following table lists the treated elements when modifying elements:

DOORS original elements	Rhapsody resulting elements
Object Text	Description
Element Label (See Note 2 below)	Name and Label depending on the configuration of the Rhapsody type
Attribute mapped to a Rhapsody type	Update Element Tag (See <i>Limitations and Restrictions</i> chapter)
Links mapped to a Rhapsody Link or Reference type	Dependencies

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### Note 1

Rhapsody elements are synchronized using the GUID.

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### Note 2

To rename a Rhapsody element, change the 'Element Label' attribute in DOORS.

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### Note 3

Requirement ID field is not updated by the reverse synchronization.

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### Note 4

The DOORS link module must have the same name as a Reference or Link type defined in the Rhapsody type; only Dependency links are supported unlike Anchors.

DOORS link modules mapped to Reference type such as “Trace” or “Satisfaction” can only be used for links to requirements.

DOORS link modules mapped to a Link type such as “Dependency” can be used for links to other UML elements. You may eventually create another Rhapsody Link type in order to support a new Rhapsody dependency stereotype.



# Limitations and Restrictions

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The synchronization feature is limited to one UML Model.

The synchronization does not support Rich Text Formatting. All kind of Pictures, OLE Objects might not be supported neither. Any Object updated during the synchronization might lose its text formatting or attachments.

The Reverse synchronization feature will not propagate the Rhapsody model elements addition or deletion performed from DOORS.

The Reverse synchronization feature will not propagate the DOORS requirements deletion performed from Rhapsody.

The Reverse synchronization feature will not delete Rhapsody Tags when the attribute was removed from DOORS.

The Reverse synchronization feature will not rename Rhapsody elements according to modifications in the DOORS 'Object Heading'.

Requirements cannot be renamed from any of the reverse synchronization operation.