



IBM® Rational® Rhapsody® Gateway Add On



User Manual

Rhapsody[®]

**IBM[®] Rational[®] Rhapsody[®]
Gateway Add On**

User Manual



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How to Use this Documentation

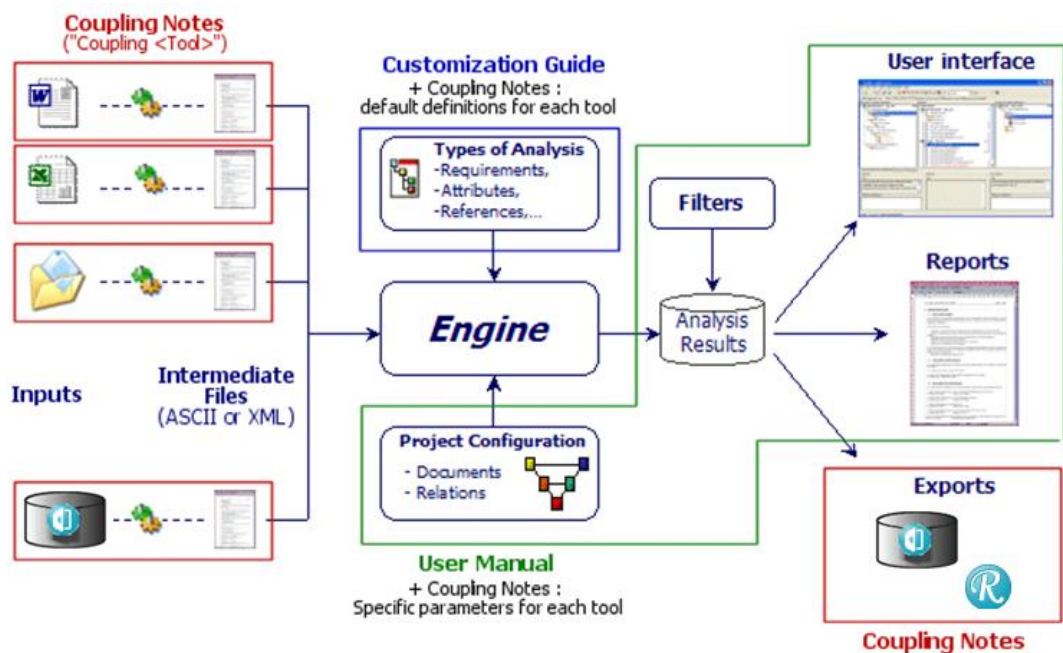
This chapter introduces the organization of the documentation.

You can read about these topics in:

- ◆ Documentation Overview
- ◆ Important Product Documentation
- ◆ Getting Started

Documentation Overview

The Rhapsody Gateway documentation is organized as shown in the following figure:



There is one *Coupling Note* per tool interfaced with Rhapsody Gateway. These notes describe how Rhapsody Gateway brings to the engine the information to be analyzed, using either the third party tool API, or dedicated converter, or any other convenient solution. This part is dedicated to administrators or users in charge of Rhapsody Gateway customization, in relation with the *Customization Guide*. The *Coupling Notes* also explain to users how Rhapsody Gateway interacts with their authoring and verification tool.

The *Customization Guide* explains how you indicate to Rhapsody Gateway the relevant information that should be picked up in the intermediate files. Such information can include: what are the requirements, attributes, coverage links, and so on. In other words, the *Customization Guide* explains how to implement your requirement standards in Rhapsody Gateway.

The *User Manual* explains how to use Rhapsody Gateway on your projects, such as how to describe your project's process, how to understand the analysis results, how to filter them, how to generate reports. Aspects directly linked to the use of authoring and verification tools are detailed in the *Coupling Note* for the concerned tool.

Important Product Documentation

Users need to read the *User Manual* and the Users part of the *Coupling Notes* for the tools they use (for example *Coupling Word*, *Coupling DOORS*, etc.).

Administrators or Users who need to implement their requirements standards and to customize Rhapsody Gateway need to:

- ◆ Read the *Coupling Notes* for the tool used in the project or process. This will enable you to understand how the source information is converted and analyzed by the engine.
- ◆ Read the *Customization Guide* and play the Tutorial (direct links included in the *Customization Guide*, step by step).
- ◆ Read the *User Manual* for more information about requirements management aspects and displays of analysis results by Rhapsody Gateway. This will enable you to understand users concerns and to properly support them.

Getting Started

The best way to familiarize yourself with Rhapsody Gateway is to complete the following tasks:

- ◆ Read the *Getting Started* guide to familiarize you with the main windows, concepts and features.
- ◆ Read and complete the tutorial example in that *Getting Started*.
- ◆ Review the other sections in the *User Manual*, and familiarize yourself with all the windows, features and analysis results calculation.

Capture and Analysis Process

This chapter explains how the source information is captured and analyzed.

You can read about these topics in:

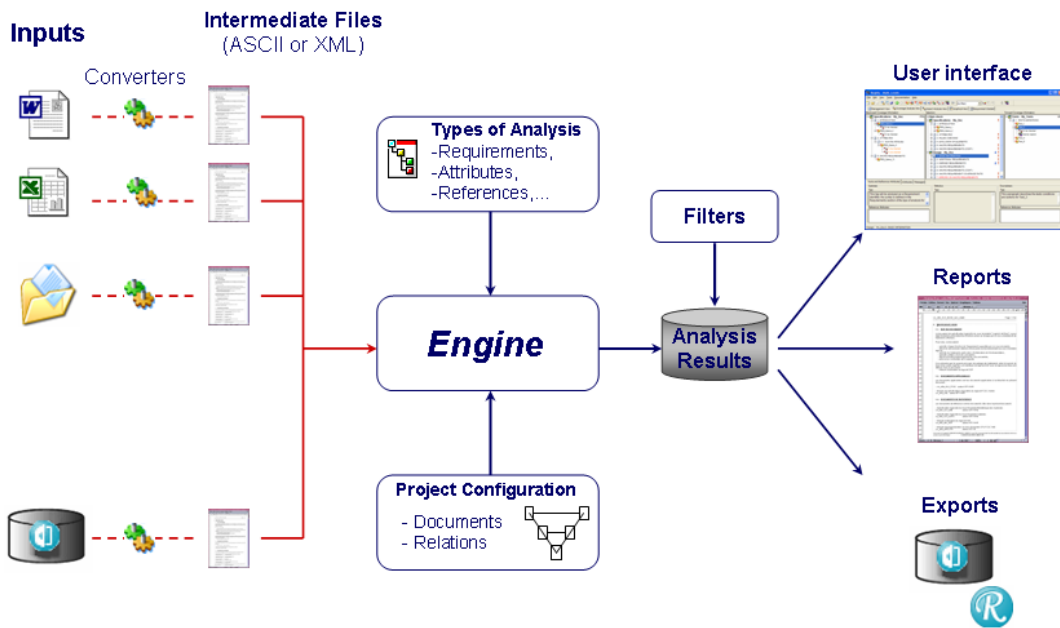
- ◆ Capture and Analysis Process—Related Documentation
- ◆ Traceability Elements
- ◆ Compliance with Quality Standards

Capture and Analysis Process—Related Documentation

In order for proper customization to take place, there needs to be a clear understanding of the analysis process.

As depicted below, several steps have to be considered:

- ◆ The source information is brought to the engine by converters. These converters transform the information natively stored in the interfaced tool to an intermediate file containing the information in a format that the engine can analyze.
- ◆ The engine uses the definition of your requirements standards (what is the expected format for requirements, attributes, etc.) to identify elements compliant with this definition in the intermediate file.
- ◆ The engine also uses the project definition, indicating how the intermediate files are supposed to be linked together. This allows the engine to calculate coverage ratios, check consistency rules, etc. The information is stored as “analysis results”.
- ◆ The results can be filtered to allow more oriented analysis.
- ◆ The results are displayed, produced in reports, or can be exported in tools to automate parts of the requirements management process.



The relationship between this process and Rhapsody Gateway windows usage can be described as follows:

- ◆ The **Project Editor** is used to define the relationship between individual inputs and the **Types** applied to each document for their analysis. As explained in the *Getting Started* document, the Project Editor is the entry point for all new projects.
- ◆ The types are customized using the **Types Editor**. This customization is described in the *Customization Guide* and not in that *User Manual*. Once the customization is performed by the Administrator, the internal Support team or Rhapsody Gateway Application Engineers, Project users will find the types available and ready to use from the **Types of Analysis** drop-down list box in the Project Editor.
- ◆ The analysis results are displayed in the main window, containing several tabs and information areas. The main windows are introduced in the *Getting Started* document and detailed in this *User Manual*.
- ◆ The filters are defined using the **Filters Editor**, described in this *User Manual*.
- ◆ The report templates are defined in the **Reports Editor** for the content, and files created directly in the generation format are used as style sheets for the “look and feel”.
- ◆ Exports to interfaced tools are activated from the Tools menu and can activate additional windows and buttons. These cases are described in the **Coupling Notes**.

Traceability Elements

Rhapsody Gateway defines the following traceability elements.

Section

A section is a hierarchical file description element. The following are examples of sections:

- ◆ Heading levels in a Microsoft Word file
- ◆ Tabs in a Microsoft Excel spreadsheet
- ◆ UML packages, diagrams
- ◆ Modules, sub-modules and components of design models

The tree is composed by Rhapsody Gateway's sections and gives you a hierarchical view of the analyzed input.

Macro-requirement

A macro-requirement is a “super-requirement” that includes requirements and passes its properties onto those requirements.

Any new element attached to a macro-requirement (attribute, text, link or coverage link) is also attached to the requirements and the derived requirements contained within the macro-requirement.

A macro-requirement is derived if all its requirements are derived and if it is derived itself.

See the section concerning *Using Macro-requirement* for more details.

Requirement

A requirement expresses either a need or a constraint (technical constraints, costs, deadlines, and so on). The requirement is written either in natural language or as an expression—which may be mathematical, geometric, computerized, and so on.

A **derived requirement** is a requirement which does not refer to any Specifications requirement. This requirement is defined in a covering document but it does not cover a specification element. Indeed this requirement appears during the process and is considered as 'derived'.

Entity

By defining an entity, the user defines an element that must cover (contain a reference to) a requirement. If a defined entity does not contain any reference, Rhapsody Gateway will display a warning message.

This is quite an advanced concept used only in specific cases, for example to detect a dead code.

An entity cannot reference itself.

Reference

A reference is the information indicating the coverage (implementation or verification) of a requirement. A reference points to a macro-requirement, requirement, or derived requirement.

In Rhapsody Gateway, the reference can be defined either in a bottom-up direction, where the lower-level element covers the higher-level element, or in a top-down direction, where the higher-level element is covered by the lower-level element.

Attribute

Attributes complete the requirement. The following are examples of attributes:

- ◆ Type of check—test, observation, and so on.
- ◆ Category—functional, operational.
- ◆ Criticality—low, high, and so on.
- ◆ Flexibility—low, high.
- ◆ Maturity—source, analyzed, approved, and so on.

Rhapsody Gateway allows you to define attributes to be analyzed in the project files and filters the display in accordance with these attributes.

Reference Attribute

A reference attribute is added to a reference to define the type of coverage, such as partial coverage or provisional coverage.

Link

A link is reference information that does not concern coverage. The following are examples of links:

- ◆ Supported by
- ◆ Issued by
- ◆ Checked by
- ◆ Valid under
- ◆ Allocated to
- ◆ Result of

Text

A text is the wording of a traceability element. Rhapsody Gateway attaches the text to the element (section, requirement) detected immediately above it.

Traceability Links

Rhapsody Gateway suggests three kinds of traceability between documents and folders.

Cover

All the requirements of the covered document have to be covered by elements of the covering documents.

Mirror

All the requirements of the upstream document have to be duplicated in the downstream document. The downstream document must have the same requirement identifiers than the upstream document.

Dependency

There are no constraint on the requirements of the linked documents. It is only informative.

Compliance with Quality Standards

Rhapsody Gateway allows compliance with the traceability objectives defined by quality standards:

- ◆ CMMI for companies' processes;
- ◆ DO-178B and DO-254 for civil aviation;
- ◆ ECSS-E40 for space;
- ◆ EN 50128 for railways;
- ◆ IEC61508 for industry;
- ◆ ISO 26262 for Automotive;
- ◆ GAMP / 21 CFR parts 820 & 11 for pharmaceuticals and medical devices;
- ◆ etc.

Main Window

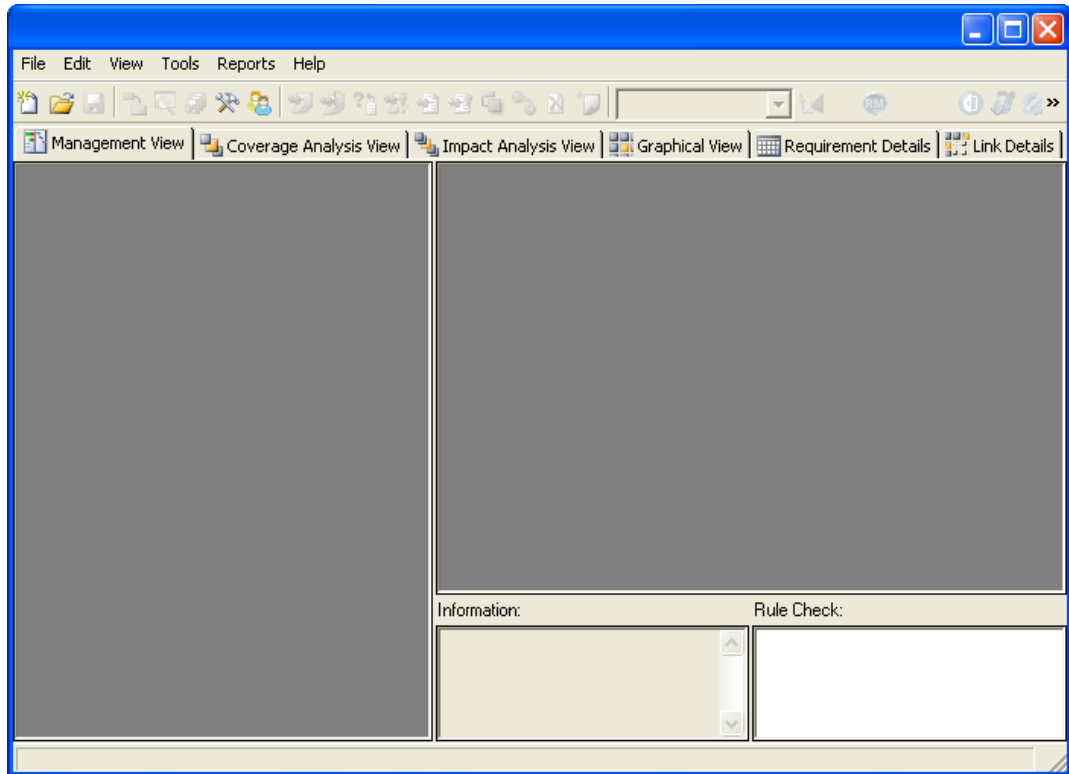
This chapter describes the main window of the application.

You can read about these topics in:

- ◆ Main Window Presentation
- ◆ Menu Bar
- ◆ Toolbar
- ◆ Status Bar
- ◆ Project Workspace
- ◆ Management View
- ◆ Coverage Analysis View
- ◆ Impact Analysis View
- ◆ Graphical View
- ◆ Requirement Details View
- ◆ Link Details View

Main Window Presentation

When you launch Rhapsody Gateway, the main window appears, as shown in the following figure:



The main window is composed of four main parts:

- ◆ the menu bar
- ◆ the toolbar
- ◆ the project workspace
- ◆ the status bar

Menu Bar

The menu bar contains the following menus: File, Edit, View, Tools, Reports, and Help. Browse the menus in the main window to familiarize yourself with their contents. As you hover over each menu item, the status bar displays a brief explanation of the menu item.

File Menu

The **File** menu contains the following items:

Item	Description
New	Creates a new project. Two saving formats are available Rhapsody Gateway project with File and Rhapsody Gateway project with Database .
Open	Opens a new project.
Save	Saves current modifications of the project.
Save as	Saves the current project. Two saving formats are available Rhapsody Gateway project with File and Rhapsody Gateway project with Database .
Rename	Renames the current project.
Open Project Directory	Opens the directory where the current project is located.
Reload	Refreshes the information displayed by reloading the not updated documents which have no intermediate file.
Reload All	Refreshes the information displayed by reloading and reanalyzing all project documents.
Edit Project	Opens the configuration editor.
Edit Types	Opens the types editor.
Edit Filters	Opens the filter editor.
Edit Snapshots	Opens the Snapshot editor.
<Recent files>	A list of the last projects opened is presented in this menu section.
Exit	Closes all windows and exits the application.

Edit Menu

The **Edit** menu contains the following items:

Item	Description
Undo	Cancels actions on element actions (Attributes, Reference Attributes or Coverage links creation). You can press <Ctrl>+<Z>.
Redo	Re-does actions on element actions that have been cancelled. You can press <Ctrl>+<Y>.
Back	Displays the previously displayed 'page' of the main window.
Forward	After a 'Back' action, displays the page preceding the 'Back' action.
Copy	Copies the identifier of the selected requirement to the clipboard or copies the attribute values.
Copy For	Copies the selected element, with options (submenu): ID only or customized additional information defined for creation of direct traceability links.
Paste	In the Requirement Details View, this function will paste added attributes which have been copied in the clipboard.
Delete	Deletes the selected links. Available only for the links created from Rhapsody Gateway.
Find	Opens a dialog box to define a search action. You can press <Ctrl> + <F>.
Find Next	Searches the next occurrence of the string defined in the Find dialog box. You can press <F3>.
Find Previous	Searches the previous occurrence of the string defined in the Find dialog box. You can press <Shift> + <F3>
Find in the tree	Navigates from an element displayed in the Rule check section to the element in the analyzed document tree.
Marks	Provides submenus to create and manage Marks .

Item	Description
Navigate	Displays the source document where the element has been detected.
Create Covering Links	Creates coverage links between the selected requirements. This is only available from the Graphical View and the Coverage Analysis View.
Create Links	Creates links (other than coverage) between the selected elements. Available only in the Graphical View and if links have been defined in a Type for Added Elements .
Reverse Links	Changes the direction of a link created from Rhapsody Gateway.

View Menu

The **View** menu contains the following items:

Item	Description
Requirements	Displays or hides requirements.
Derived requirements	Displays or hides derived requirements.
Undefined requirements	Displays or hides undefined requirements.
Uncovered requirements	Displays or hides uncovered requirements.
Entities	Displays or hides entities.
Non Covering Entities	Displays or hides entities covering nothing.
Attributes	Displays or hides attributes.
Links	Displays or hides links.
Empty Sections	Displays or hides empty sections.
Added Information	Displays or hides elements added from Rhapsody Gateway such as attributes, text or reference attributes.

Tools Menu

The **Tools** menu contains items depending on:

- ◆ The advanced interfaces available for your Rhapsody Gateway and project configuration.
- ◆ The advanced interfaces, among the available ones, effectively used for your current project.

The **Tools** menu contains the items for dialog with Third Party tools. Each item is fully described in the **Coupling Notes** for the interfaced tool.

For example, the **Tools** menu can contain the following items:

Item	Description
Options	Opens the Options editor.
Export Document to DOORS	Creates DOORS formal modules containing project information, and Link modules for traceability between DOORS requirements and Rhapsody Gateway analysis results.
Export document to RequisitePro	Creates RequisitePro packages containing project information, and Traceability views for traceability between RequisitePro requirements and Rhapsody Gateway analysis results.
Add High Level Requirements	Makes available a requirements list in an authoring or verification tool.

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Reports Menu

The **Reports** menu contains the following items:

Item	Description
Edit Reports	Opens the report editor to create reports and edit report contents.
Library Reports (installed by default).	
Traceability matrix	Generates a traceability matrix between selected documents.
Analysis results	Generates a report containing the synthesis of analyzed elements.

Item	Description
Project description	Generates a report with the project description.
Upstream impact analysis	Generates a report for upstream impact analysis from an element selected at a low level.
Downstream impact analysis	Generates a report for downstream impact analysis from an element selected at a high level.
Synthesis of added information	Generates a report containing the list of information added from Rhapsody Gateway.
Rules Checking	Generates a report containing the list of rule violations.
Project Reports (defined by the user and/or by the Support Team).	
Subdirectories can be added to the Reports menu and contain reports defined by the user.	






















Toolbar

The toolbar contains shortcuts to commonly used selections of the menu bar. As shown below, the toolbar contains the following sections: **Standard, Configuration, Navigation, View Options, Filtering, and Third Party Tools.**



- ◆ Standard and Access Control (1)—Contains buttons for creating, loading and saving project files. Save is locked by user during modifications
- ◆ Configuration (2)—Contains buttons for configuring projects, types, snapshots and options. Plug-ins can be added there.
- ◆ Navigation (3)—Contains buttons for applying navigation commands previously performed within the coverage information of the Coverage Analysis, **Impact Analysis** views, **Graphical View** and **Requirement Details**. It is only available for these views.
- ◆ View Options (4)—Contains buttons to control which requirement elements are visible in the **Coverage Analysis**, and **Impact Analysis** views.
- ◆ Filtering (5)—Contains the Filter drop-down list box to configure and apply filters. These filters specify the conditions by which to include requirements in analysis or views.
- ◆ Third Party Tools and Plug-ins (6)—Contains additional buttons that apply to specific third party products, such as DOORS, and/or plug-ins.

Main Window

Button	Description
	Creates a new project.
	Opens an existing project.
	Saves the modified files of the project.
	Opens the configuration editor.
	Opens the types editor.
	Opens the snapshots editor.
	Opens the Options dialog box.
	Displays the previous view.
	Displays the next view.
	Displays or hides requirements.
	Displays or hides derived requirements.
	Displays or hides undefined requirements.
	Displays or hides uncovered requirements.
	Displays or hides entities.
	Displays or hides non covering entities.
	Displays or hides attributes.
	Displays or hides links.
	Displays or hides “empty” sections (sections not containing any traceability information).
	Displays or hides information added from Rhapsody Gateway.
	Selects a filter.
	Opens the filter editor.

Status Bar

The status bar displays common information in the application, such as descriptions of the menus or status while performing analysis.

Project Workspace

The project workspace is the main area of the application. This area displays the project information and analysis for the loaded project. The project workspace contains multiple view tabs for displaying the contents of the project. Each view may contain one or more panes.

The project workspace contains the following views:

- ◆ **Management View**—Displays the project documents, the elements of each document, and a summary of coverage information for the project.
- ◆ **Coverage Analysis View**—Displays for a selected element of a document, one level of covering elements, N-1, and one level of covered elements, N+1, from other documents as defined by the project.
- ◆ **Impact Analysis View**—Displays for a selected element of a document, all levels of covering elements, N-m, and all levels of covered elements, N+p, from other documents as defined by the project.
- ◆ **Graphical View**—Displays each document graphically using a tree view with lines connecting requirement elements in documents and covering elements in other documents.
- ◆ **Requirement Details**—Displays each requirement and its attributes for a document in a table.
- ◆ **Link Details**—Displays covering information between a covering document and its covered documents.

Management View

Description

To activate the Management View, click the **Management View** tab in the project workspace of the main window.

The Management View contains four panes:

- ◆ The **Overall Quality** area displays the analysis results according to requirements.

A status bar shows the ratios of errors and warnings in relation to the total requirements number. The red fragment represents the errors. The orange fragment represents the warnings. The green fragment represents the ratio without trouble. For each fragment, the number of requirements is displayed in white.

This analysis is presented for the complete project then for each specific analysis category. Categories are assigned from the Project Editor and a status bar is added for each category in the Overall Quality area. See the section on *Assigning document category* to understand the categories behavior.

This area also summaries general information on the project such as the project saving format, the number of documents, the requirements, etc.

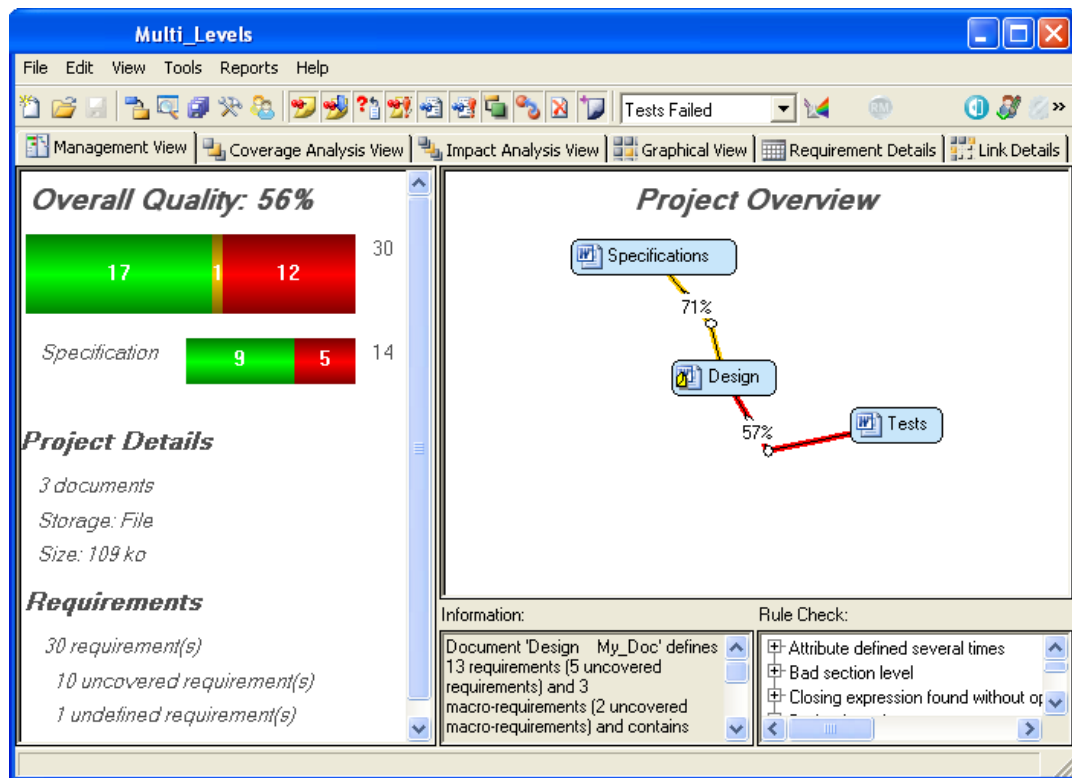
- ◆ The **Project Overview** area displays the covering analysis results by showing the project documents representation and their coverage ratio.

Depending on the coverage ratios, links are displayed in green, orange or red:

- ◆ from 0% to 70% links are red displayed
- ◆ from 70% to 90% links are orange displayed
- ◆ exactly 100% links are green displayed

See the section concerning *Coverage Ratio calculations* for more details.

- ◆ The **Rule Check** pane displays the list of violated rules, if any, and for each rule the list of elements violating the rule. The selection of an element in these lists selects the same element in the **Coverage Analysis View**.
- ◆ The **Information** pane displays some additional details and messages concerning the element selected in the **Project Overview**.



Contextual Menu

A contextual menu appears when you select a document in the Project Overview area and right click. This menu shows the **Navigate** item:

Menu	Comments
Navigate	Navigates to the source file corresponding to the selected document in the third party tool.

Coverage Analysis View

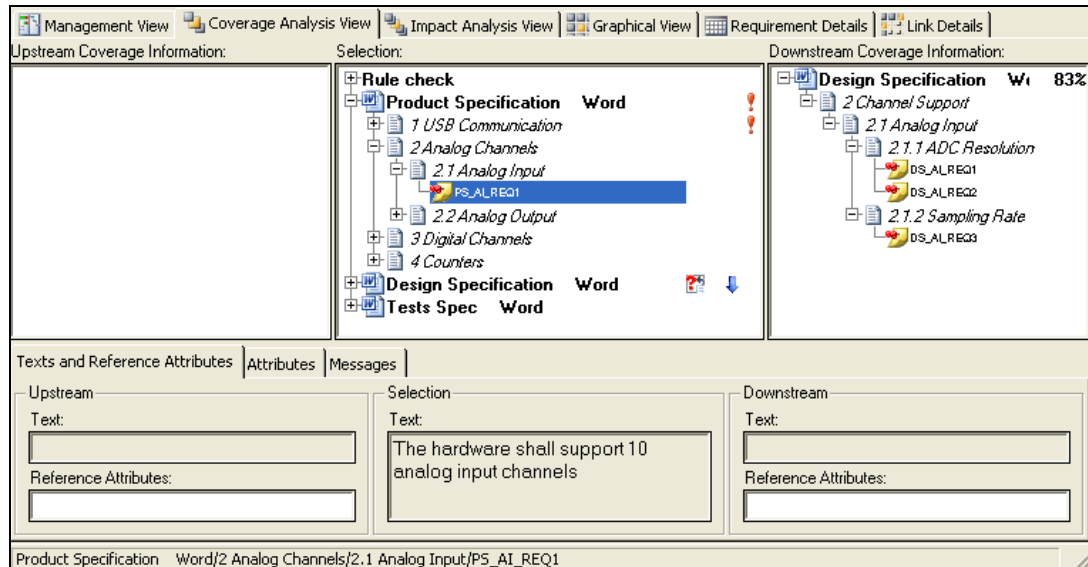
Description

To activate the Coverage Analysis View, click the **Coverage Analysis View** tab in the project workspace of the main window.

The **Coverage Analysis View** allows you to select elements from a project document and displays requirement coverage one level upstream and one level downstream from the selected document.

The columns in the upper half of the view contain the following three view panes:

- ◆ **Upstream Coverage Information**—Displays one level of covered requirements, N-1, for a selected document element in the **Selection** column.
- ◆ **Selection**—Displays the contents of the documents in the project.
- ◆ **Downstream Coverage Information**—Displays one level of covering requirement reference elements, N+1, for a selected document element in the **Selection** column.



The lower half of the Coverage Analysis View contains three tabs. Each tab is divided into three columns that display details about the selected element in the tree view pane in the upper half of the view.

The three tabs are:

- ◆ **Texts and References Attributes**—Displays the text for the selected item and any reference attributes. These references link the selection in the **Selection** column to the corresponding element in the **Upstream Coverage Information** or **Downstream Coverage Information** column.
- ◆ **Attributes**—Displays the attributes for the selected item.
- ◆ **Messages**—Displays helpful information, including rule violation details, for the selected item in the **Selection** column.

Note

The attributes are always displayed in these lists, regardless of the status of the button to hide or display "Attributes" in the Toolbar.

Contextual Menu

A contextual menu appears when you right click an element or the project workspace background in the main window. The contextual menu depends on the activated view and on the selected element.

These items are available in the Coverage Analysis View:

Menu	Comments
Copy	Copies the identifier of the selected requirement to the clipboard or copies the attribute values.
Copy For	Copies the selected element, with options (submenu): ID only or with additional information defined in the type. This feature allows direct creation of traceability information in project documents
Delete	Deletes the selected attribute. You can only delete an attribute added from Rhapsody Gateway.
Find	Opens a window to define a search string, with options
Find in the Tree	Used to find an element selected in a Rule check section in the project tree. It is also used to navigate between linked elements (with relations through Links and not References)
Marks	Marks are used to highlight manually or automatically elements that have specific properties. Marks can be added automatically for modified elements and for the results of a Search action. See the sections on Marks to learn more.
Navigate	Runs the third party tool and selects the element in this tool. The accuracy of the selection can depend on the third party tool interface.
Hide Selected Documents	The selected document is no longer displayed. To display it again, use the Show selected documents item.
Show Hidden Documents	Displays a dialog box with the list of the hidden elements, allowing the selection of documents to be shown again.
Add an attribute	Allows the addition of an attribute for the selected element. Opens two submenu items: Add a valuable attribute and Add a Boolean attribute . See the section on the addition of elements to learn more.
Edit Text or Add Text	Allows the edition of text added to the selected element. See the section on the addition of elements to learn more.

Menu	Comments
Reload	Reloads and reanalyzes the selected document(s) in order to update analysis results.
Evaluate	Opens the OTScript Evaluator

Context menus are also available in the lower half of the **Coverage Analysis** view.

In the **Text and References Attributes** pane, the following context menu is available if you click in the **Reference Attributes** area and if an element is selected either in the **Upstream Coverage Information** or **Downstream Coverage Information** column:

Menu	Comments
Add a reference attribute	Adds a Reference attribute to the coverage link between the element selected in the Selection column and the one selected in the Coverage column. Opens two submenu items: Define a Boolean reference attribute and Define a value reference attribute . See the section on the addition of elements to learn more.
Delete selected attributes	Deletes the selected reference attribute. You can only delete a reference attribute added from Rhapsody Gateway.

In the **Attributes** pane, the following context menu is available if you click on the **Attributes** area and if an element is selected in the **Selection** column:

Menu	Comments
Add an attribute	Adds an attribute to the element selected in the Selection column. Opens two submenu items: Define a Boolean attribute and Define a value attribute . See the section on the addition of elements to learn more.
Delete	Delete the selected attribute. You can only delete an attribute added from Rhapsody Gateway.

Impact Analysis View

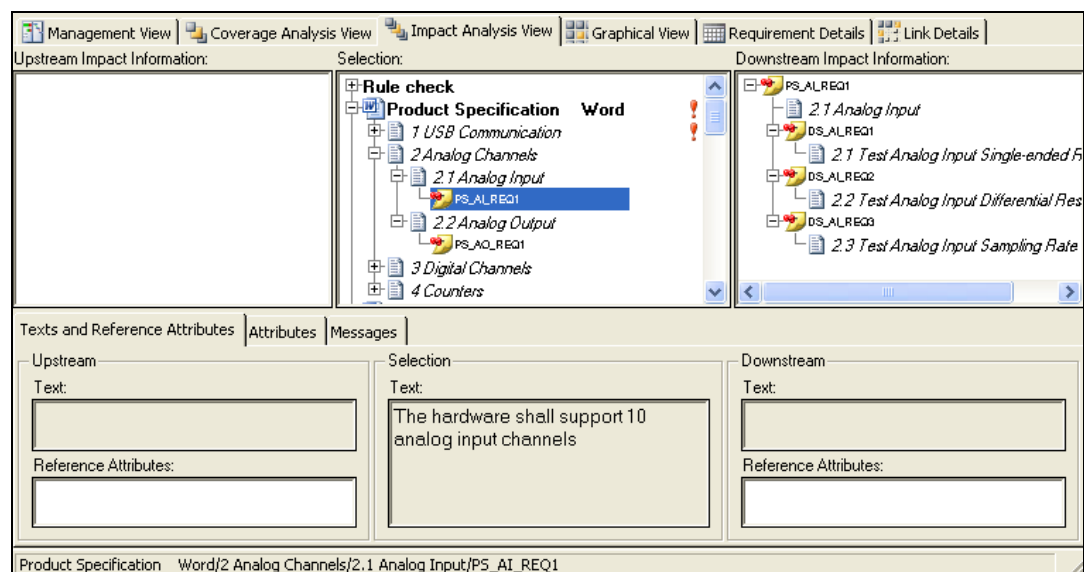
Description

To activate the Impact Analysis View, click the **Impact Analysis View** tab in the project workspace of the main window.

The Impact Analysis view displays for a selected element of a document, for all levels of covering elements, N-m, and for all levels of covered elements, N+p, from other documents as defined by the project.

The columns in the upper half of the view contain the following three view panes:

- ◆ **Upstream Impact Information**—Displays all levels of covered requirements, N-m, for a selected document element in the **Selection** column.
- ◆ **Selection**—Displays the contents of the documents in the project.
- ◆ **Downstream Impact Information**—Displays all levels of covering requirement reference elements, N+p, for a selected document element in the Selection column.



The lower half of the Impact Analysis View contains three tabs. Each tab is divided into three columns that display details about the selected element in the tree view pane in the upper half of the view. The three tabs are as follows:

- ◆ **Texts and References Attributes**—Displays the text for the selected item and any reference attributes for references linking the selection in the **Selection** column to the corresponding element in the **Upstream Impact Information** or **Downstream Impact Information** column.
- ◆ **Attributes**—Displays the attributes for the selected item.
- ◆ **Messages**—Displays helpful information, including rule violation details, for the selected item in the **Selection** column.

Contextual Menu

A contextual menu appears when you right click an element or the project workspace background in the main window. The contextual menu depends on the activated view and on the selected element.

These items are available in the Impact Analysis View:

Menu	Comments
Copy	Copies the identifier of the selected requirement to the clipboard or copies the attribute values.
Copy For	Copies the selected element, with options (submenu): ID only or with additional information defined in the type. This feature allows direct creation of traceability information in project documents. See the adding information section for more information.
Delete	Deletes the selected attribute. You can only delete an attribute added from Rhapsody Gateway.
Find	Opens a window to define a search string, with options
Find in the Tree	Used to find an element selected in a Rule check section in the project tree. It is also used to navigate between linked elements (with relations through Links and not References)
Marks	Marks are used to highlight manually or automatically elements that have specific properties. Marks can be added automatically for modified elements and for results of a Search action. See the section on Marks to learn more.
Navigate	Runs the third party tool and selects the element in this tool. The accuracy of the selection can depend on the third party tool interface.
Hide Selected Documents	The selected document is no longer displayed. To display it again, use the Show hidden documents item.
Show Hidden Documents	Displays a dialog box with the list of the hidden elements, allowing the selection of documents to be shown again.
Add an Attribute	Allows the addition of an attribute for the selected element. Opens two submenu items: Add a valuable attribute and Add a Boolean attribute . See the section on the addition of elements to learn more.
Edit Text (or Add Text)	Allows the edition of text added to the selected element. See the sections on the addition of elements to learn more.

Menu	Comments
Evaluate	Opens the OTScript Evaluator
Reload	Reloads and reanalyzes the selected document(s) in order to update analysis results.

Context menus are also available in the lower half of the Impact Analysis view.

In the **Text and References Attributes** pane, the following context menu is available if you click in the **Reference Attributes** area and if an element is selected either in the **Upstream Coverage Information** or **Downstream Coverage Information** column:

Menu	Comments
Add a reference attribute	Adds a Reference attribute to the coverage link between the element selected in the Selection column and the one selected in the Coverage column. Opens two submenu items: Define a Boolean reference attribute and Define a value reference attribute . See the section on the addition of elements to learn more.
Delete selected attributes	Deletes the selected reference attribute. You can only delete a reference attribute added from Rhapsody Gateway.

In the **Attributes** pane, the following context menu is available if you click on the **Attributes** area and if an element is selected in the **Selection** column:

Menu	Comments
Add an Attribute	Adds an attribute to the element selected in the Selection column. Opens two submenu items: Define a Boolean attribute and Define a value attribute . See the section on the addition of elements to learn more.
Delete	Delete the selected attribute. You can only delete an attribute added from Rhapsody Gateway.





Graphical View

Description

The **Graphical View** displays each document as an object with its traceability elements displayed in a tree view within the object. You can move documents, adjust the width of the documents, zoom, and resize the containing page.

Lines represent covering references between requirement elements of a document and elements in another document. Dotted lines represent links that are not coverage links.

The color codes for the Coverage Links (references) displayed in the **Graphical View** are:

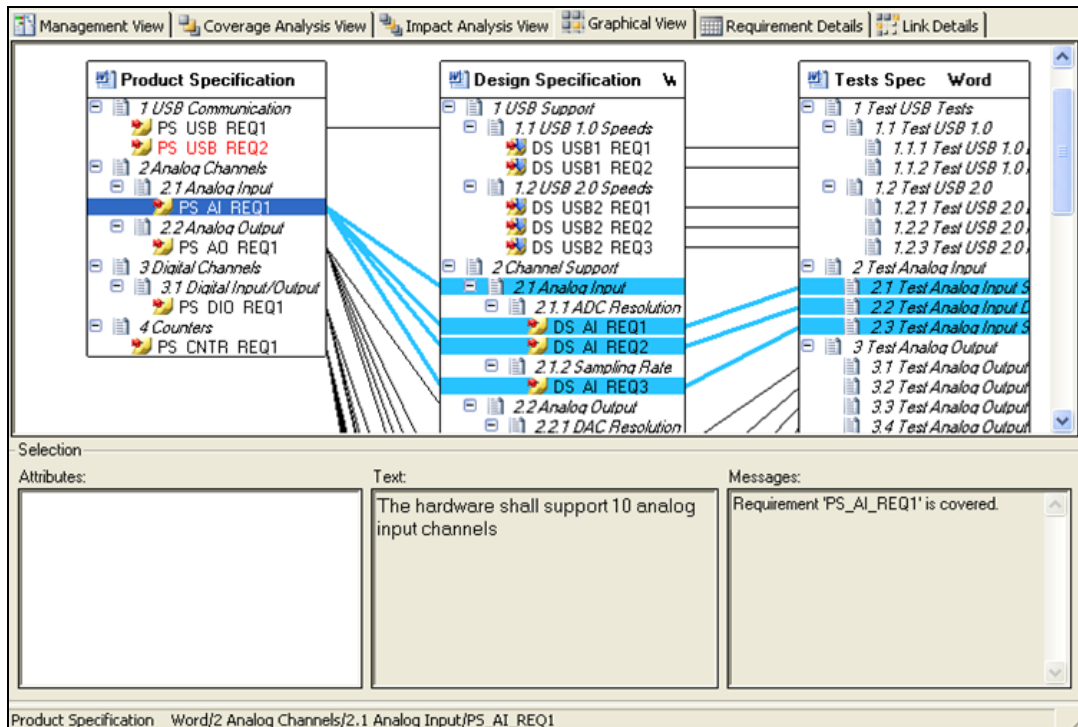
Link Color	Description
 (Black)	Standard link
 (Red)	Traceability violation
 (Green)	Link created from Rhapsody Gateway
 (Blue)	Link with a reference attribute attached

Flying over a link, the following information is displayed: Reference to '<requirement>' Type: <reference_type_name> in a balloon.

The lower half of the **Graphical View** contains three panes:

- ◆ **Attributes** (or **Reference Attributes** if a reference is selected)—Displays the attributes attached to the item selected in the graphical view.
- ◆ **Text**—Displays the text for the item selected item in the graphical view.
- ◆ **Messages**—Displays helpful information, including rule violation details, for the item selected in the graphical view.

The Graphical view can display the full traceability graph. When you select an element, the view highlights the selected element, the covering elements and the lines between the elements, as shown below.

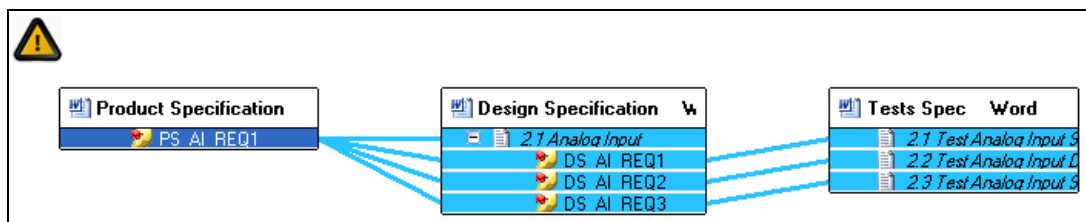


Click the header of a document. When you make this selection the entire document is selected.

The graphical view can also display a partial graph by focusing on some documents elements or by hiding some documents.

Focusing on a sub-graph

Select an element in a document and right-click on the view to select **View Graph for Selection** from the context menu, the view will only display the highlighted elements from the three documents, as shown in the following figure.



Right-click on the view and select **Show All Elements** from the context menu to show all the elements of the documents again.

Hiding documents of a graph

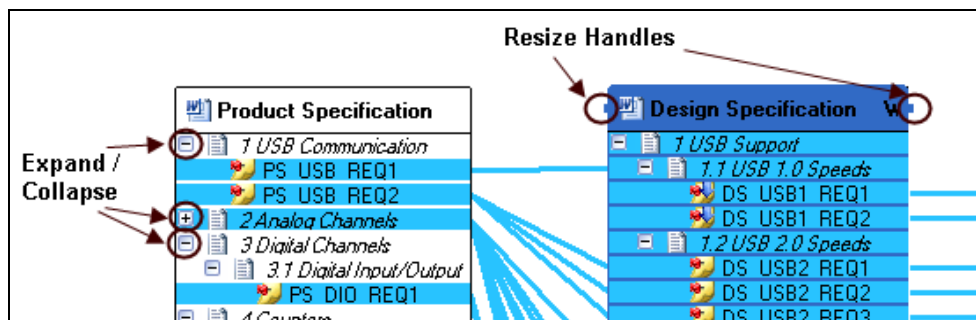
Right-click the document and select **Hide Selected Documents** from the context menu. When you make this selection, the view hides the selected document and displays the traceability information for the remaining two documents.

Right-click on the view and select **Show Hidden Documents** in the context menu to access a dialog box selected documents to be visible again.

Managing the documents in the graphical view

As your document gets larger or more complex, you can perform the following actions to control the Graphical View:

- ◆ Move documents within the Graphical View by selecting the document header and dragging the header to a new location.
- ◆ Resize the width of a document by selecting the document header and dragging the resize handles that appear on the right side of the document.
- ◆ Expand and collapse the sections by clicking the plus sign. You can also right-click the header of a document and select **Collapse Root Sections** or **Expand All Sections** from the context menu.



- ◆ Zoom in and out by pressing <Ctrl> while scrolling your mouse wheel up or down, or by selecting either Zoom»100% or Fit in page from the context menu.

Context Menus

A context menu appears when you right click an element or the project workspace background in the main window. The context menu depends on the activated view and on the selected element.

These menus and items are available in the Graphical View:

Menu	Comments
Copy	Copies the identifier of the selected requirement to the clipboard or copies the attribute values.
Copy For	Copies the selected element, with options (submenu): ID only or with additional information defined in the type. This feature allows direct creation of traceability information in project documents.
Delete	Deletes the selected attribute. You can only delete an attribute added from Rhapsody Gateway
Marks	Marks are used to highlight manually or automatically elements that have specific properties. Marks can be added automatically for modified elements and for results of a Search action. See the section on Marks to learn more.
Navigate	Runs the third party tool and selects the element in this tool. The accuracy of the selection can depend on the third party tool interface.
Evaluate	Opens the OTScript Evaluator
Automatically Position Documents	If this option is checked when some documents are hidden, the documents that are still visible are automatically repositioned. If this option is unchecked, when some documents are hidden, the still visible documents stay at their position.
View Graph for Selection	Displays the sub-graph for the selected elements, including the covering elements and the lines between the elements.
Show all Elements	Displays all the elements previously hidden thanks to View Graph for Selection option.
Hide Selected Documents	The selected document is no longer displayed. To display it again, use the Show Hidden Documents or Show all elements item.
Show Hidden Documents	Displays a dialog box with the list of the hidden elements, allowing the selection of documents to be shown again.
Collapse root sections	Minimizes the selected document by only displaying the sections of this document.

Menu	Comments
Expand all sections	Expands the selected document, which has previously been minimized, thanks to the Collapse root sections option.
Zoom	Select Zoom>100% or Fit in page to zoom in and out. You can also press <Ctrl> while scrolling your mouse wheel up or down.
Create Covering Links	Allows you to create covering links between several elements. See the section on the addition of elements to learn more.
Create Links	Allows you to create links (other than covering links). If several links to create have the same name, the document's name is shown between parentheses. See the section on the addition of elements to learn more.
Reverse Links	Changes the direction of a link created from Rhapsody Gateway

In the **Attributes** pane, the following context menu is available when an element is selected in the Graphical view:

Menu	Comments
Add an attribute	Adds an attribute to the element selected in the Graphical view . Opens two submenu items: Define a Boolean attribute and Define a Value attribute . See the section on the addition of elements to learn more.
Delete	Deletes the selected attribute. You can only delete an attribute added from Rhapsody Gateway.

In the **Reference Attributes** pane available when a reference is selected in the Graphical view, the following context menu is available:

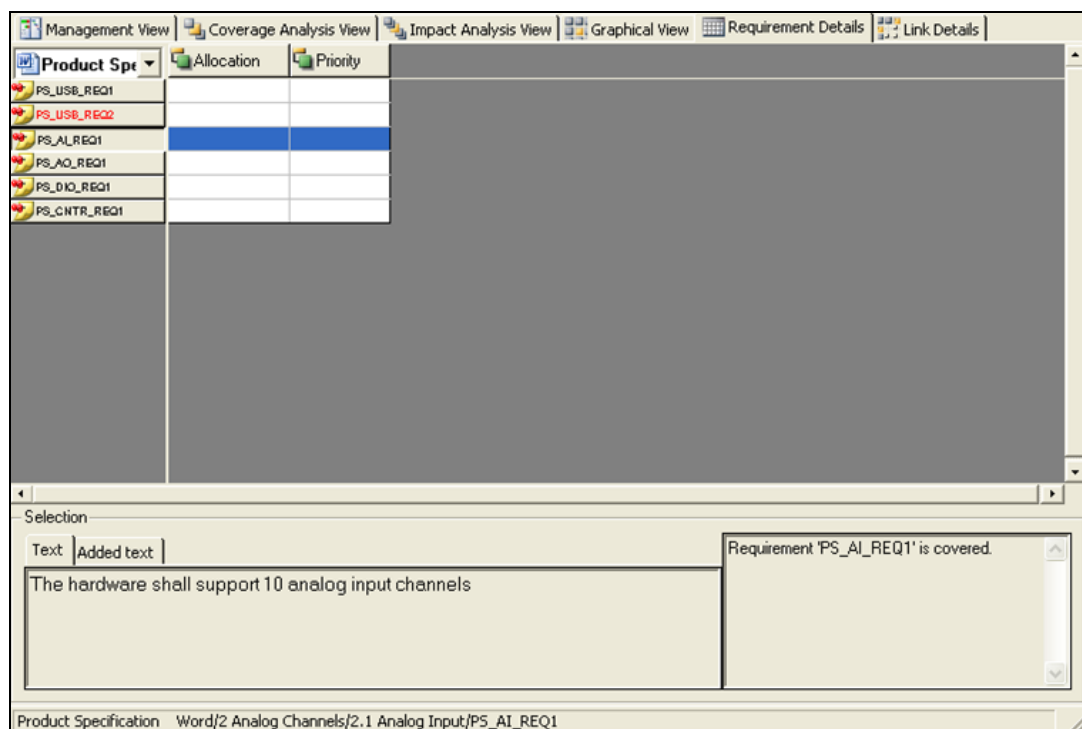
Menu	Comments
Add a reference attribute	Adds an attribute to the reference selected in the Graphical view . Opens two submenu items: Define a Boolean Reference Attribute and Define a Value Reference Attribute . See the section on the addition of elements to learn more.
Delete selected attributes	Deletes the selected attribute. You can only delete an attribute added from Rhapsody Gateway.

Requirement Details View

Description

The Requirement Details view displays each requirement and its attributes for a document in a table.

The document displayed is selected from the drop-down list box in the upper left. For this document, all the requirements, derived requirements, macro-requirements and entities are presented in the first column. The other column headers are the attributes and the cells contain values of these attributes.



The lower half of the Requirement Details view contains two panes:

- ◆ **Text**—Displays the text for the item selected in the first column.
- ◆ **Messages**—Displays helpful information, including rule violation details, for the item selected in the first column.

You can sort the elements:

- ◆ Click one of the requirements in the first column and select **Sort by Identifier** in the context menu.
- ◆ Click the header of an attribute column to sort elements using the value of the selected attribute.

Contextual Menus

If you right click the header of an attribute created from Rhapsody Gateway, you get the following context menu:

Menu	Comments
Rename	Opens a dialog box allowing you to rename the selected attribute.
Delete	Deletes the selected attribute. You can only delete an attribute added from Rhapsody Gateway.

If you right click a cell corresponding to an attribute created from Rhapsody Gateway, you get the following context menu:

Menu	Comments
Copy	Copies the value of the attribute.
Paste	Pastes the copied value.
Delete	Deletes the selected value.

If you right click a cell corresponding to a requirement element in the requirements column, you get the following context menu:

Menu	Comments
Sort by identifier	Sort alphabetically the requirements column list.
Sort by default	Sort requirements according to their definition order in the document.
Copy requirement ID	Copies the requirement ID into the clipboard.
Navigate	Navigate to the selected requirement in the corresponding document.

Link Details View

Description

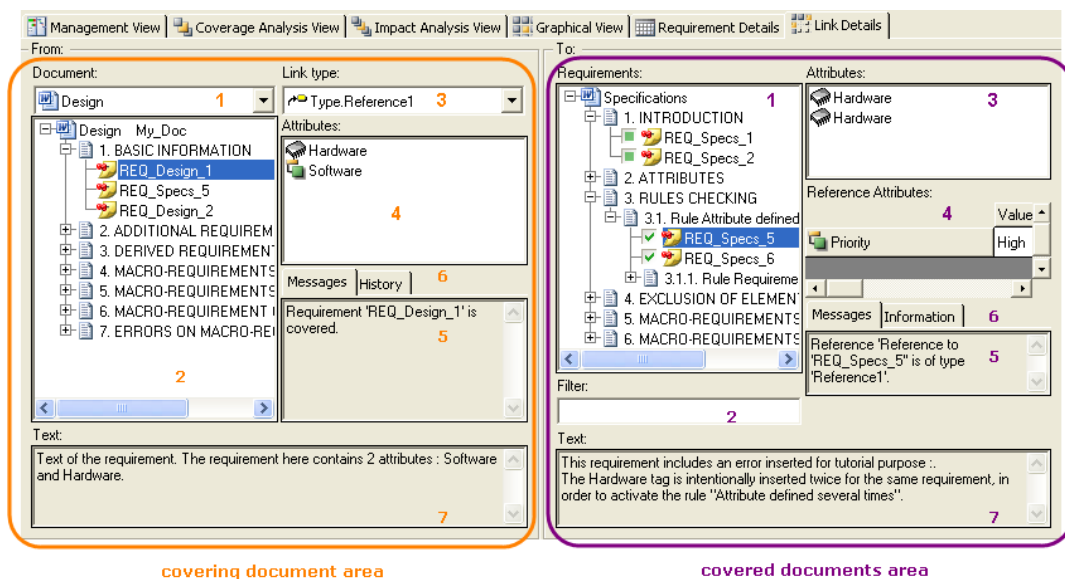
The **Link Details** pane displays covering information between a covering document and its covered documents. It also enables you to create suspicious links. See *Suspicious links* section.

This view enables you to easily create links. A covering link creation or a reference attribute assignment can be performed when the following conditions are met:

- ◆ the covering document has a modification file with a type for added elements associated
- ◆ this modification file has one or more references type defined

Refer to the *Customization Guide* for more information about the added type creation.

The Link Details view is shown in the following figure:



The covering document area of the Link Details view corresponds to the covering document. It contains the following areas:

- ◆ **Document** (1)—Allows the selection of the covering document.
- ◆ **Document content view** (2)—Displays the content of the covering document with its elements.
- ◆ **Link type** (3)—Shows the reference types defined in the added types of modification for the selected document in a combo-box.
- ◆ **Attributes** (4)—Shows all the attributes of the selected element.
- ◆ **Messages** (5)—Displays the message associated to the selected element.

- ◆ **History (6)**—Displays the links creation and the links removal history for the selected element. This tab is optional.
- ◆ **Text (7)**—Displays the text of the selected element.

The covered documents area of the Link Details view corresponds to the covered documents. It contains the following areas:

- ◆ **Requirements (1)**—Displays the requirements of the covered documents and their hierarchy. Covering links are marked by a check or a green square.
- ◆ **Filter (2)**—Allows you to filter the requirements of the covered documents to only visualize some of them. This field is case-sensitive and supports regular expressions. See next section for filters details.
- ◆ **Attributes (3)**—Displays the attributes of the selected requirement.
- ◆ **Reference Attributes (4)**—When it is possible, allows you to assign values to reference attributes defined in the added type of modification. There are listed in a multi-lines box. To learn more see the reference attribute definition.
- ◆ **Messages (5)**—Displays the message relative to a reference, its contents will be displayed only if the selected requirement has a checkmark.
- ◆ **Information (6)**—Displays the links creation and the value assignments to reference attributes history for the selected requirement. This tab is optional.
- ◆ **Text (7)**—Displays the text of the selected requirement.

Filter field usage

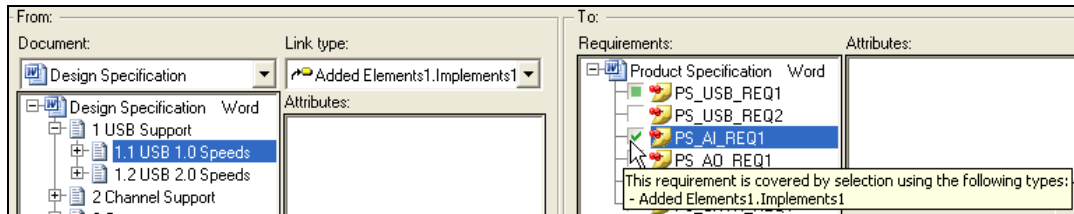
Requirements of the covered documents can be filtered out in the Requirements area to make it easy to visualize.

Type few characters of the requirements, for instance 'REQ1', to create a simple filter. All requirements containing the string 'REQ1' are now listed in the Requirements area.

Regular expressions can be used to create more complex filters. Type for instance '^PS_.*2\$'. All requirements beginning by 'PS_' and ending by '2' are now listed in the Requirements area. Because this field is case-sensitive, use for instance (?i) to start your filter avoiding the case-sensitive mode.

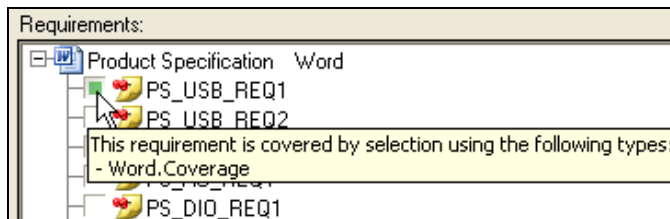
Coverage Display

When you select a covering document the whole view is updated with corresponding information.



If the selected element covers high-level requirements with the selected link type, a check is placed next to the covered requirements.

If the selected element covers high-level requirements with another link type, a green square is placed next to the covered requirements. If we fly over the green square information concerning the reference type is displayed.



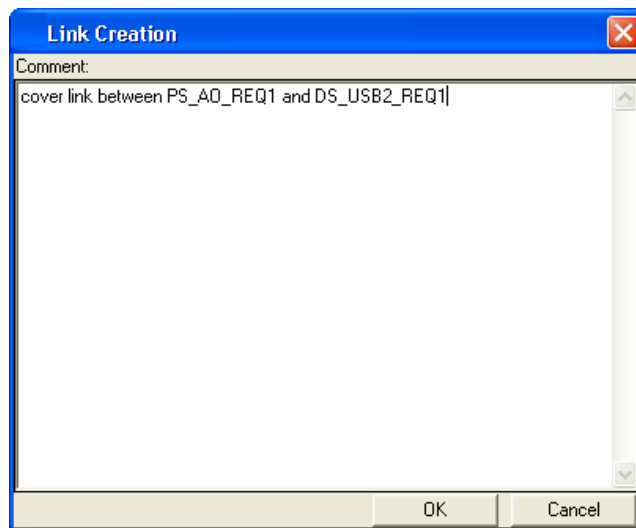
For more information on the covering links creation, see the chapter concerning addition of information.

Keeping a History

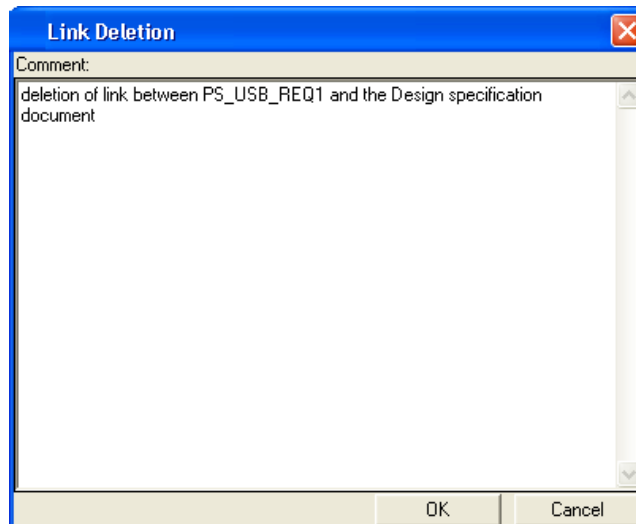
If the option **Keep a history of cover link creation and deletion in Link Details view** is selected in the General Options window, you can keep comments in the History and Information areas of the Link Details view, otherwise these tabs are hidden and no history is saved.

Commenting Link Creation and Deletion

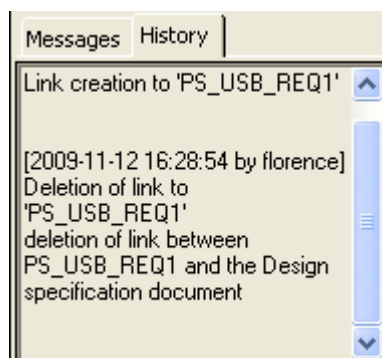
The option **Comment cover link creation and deletion in Link Details view** is available if the previous **Keep a history of cover link creation and deletion in Link Details view** is selected in the **General Options** window. If you select this option, you can insert a comment when you click to create a cover link. This comment is added in the **History** and **Information** areas.



By the same way, when you click to delete a cover link, you can add a comment.



This comment becomes visible in the **History** area.



Menus

Contextual menus and Edit menu contain the following options:

Menu	Comments
Display only requirements	This option the ability to show only the requirements or to show requirements with hierarchy.
Sort requirements	When the option Display only requirements is activated, this option alphabetically sorts the requirements display.
Show the covered requirements	When the option Display only requirements is deactivated, Rhapsody Gateway displays only the covered requirements by the requirement selected in the covering document area.
Navigate	Runs the third party tool and selects the element in this tool. The accuracy of the selection can depend on the third party tool interface.
Add link	Creates a link if it is possible.
Delete link	Deletes a link if it is possible.

Configuration Dialog Box

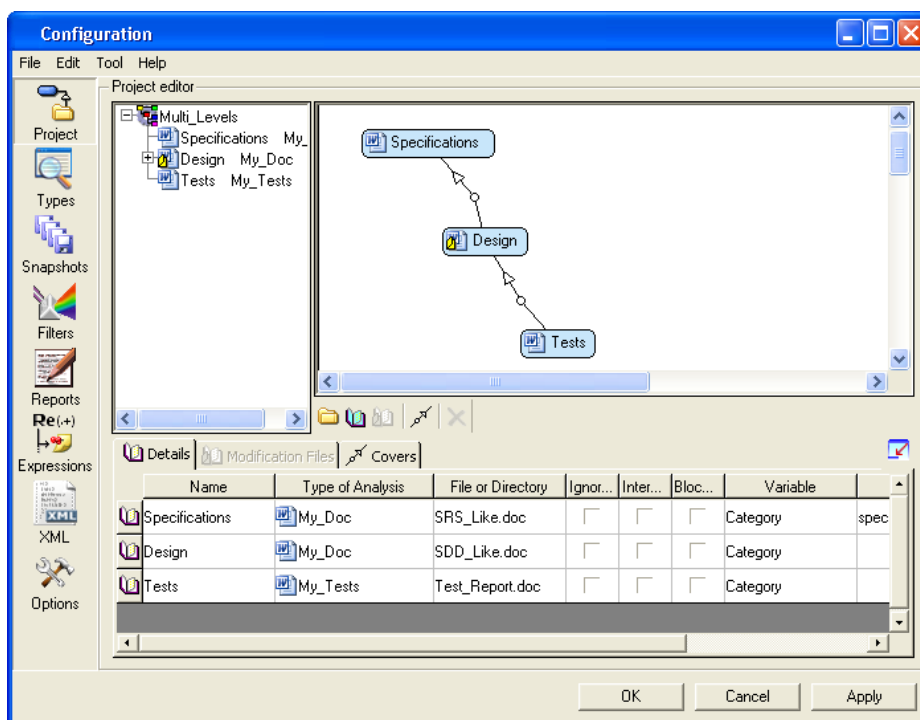
This chapter introduces the configuration dialog box for the topics concerning the operational use in project contexts. The topics concerning customization are described in the *Customization Guide*.

You can read about these topics in:

- ◆ Overview
- ◆ Restricted Access to the Configuration Dialog Box
- ◆ Management of Concurrent Access

Overview

Rhapsody Gateway launches the **Configuration** dialog box when you select a menu item or toolbar button to configure one of the following parts of your project: **Project**, **Types**, **Snapshots**, **Filters**, **Reports**, **Expressions**, **XML** or **Options**.



The Configuration dialog box contains the following panes:

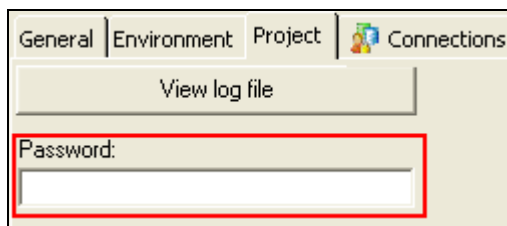
- ◆ **Project**—Allows you to configure the project by specifying the documents to include, the type of each document, and the covering relationship between documents. Refer to the **Project Configuration** chapter later in this *User Manual* for more information about configuring projects.
- ◆ **Types**—Allows you to create new types or customize existing types for your project. Refer to the *Customization Guide* for more information about customizing types.
- ◆ **Snapshots**—Allows you to create, manage and compare snapshots of your project. Refer to the **Detection of Requirement Changes** chapter in this *User Manual* for more information about using snapshots.
- ◆ **Filters**—Allows you to define custom filters to analyze requirements and only display requirements from documents that meet specific criteria. You can enable filters using the Filter drop-down list box on the toolbar of the Rhapsody Gateway main window. Refer to the **Filters Usage and advanced Analysis** section of this *User Manual* for more information about using filters.
- ◆ **Reports**—Allows you to define new custom reports. You can generate a default report or a custom report using the Reports > Library Reports submenu on the main window. Refer to the **Generating Reports** chapter in this *User Manual* for more information about generating documents.
- ◆ **Expressions**—Allows you to test regular expressions used by Types to analyze the intermediate files. Refer to the *Customization Guide* for more information about customizing types.
- ◆ **XML**—Allows you to test XML syntaxes used by Types to analyze the intermediate files. Refer to the *Customization Guide* for more information about customizing types.
- ◆ **Options**—Allows you to set the default font for text in the application, set the password on the project, define environment variables, and other miscellaneous settings for the application.

Restricted Access to the Configuration Dialog Box

The access to the Configuration Dialog Box can be restricted.

Select **Tools > Options** to open the Configuration Dialog Box.

In the **Project** pane you can enter a password:



Once a password is defined for the project, you will see the dialog box shown in the following figure each time you try to open the Configuration dialog box:



Access to the Configuration dialog box is granted only if the Password is correct.

To change the password, select **Tools > Options**, enter the correct password to open the Configuration Dialog Box, and then type a new password in the **Password** field of the **Project** pane.

Management of Concurrent Access

Concurrent modification of the project is not allowed.

Control Access on Rhapsody Gateway Activities

While one user can modify some elements of a project, another user can modify different elements of the same project. The control access on a project is handled separately according to different activities.

Activities which can be handled separately are:

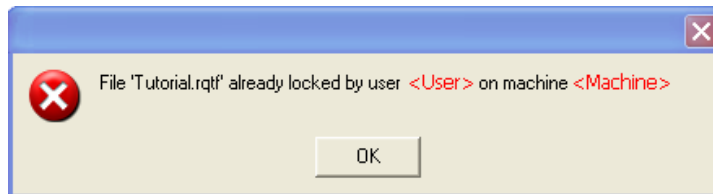
- ◆ Project Configuration Edition
- ◆ Types of Analysis Customization
- ◆ Filters Edition
- ◆ Marks Creation
- ◆ Modification Files Edition


User Changes Management

When you want to add information from Rhapsody Gateway, you must have the appropriate access rights:

- ◆ The first user who attempts to modify the project becomes the owner of the files in which he is making changes. Once he modifies a Rhapsody Gateway element, the appropriate file becomes locked.

If another user has already locked the same file before, a dialog box like the following opens:



- ◆ As long as a file is locked, the owner can undo or redo modifications. Once he terminates his modifications, he presses  to save them. The files associated with his modifications become unlocked again and undo and redo actions are no longer accessible.

Project Configuration

This chapter explains how you can configure your project in order to describe to Rhapsody Gateway what your project lifecycle and your requirement standards are.

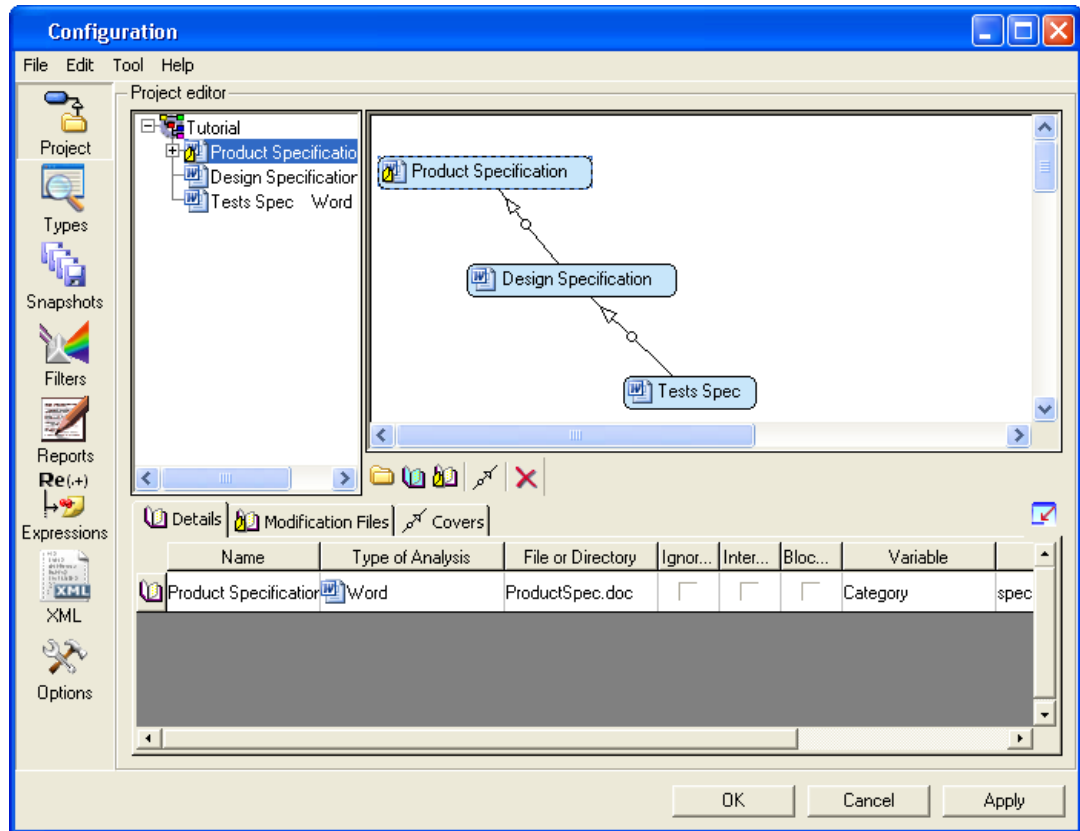
You can read about these topics in:

- ◆ Objectives
- ◆ Description
- ◆ Adding a Document
- ◆ Adding Coverage Links between Documents
- ◆ Adding a Folder
- ◆ Folders and Coverage Links
- ◆ Documents Covered by Combination of several Others
- ◆ Modification Documents
- ◆ Importing an Existing Project
- ◆ Assigning a Document Category
- ◆ Assigning a Cover Category

Objectives

A project specifies the documents that Rhapsody Gateway analyzes and displays, as well as the type of each document. A type defines how to select external files that represent a document, how to read the contents of the external files, how to interpret the contents as elements for managing requirements, and how to display the elements of the document.

A project also defines the relationship between these documents.




Description

The configuration window is composed of several areas such as the document details area and some creation buttons.




Document Details Area

If **Details** or **Modification Files** pane is selected, the lower part of the **Project** editor window contains the following fields:

Field	Description
Name	Used to name a document. It is a logical name that does depend on the name of the input element (file, directory, database module, etc.)
Type of Analysis	This drop-down list box displays the list of generic and customized types that can be used to analyze the document.







Field	Description
File or Directory	Click on the button  to activate the browse, and click this button to select your source information. The dialog box that will be used for selection depends on the type selected for the document. Once the selection procedure is completed, the field is filled automatically.
Ignore structure	When this option is activated, Rhapsody Gateway will ignore structure errors in the analyzed documents (for example, a heading 3 section underneath a heading 1 section without any intermediate heading 2 section).
Intermediate File	<p>When this option is activated, the intermediate file corresponding to the analysis of the source document is stored in directory named intermediate in the project directory. For some types, the default option is set by Rhapsody Gateway and cannot be modified.</p> <p>This option is helpful for the different types of customization activities. See the <i>Customization Guide</i> to learn more about the intermediate files.</p>
Block reloading	When this option is activated, Rhapsody Gateway will avoid the reloading of the corresponding document.
Variable	<p>This drop-down list box is filled automatically by Rhapsody Gateway and depends on the Type applied to the document. It is used in relation with the Value field to define additional parameters for the Type.</p> <p>Variables and expected Values are described in the Coupling Notes for the interfaced third party tool.</p>
Value	See the explanation above for Variables. The Value field is used to define Variable values. Depending on the selected variable, this element can be a drop-down list box, a text field, or an option box.
Access	<p>This field is used to define the access mode to the input file. Access can be local, HTTP, need dialog with a Configuration Management tool, a Document Management tool, etc.</p> <p>Right click on the Access field provides access to 'Intermediate access file' option that enables you to access a directory outside the project directory for the Access types. For instance the SVN working directory can be located out off the Rhapsody Gateway project directory.</p>


If **Covers** pane is selected, the lower part of the **Project** editor window contains the following fields:

Field	Description
Sources->Target	All the connections between documents are listed as source document followed by target document.
Kind	<p>Three kinds of covering links are available: cover, dependency and mirror. For further details on these traceability elements, refer Traceability Links section.</p> <ul style="list-style-type: none"> • Cover is depicted as  • Dependency is depicted as  • Mirror is depicted as  <p>Cover is the default value for Kind. Covers contribute to the coverage ratio (coverage ratio is displayed in the management view on the arrows), dependencies do not. Mirror only indicates a reflexive link between documents.</p>
Category	A category can be associated to the different cover link. This category name is displayed next to the link in the Project view.

Creating Tools

The following action buttons are available:

Button	Description
	Used to add a folder. See the <i>Using Folders</i> chapter later in this document to learn more about the usage of folders.
	Used to insert a new document for the project.
	Used to add a Modification document.
	Used to insert a project. Refer to <i>Composite Project Management Manual</i> . This button is only available if the Composite Project plugin has been installed.
	Used to create coverage link between two documents.
	Deletes the selected element (document, link or folder).

Button	Description
	Used to collapse (hide) / expand (show) the Documents Detail Area to maximize the size of the Traceability Description Area.

Edit Menu


The configuration editor allows you to undo operations, and redo the previous operation.

The edit fields for undo and redo are contained in the **Edit** menu:

- ◆ **Undo**—Cancels actions on element editions or creations.
- ◆ **Redo**—Reverses the undo field.

Adding a Document


To insert a new document into the Traceability Description Area, follow these steps:

1. Click the **Add a document**  button. When you make this selection, the cursor automatically moves to the Traceability Description Area and the cursor outlines a document object. Click within this area to place the document. When you place the document, the document is added to the Project Tree pane. The Document Details pane displays the settings for the selected document in the Project Tree pane.
2. In the document **Details** pane, click in the **Name** column to rename the document. The name in the document object now displays the new name.
3. Click on the **Type of Analysis** column. Select from the drop-down list box the Type you want to apply.
4. Click on the **File or Directory** column. The File Browse button appears on the right side of the field. Click the File Browse button and select the input information you want to consider. The selection procedure depends on the selected type of analysis (file, directory, database based type of analysis), and on the Access defined for the document (local, HTTP, configuration management tool, etc.)
5. Check if **Variables** have to be defined. Variables are described in the Coupling Notes for the tool on which type of analysis is based (Word, Excel, etc.)
6. If you need to define variables, define **Values** for each of them.

Adding Coverage Links between Documents

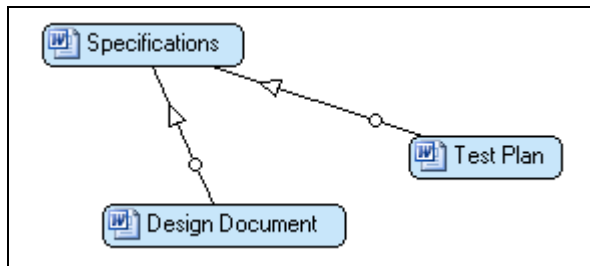
You define your traceability links directly in the Traceability Description Area, which is the graphical part of the project editor.

To add a coverage link between documents, follow these steps.

1. Click the **Add a cover**  button. The cursor moves to the Traceability Description Area.
2. Click the covering (low level) document object first and then click the covered (higher level) document object. An arrow appears between the two documents. This arrow indicates that the low level document covers the high level document.

You can also click the covering document by keeping the mouse button pressed and hovering over the covered document and then releasing your mouse button. This creates a link.

For instance, your traceability graph could be created as shown in the following figure.



Note

The link arrow means "Covers". Links between documents are in two parts: by clicking and dragging on the circle you can alter the angle of the link. This is useful if there are several documents to be configured.

You can select multiple documents in this graphical area, or in the project tree, by keeping [Ctrl] pressed during multiple click actions. You can also draw a selection area by clicking and dragging the mouse button.

The following context menu appears if you right click in the Traceability description area:

Item	Description
Copy	Copies the selected document. The copied document can be pasted into the current project, or into another project along with its type and an updated path to the file to be analyzed.
Paste	Pastes the copied document. You can Paste documents copied from the Project Editor for the current project or for another project.
Delete	Deletes the document or link selected.

Item	Description
Cleanup Link	Activated only if you select a link. Re-draws the selected link.
Navigate	Navigates to the source file corresponding to the selected document.

Note

By pressing <Ctrl> while scrolling your mouse wheel up or down you will zoom in and out in the Traceability Description Area of the Project Configuration View.


Adding a Folder

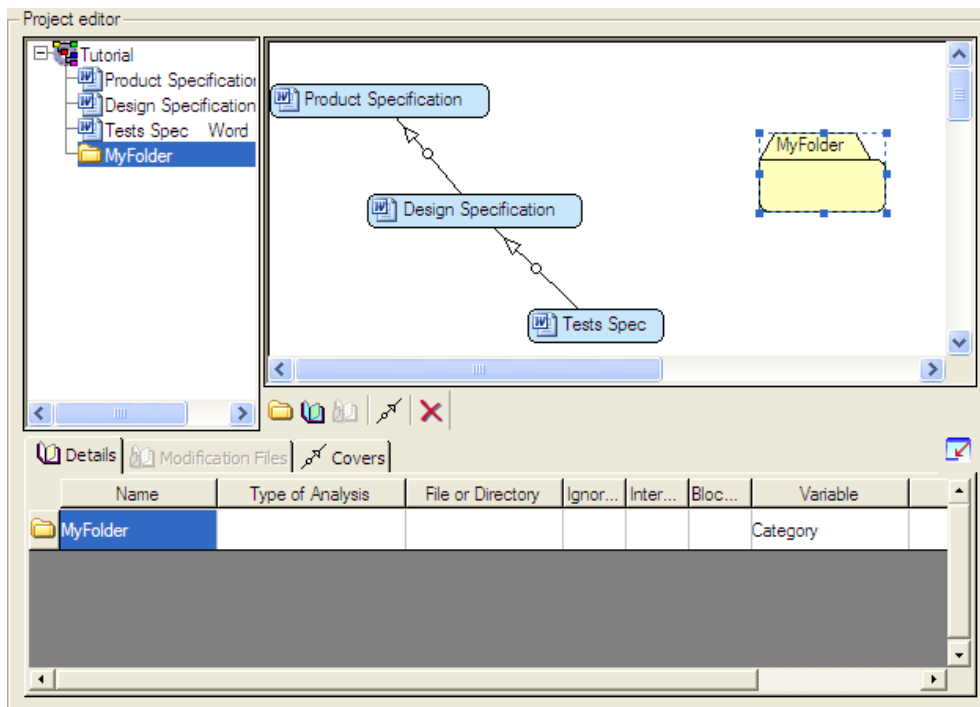
Folders can be used to group documents considered at a given step in your process, and/or in order to have a cleaner project configuration displayed for a large project. See the section about *Using Folders* to learn more about traceability management when a project contains folders.

Concerning folders, note the following point:

- ◆ Only one hierarchical level is allowed. You cannot create a folder inside a folder.

To add a folder in your project configuration, follow these steps:

1. Click the **Add a folder**  button. When you make this selection, the cursor automatically moves to the Traceability Description Area and the cursor outlines a folder object.
2. Click within this area to place the folder. You can resize it. When you place the folder, the folder is added to the Project Tree pane. The Details pane displays the settings for the selected folders in the Project Tree pane.
3. In the Details pane, click on the Name column to rename the folder. The name in the folder object now displays the new name.




To navigate into the folder, double click the folder. To go out of the folder, double click on the background of the Traceability Description Area.

To add a document in the folder, you can either:

1. Open the folder and create your document as described in the previous sections.
2. Select a document already created in the traceability description area, then drag and drop the document into the folder object.

Folders and Coverage Links

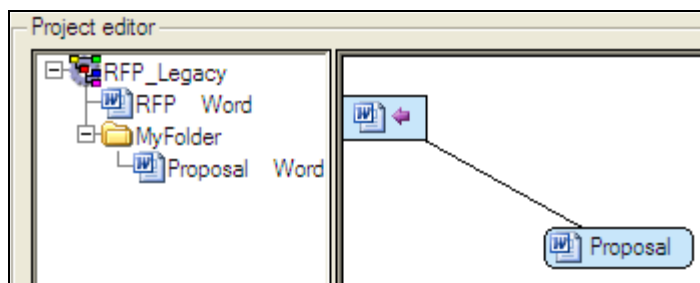
To add a coverage link between folders, or between a document and a folder, follow these steps.

1. Click the **Add a cover**  button. The cursor moves to the Traceability Description Area.
2. Click the covering (low level) document or folder object first and then click the covered (higher level) document or folder object. An arrow appears between the two objects.
3. You can also click the covering document or folder by keeping the mouse button pressed and hovering over the covered document or folder and then releasing your mouse button. This creates a link.

You may need to create more precise links between a document out of the folder and a specific document located in the folder. For this you will use the folder **Ports** such as



1. Create a traceability graph with links between a folder and document(s), or between folders containing document(s).
2. Double click to enter the folder. As shown in the following figure, the Traceability Description Area now contains some **Ports**, one for each document linked to the folder. Hover over the port to display the name of the document represented by the port.
3. To link a document contained in a folder directly with an external document, create a link between the document and the port using the **Add a Cover** button to create of a link between documents. The created link has no arrow; the direction is defined by the arrow icon of the port.



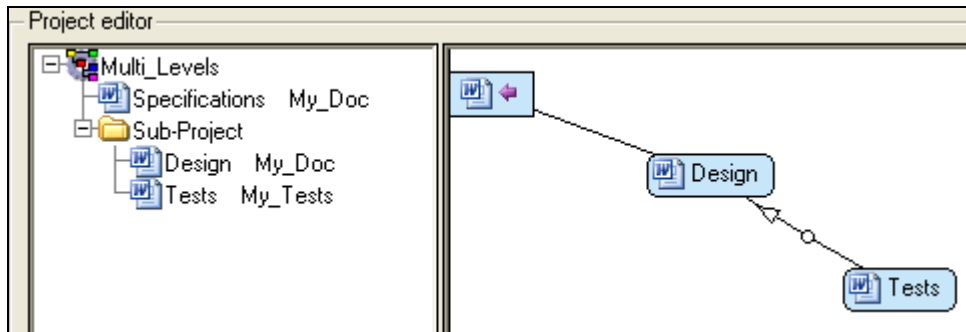
Note

Individual links between documents through folder ports is not the typical use of folders, and has consequences on the traceability management. See the section concerning **Using Folders** to learn more about traceability management in cases involving folders and documents.

The table below gives you additional information about Ports:

Ports	Description
	This port represents a document available for a traceability link TO this document: the document in the folder is covering the external document. To create a link, click on the document first, then on the port.
	This port represents a document available for a traceability link FROM this document: the document in the folder is covered by the external document. To create a link, click on the port first then on the document.

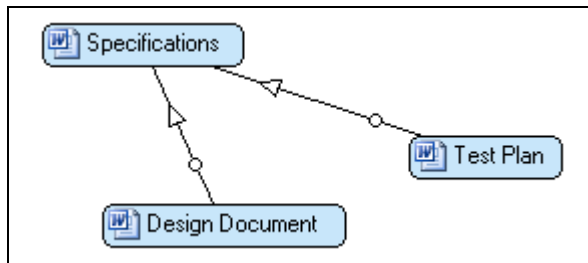
It is better to consider a folder as a package of requirements that belong to the same project hierarchy level. But in some cases it is useful to add coverage links inside a folder. Use the **Add a cover** option to create links between internal documents.



Document Covered by Combination of Several Others

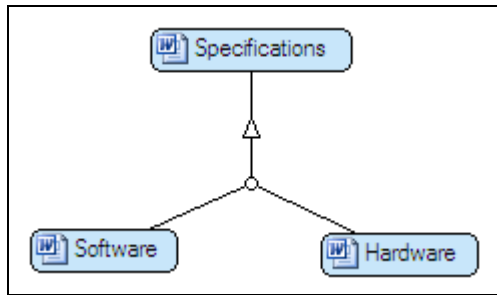
In a lot of cases, a high level document is not fully covered by only one lower level document, but by the combination of several documents. This is typically the case when you consider a system specification that will be refined into two sub-systems specifications. The sub-systems specifications together are supposed to cover the system specifications.

In that case each high-level requirement is supposed to be covered by **at least one** of the lower level documents. Two configurations are also possible, as shown below.



In this configuration Rhapsody Gateway expects the **Specifications** requirements to be implemented AND tested.


The requirement will be considered as uncovered until at least one reference is found in the **Design Document** AND in the **Test Plan** as well.




In this configuration Rhapsody Gateway expects the **Specifications** requirements to be developed in the **Software** specifications OR in the **Hardware** specifications (or in both).

The requirement will be considered as covered as soon as there is a reference found in the **Software** Document OR in the **Hardware** document (or in both).

To create a combined link, follow these steps:

1. First create the documents. As shown in the Figure above, a **Specifications** document can be covered by the combination of a **Software** document and a **Hardware** document.
2. Next create a link between the **Software** document (covering) and the **Specifications** document (covered).
3. Click the **Add a cover**  button, then click the second covering document (in our example the **Hardware** document).
4. Instead of clicking the covered document object, click the circle in the middle of the coverage link that already groups the other two documents together.

Note

To delete a combined link, click one of the two halves of a link then click the **Delete**  button.

Modification Documents

The **Modification Documents** are used to capture additional information that applies at the same level as a standard Document and to complete or modify it.


Modification Documents are typically used in the following cases:

- ◆ The version 1 of a document can be modified, completed, and reviewed during the project. Before getting a version 2 of the document, the project teams usually need to consider the version 1. They also need to consider additional review forms or modification sheets which contain information that completes, modifies or replaces the information contained in the original document. These additional

elements can be managed as **Modification Documents** applied to the original document that was defined in the Project configuration.

- ◆ A Specifications document can contain generic requirements. Some additional documents (typically worksheets) can create additional information to make generic requirements specific for the project. Additional worksheets can add attributes for allocation, priority, etc. and they are also managed as Modification Documents.
- ◆ A Test plan contains the test definitions. These tests are performed and a test report is automatically generated by the verification tool. Instead of manually copying the test results into the Test Plan to produce a Test Report document, you can capture the results automatically by defining a Modification Document.

To add a modification document, follow these steps:

1. Select a document object in the Traceability description area of the project editor.
2. Click the **Modification Files** tab of the document details pane.
3. Click the **Add a Modification Document**  button.
4. In the Document Details pane, click in the **Name** column to rename the document. The name in the document object now displays the new name.
5. Click in the **Type of Analysis** column. Select from the drop-down list box the Type you want to apply.
6. Click in the **File or Directory** column. The File Browse button appears on the right side of the field. Click the File Browse button and select the input information you want to consider. The selection procedure depends on the selected type of analysis (file, directory, database based type of analysis), and on the Access defined for the document (local, HTTP, configuration management tool, etc.).
7. Check if **Variables** have to be defined. Variables are described in the Coupling Notes for the tool on which is based the type of analysis (Word, Excel, etc.).
8. If you need to define variables, define **Values** for each of them.

When a document has modification files, an additional icon representing a yellow book is added to the icon of the modified document, in the Project editor, as shown in the following figure.

The modification document appears underneath the document it modifies in the project tree pane.

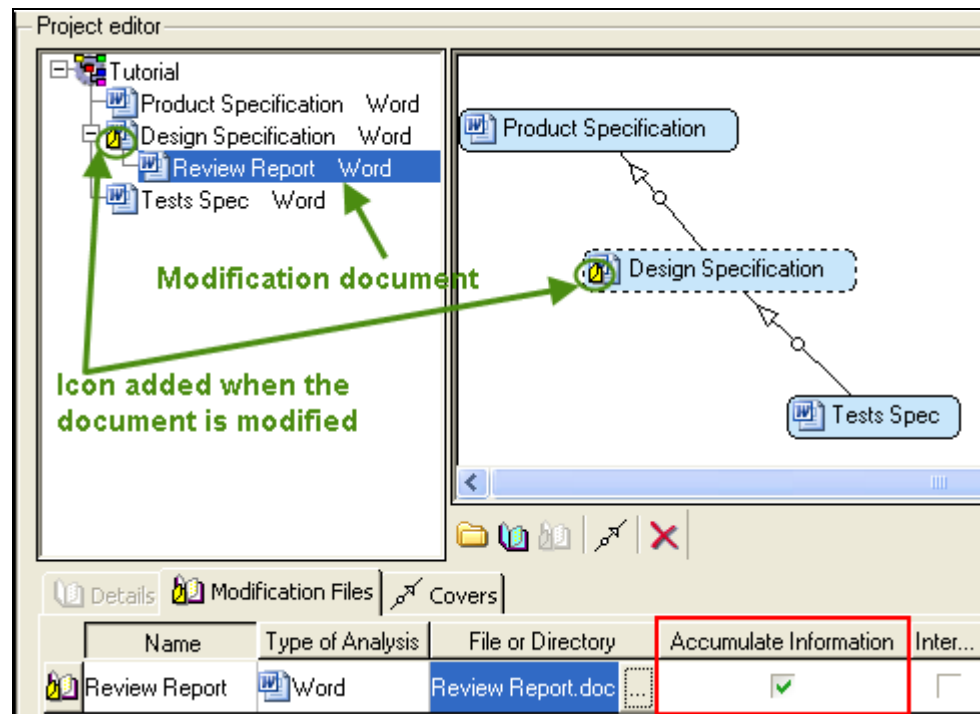
The **Accumulate information** option indicates to Rhapsody Gateway if the information captured in the Modification Document completes or replaces the information captured in the project document.

Note

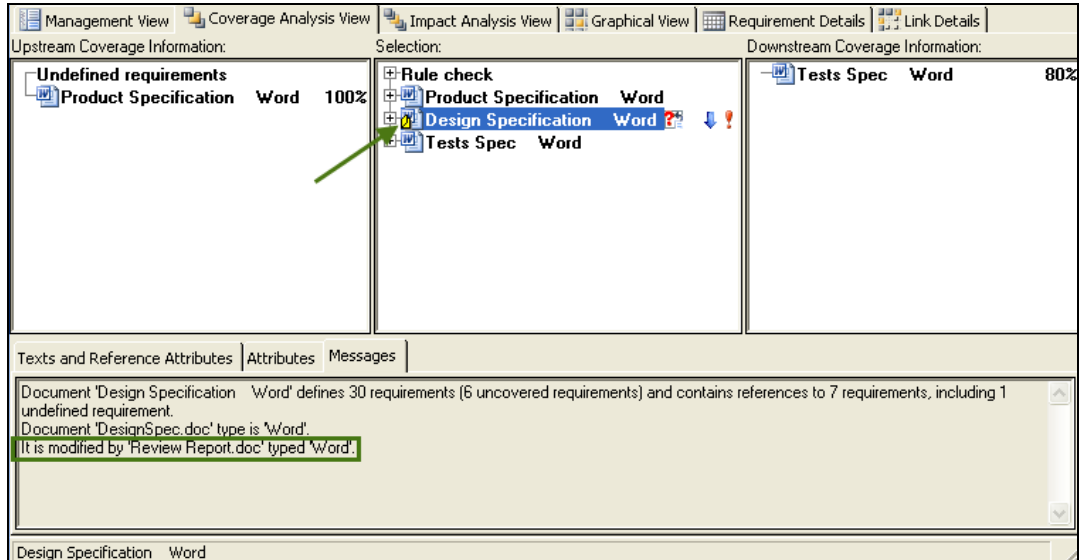
Modification files do not remove elements coming from other modification files.

The position of the modification files in the list is important. The analysis is performed in list order.

Information contained in a file overwrites information contained in a file higher up the list if the box **Accumulate information** box is not checked. Otherwise information accumulates in list order.



In the main window of Rhapsody Gateway, the yellow icon indicating the modification of the project document is displayed as well, as shown in the following figure. The **Messages** tab in the lower half of the window gives you more information concerning the modification file.



The **Modification Documents** are also used when you want to add information created from Rhapsody Gateway:

- ◆ Default additions create an “Internal Type” that you cannot edit or manipulate. To forbid the use of Internal Type see *Types Definition* section at the end of this document.
- ◆ Advanced additions are based on the integration of modification documents using a “Type for added elements”.

See the *Adding information* section to learn more.

Additional information can be defined in a special modification file which is specified by the Type for Added Elements. (see the *Customization Guide*).

Importing an Existing Project

An existing project, or part of it, can be imported into your current project.

- ◆ If you want to import the whole project, select **File > Import** and select the Rhapsody Gateway project file you want to import.
- ◆ If you want to import only some documents of an existing project, open this project. In the Project Editor, select the documents you want to import, right click and select **Copy** in the context menu. Open your current project. In the project editor, right click in the traceability description area and select **Paste** in the context menu.

In both cases, the imported documents are added to the project configuration.

The types of these documents are also duplicated if they are not available in the new project; i.e. neither in the Config directory nor in the project directory.

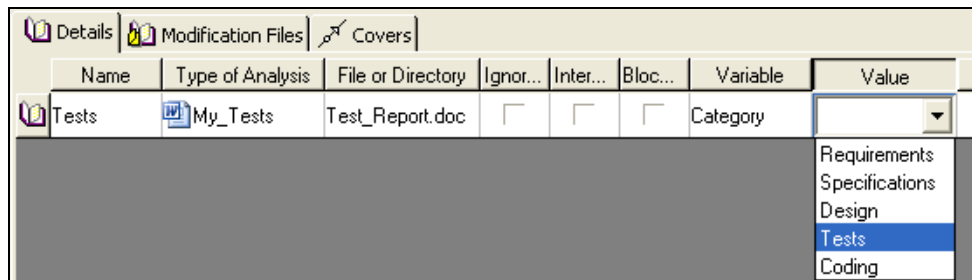
The input files to be analyzed are not moved; the paths to these files are automatically updated in the **File or Directory** field of the **Document Details Area**.

Assigning Document Categories

A document category type can be assigned to a document or to a folder from the Project Editor. This information appears in the **Management View** to present a detailed analysis of documents.

To assign a category to a document or to a folder, follow these steps:

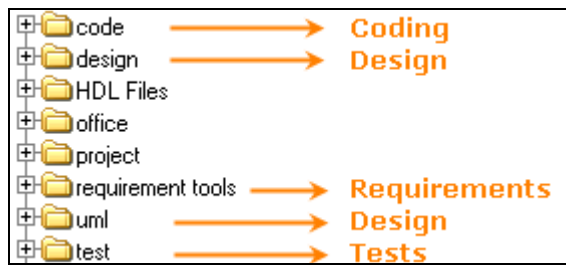
1. Select a document in the Project Editor.
2. In the document Details area, a Category field, which is not a parameter of the document type, can be selected from the drop-down list of Variable. Select Category.
3. Click Value to know the category values. The available category list appears in the drop-down list. Choose the desired value.



See the *Categories creation* section from the *Customization Guide* to know how to create or modify categories.

The principles of the categories association are the following:

- ◆ Associating a category to a document:
 - once a category has been selected for a document, this category is associated to the document.
 - some categories can be associated by default according to the types folder of the document type. For example, if a document has a type of the “uml” folder associated, the “design” category is automatically associated to this document.



In this case, the category can be overloaded but not removed. See the *Categories creation* section in the *Customization Guide* to know how to set or unset this behavior.

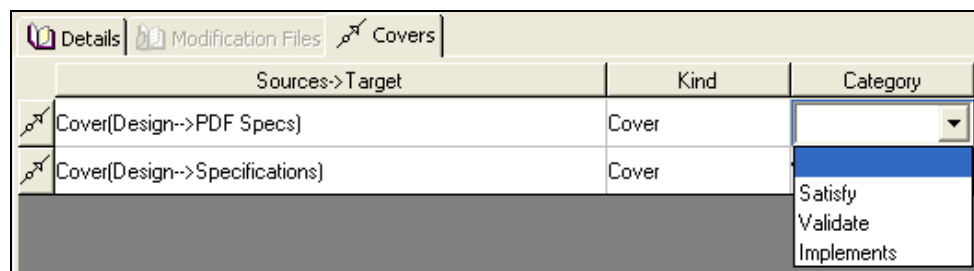
- ◆ Associating a category to a folder:
 - if the documents inside this folder do not have any associated category or have a default associated category (types folder association), the category associated to the folder is propagated to these documents.
 - if the documents inside this folder have already an associated category, they keep their category.
- ◆ Dissociating a category:
 - a category association to a document can be removed if the association is not a default association. In order to, select the blank value in the **Value** field. The document will have no more associated category.
 - a category association to a folder can be removed by selecting the blank value for the **Value** field. Consequently, this category association is also removed for all documents inside this folder and having this category. If the documents had a category associated by default, they recover this category again. Other documents, which had a category different from the folder category, keep their category.



Assigning Cover Categories

A cover category type can be assigned to a cover from the Project Editor.

To assign a category to a cover, follow these steps:

1. Select a cover in the Project Editor.
2. In the document Covers tab, select a cover. The available category list appears in the drop-down list of Category. Select a category.



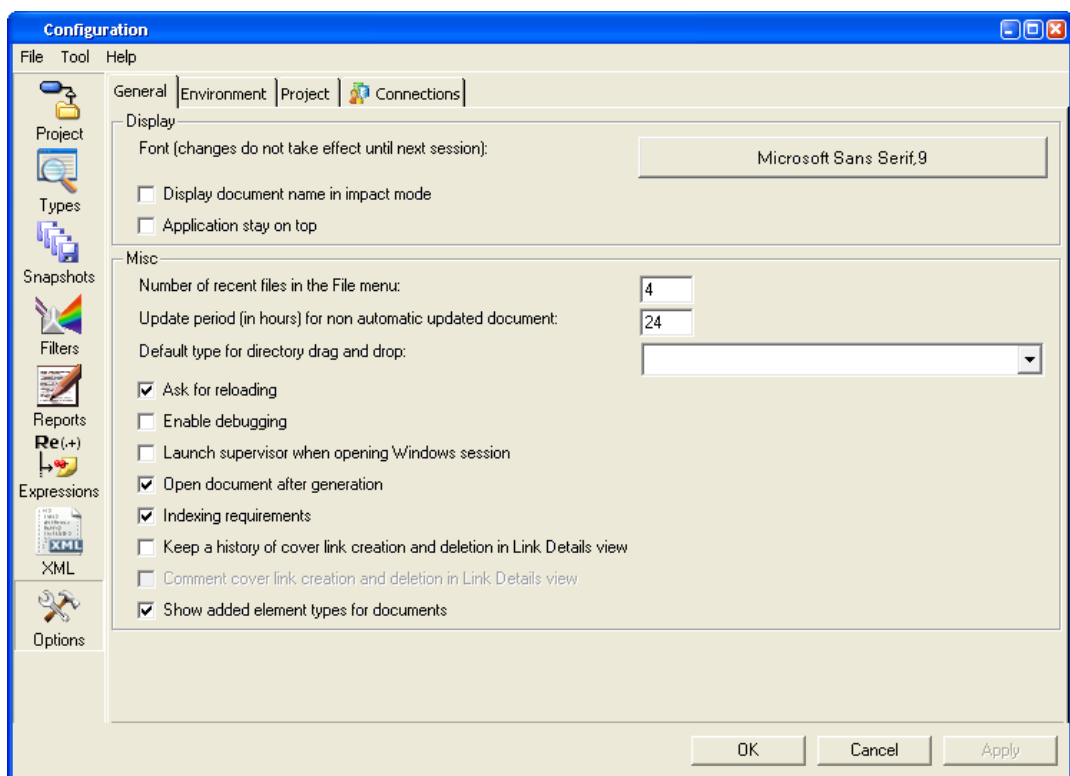
Sources->Target			Kind	Category
	Cover(Design-->PDF Specs)		Cover	Satisfy
	Cover(Design-->Specifications)		Cover	Validate
				Implements

See the *Categories creation* section from the *Customization Guide* to know how to create or modify categories.

Project Options

This chapter introduces the options you can define for your project.

The Options dialog box allows you to configure some options for your project. It contains three panes.



You can read about these topics in:

- ◆ Overview of the General Option pane
- ◆ Overview of the Environment Option pane
- ◆ Overview of the Project Option pane
- ◆ Overview of the Connections Option pane

Overview of the General Option pane

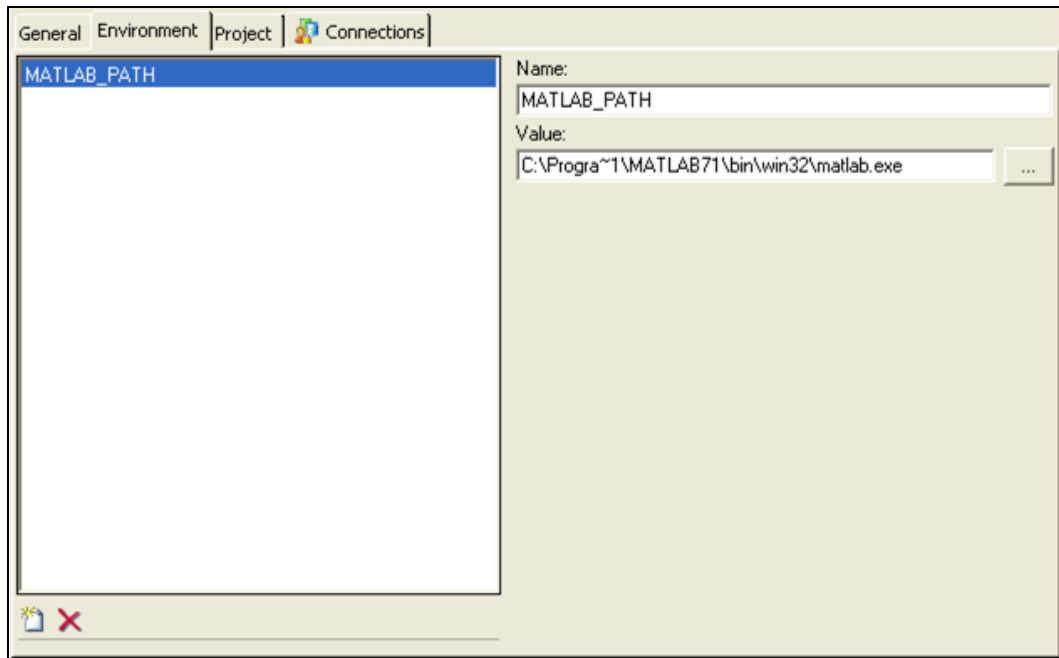
This window contains the general following fields:

Field	Description
Font	Changes the font of the trees displayed in the project workspace. This option does not change the fonts of the menus, menu items and pane names.
Display document name in impact mode	When this option is activated, Rhapsody Gateway displays the name of the document beside each element in the Upstream Impact Analysis and Downstream Impact Analysis panes of the Impact Analysis View
Application stay on top	When this option is activated, Rhapsody Gateway displays the Application on top of all the other applications on your desktop.
Number of recent files in the File menu	Defines the number of recent files listed in the File menu for direct opening.
Update period (in hours) for non automatic updated document	Some tools interfaced with Rhapsody Gateway are database-based (i.e. DOORS), or more generally “non file based”, and it is not possible to automatically detect that information has changed. This option allows you to define a periodic update for these tools.
Default type for directory drag and drop	This combo provides all the directory types. Selecting one type allows you to define the kind of directory type to create during a drag and drop of a directory from the outside into the Project configuration window.
Ask for reloadings	When this option is activated, Rhapsody Gateway displays the reload dialog box. As a result a dedicated icon will inform you if a document is up to date or not.
Enable debugging	Enables you to produce a log file in the project directory
Launch supervisor when opening Windows session	Enables to launch supervisor when opening Windows session.
Open document after generation	Indicates to Rhapsody Gateway that the reports must be opened automatically at the end of the generation process.
Keep a history about cover link creation and deletion in Link Details view	Gives you the possibility to keep the cover link notifications in the History and Information tabs. . Refer the <i>Link Details</i> chapter.

Field	Description
Comment cover link creation and deletion in Link Details view	Gives you the possibility to access a wizard to insert comments when creating and deleting cover links. Refer the <i>Link Details</i> chapter.
Show added element types for documents	Shows or hides the added element types in the Type of analysis drop-down list in the Project editor.

Overview of the Environment Option pane

The Environment pane looks like the following:

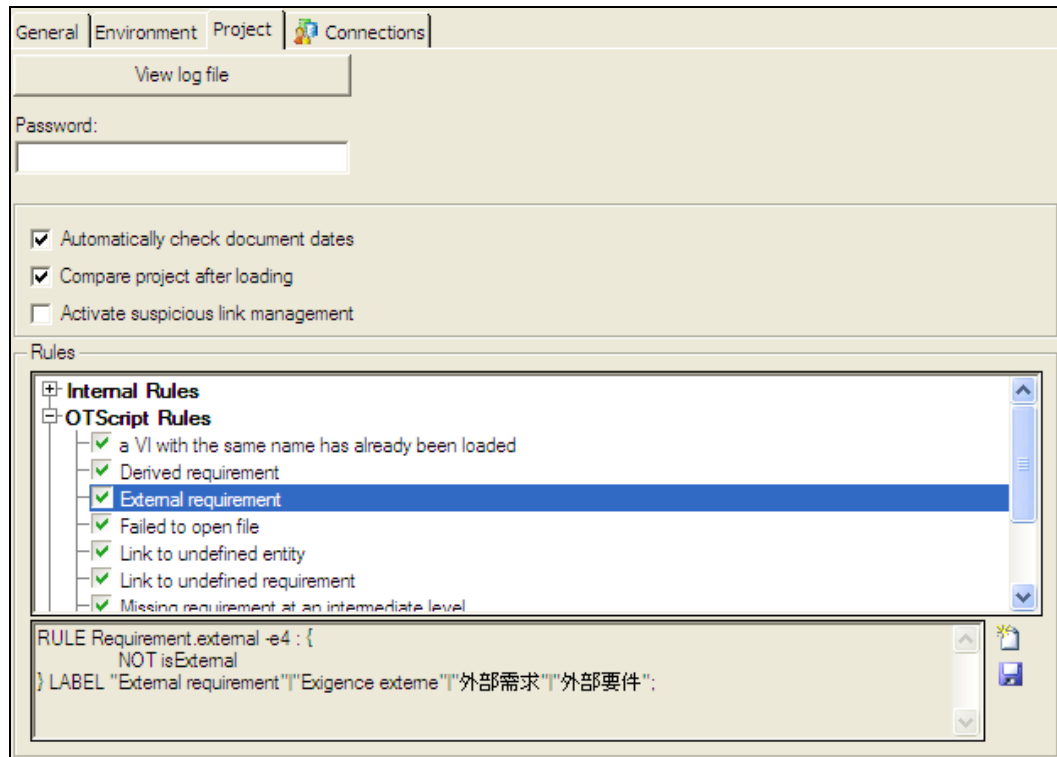


This window contains the following fields:

Field	Description
Environment variables	Environment variables can be necessary to give specific information concerning your tools and workbench environment. When they are necessary, these environment variables are described in the Coupling Note for the concerned tool.
Name	Name of selected environment variable
Value	Value of selected environment variable

Overview of the Project Option pane

The Project pane presents the following project options:



This window contains the following fields:

Field	Description
View log file	Opens the file containing the list of actions performed by Rhapsody Gateway. This file can help for your discussions with the Support Team.
Password	This field is used to define a password for access to the Configuration dialog box. See the chapter about restricted access to project configuration to learn more.
Automatically check document dates	This option indicates whether or not you want Rhapsody Gateway to check if the dates of project files have changed since the previous analysis. You can have Rhapsody Gateway performs the update automatically when you switch from an external application to the Rhapsody Gateway main window. In some cases and network configurations such an analysis it can take some time, therefore you will have the opportunity to deactivate it if you want.
Compare project after loading	Avoid comparing calculations between two loadings of a project. This is useful for big projects.

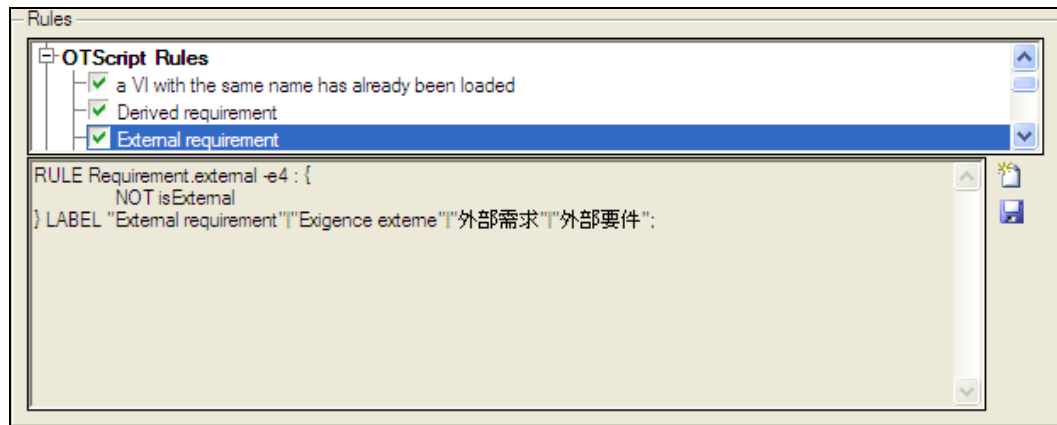
Field	Description
Activate suspicious link management	Activates or not the suspicious links management for the current project.

Handling Rules

The **Rules** part allows you to choose the rules to be analyzed in the analysis process.

The top of the Rules area lists Rhapsody Gateway rules and users rules by categories **Internal Rules**, **OTScript Rules** and **Project Rules**. **Project Rules** contains rules from files located in the project directory. All **Project Rules** are editable.

For each rule from the three categories, you can choose if you want a rule to be analyzed or not by checking this rule. If the selected rule is OTScript written, its content is displayed in the code area.



Corresponding analyzed rules appears following a color code in the **Rule check** in the project workspace of Rhapsody Gateway.

A contextual menu is available on rules:

Item	Description
Delete	Delete the selected user rule. This option is only available on user rules.
Select all	Select all rules of the rules area.
Deselect all	Deselect all rules of the rules area.

An editing area is used to visualize rules code and to enter user own rules. When a new rule is validated, it is added to the rules list.



New rule—This button allows a new rule creation. It gives access to the rule typing area. Users rules are written in OTScript. New rules are saved in the `rules.br` file of the project.



Save—This button validates and accepts the new rule. The rule has been added in italics in the rules list.

Creating a rule

To create a new rule, follows these steps:

1. Click the New rule button. An input area is accessible filled out with a rule template:

```
RULE <Object class>.<method name> : <alert degree> : {  
} LABEL "English label"|"French label";
```

Object class is the name of the class to insert the method within.

Method name is the name of the rule.

Alert degree corresponds to the alert level for a rule, it is described by a code, as follows:

Alert degree code	Type of rule	Displaying color of concerned elements
e1	error	red
e2	warning	orange
e3	information	green
e4	information	no color

LABEL corresponds to displaying names of the rule. Here, English and French labels are requested, but only one label can be defined. It is also possible to add Japanese and Chinese labels translations.

2. Complete this syntax to define your rule. Type for instance:

```
RULE Requirement.checkName -e1 : {  
    STRMATCH(ident, "REQ")  
} LABEL "Bad requirement name";
```

3. Click the Save button to validate your rule. The rule is added checked and in italics in the rules list.

This rule can be modified afterwards.

During the creation phase, errors can appear:

- ◆ If the rule in creation contains syntax errors a dialog message appears.
- ◆ If a rule has already the same label and function name an error is raised. If only one of these names is the same the rule will be only modified.

Overview of the Connections Option Pane

This option enables you to define connection parameters. Indeed, creating a profile enables you to configure the servers you often connect to.

For instance, the **Connections** pane looks like the following:

This window contains the following fields:

Field	Description
Profiles	A profiles area which lists created profiles according to tools to connect to.
Add new profile	This button allows you to access the form to define a new profile.
Delete selected profile	This option allows you to delete the selected profile.

Managing the Analysis Results

This section explains how to understand and manage the analysis results displayed in the project workspace of Rhapsody Gateway.

When Rhapsody Gateway analyzes your project information (documents, database modules, etc.) it provides you with:

- ◆ A list of elements violating default rules and customized rules in the **Rule check** section. The first action to perform once results analyses are available in the project workspace is to analyze the reported errors.
- ◆ Coverage ratios.
- ◆ Navigation in the traceability graph.
- ◆ Filter capabilities, for more targeted display and results, and for oriented reports generation.
- ◆ Features allowing you to create additional information within the Rhapsody Gateway environment, such as attributes, links, texts.
- ◆ Features allowing the transfer of items captured in a given tool into another interfaced tool. This is typically done to make requirements captured at a high level available in an authoring tool environment.
- ◆ Navigation features between Rhapsody Gateway and interfaced tools.

This section focuses on analysis of the information captured by Rhapsody Gateway. For detailed description of the views, menu items, toolbar and panes, see the sections concerning the Main window and the Configuration dialog box.

You can also refer to the *Getting Started* document for a first overview of Rhapsody Gateway's main capabilities.

You can read about these topics in:

- ◆ Rules Checking
- ◆ Using Views
- ◆ Displaying Requirement and Reference Types
- ◆ Displaying Reducing Filters
- ◆ Filter Usage and Advanced Analysis
- ◆ Understanding the Coverage Ratios


- ◆ Folders
- ◆ Macro-Requirements

Rules Checking





When Rhapsody Gateway analyzes the project artefacts, it checks the compliance of analysis results with rules defined in your configuration. The rules set is composed of the default rules installed with Rhapsody Gateway, and the customized rules that can be created by trained users, the Support Team or our experts. Customized rules allow a more advanced and a more dedicated support of your requirements management process.

The first step of your analysis process should be to review the rules activated in the **Rule Check** section of the **Selection** column in the project workspace.

An effective way to navigate between the Rule Check section and the project analysis results is:

- ◆ Expand the Rule Check tree and select an element violating the rule.
- ◆ Double click the element to navigate to the selected element in the project workspace, and analyze it. You can also navigate to the source document.
- ◆ Click the **Back**  button on the toolbar to go back to the previous display, with the element selected in the Rule Check section.
- ◆ Select the following element to analyze it.

In addition to the Rule Check section, some icons are displayed on the right side of the **Selection** column for specific information.

Icon	Description
	Derived requirement
	Uncovered requirement
	Undefined requirement
	Non-covering entity

If you hover over one of these icons, additional information is displayed.

The icons are brought up to the document level, giving you the information even if the document tree is collapsed.

Click on the icon to quickly navigate to the first element concerned by the warning message.

Using Views

Using the Management View

See the section describing the Management View to learn more about details and context menus.

The Management View contains project information, the only possible change in this view is the refresh of the coverage ratio displaying for each document.

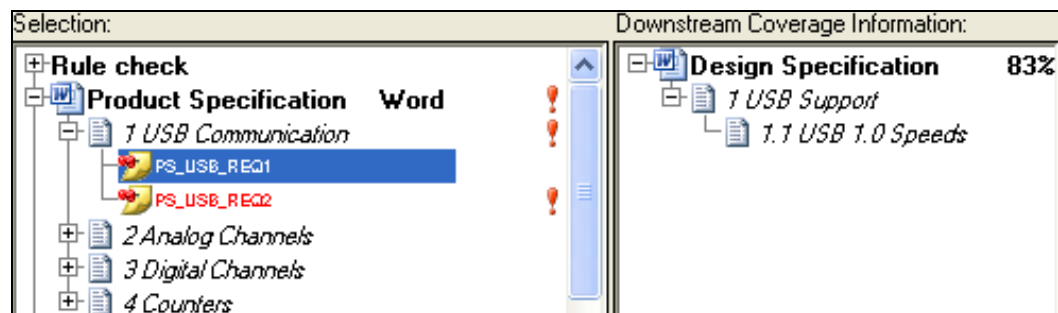
Using the Coverage Analysis View

See the section describing the Coverage Analysis View to learn more about details and context menus.

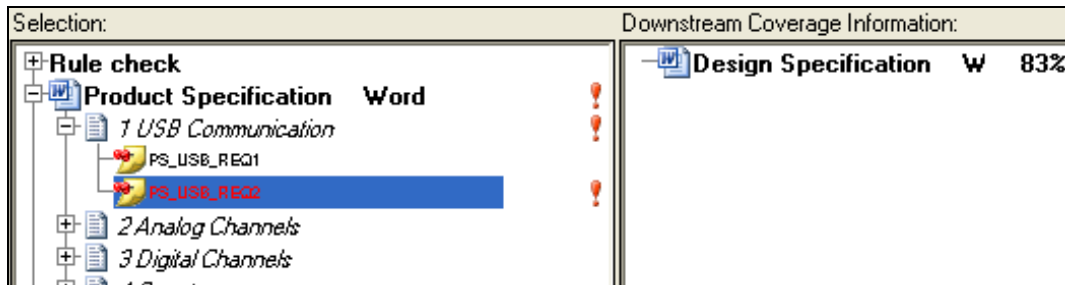
This section describes the behavior of **Upstream Coverage Information** and **Downstream Coverage Information** according to the done actions on the **Section** tab.

When you click an element in the **Selection** column, the **Downstream Coverage Information** column automatically displays the elements covering the one you selected, and the coverage ratio between documents.

The following figure shows the coverage of the PS_USB_REQ1 requirement. The **Downstream Coverage Information** column displays the “1.1 USB 1.0 Speeds” section as a covering element because this section of the document contains a reference to the requirement. You can also see that the Product Specification document is covered at 83% by the Design Specification document.

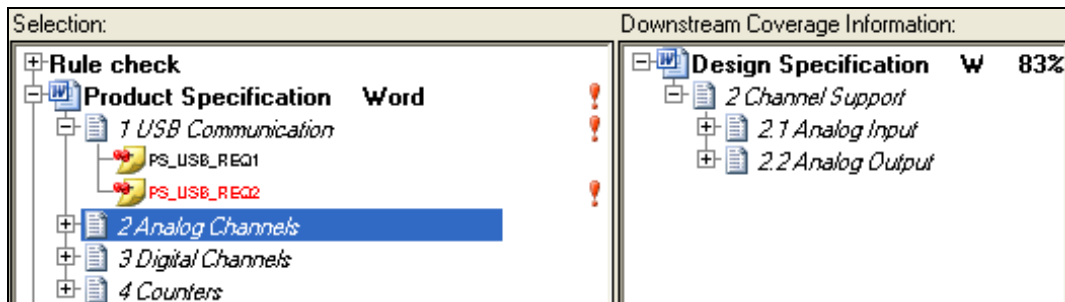


In the following figure, the **Downstream Coverage Information** column does not display any covering elements because the covering document does not contain a reference to the requirement.



An added rule violation and the exclamation icon at the right side of the PS_USB_REQ2 highlight the requirement as an “Uncovered Requirement”.

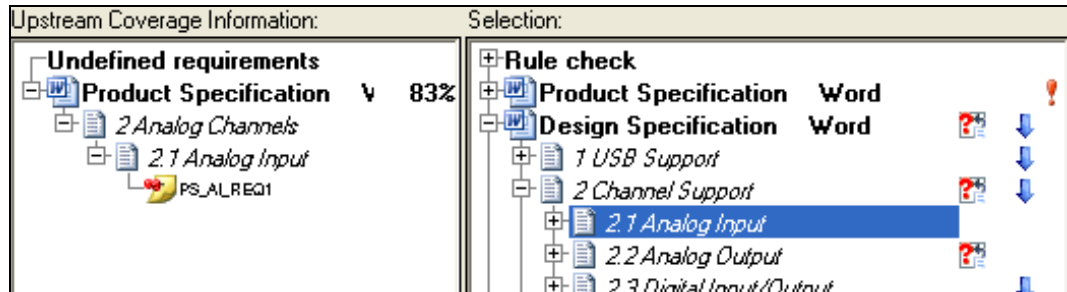
The following figure shows the selection of a parent element. The child elements of the “Analog Channels” section contain two requirements: PS_AI_REQ1, and PS_AO_REQ1. The **Downstream Coverage Information** column displays both the “2.1 Analog Input” and the “2.2 Analog Output” sections as covering elements. In the covering document, the “2.1 Analog Input” section contains reference to the PS_AI_REQ1 requirement and the “2.2 Analog Output” section contains reference to the PS_AO_REQ1 requirement.



Double-click an element in the **Downstream Coverage Information** column. Rhapsody Gateway navigates to this element in the **Selection** column.

When you select an element in the **Selection** column, the **Upstream Coverage Information** column automatically displays the elements covered by your selection, and the coverage ratio between documents.

In the following figure, the **Upstream Coverage Information** column displays that 83% of the requirements in the “Product Specification” document are covered by the “Design Specification” document. It also displays that the PS_AI_REQ1 requirement is specifically covered by references from the “2.1 Analog Input” section in the **Selection** column.



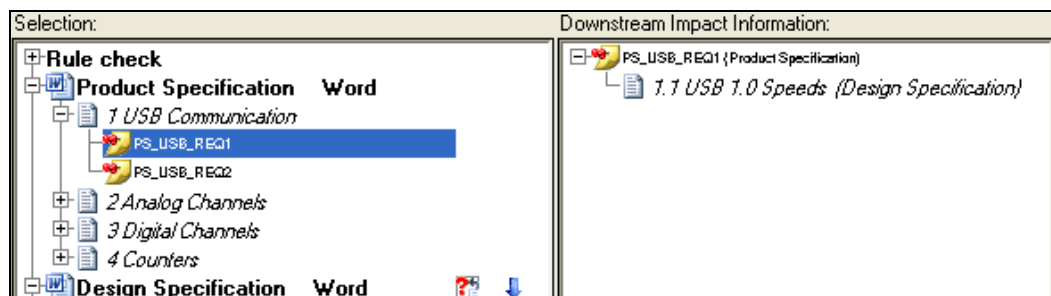
To summarize, the **Coverage Analysis View** allows you to select elements from a project document and displays requirement coverage one level upstream and one level downstream from the selected document. For analysis of requirements coverage for several levels both upstream and downstream, use the **Impact Analysis View**.

Using the Impact Analysis View

The Impact Analysis View displays traceability information from all downstream and upstream documents instead of just displaying the immediate downstream and upstream document.

All the features related to the navigation, selection, coverage ratio calculation, etc. are the same as the ones available in the Coverage analysis view.

The following figure shows the Downstream Impact Information for the PS_USB_REQ1 requirement. The **Downstream Impact Information** column displays the covering “1.1 USB 1.0 Speeds” section from the “Design Specification” document.

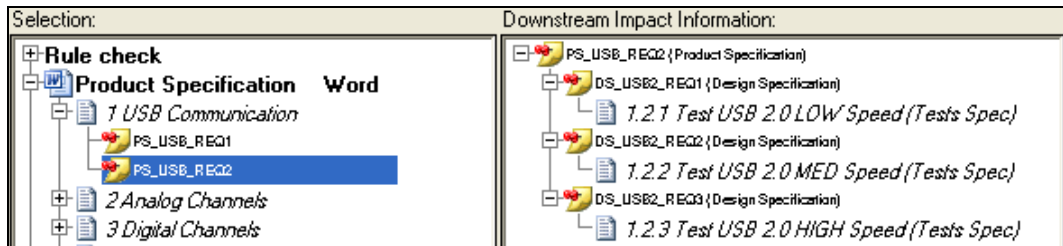


Note

Document names are displayed between brackets in the Downstream and Upstream information columns only if you activated the option “Display document name in impact mode” in the Options dialog box.

As the covering of the “1.1 USB 1.0 Speeds” section from the “Design Specification” is not a requirement, it cannot be covered downstream. Therefore the displayed information is equivalent to the one displayed in the Coverage analysis view.

The following figure shows the Downstream Impact Information for the PS_USB_REQ2 requirement. The **Downstream Impact Information** column displays the requirements from the covering “Design Specification” document, but it also displays the sections from the “Test Specification” document that covers these requirements.



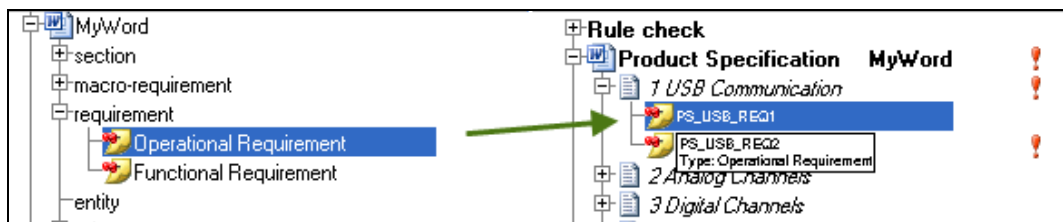
This is the main difference with the Coverage Analysis View, because in this case the Coverage Analysis View displays only the coverage of the PS_USB_REQ2 requirement by the requirements contained in the “Design Specification” document, at the immediate downstream level, but not the lower level information contained in the “Test Specification” document.

Displaying Requirement and Reference Types

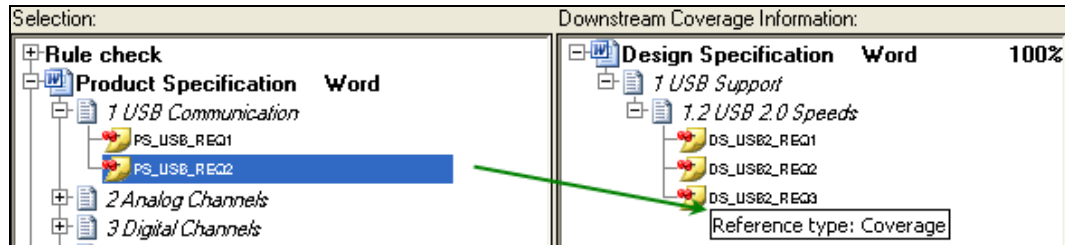
Your types of analysis can be defined to support several kinds of requirements, attributes, sections, references, etc.

Information concerning the requirement or the reference is displayed in the Management, Coverage analysis and Impact analysis views when you hover over an element.

The following figure shows that the name of the requirement defined in the Types editor, is displayed in the **Selection** column:



The following figure shows that the name of the reference (coverage link) defined in the Types editor, is displayed in the **Downstream Coverage Information** column (and in the **Upstream Information Column** as well) when you click an element in the **Selection** column and hover over covering elements. This feature is helpful to quickly see all the link types involved in coverage of a requirement.



Filters Usage and Advanced Analysis








Some reducing filters are provided by Rhapsody Gateway to get a more targeted display in the project workspace.




You can also build advanced filters by creating your conditions and creating targeted displays, analysis results and reports generation.


For example, if a system specification contains requirements allocated to hardware and software, the software development teams may want to filter the analysis result in order to have only the software requirements displayed.

Display Reducing Filters


The toolbar of Rhapsody Gateway contains several buttons used to show or hide specific elements.

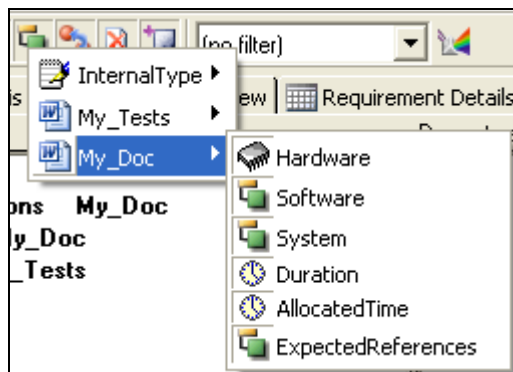
Button	Description
	Displays or hides requirements
	Displays or hides derived requirements
	Displays or hides undefined requirements
	Displays or hides uncovered requirements
	Displays or hides entities
	Displays or hides non-covering entities
	Displays or hides attributes

Button	Description
	Displays or hides links
	Displays or hides “empty” sections (sections not containing any traceability information)
	Displays or hides information added from Rhapsody Gateway

To display or hide ALL attributes, you can select **View / Attributes** or the **Attributes**  in the toolbar.

You can also apply a more selective display reduction, as shown in the following figure. In order to do so, follow these steps:


1. Right click the attribute button  in the toolbar.
2. A contextual menu appears, containing the list of the types used in the project, with the attributes defined for each type. Select the attributes you want to display or hide.

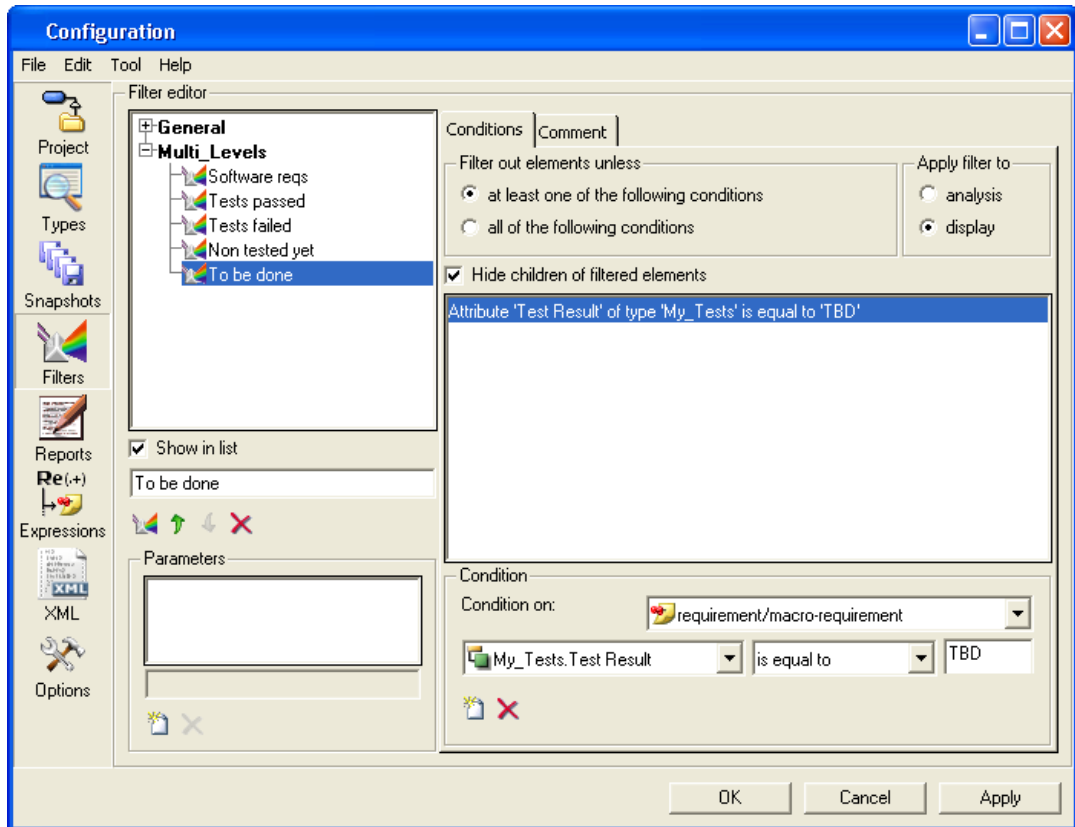


Note

In the **Requirement Details** view, display reduction filters can be used to hide or show the attribute columns.





Defining Filters

Filters are defined using the **Filters Editor**. This editor allows to filter requirements or links. To open the **Filter Editor**, select **File > Edit Filters** or click the Filters button  in the toolbar.

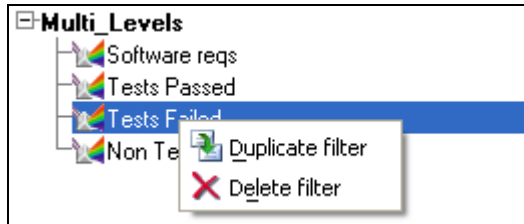


Filters list area

The top left hand side of the dialog box contains a list of filters and options to manage the filters list:

Button	Function
	Creates a new filter.
	Moves the selected filter up in the list.
	Moves the selected filter down in the list.
	Deletes the selected filter.

The corresponding contextual menu offers two options:



The **Show in list** option is used to indicate whether or not you want the filter to be displayed in the filters list of the main window. As filters themselves can be used as conditions for defining advanced filters, you may not want to have these intermediate filters displayed in the list. In this case, deactivate the **Show in list** option.

Filters are listed as trees in the filter list area. If several filters files define filters they are all shown and used in the filter list area. See *Filter Definition File* section.

Some filters can be placed in library to be used for each Rhapsody Gateway project. Refer to *Sharing filters files* section to learn more about this point.

A filter which contains errors is displayed in red in the filter list area and in the filters list of the main window.

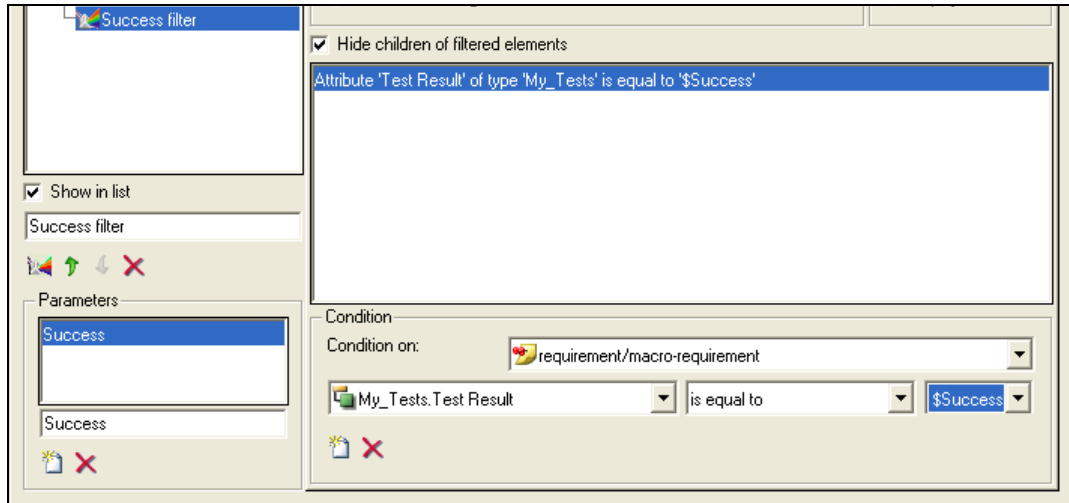
Parameters definition area

The bottom left area of the dialog box contains an area to define parameters and options to manage the parameters:

Button	Function
	Creates a new named parameter.
	Deletes the selected parameter.

If a filter is based on an attribute value, this value can be dynamically input when applying the filter. If the attribute is an enumeration, possible values are suggested, otherwise type `$<parameterName>` in the value field of the condition declaration.

See below a filter example using a parameter:

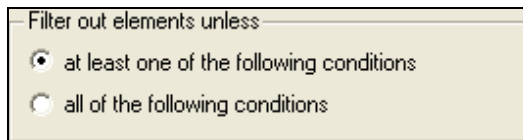


Filters definition area

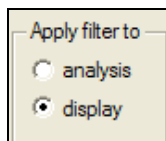
The **Conditions** pane contains several areas:

The **Filter out elements unless** area is used to combine the conditions in two ways:

- ◆ **at least one of the following conditions**—in a logical OR
- ◆ **all of the following conditions**—a logical AND





The **Apply filter to** is used to indicate if the filter is a **display filter** or an **analysis filter**. See *Impacts of Filters Definition* section to obtain description of these concepts.




The **Hide children of filtered elements** option is used to indicate whether or not you want the children of the filtered elements to be displayed. If you do not want to have the children of the filtered elements displayed, activate this option.

The **Condition** area contains options to create a condition:

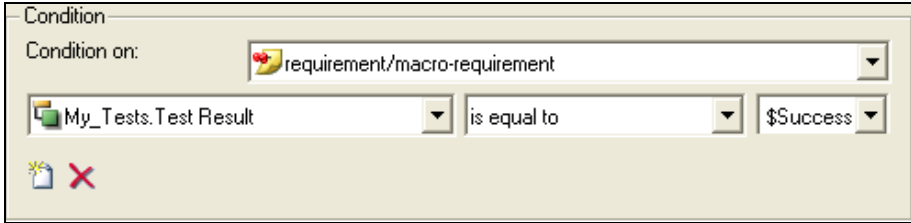
Button	Function
	Creates a new condition, which is added to conditions in the multi-lines conditions area.
	Deletes the selected condition.
Condition on	Lists the kind of elements concerned by the condition: requirement/macro-requirement , entity or reference . Types associated elements are listed in drop-down lists in order to compose the condition. See below a filter creation.

Creating a Filter


A filter is based on **conditions**. To create a filter, you can create one or several conditions. Follow these steps to create a condition:

1. Click  in the **Condition** area to add a new condition. Name your filter.
2. Choose in the **Condition on** field, if the condition will be applied to **requirement/macro-requirement**, **entity** or **reference**.
3. Use the drop-down list box to build the condition:
 - The first drop-down list box is filled automatically by Rhapsody Gateway according the definition of your type, and displays all the elements you can use to filter. Select one of them.
 - The second drop-down list box contains conditions (is present / is absent / is equal to /etc.)
 - Depending on the condition, Rhapsody Gateway displays an additional field to enter the value.

For instance, if the condition is “is equal to”, enter the target value in this additional field. A possible value is the parameter value, so as to fill out this field with `$<parameterName>`.



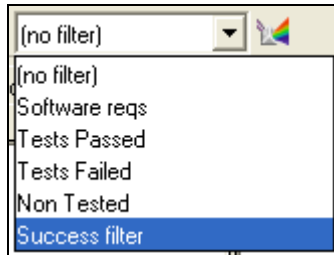
If the element selected in the first drop-down list is an enumerated attribute, all values are suggested.

4. Click  to create additional conditions.

5. Check the pane Filter out elements unless.
6. Check the pane **Apply filter to**.

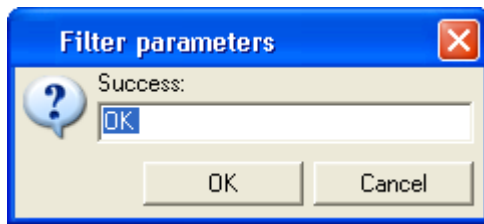
Applying Filters to Project Analysis Results

Once defined, the filters are selected from the drop-down list box in the toolbar:



The filters remove the requirements that fit with the conditions defined for the apply filter.

To use a filter which contains a parameter, choose the filter to apply to the project. A dialog box opens to enter the parameter value:



Requirements which correspond to this attribute value are the only displayed.

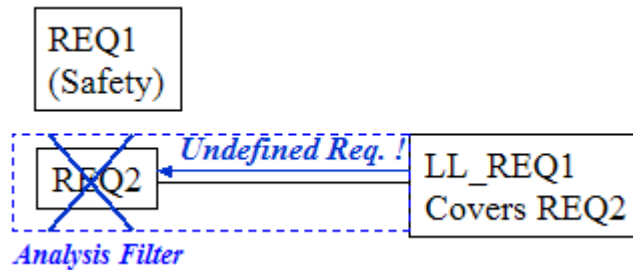
Impacts of Filters Definition

The **display filter** is the most intuitive one. The filtered elements are removed from the display in the project workspace.

An **analysis filter** has a stronger action. The filtered elements are more often used by Rhapsody Gateway for the coverage analysis.

The following figure shows an example: LL_REQ1 covers REQ2. For instance, we can consider a “Safety” filter defined to consider only the requirements with a “Safety” attribute.

- ◆ If “Safety” is a **display filter**, REQ2 is simply hidden.
- ◆ If “Safety” is an **analysis filter**, REQ2 is completely ignored. This means LL_REQ1 references a requirement considered as no longer existing, which raises the warning “Undefined requirement”.



Note

Because of this strong action, some features may be deactivated when an analysis filter is applied. To get access to these features, deactivate the filter (or make it a display filter).

Applying a filter impacts the coverage ratios. See the section about *Understanding the Coverage Ratios* below to learn more.

Applying a filter can impact the Export actions of analysis results to a third party tool. See the *Coupling Notes* for more information.

Applying a filter impacts the Reports generation. Only the non-filtered results will be included in the reports. A dialog box informs you that a filter is applied, you can then confirm that you want a filter-oriented reports generation, or interrupt the generation process to remove the filter.

Understanding the Coverage Ratios

The following sections describe the coverage ratio formula.

General Case

The coverage ratios presented in the Coverage Analysis view are calculated as follows:

$$\frac{\text{Number of requirements for the covered document referenced in covering document}}{\text{Number of requirements in the covered document}}$$

Coverage Ratio for Combined Coverage

When a document is covered by the combination of several downstream documents, Rhapsody Gateway gives you:

- ◆ The coverage ratio between the upstream document and each downstream document, as described in the previous chapter.

- ◆ The coverage ratio corresponding to the combined coverage, calculated as follows:

$$\frac{\text{Number of requirements referenced in at least one covering document}}{\text{Number of requirements in the covered document}}$$

In other words, the combined coverage ratio is

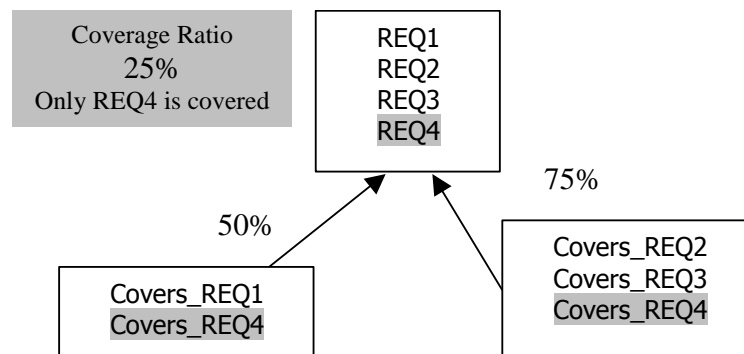
$$1 - \frac{\text{Number of requirements not referenced in any of the covering document}}{\text{Number of requirements in the covered document}}$$

Coverage Ratio in the Management View

When a document is covered by several documents with independent coverage links, the Coverage Analysis and Impact Analysis views display a coverage ratio calculated as described in the General case section.

For this project configuration, a requirement is considered to be covered if it is referenced in ALL the downstream documents.

The coverage ratio displayed in the Management view provides you with the information concerning these covered requirements compared to the total number of requirements.

$$\frac{\text{Number of requirements referenced in ALL the covering documents}}{\text{Total number of requirements in the covered document}}$$


Note

A reflexive coverage link (document covering itself) is not considered in this coverage ratio. Adding a reflexive link on the upstream document does not change the coverage ratio.

Impact of Filters on Coverage Ratios

Defining filters impacts Coverage ratios.

Filters are applied to a given type of analysis. If your filter condition is based on an attribute defined in the type **My_Type**, only the requirements contained in documents of that type are filtered.

Ratios are updated according to the filter selection.

When a filter is applied, the coverage ratio displayed is calculated as follows:

$$\frac{\text{Number of requirements referenced in the covering document, filtered}}{\text{Total number of requirements in the covered document, filtered}}$$

As an example, if you consider:

- ◆ a **Specifications** document with 10 requirements: 6 with Priority = High and 4 with Priority = Low
- ◆ a test report with 10 tests: 8 will result with "Passed" and 2 will result with "Failed"
- ◆ the table below summarizes the traceability information:

Specifications	Tests	Comments
REQ_1 (High Priority)	Test_1 (Passed)	Specifications are covered by tests at 90% 9 requirements tested / 10 specification requirements
REQ_2 (Low Priority)	Test_2 (Failed)	
REQ_3 (High Priority)	Test_3 (Passed)	
REQ_4 (Low Priority)	Test_4 (Failed)	
REQ_5 (High Priority)	Test_5 (Passed)	
REQ_6 (Low Priority)	Test_6 (Passed)	
REQ_7 (High Priority)	Test_7 (Passed)	
REQ_8 (Low Priority)		
REQ_9 (High Priority)	Test_9 (Passed)	
REQ_10 (High Priority)	Test_10 (Passed)	

A filter based on the condition “Priority = High” will reduce the traceability graph:

Specifications (Filtered)	Tests	Comments
REQ_1 (High Priority)	Test_1 (Passed)	Specifications with High priority are covered by tests at 100 % 6 requirements tested / 6 specification requirements when the filter is applied
REQ_3 (High Priority)	Test_3 (Passed)	
REQ_5 (High Priority)	Test_5 (Passed)	
REQ_7 (High Priority)	Test_7 (Passed)	
REQ_9 (High Priority)	Test_9 (Passed)	
REQ_10 (High Priority)	Test_10 (Passed)	

A filter based on the condition “TestResult = Passed” will reduce the traceability graph:

Specifications	Tests (Filtered)	Comments
REQ_1 (High Priority)	Test_1 (Passed)	Specifications are covered by tests “passed” at 70% 7 requirements tested with a result in “Passed” / 10 specification requirements
REQ_2 (Low Priority)		
REQ_3 (High Priority)	Test_3 (Passed)	
REQ_4 (Low Priority)		
REQ_5 (High Priority)	Test_5 (Passed)	
REQ_6 (Low Priority)	Test_6 (Passed)	
REQ_7 (High Priority)	Test_7 (Passed)	
REQ_8 (Low Priority)		
REQ_9 (High Priority)	Test_9 (Passed)	
REQ_10 (High Priority)	Test_10 (Passed)	

Using Folders

Folders can be used to group some documents considered at a given step in your process and/or to have a cleaner project configuration displayed for a large project.

Note

Only one hierarchical level is allowed. You cannot create a folder inside a folder.

When a project is defined with coverage links between a folder at a given level and a folder at a lower level, the coverage ratio between folders is:

$$\frac{\text{Sum of references of high level requirements in the low level folder}}{\text{Sum of requirements in documents of the high level folder}}$$

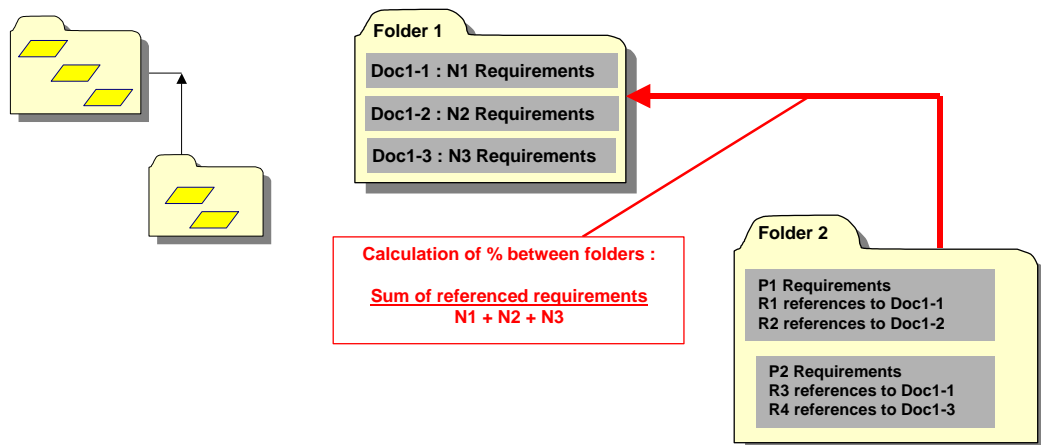
This calculation is applied whether coverage links are folder-folder, folder-lower level document(s), or documents-lower level folders types.

This coverage ratio is displayed opposite a folder in the Project Workspace.

Other coverage ratio calculations depend on the configuration graph.

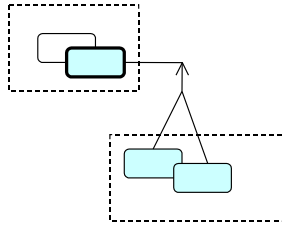
Coverage Link between a Low Level Folder and a High Level Folder

In this case configuration looks like:



For links between a high level folder and a lower level folder, each document in the high level folder behaves like if it has combined coverage links with the documents in the lower level folder. When a high level document, or an element (section, requirements, etc.) of the high level document is selected:

- ◆ Rhapsody Gateway displays the folder and the coverage ratio between folders.
- ◆ Rhapsody Gateway displays the combined coverage ratio between the selected high level document and the combination of all the documents in the lower level folder.
- ◆ Rhapsody Gateway displays the coverage information between elements in the high level document and the document at the lower level in the standard way.

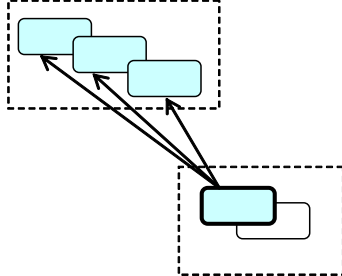


When a high level document or an element (section, requirement, etc.) of the high level document is selected, the lower level display behaves as if you have the configuration shown at the right.

In addition, you can expand / collapse the folder and Rhapsody Gateway displays the coverage ratio between folders.

In the case of a coverage link between the high level folder and the lower level folder, each lower level document is considered to cover all the documents in the high level folder. When a high level document, or an element (section, requirement, etc.) of the high level document is selected:

- ◆ Rhapsody Gateway displays the folder and the coverage ratio between folders.
- ◆ Rhapsody Gateway displays, in the standard format, the coverage ratio between elements of the low level document and the high level documents.

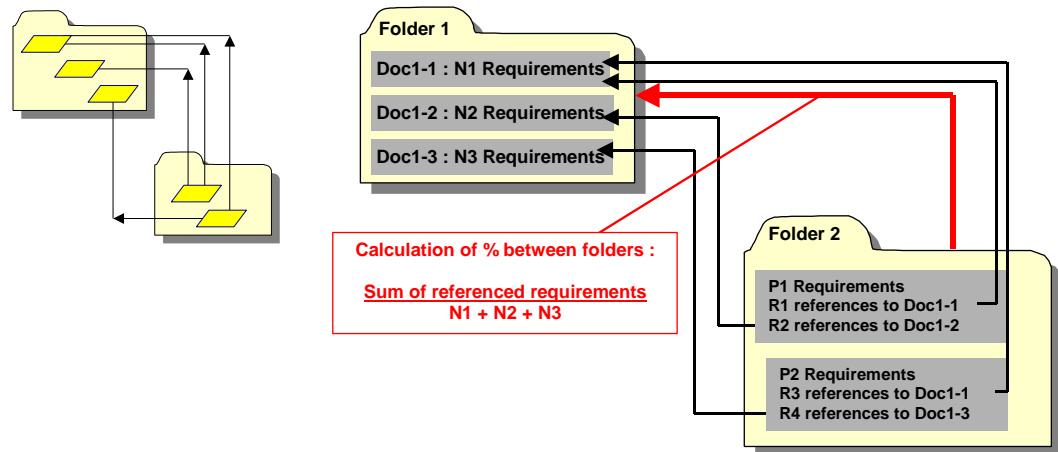


When a lower level document, or an element (section, requirement, etc.) of the lower level document is selected, the high level display behaves like the configuration shown at the right.

In addition, you can expand / collapse the folder and Rhapsody Gateway displays the coverage ratio between folders.

Coverage Links between Documents in a Folder

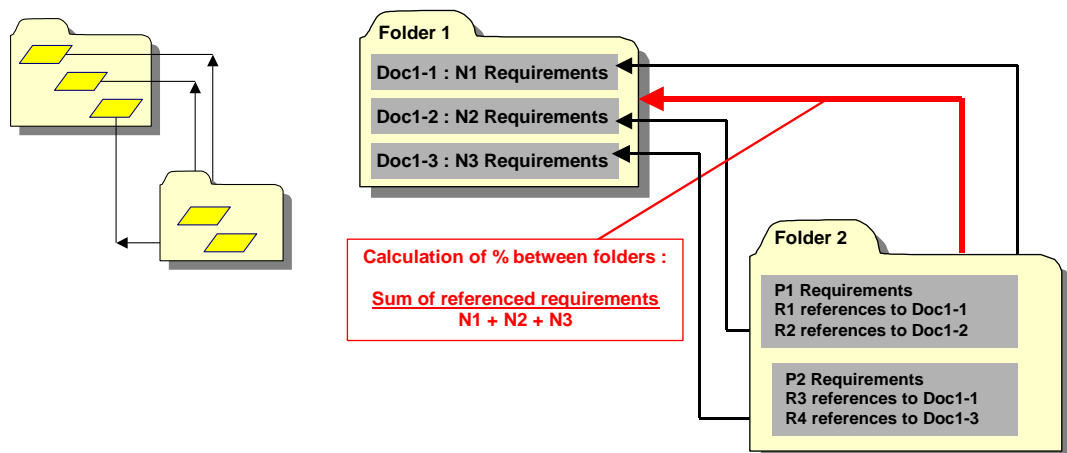
Direct links between documents contained in a folder can be created using folder ports (see the section concerning project configuration to learn more). In this case configuration looks like:



In the case of direct links between documents folders, coverage information is displayed in the same way as when the documents are not in a folder.

Coverage Links between a Lower Level Folder and a High Level Document

Direct links between a folder can be created using folder ports (see the section concerning project configuration to learn more). In this case configuration looks like:



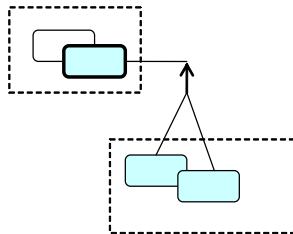
In the case of coverage links between a high level document and a lower level folder, the high level document behaves like if it has combined coverage links with the documents in

the lower level folder. When a high level document, or an element (section, requirement, etc.) of the high level document is selected:

- ◆ Rhapsody Gateway displays the folder and the coverage ratio between folders.
- ◆ Rhapsody Gateway displays the combined coverage ratio between the high level document selected and the combination of all documents in the lower level folder.
- ◆ Rhapsody Gateway displays the coverage ratio between elements of the high level document and the lower level document in the standard way.

In the case of coverage links between a high level document and a lower level folder, when a lower level document, or an element (section, requirement, etc.) of the lower level document is selected:

- ◆ Rhapsody Gateway displays the folder and the coverage ratio between folders.
- ◆ Rhapsody Gateway displays the coverage ratio between elements of the lower level document and the high level document in the standard way.

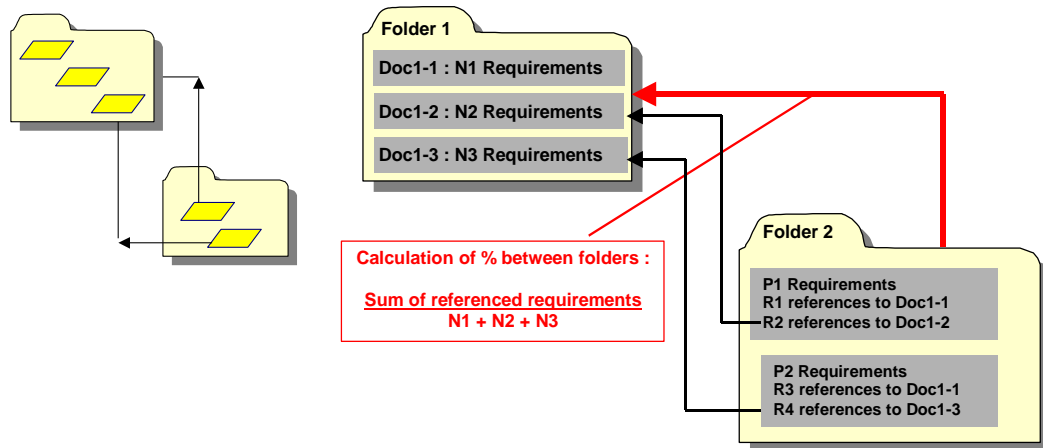


The information displayed is equivalent to the information displayed in the configuration shown at right.

In addition, you can expand / collapse the folder and Rhapsody Gateway displays the coverage ratio between folders.

Coverage Links between Lower Level Documents and a High Level Folder

Direct links between documents contained in a folder can be created using folder ports (see the section concerning project configuration to learn more). In this case configuration looks like:

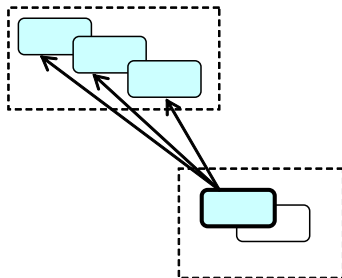


In the case of coverage links between a low level document and a high level folder, the low level document is considered as covering all the documents contained in the high level folder. When a high level document, or an element (section, requirement, etc.) of the high level document is selected:

- ◆ Rhapsody Gateway displays the folder and the coverage ratio between folders.
- ◆ Rhapsody Gateway displays the coverage information between elements of the lower level document and the high level documents in the standard way.

In the case of coverage links between a low level document and a high level folder, when a low level document, or an element (section, requirement, etc.) of the low level document is selected:

- ◆ Rhapsody Gateway displays the folder and the coverage ratio between folders.
- ◆ Rhapsody Gateway displays the coverage information between elements of the lower level document and the high level documents in the standard way.



The information displayed is equivalent to the information displayed in the configuration at the right.

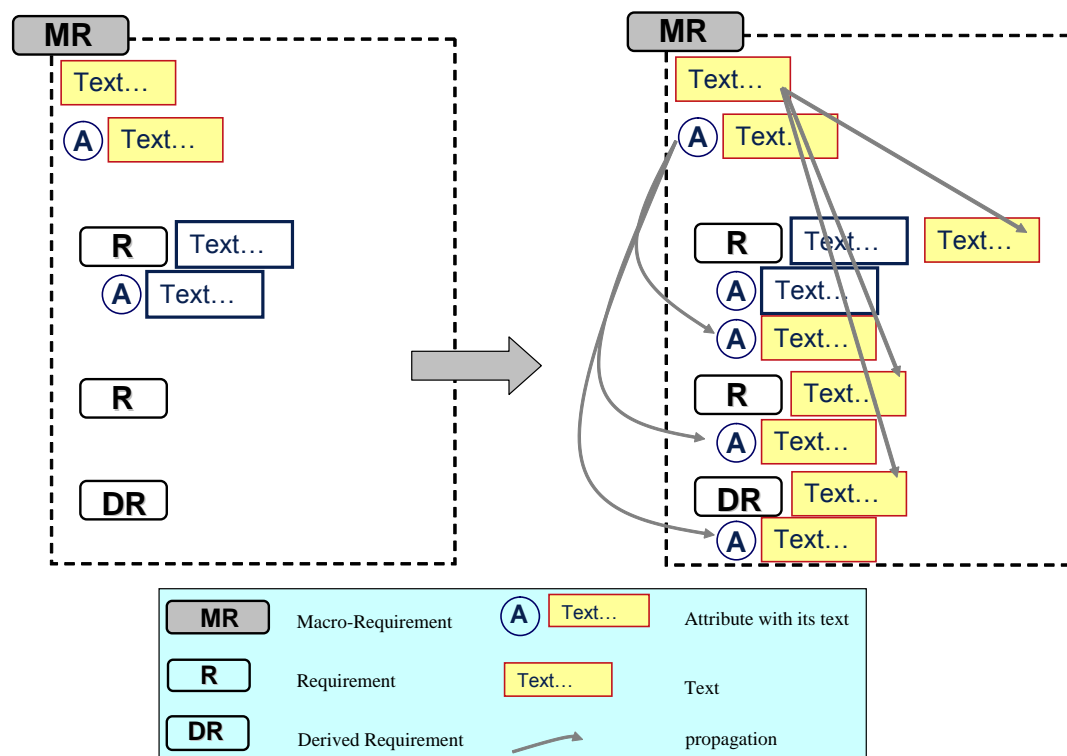
In addition, you can expand / collapse the folder and Rhapsody Gateway displays the coverage ratio between folders.

Using Macro-requirement

A macro-requirement supports the concept of hierarchy between requirements. A macro-requirement contains requirements and passes on its properties to them. A macro-requirement goes along with section break.

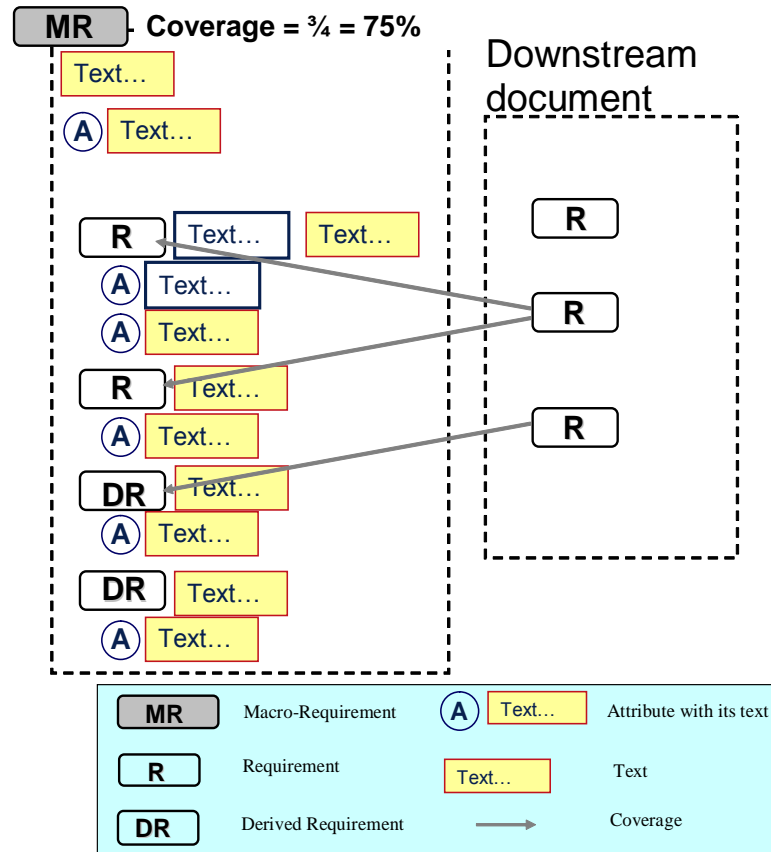
Propagation of Elements Attached to the Macro-requirement

Elements attached to a macro-requirement (attribute, text, or link other than a coverage link) are also attached to requirements and derived requirements contained in the macro-requirement.



Coverage of Requirements Contained in a Macro-requirement

If requirements contained in a macro-requirement are referenced individually, the macro-requirement is considered as covered. The coverage ratio is equal to the number of referenced requirements contained in the macro requirements over the number of requirements contained in the macro requirement.

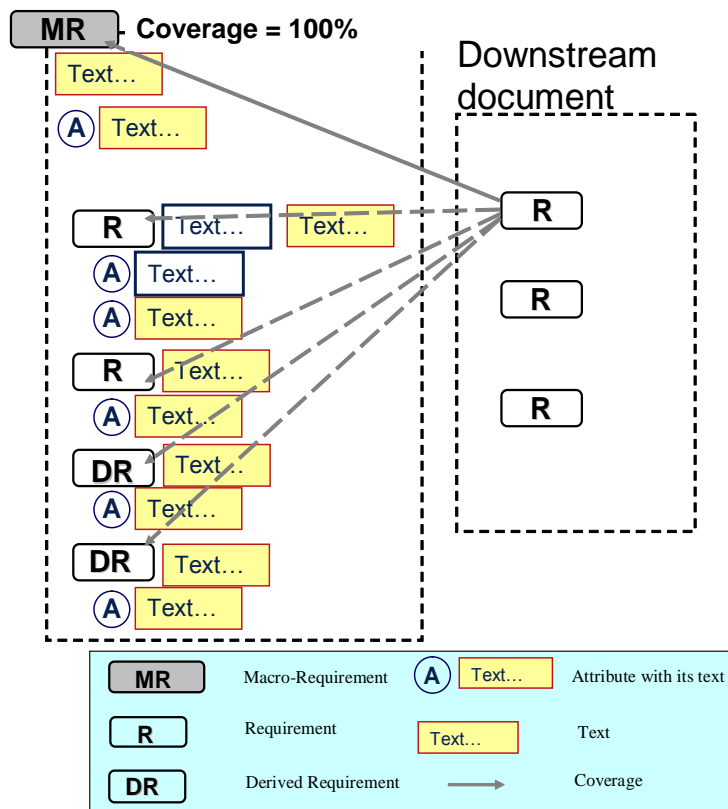


If the macro-requirement is referenced directly by a low level element, it is considered to be 100% covered, and all requirements and derived requirements are considered to be covered by the covering element.

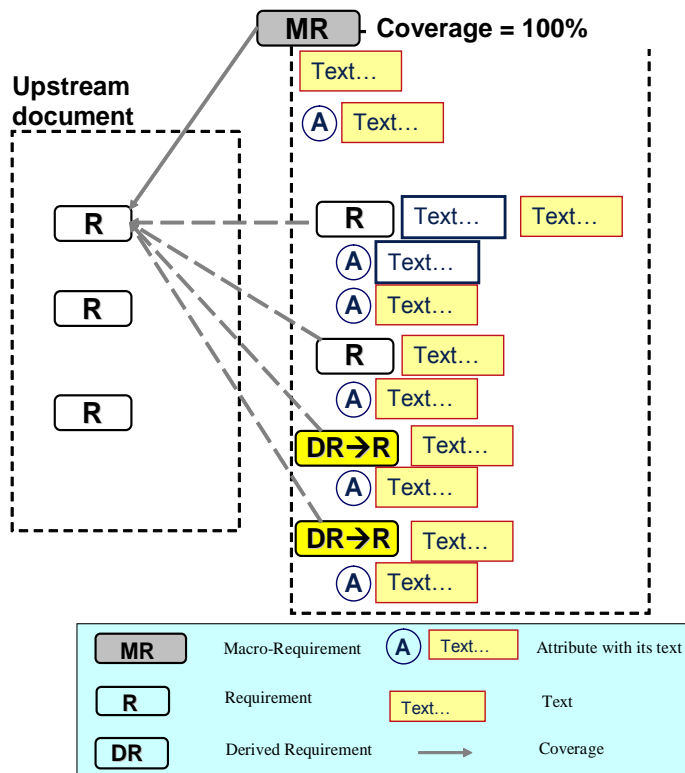
The macro-requirement is considered uncovered if it is not 100% covered.

If the macro-requirement references a higher level requirement, all the requirements contained in the macro-requirements are also considered as covering the higher level requirement.

A macro-requirement existing in an intermediate document without referencing any high level requirement remains a macro-requirement.



If a macro-requirement references a higher level requirement, all the requirements contained in the macro-requirement are considered as covering the higher level requirement as well.



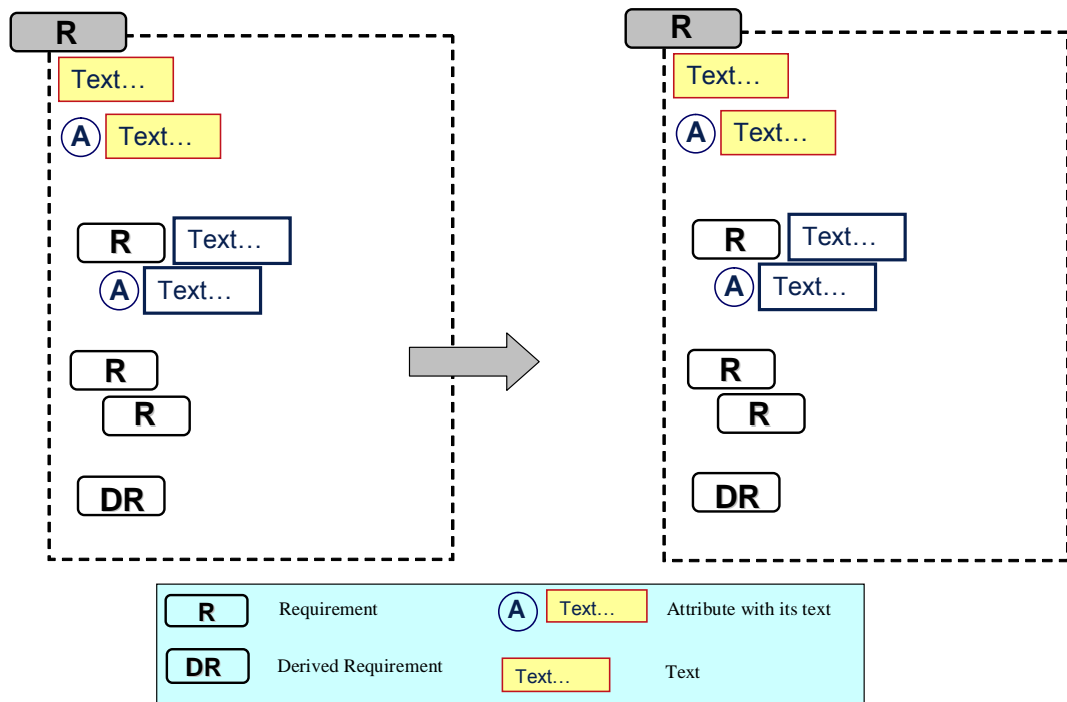
Note

The macro-requirements support a real concept of hierarchy, as explained in this section. It is also possible to display the requirements with an indentation, or in other words, without a concept of hierarchy but with an indented tree. This is possible thanks to an advanced customization of the requirement element in the type.

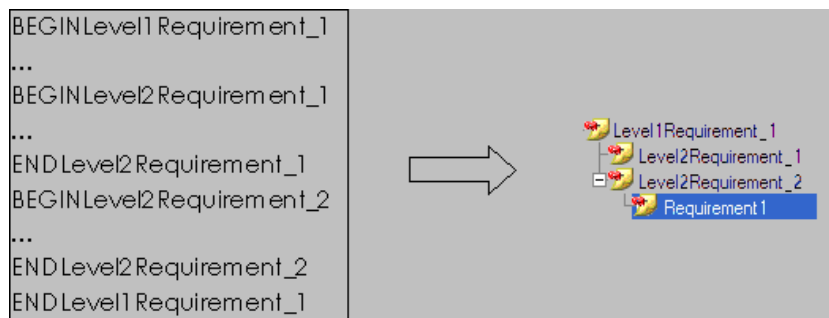
Using Requirements Hierarchy

A requirements hierarchy is corresponding to nested requirements. This is authoring-tool oriented. It is able to perform this function because of the hierarchical definitions of requirements by regular expressions in a redefined type.

Unlike the macro-hierarchy concept, the requirements hierarchy simply manages a nested display of requirements which must follow each other. No rules are propagated to the contained requirements and a requirements hierarchy does not pass on its properties to its contained requirements. Moreover it does not go along with section break or section changes.



The requirements hierarchy allows you to capture information for requirements organized like the following:



Creating Information

During the project life cycle, you will have to establish your requirement traceability either in the project files or by adding information from Rhapsody Gateway, or possibly both.

In addition to the traceability information inserted in the source documents, models, code files, etc. you can use Rhapsody Gateway to create:

- ◆ References (coverage links)
- ◆ Links (non-coverage links)
- ◆ Attributes
- ◆ Reference attributes
- ◆ Texts

This section gives you information about the helpful features you can use to quickly create your traceability information and about how you can create additional traceability information using Rhapsody Gateway.

You can read about these topics in:

- ◆ Adding Traceability Information in your Project Documents
- ◆ Adding Information from Rhapsody Gateway—Basic Capabilities
- ◆ Adding information from Rhapsody Gateway—Advanced Capabilities
- ◆ Using Marks

Adding Traceability Information in your Project Documents

When you create a project, Rhapsody Gateway knows the documents to be analyzed and the applied analysis types. Thus Rhapsody Gateway knows when a given document is covered by other documents, and knows the definitions of the expected "References" (thanks to the type of analysis applied to the covering documents).

For some of the interfaced tools, you can use Rhapsody Gateway to make requirements available directly in the third party tool environment. Afterwards you will use the linkage capabilities provided by this tool to create the traceability information.

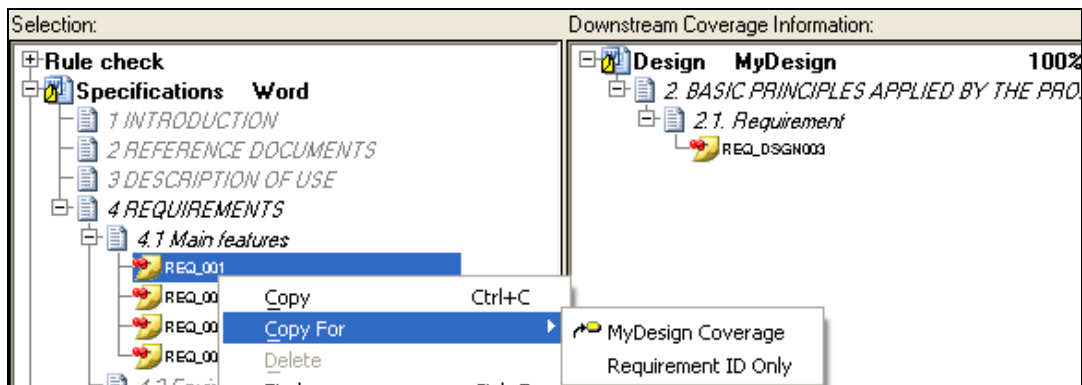
However for text-oriented documents such as Word files, FrameMaker files and code files, you need to add coverage information as text strings. You can effectively use Rhapsody Gateway project workspace to create coverage links in a source file or a text file. These actions are explained in this section.

Features for Inserting Coverage Information in Project Files

In the project, right click a high level requirement in the **Selection** column. As shown in the following figure, the context menu contains a **Copy** item and a **Copy For** submenu.

The **Copy** item allows you to copy the requirement name in order to paste it in the source or text files.

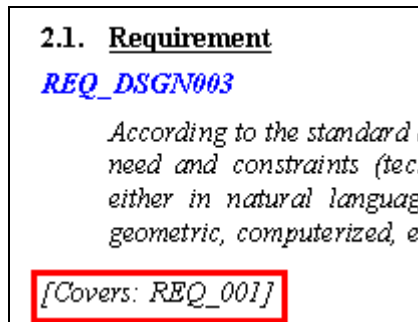
The **Copy For** submenu contains the reference types defined in the type of analysis for the document covering the requirement you selected in the **Selection** column.



To use this feature, carry out as follows:

1. Select a requirement to reference then select the Coverage Link type you want to create from the **Copy For** submenu.
2. Use **Navigate** to open the covering (downstream) document.
3. Paste the copied information in the covering document, either in the section or below the low-level requirement that is covering the selected requirement.
4. In the same time, Rhapsody Gateway inserts the requirement identifier, it also inserts a string compliant with the syntax you defined for the kind of coverage link.

The coverage information is inserted in the document as shown in the following figure:



See the *Customization Guide* to learn more about the customization of this feature.

Adding Information from Rhapsody Gateway—Basic Capabilities

You can add information from Rhapsody Gateway without modifying the source documents of the project:

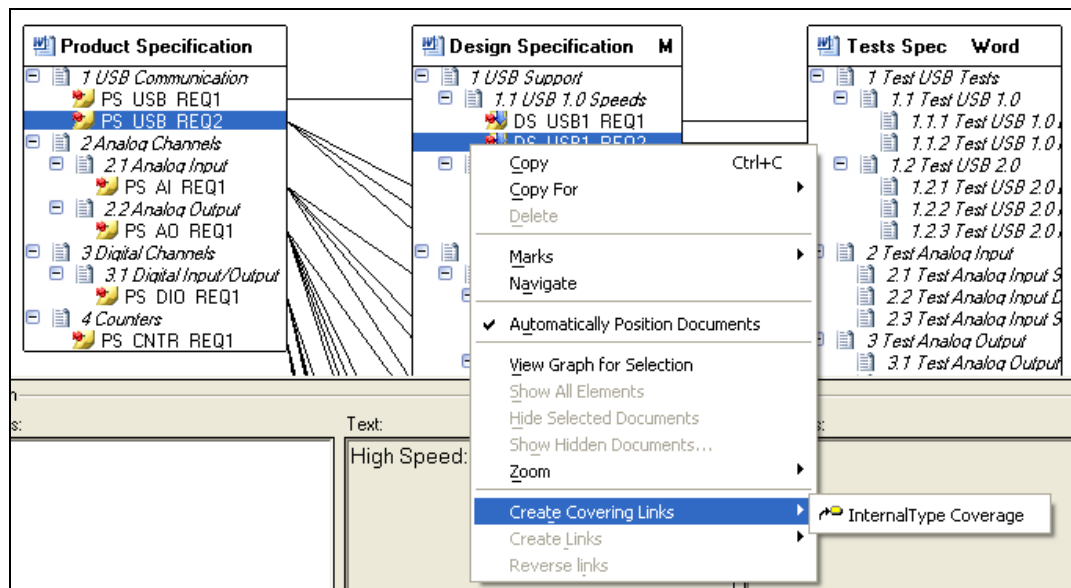
- ◆ Coverage links (references)
- ◆ Links (only if you defined **Types for Added Elements**—See the Advanced Capabilities section)
- ◆ Attributes
- ◆ Reference Attributes
- ◆ Text

Adding Covering Links

You can use the **Graphical View** to create coverage links. These coverage links are displayed in green in the **Graphical View** with a reference attribute **Internal Creation**

To create a covering link, follow these steps:

1. Make a multiple selection of the requirements you want to link. You can use the [Ctrl] key to create a multiple selection / de-selection.
2. Right click and select **Create Covering Links > InternalType Coverage** (the name “InternalType Coverage” may depend on your project configuration).



New links are displayed in green.

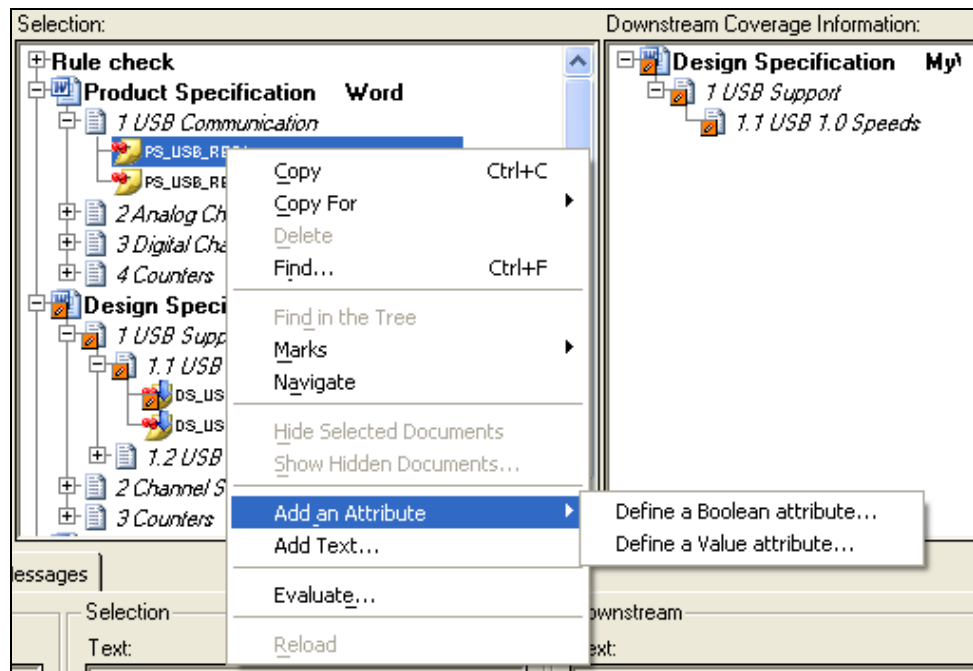
To delete a covering link first select it, then right click and select **Remove** in the context menu. You can delete the link only if it has been created from Rhapsody Gateway.

Adding Attributes

Use Rhapsody Gateway to add attributes to captured requirements.

To create an attribute, follow these steps:

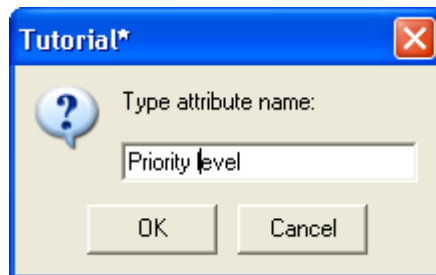
1. Select a requirement in the **Selection** column in the project workspace of the Management view, the Coverage Analysis view or the Impact Analysis view. In the Graphical view, select a requirement and use the **Attributes** pane in the lower half of the view.
2. Right click and select **Add an Attribute** in the context menu, then **Define a Boolean attribute** or **Define a Value attribute** in the context submenu, as shown in the following figure.



Note

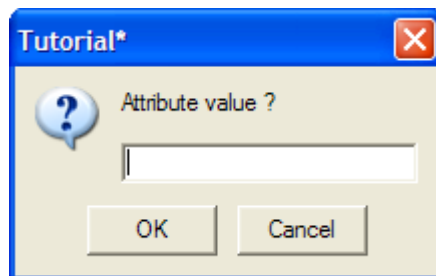
If you have already created attributes, they will be directly available in the context submenu underneath the **Define** items.

3. The dialog box shown in the following figure opens:



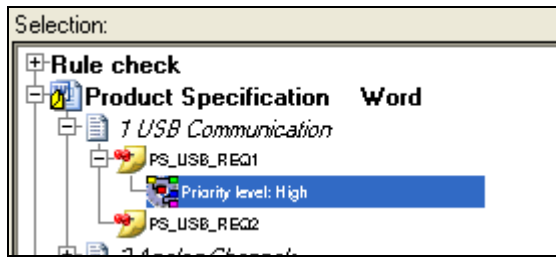
Enter the attribute name and click **OK** to validate.

4. If you selected **Define a Value attribute**, the additional dialog box shown in the following figure opens:



Enter the attribute value and click **OK** to validate.

The attribute is displayed underneath the requirement, as shown in the following figure, and in the **Attributes** panes when the requirement is selected.



Modification of the Added Attributes

Use the **Requirement Details** view to modify the created attributes. They are displayed in columns in the same way as attributes captured in the project documents, as shown in the following figure.

However, these columns can be edited, as follows:

Product Specification	Allocation	Priority	Priority level
PS_USB_REQ1			High
PS_USB_REQ2			High
PS_AL_REQ1			
PS_AO_REQ1			
PS_DIO_REQ1			
PS_CNTR_REQ1			

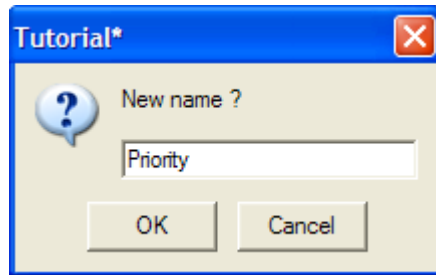
1. Double click in the table cell to edit the value of an attribute.
2. Select a cell containing an attribute value, right click and select **Copy** from the context menu.
3. Select cells in which you want to insert the value (you can use the [Ctrl] key to make multiple selections). Right click and select **Paste** in the context menu.

To rename the attribute, follow these steps:

1. Right click the header of the attribute column in the **Requirement Details** view. As shown in the following figure, then select **Rename** in the context menu.

Product Specification	Allocation	Priority	Priority level	Safety Critical
PS_USB_REQ1			High	
PS_USB_REQ2				✓
PS_DIO_REQ1				✓
PS_CNTR_REQ1				
PS_AO_REQ1				
PS_AL_REQ1				

2. The dialog box shown in the following figure opens. Rename the attribute and click **OK** to confirm.



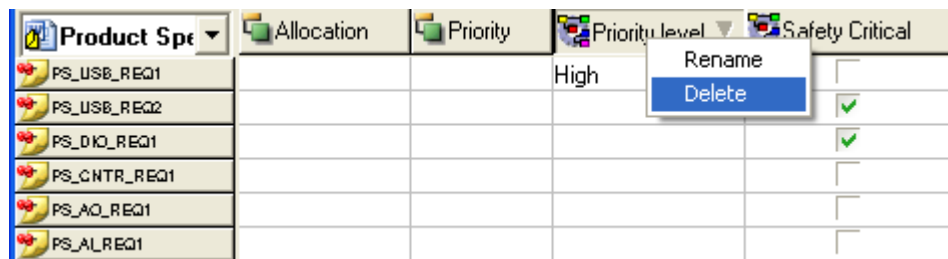
Deleting Added Attributes

To remove an attribute from a given requirement, follow these steps:

1. Select the attribute in the **Selection** column in the project workspace of the Coverage Analysis view or the Impact Analysis view. In the Graphical view, select a requirement and use the **Attributes** pane in the lower half of the view.
2. Right click and select **Remove** in the context menu.

To remove a category of attributes, follow these steps:

1. Use the **Requirement Details** view.
2. Right click the header of the attribute column and select **Delete** in the context menu, as shown in the following figure.



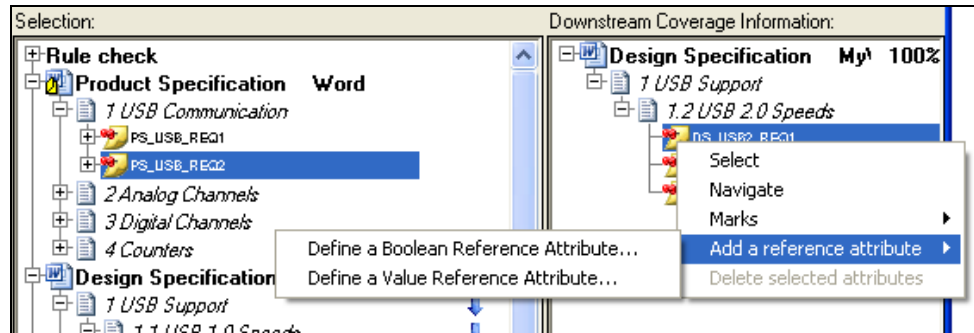
Adding Reference Attributes

Use Rhapsody Gateway to add reference attributes to captured references (coverage links).

To create a **Reference Attribute** from the **Coverage Analysis View** or **Impact Analysis View**, follow these steps:

1. Select a requirement in the **Selection** column.
2. Select a covering element in the **Downstream** column or a covered element in the **Upstream** column.

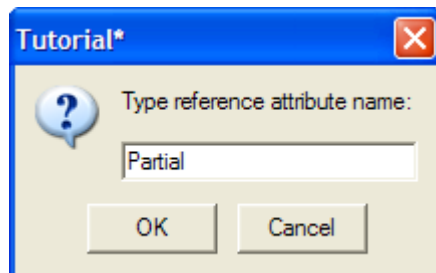
- Right click the element selected in the **Downstream** or **Upstream** column then select **Add a reference attribute** in the context menu or in the specific down area. Next select **Define a Boolean Reference Attribute...** or **Define a Value Reference Attribute...** in the context submenu, as shown in the following figure.



Note

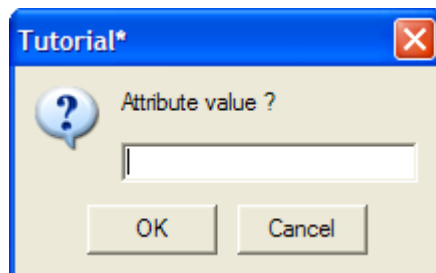
If you have already created reference attributes, they will be directly available in the context submenu underneath the **Define** items.

- The dialog box shown in the following figure opens:



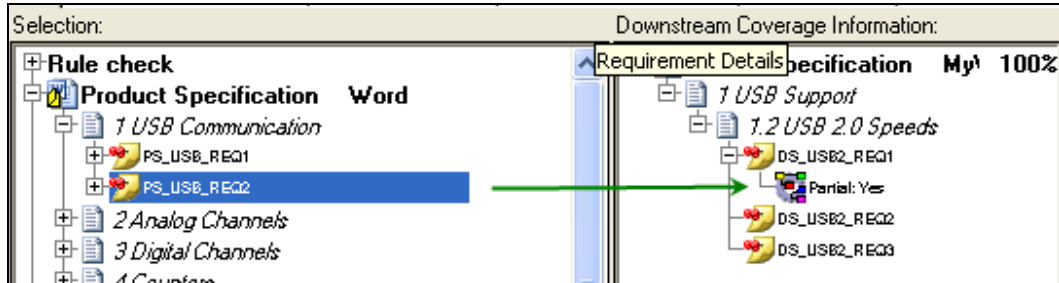
Enter the reference attribute name and click **OK** to validate.

- If you selected **Define a Value Reference Attribute...**, the additional dialog box shown in the following figure opens:



Enter the reference attribute value and click **OK** to validate.

The reference attribute is displayed either underneath the covered requirement in the **Upstream Coverage Information** column, or underneath the covering requirement in the **Downstream Coverage Information** column, as shown in the following figure. In both circumstances it will also be shown in the **Reference Attributes** panes in the lower half of each view.



Deleting Added Reference Attributes

To remove a reference attribute, follow these steps:

1. Select the reference attribute from either the **Upstream Coverage Information** column, or in the **Downstream Coverage Information** column, or in the **Reference Attributes** panes in the lower half of each view.
2. Right click and select **Remove selected attributes** in the context menu.

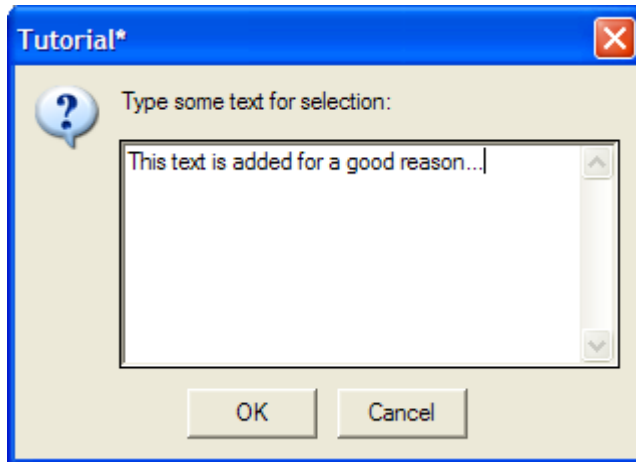
Adding Text

You can add some text to sections and requirements captured by Rhapsody Gateway.

To add text, follow these steps:

1. Select a section or a requirement in the **Selection** column of the Coverage Analysis view or the Impact Analysis view.
2. Right click and select **Add Text** in the context menu.

The dialog box shown in the following figure opens:



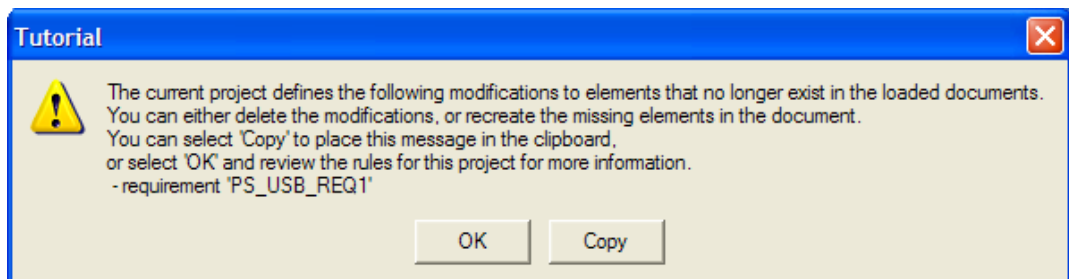
3. Enter the text you want to add and click **OK** to validate. The added text is displayed in the **Text** pane of each view when the element is selected.

When a section or a requirement has already some text added, the context menu item is **Edit Added Text** and not **Add Text**. Select **Edit Added Text** to edit the text. The dialog box shown in the following section opens and already contains the added text. After completing these steps you will be able to edit the text.

Consistency Checking for Added Information

When you re-analyze a project, Rhapsody Gateway checks to make sure that the information created can be related to elements captured in the project documents.

For example, if a text has been added to a requirement but the requirement has been deleted from the original document, Rhapsody Gateway opens a dialog box listing the information added from Rhapsody Gateway but no longer captured in the project documents.



The rule **Elements modified but not existing anymore in original document** is also activated in the Rule Check section.

If you confirm that the element is removed, and once you have managed the impact of this removal on your added information, you can remove the added information. From the **Rule Check** section, double click the element listed as no longer existing, and Rhapsody Gateway navigates to the element in the project workspace. Right click and select **Remove** from the context menu.

Adding Information from Rhapsody Gateway—Advanced Capabilities

Basic capabilities allow you to create information, but there are a few limitations:

- ◆ You are supposed to create all the categories of attributes before adding the attributes themselves.
- ◆ You can create only one type of coverage link, and only coverage links.
- ◆ You cannot create links.

All these limits are removed if you use a customized **Type for added elements**. A **Type for added element** allows you to define any kind of link, coverage link, attributes, etc.

Once a **Type for added elements** has been defined to manage additional information, it can be re-used for all projects (such as for the other types files). When this type has been added in the project document as a **Modification Document**, you can add information as described in the Basic Capabilities.

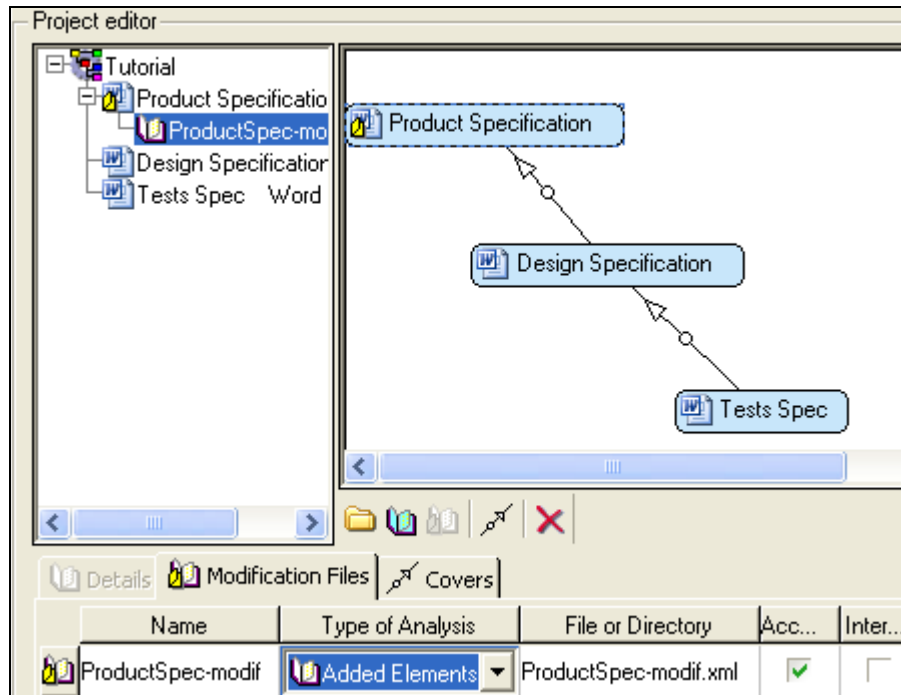
The *Customization Guide* gives you all the details concerning creation and customization of Types for added elements. However the concepts concerning added elements use for projects are considered in this *User Manual*.

You can use the `Added-Information-Advanced` demo example installed with Rhapsody Gateway to train yourself on these concepts.

Including Types for Added Elements in your Project Configuration

In the project configuration, add **Modification Documents** to project documents you want to modify. See the section about Modification documents to learn more about how to insert these documents.

As shown below, select the type for the added document from the **Type of Analysis**. You do not need to edit the other fields.

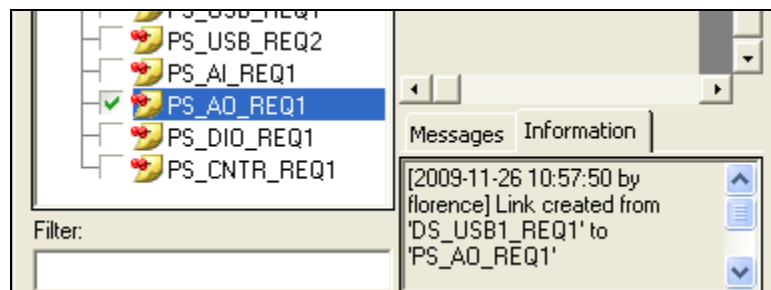


Adding Covering Links

You can use the **Link Details** View to create coverage links. These coverage links are displayed by a check mark in the **Link Details** view.

To create a coverage link with a specific reference, follow these steps:

1. Select an element in the left area.
2. Select a link type (reference).
3. Click in the check box near the requirement to cover.



A check is added next to the covered requirement. A message is added in the **Information** area.

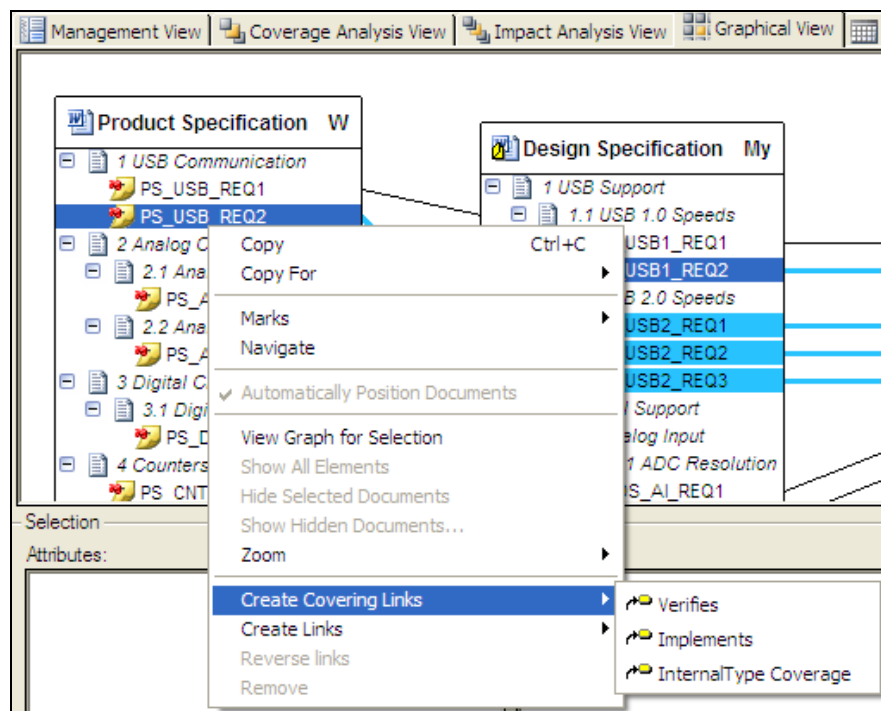
Note

It is possible to create a coverage link even if a coverage link already exists between these requirements with another link type (green square).

You can use the **Graphical View** to create coverage links. These coverage links are displayed in green in the **Graphical View**.

To create a covering link, follow these steps:

1. Make a multiple selection of the requirements you want to link. You can use the [Ctrl] key to create a multiple selection / de-selection.
2. Right click, select **Create Covering Links** then select a covering link.

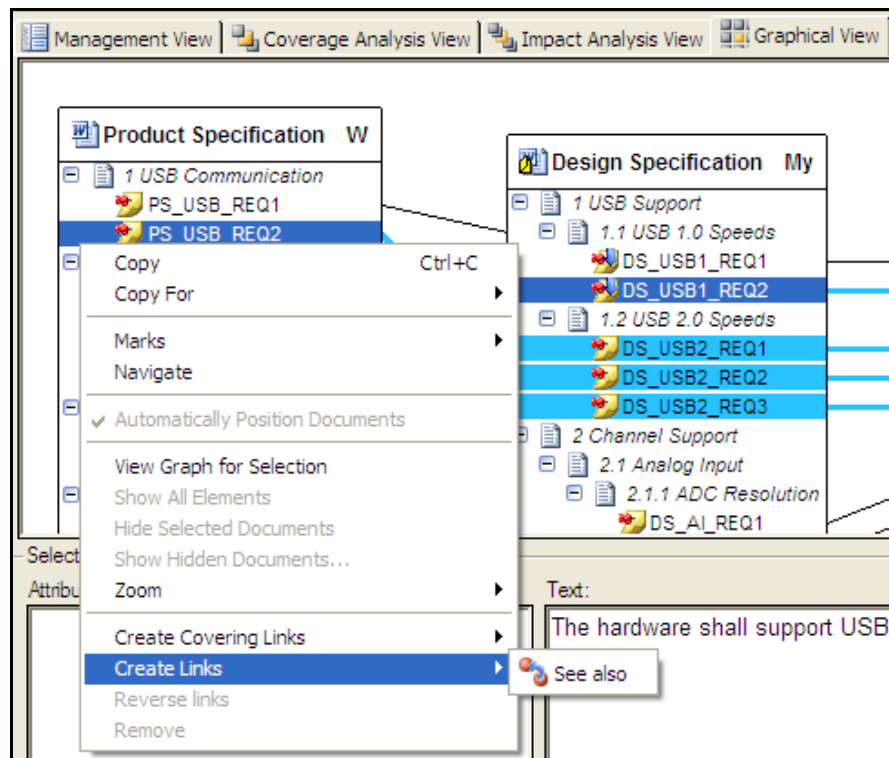


Adding Links

You can use the **Graphical View** to create links. These links are displayed with a green dotted arrow in the **Graphical View**.

To create a link, follow these steps:

1. Make a multiple selection of the requirements you want to link. You can use the [Ctrl] key to create a multiple selection / de-selection.
2. Right click, select **Create Links** then one of the links coming from the modification file.



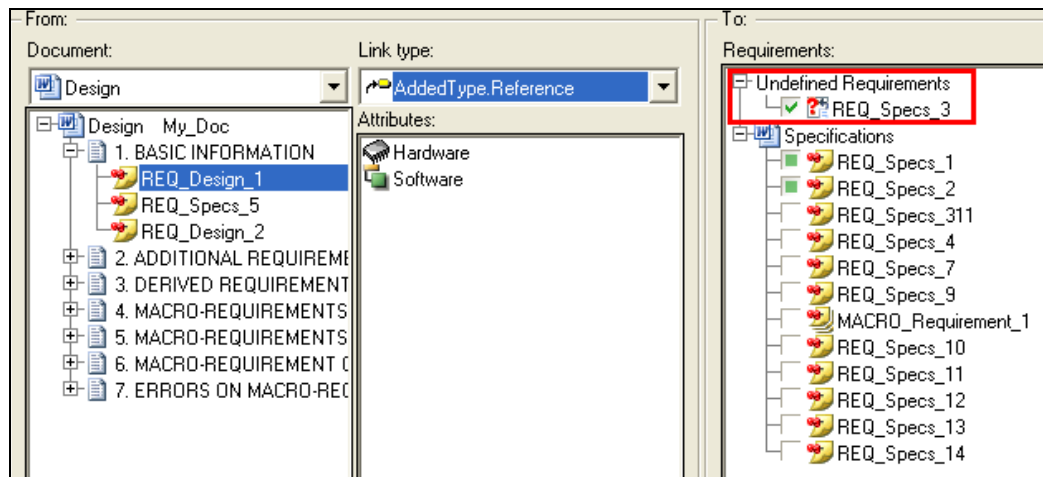
Deleting Links

When a link or covered link is created from Rhapsody Gateway and if this link destination disappears, the link becomes invisible, follow this method to delete the link:

1. Select the link/cover link origin from a Rhapsody Gateway view.
2. An additional item Delete link on undefined requirement has been added in the Edit menu. Click this option to delete the corresponding link.

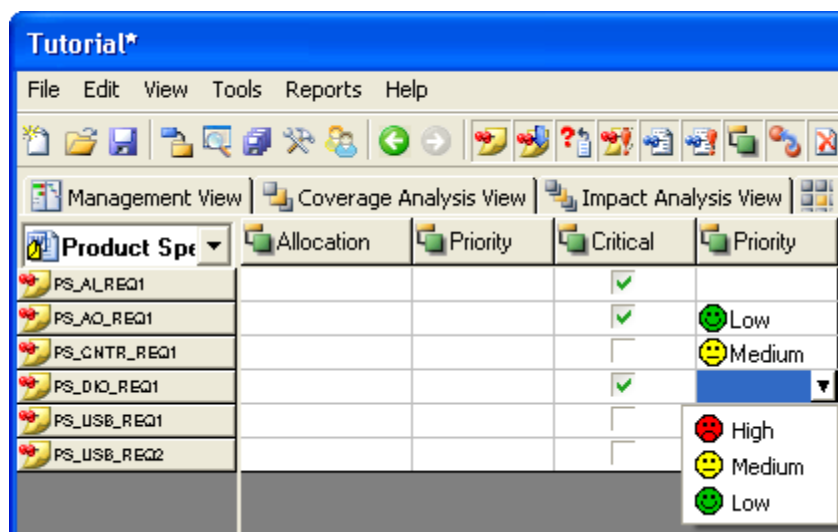
From the **Link Details** view, the behavior varies a little.

If you select the origin of the link, an Undefined Requirements section appears in the covered documents tree. In this section are listed the requirements which become undefined. Uncheck the requirements to delete the links.



Assigning Attributes

You can use the **Requirement Details** view to create attributes. Attributes defined in the Type for added elements become new columns in the Requirements Details view.



Consult the *Adding Attributes* section in the *Basic Capabilities* section to learn more about this feature.

Assigning reference attribute

To assign values to reference attributes from the **Link Details** view, follow these steps:

1. Create a covering link or select a covering link with a check mark.
2. The Reference Attributes area becomes enabled.

3. Several kinds of reference attributes can be represented in the Reference Attributes area. Depending on the attribute creation in the added type for modification, the displaying in the Reference Attributes area changes.

- ◆ If the reference attribute has been defined as a Boolean attribute in the type for added element, then the field is displayed as a check box. Check or uncheck this check-box to choose the value:

Reference Attributes:	
	Value
Critical	<input checked="" type="checkbox"/>

- ◆ If the reference attribute has been defined without specific values in the type for added element, then type a value in the field:

Reference Attributes:	
	Value
General	main value

- ◆ If the reference attribute has been defined with specific values in the type for added element, then select an available value in the combo-box which shows the choice:

Reference Attributes:	
	Value
Critical	<input type="checkbox"/>
Priority	<input type="text"/>
Priorities	High:ko Medium:nt
General	

- ◆ If the reference attribute has been defined with specific values in the type for added element and is defined as multi-valued then check the required values in the combo-box which shows the choice:

Reference Attributes:	
	Value
Priorities	<input type="text"/>
General	<input checked="" type="checkbox"/> High:ko <input checked="" type="checkbox"/> Medium:nt

The field contains the set of selected values.

Reference Attributes:	
	Value
Priorities	High:ko Medium:nt

To assign values to reference attributes from the **Graphical View**, follow these steps:

1. Create a covering link or select a covering link in green.
2. Right click in the Reference Attributes area. Select **Add a reference attribute** submenu, available reference attributes are listed
3. Select a reference attribute. A dialog box opens to enter the reference attribute value.

Adding Marks

Use Marks to manage requirements changes and impact analysis, or to quickly analyze input documents:

- ◆ Once results analysis are highlighted by orange icons to show the modifications detected by Rhapsody Gateway. Rhapsody Gateway can automatically assign a “Modification” mark to the elements having an orange icon (not to the parents of the orange icons, only the elements themselves). Marks are persistent you will have to remove them individually or globally according to your change analysis process.
- ◆ When you select a modified requirement in the **Selection** column, you see the covered or covering elements in the **Coverage Analysis** or **Impact Analysis** columns. **Marks** can be used in these columns as well, to indicate that an element is impacted by the initial change and need to be specifically tracked.
- ◆ Marks help you to quickly find elements, through dedicated capabilities of the Search feature. For example, you can immediately find elements concerned by “Safety”.

Automatic and Persistent Highlight of Modifications

When Rhapsody Gateway re-analyzes the project documents, it automatically detects and highlights changes by displaying orange icons on modified elements, as shown in the following figure.



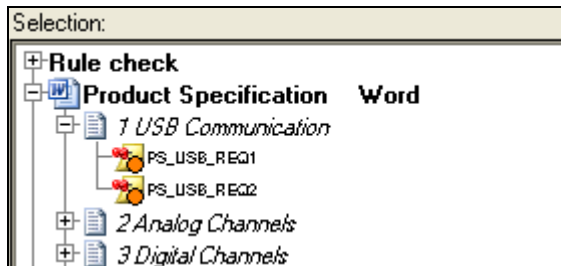
See the section about *Detection of Requirement Changes* to learn more.

Orange icons display the differences between the previous analysis and the current one, so they can disappear if project documents are re-analyzed without being modified.

You can automatically apply **Marks** to modified elements. They will be more persistent, so you will be able to perform your impact analysis and remove marks when corresponding activities are completed.

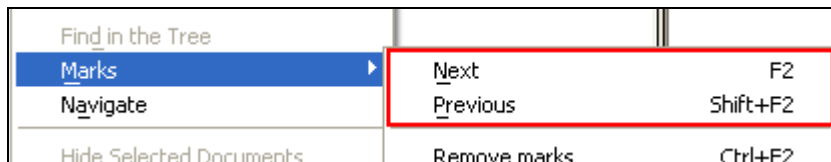
Select **Marks > Modifications** in the **Edit** menu or from the contextual menu or the project workspace.

Marks (orange circles) are automatically added to all modified elements, and are displayed even if the project document is re-analyzed, as shown in the following figure.



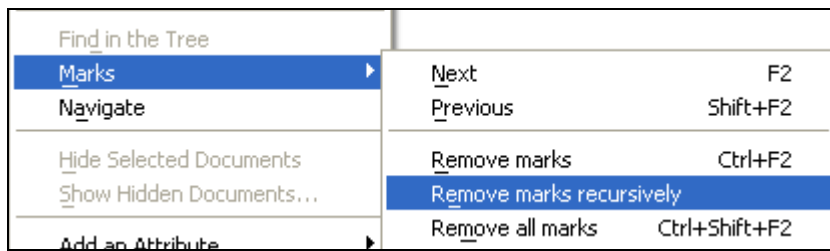
To navigate from one mark to the next one, select **Marks > Next** from the context menu or from the **Edit** menu. The **[F2]** key is a helpful shortcut.

To navigate from one mark to the previous one, select **Marks > Previous** from the context menu or from the **Edit** menu. The **[Shift + F2]** key is a helpful shortcut.



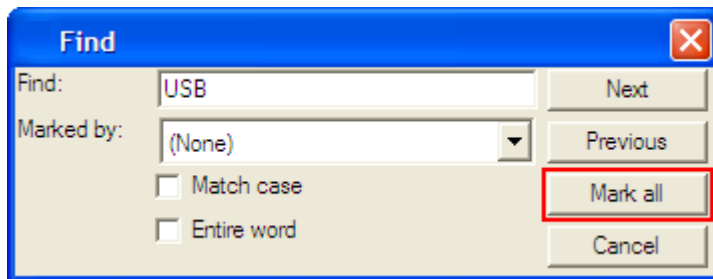
Once you reviewed the impact of modifications, you can remove the marks:

- ◆ Individually—select the marked element and select **Marks > Remove marks** from the **Edit** menu or from the context menu to remove all the marks of the element.
- ◆ Globally—all the marks of a given category will be removed if you select **Marks > Remove all marks** from the **Edit** menu or from the context menu.
- ◆ Recursively—to remove a mark and all its children in one click, select **Marks > Remove marks recursively** from the context menu or from the **Edit** menu or from the context menu.



Automatic Highlight of Search Results

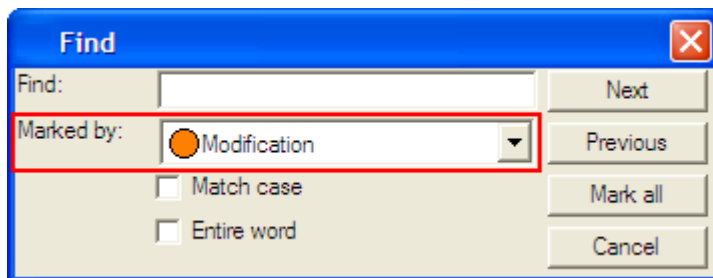
Marks can be used to highlight the results of a search action. In order to the **Find** dialog box contains a button **Mark all**, as shown in the following figure.



If you click **Mark all**, all the elements found will be automatically highlighted with Marks. If you hover over an element, information is displayed to indicate which information is found for this element, as shown in the following figure.



The **Find** dialog box contains a **Marked by** field, allowing you to quickly search for the elements previously marked.



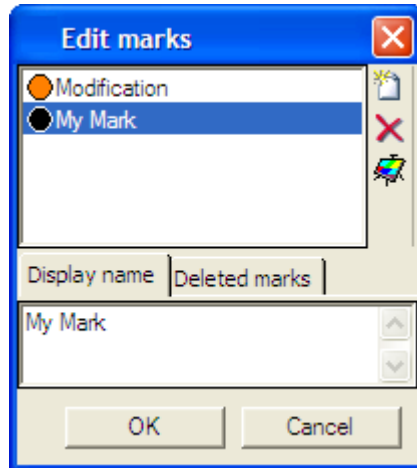
You can navigate to the next or to the previous mark by clicking on the **Next** or the **Previous** button.




Creating your own marks

Rhapsody Gateway enables you to create your own marks. To create a mark follow these steps:

1. Select **Marks > Edit** from the **Edit** menu or from the context menu.

The dialog box shown in the following figure opens:

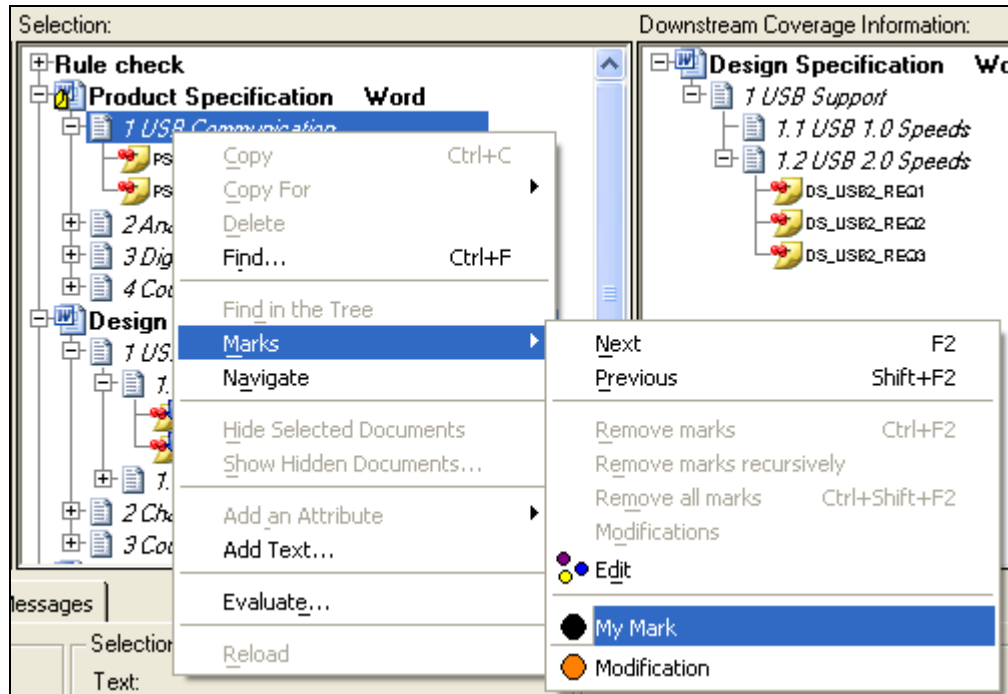


2. Click  to create a new mark.
3. Use the **Display name** tab to name your mark or define a text. Note that this text will be displayed in the project workspace if you hover over the mark icon.
4. Click  to change the color of the mark.
5. Click  to delete an existing mark.
6. Click **OK** to validate your mark definition.

Use this principle to create few marks.

Using Your Own Marks

Once created, a mark is available in the bottom of the **Marks** menu, as shown in the following figure.



Note

Only ten created marks are accessible from this menu.

Now, you can apply or remove the marks:

- ◆ Individually: select an element in the **Selection** column and select **Marks** > <your mark> from the **Edit** menu or from the context menu.
- ◆ Collectively: select several elements in the **Selection** column, using the [Ctrl] key to make a multiple selection, and select **Marks** > <your mark> from the **Edit** menu or from the context menu.

You can apply few marks on an element, only four marks will be visible.

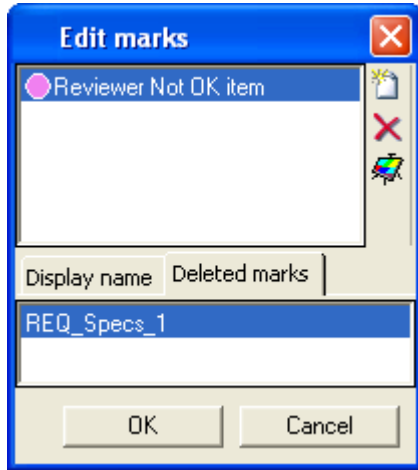
The navigation works like for other default marks.

Shortcuts to Add Marks

A mark can be put on a requirement using a keyword shortcut. Shortcuts are **CTRL+n** where n is the number of the mark. Nine marks shortcuts are available using the numeral keys of the keyboard.

Visualizing Marks on Deleted Elements

When marked elements are deleted, it is always possible to visualize elements which were marked.



This information is displayed in the **Deleted marks** tab when a mark type is selected.

Click **Delete** in the contextual menu if you want to erase the mark set on a deleted element.

Using Marks in Filters

It is possible to filter elements on a condition even if they are marked or not. When you create your condition, select an element type and in the second field of the condition, select **Is Marked By** or **Is Not Marked By**.

Read the *Filters* section to learn more about the creation of filters.

Suspicious Links Management

A suspicious link is a link that must be verified. A link becomes suspicious when a covered requirement or a covering element has changed. A change is for instance a text modification.

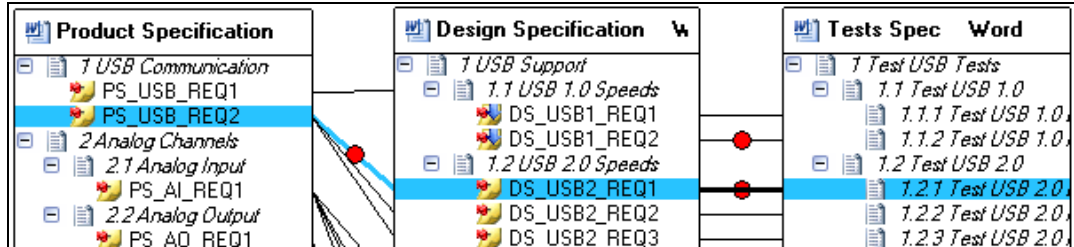
To use the suspicious link management, the **Activate suspicious link management** option needs to be checked in the **Project** pane of **Options**.

If the **User Management** plugin is installed, users can manage rights concerning suspicious links on their projects.

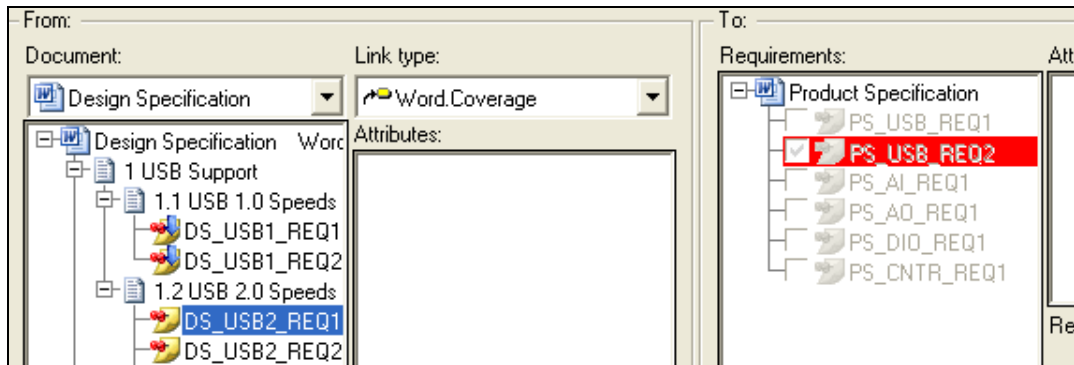
When modifications have been done on the Rhapsody Gateway project, whereas the suspicious link management is activated, Rhapsody Gateway indicated suspicious links. To mark a link as suspicious, Rhapsody Gateway will add a red mark on it. This mark is visible in the **Graphical View** and in the **Link Details** view. Suspicious marking is

possible even if no type for added elements have been associated to types. See *Link Details* chapter to have details on this view.

In the following case, the text of “PS_USB_REQ2” requirement has changed and it became “New Text of PS_USB_REQ2”. Rhapsody Gateway shows the modification with a red icon in the **Graphical View** and marks the covering link as suspicious, when the project is reloaded.



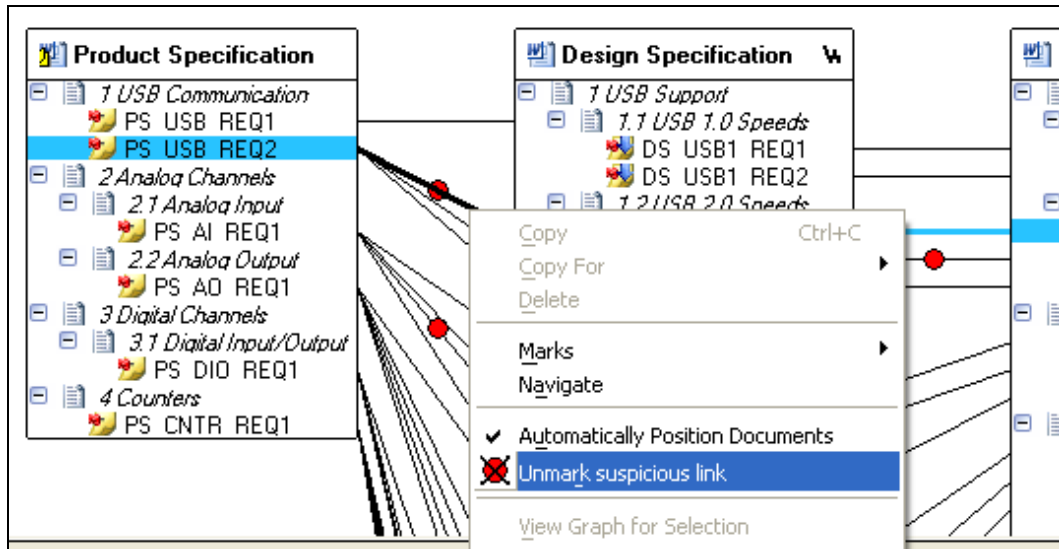
In the **Link Details** view, covering links with the selected link type and marked as suspicious are underlined in red.



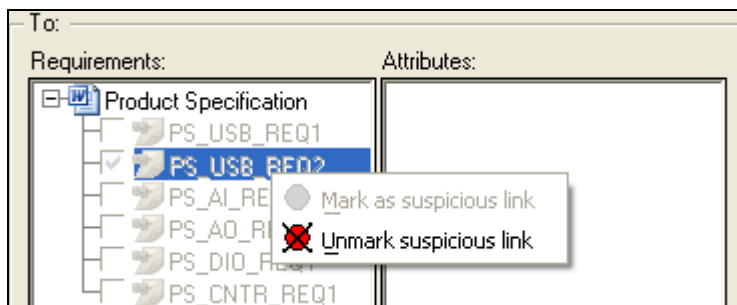
Covering links with another link type and marked as suspicious are underlined in orange.

Unmark a suspicious link

Once the requirement modification has been validated, the suspicious mark can be removed. To remove a mark, right click a link in the **Graphical View** then select **Unmark suspicious link** in the contextual menu.

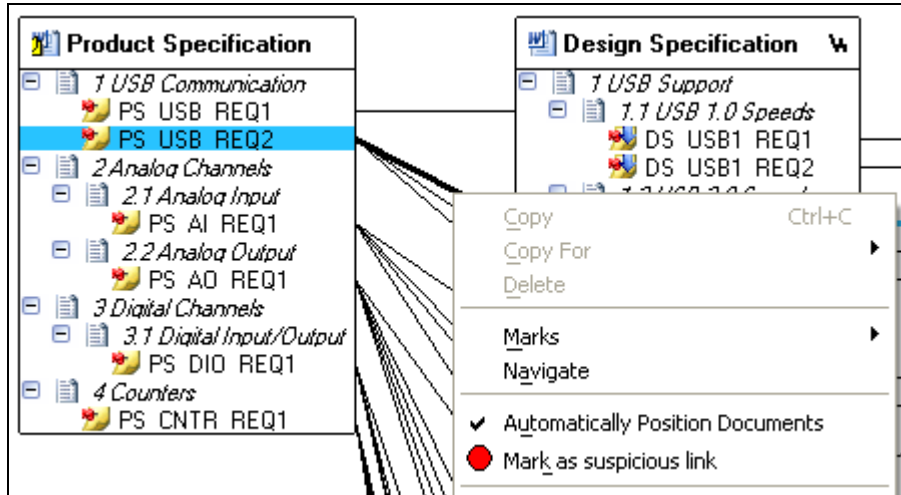


The corresponding same item is available in the **Link Details** contextual menu, when clicking a suspicious link in the view.

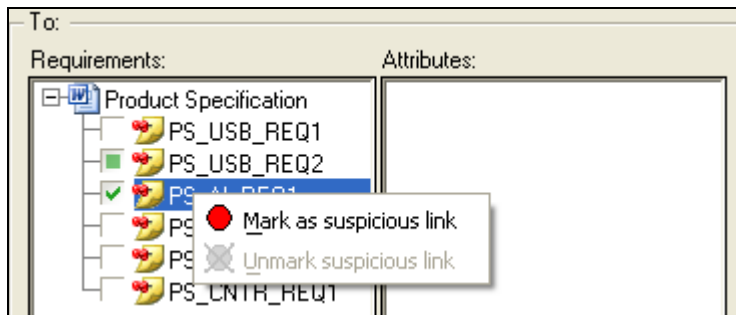


Mark a link as suspicious

Links can manually be marked as suspicious. To mark a link as suspicious, select a link, right click and select the **Mark as suspicious link** item in the contextual menu. This menu item is only available on non-suspicious links.



The corresponding same item is available in the **Link Details** contextual menu, when clicking a link in the view.



Detection of Requirement Changes

Rhapsody Gateway offers features to detect and manage requirement changes and impact analysis:

- ◆ An automatic system of “orange icons” displays the changes between two consecutive analyses.
- ◆ The marks are used to highlight the modified requirements in order to manage individual impact analysis.
- ◆ The snapshots are used to archive project analysis results from time to time and to compare the results between saved archives, or the current results with one of the saved archives.

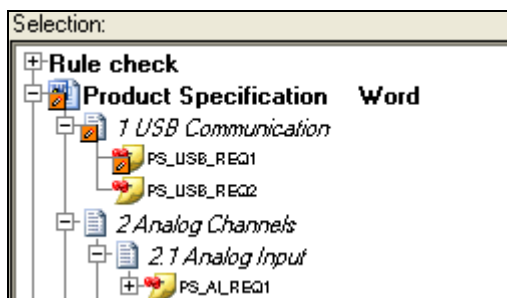
You can read about these topics in:

- ◆ Automatic Detection of Modified Elements
- ◆ Managing Changes using Marks
- ◆ Using Snapshots




Automatic Detection Modified Elements

Every time the project is analyzed, Rhapsody Gateway automatically displays the differences from results of the previous analysis.

The detected changes are displayed in the project workspace using orange icons. The following figure shows that a modification has been detected for PS_USB_REQ1. The orange icons are propagated throughout the document level, so you can get the information concerning modifications even if document tree is collapsed.



The orange icon displayed depends on the modification:

Flag	Meaning
	New element
	Modified element
	Moved element: the element is not modified but located underneath a different parent element.

Note

As orange icons automatically display the differences between two consecutive analyses, they will disappear after the next analysis if no other changes have been detected. If you want a more persistent display of modifications, use the **Snapshots** and/or the **Marks**.

Managing Changes using Marks


Marks can be used to manage requirements changes and impact analysis.

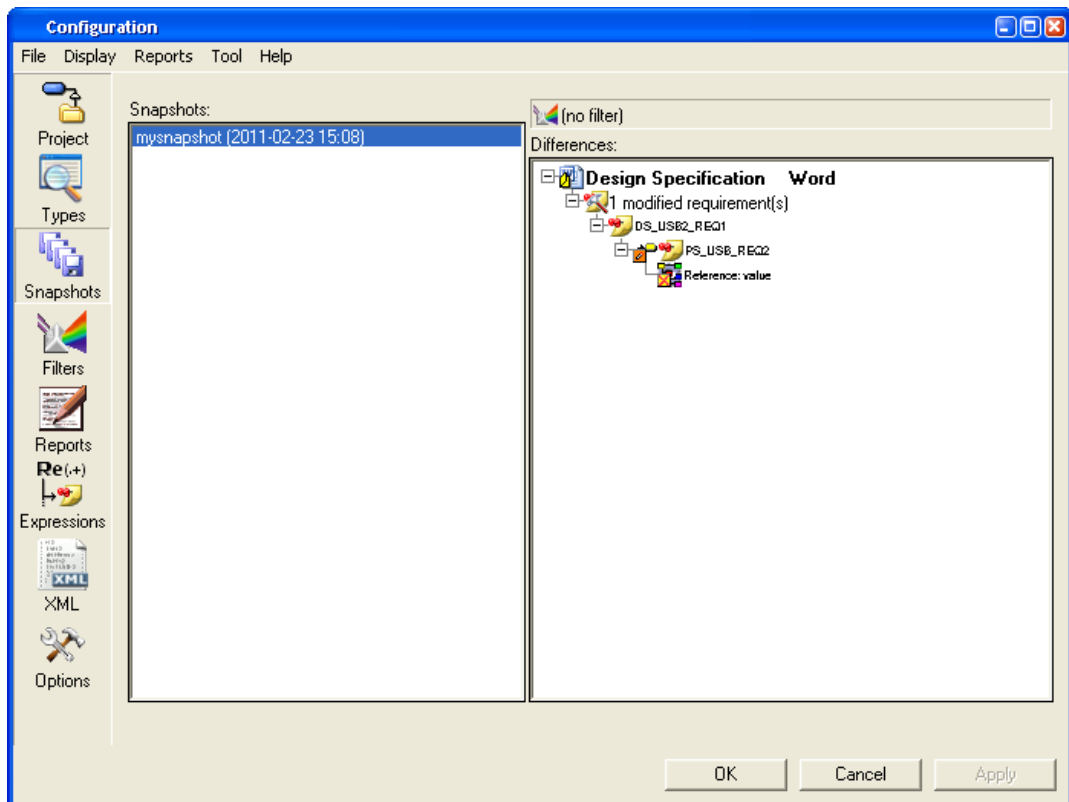
- ◆ Once analysis results are highlighted by orange icons to show the modifications detected by Rhapsody Gateway, select **Edit > Marks > Modifications**. Rhapsody Gateway automatically adds a “Modification” mark to the elements that have an orange icon (not to their parents as it does for the orange icons, but only to the elements themselves). Marks are persistent; you will have to remove them individually or globally according to your change analysis process.
- ◆ When you select a modified requirement in the **Selection** column, you will see the covered or covering elements in the **Coverage Analysis** or **Impact Analysis** columns. Marks can be used in these columns as well, to indicate that an element is impacted by the initial change and needs to be specifically tracked.

Read the *Using Marks* chapter to learn more about use of Marks.

Using Snapshots

The Snapshots are used to archive the project analysis results from time to time during your project lifecycle. Using snapshots process you can compare the current analysis results with any of the saved snapshots, or compare one snapshot with another snapshot.

To open the snapshot editor window, click  in the toolbar or select **File > Edit Snapshots**.



The snapshot editor dialog box contains two panes:

- ◆ The **Snapshots** pane displays the list of previously saved snapshots.
- ◆ The **Differences** pane can display either the list of differences between the current analysis results and the analysis results saved in the snapshot selected in the Snapshots list or the list of differences between two snapshots selected in the Snapshots list.

The snapshot editor dialog box also displays the name of the filter applied.

The snapshot editor dialog box contains five menus:

- ◆ File
- ◆ Display
- ◆ Reports

- ◆ Tool
- ◆ Help

The **File** menu contains the following items:

Item	Description
New Snapshot for Current Project...	Saves the current analysis results as a snapshot
Properties	Displays the Information dialog box for the selected snapshot
Delete	Deletes the selected snapshot
Close	Quits the snapshot editor dialog box.

The **Display** menu contains the following items:

Item	Description
View element history	When you select an element from the list of differences, the display changes to show you the list of modifications of the selected element throughout its history.
View snapshots	Displays the list of snapshots (default display mode of the snapshot editor dialog box).
Selected snapshot view	Opens an additional window, equivalent to the main window but in read-only mode, displaying the analysis results for the selected snapshot.
Navigate	Navigates to the selected element in the file containing it.

The **Reports** menu offers the following functions:

Item	Description
Snapshots Comparison	Report containing the list of differences between the current analysis results and the selected snapshot, or between two selected snapshots.
Snapshots Impact Analysis	Report containing the impact analysis between the current analysis results and the selected snapshot, or between two selected snapshots.

The **Tool** menu offers the following functions:

Item	Description
Evaluate	Opens the OTScript Evaluator.

The **Help** menu offers the following functions:

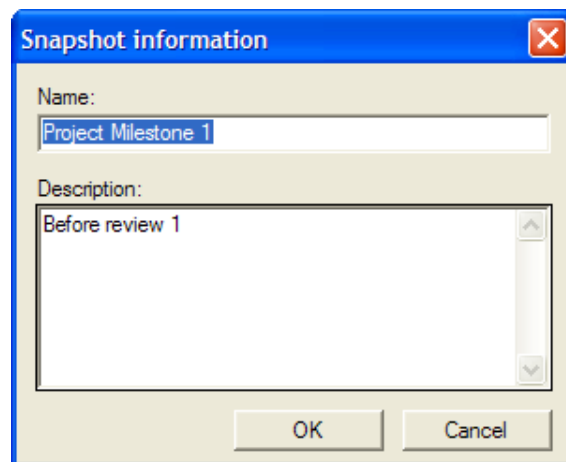
Item	Description
Help topics	Opens the <i>User Manual</i> and <i>Customization Guide</i> of the online help files.

Creating a Snapshot

To create a snapshot, follow these steps:

1. Select **File > New Snapshot for Current Project...**

The Snapshot information dialog box opens:



2. Enter a **Name** and a **Description** for your snapshot. Click **OK** to validate.

The created snapshot is now displayed in the **Snapshots** pane.

Using Snapshots to Compare Results

If you have at least one snapshot saved for your project, Rhapsody Gateway allows you to compare the saved results with other analysis results: either the current results or the one saved in another snapshot.

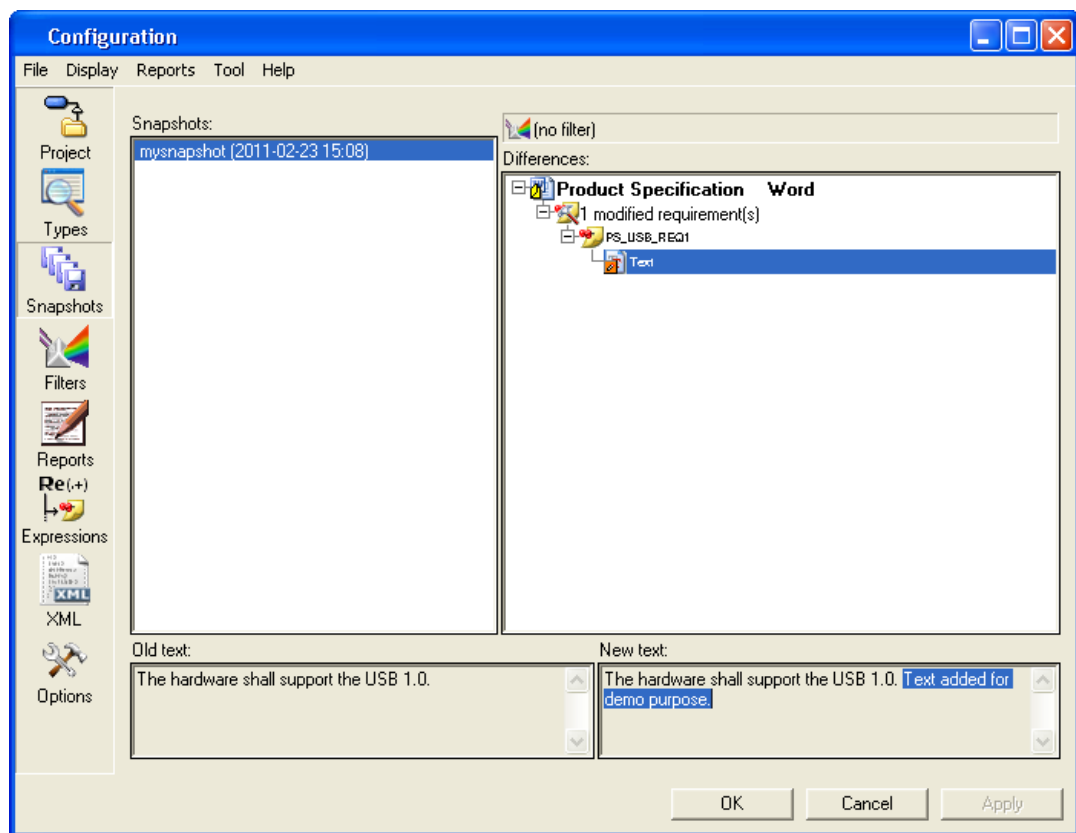
- ◆ If you want to compare the current analysis results with a previously saved snapshot, just select a saved snapshot from the **Snapshots** pane. The **Differences**

pane displays the list of differences between the results of the saved snapshots and the results for the current analysis of your project document.

- ◆ If you want to compare two snapshots, select them in the **Snapshots** pane using the [Ctrl] key to make a multiple selection. The **Differences** pane displays the list of differences.

You can expand the tree to see what the differences are. The following figure shows a modification of the text of the PS_USB_REQ1 requirement.

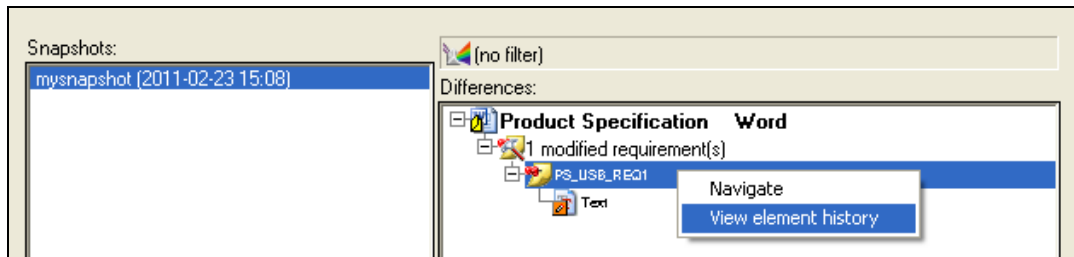
The trees in the **Differences** pane are arranged by categories of modifications, inserted underneath the name of the document.



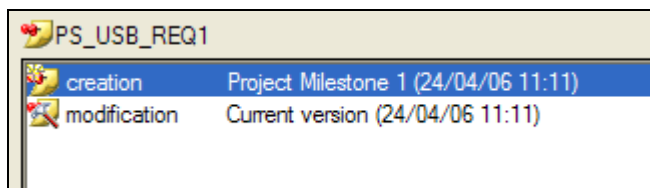
Element History

The snapshot editor proposes a display mode that shows the history of a selected element across the saved snapshots.

Select an element in the **Differences** list and select **Display > View element history** or **View element history** in the context menu.



The snapshot editor dialog box changes and you see only one pane for the selected element, showing the modification that has occurred for each snapshot.



To return to the default display mode, select **Display > View snapshots** or **View snapshots** in the context menu.

Opening a Snapshot

You can use Rhapsody Gateway to view the analysis results previously saved as a snapshot.

Double click on a snapshot in the **Snapshots** list of the Snapshot editor dialog box or select a snapshot by selecting **Display > Selected snapshot view** or **Selected snapshot view** in the context menu.

A new window opens in which you can navigate the same way as in the Rhapsody Gateway main window. Even if this snapshot window is read-only, you can apply filters or open the configuration dialog box to see what was the project configuration was when the snapshot had been saved.

Snapshots Troubleshooting

When the user saves a project from **project with file** mode to **project with database** mode, if snapshots were made in file mode, they are also integrated in the database.

To avoid conflicts, the snapshots directory is renamed `snapshots_old`. The snapshots files are not requested anymore.

Rules Check and Error Messages

The results of checks are grouped together in the **Rule check** section, at the top of the **Selection** column in the project workspace.

Rules can be customized by trained users and/or by our experts to provide additional value in support of your requirements management process.

Take time to review all rule violations before analyzing the project analysis results. A double click on an element in this section navigates directly to this element in its document tree.

In the project workspace, elements violating a defined rule are displayed in red or orange, depending on the gravity level. More information is displayed in the **Messages** pane when you select an element violating a rule.

The following chapter describes the errors and warning messages of rules check and some recommended corrective actions if a corrective action be identified and suggested.

Critical Error Messages

Critical errors are not located in the Rule check section. These kinds of errors appear in a dialog box which prevents the opening of the corresponding project.

The following table shows the identified critical errors messages:

Error Messages	Explanation	Corrective Action
Non-existent section or key	A Rhapsody Gateway file such as .type file, .ini file or .rqtff file is corrupted or is defined with an inconsistent definition of a section or a key.	Users must avoid manual modification of Rhapsody Gateway files. Correct manual modifications if this is the cause of the problem.

Error Messages

Several error cases have been identified. For most cases corrective actions are proposed. Unfortunately, it is impossible to imagine the solutions to all the problems that may appear.

Try to solve the errors with the following helpful information. The impact analysis must be redone after a corrective action.

The following table shows the identified errors messages:

Error Messages	Explanation	Corrective Action
Analysis error	An error has been identified in the intermediate file. For example, this could happen when: <ul style="list-style-type: none">• the XML file has invalid format• problems occur during conversion• there is a file access error to an intermediate file	Try to re-launch the loading and the conversion.
Bad requirement level	Bad nesting of requirements according to the defined type.	Change the document structure.
Closing expression found without opening expression	The analyzed information contains a closing expression without the expected opening expression. This error can only affect requirements, macro-requirements or sections expressions. For example, this could happen when: <ul style="list-style-type: none">• the source file structure or the intermediate file contains some inconsistencies, such as the lack of closing expression• the analysis type contains an incomplete definition of parents/children combination for sections	<ul style="list-style-type: none">• Modify the document to insert the missing opening expression.• Modify the document to delete the additional closing expression.

Error Messages	Explanation	Corrective Action
COM error	<p>The COM dialog with an interfaced tool fails.</p> <p>For example, causes could be:</p> <ul style="list-style-type: none"> the declaration of an obsolete COM library another application is using the same COM interface at the same time the tool is not installed or is not correctly installed 	<ul style="list-style-type: none"> Reinstall the tool. Treat the COM error. <p>If this error is persistent, contact your IT administrator or the Support Team.</p>
Conversion problem	<p>The document cannot be analyzed by Rhapsody Gateway.</p> <p>For example, this could happen when the document to be analyzed has:</p> <ul style="list-style-type: none"> an unknown format an obsolete format such as a Word 95 file 	<p>No corrective action can be proposed.</p>
Converter not found	<p>The project configuration has been defined with a type of analysis based on a converter not available in the current project configuration.</p> <p>For example, this could happen when a specific converter has been developed for a user and the user has upgraded his Rhapsody Gateway version.</p> <p>A converter is used to analyze the input information and to produce an intermediate file. See the section about Rhapsody Gateway architecture to learn more.</p>	<ul style="list-style-type: none"> Add the converter from the old version into the new one. Rewrite the converter. Load a new converter.
Cover link source not found	<p>The capture information defined as a coverage link source in the analyzed document has not been found.</p> <p>See Defining References section in the <i>Customization Guide</i> to learn more.</p> <p>This error may appear when the user defines two parentheses groups in his reference regular expression. The first parentheses group is for the target and the second one is assigned to the source by default and this source cannot be found.</p>	<ul style="list-style-type: none"> Verify the source Verify the regular expression definition

Error Messages	Explanation	Corrective Action
Covered document not found	<p>The .rqt.f file corresponding to the project configuration has been corrupted.</p> <p>In this file a covered document is declared but the document itself is not defined in the configuration.</p>	<p>Users must avoid manual modification of Rhapsody Gateway files.</p> <p>In this case the user can resave the project from the project editor.</p>
Covering document not found	<p>The .rqt.f file corresponding to the project configuration has been corrupted.</p> <p>In this file a covering document is declared but the document itself is not defined in the configuration.</p>	<p>Users must avoid manual modification of Rhapsody Gateway files.</p> <p>In this case the user can resave the project from the project editor.</p>
Cyclic graph creation not allowed	<p>This error happens when we define a P parent of an E element and if this P parent is already a child of E.</p>	<p>Change the parent/child relationship.</p>
Document not found	<p>The capture information from the analyzed document defined as a document in a coverage link or a link has not been found.</p> <p>See Defining References and Defining Links sections in the <i>Customization Guide</i> to learn more.</p>	<ul style="list-style-type: none"> • Verify the document • Verify the regular expression definition
Document not readable	<p>The document is not available for analysis.</p> <p>For example, this could happen when:</p> <ul style="list-style-type: none"> • the User does not have the proper rights in the case of a remote access to the file • the file may not exist because it has been moved • the type of analysis does not match the file type 	<ul style="list-style-type: none"> • Check the access rights or ask the administrator. • Move or create the missing file. • Correct the type of analysis.
Embedded document not found	<p>This happens if a document included in a folder is not found.</p> <p>The .rqt.f file is corrupted.</p>	<p>Users must avoid manual modification of Rhapsody Gateway files.</p> <ul style="list-style-type: none"> • Correct manual modifications if this is probably the cause of the problem. • Contact the Support Team.

Error Messages	Explanation	Corrective Action
Entity tag found in macro-requirement	An entity has been found between the opening and the closing tags of a macro-requirement definition. For process reasons, entities are not allowed in macro-requirements.	Delete the entity.
File access error	This system error corresponds to a file access error.	Look at the parameter error to correct the error.
Impossible to delete	An element to delete has been captured, but the element itself does not exist. For example, this could happen when the analysis type has been defined to delete requirements marked as “obsolete”. See “expression to delete an element” advanced options creation.	Remove the deletion of the element expression.
Invalid parent type	Unexpected parent in the hierarchy.	Modify the type to establish a good parent/child relationship.
Inverse reference without requirement	A reference with an “is covered by” element has been found in the document outside a requirement definition. See the inverse regular expression to know more about “is covered by”.	<ul style="list-style-type: none"> define a requirement delete the reference
Link source not found	The capture information defined as a link source in the analyzed document has not been found. See the section about Defining Links in the <i>Customization Guide</i> and more specifically information about Fields.	<ul style="list-style-type: none"> verify the source verify the regular expression definition
Link to undefined requirement	The target requirement of a reference has not been found anywhere in the project. For example, this could happen when: <ul style="list-style-type: none"> a defined requirement has disappeared a typing error has been made on the requirement name the downstream element references a requirement filtered by an Analysis Filter 	<ul style="list-style-type: none"> Define the requirement in one downstream document. Correct the typing error. Cancel the filter effect.
Macro-requirement defined several times	A macro-requirement is defined several times in the same document.	Rename the macro-requirement.

Error Messages	Explanation	Corrective Action
Mirror requirement without main requirement	A requirement which is error in the downstream document should not be present there.	Remove requirement from the downstream document.
Missing mirror requirement	A requirement which exists in the upstream document does not exist in the downstream document.	Add a requirement in downstream document.
Non-covering entity	An entity is found without a reference to a higher level requirement. For example, this could happen when there are dead codes within a code.	Delete the non-covering entity.
Opening expression found without closing expression	The analyzed information contains an opening expression but the closing expression expected to close the previous analyzed expression is missing. Only requirements, macro-requirements or sections expressions can be concerned. For example, this could happen when: <ul style="list-style-type: none"> the source file structure, or the intermediate file contains some inconsistencies, such as the lack of a closing expression the analysis type contains an incomplete definition of parents/children combination for sections 	Modify the document to insert the missing closing expression.
Parent not found	The capture information from the analyzed document defined as a parent in a section has not been found. See the section about Defining Sections in the <i>Customization Guide</i> and more specifically information about Fields.	<ul style="list-style-type: none"> Verify the parent. Verify the regular expression definition.
Post-processing error	Error in the post-processing.	This error has a parameter. Consult this parameter to correct.
Replacement document not found	In composite projects, the replacement document has not been found.	Redefine the replacement in the Project Editor.

Error Messages	Explanation	Corrective Action
Requirement defined several times	<p>A requirement or a derived requirement is defined several times in the same document.</p> <p>For example, a requirement cannot have the same name definition as a derived requirement.</p> <p>Warning: this rule is ignored if the Merge homonymous requirement option is checked in the type declaration, refer to <i>Customization Guide</i>.</p>	Rename the requirement.
Requirement defined in several documents, and the documents are covered by a shared document	Two documents are covered by the same document and each of them contains a requirement, a derived requirement or a macro-requirement whose identifier is identical to an identifier contained in the other document.	Define the requirements of the documents more precisely.
Section with same identifier	<p>Two sections of the same hierarchical level have the same identifier.</p> <p>For example, this could happen when two titles have the same identifier number.</p>	Correct the sections in the document to be analyzed.
Self covering requirement	A requirement reference references itself.	Delete or modify the coverage.
Too many results found. A capture expression may be wrong	<p>This message appears when the same regular expression captures more than 50 000 results on one analyzed document. It avoids a memory consumption that is too large (and sometimes a crash) in the case of a bad regular expression.</p> <p>For instance, such error can appear when 10 regular expressions are providing more than 5000 results. Simple case with requirements captured from table rows:</p> <pre>(7000 requirement rows) x (1 requirement identifier + 1 requirement label + 1 requirement text + 7 attribute values) = 70000 results</pre>	<p>If you do need to capture more than 50 000 results with the same expression it would be necessary to increase the <code>maxFoundResults</code> limit. Edit your <code>.ini</code> file and define a variable <code>maxFoundResults=<your number></code> in the [General] section. Create this section if it does not exist.</p> <p>Do not hesitate to contact the Support Team for assistance.</p>

Error Messages	Explanation	Corrective Action
Traceability Graph Violation	<p>In this case, the coverage is made at a level too high. This occurs because an element references a requirement of a document not declared as covered for the document containing the reference.</p> <p>Double-click on a Traceability graph violation error in the Rule check of Rhapsody Gateway to reach the source object.</p> <p>To visualize the target object of a Traceability graph violation error, select a source object then open the Message pane.</p>	<ul style="list-style-type: none"> • If the reference is appropriate, create a coverage link between the two documents to allow direct traceability. • Otherwise delete or modify the coverage.
Unauthorized attribute value	<p>The analyzed document contains an attribute of an enumerated attribute with a value out of the defined list of values.</p>	<ul style="list-style-type: none"> • Add the new value to the enumerated attribute in the types. • Modify the value in the document with a correct one.
Uncovered requirement	<p>A requirement, a derived requirement or a macro-requirement is not referenced in any covering document.</p> <p>No error is raised for requirements of low level documents.</p> <p>This rule is not applied in a self-covering document case.</p>	<p>Define the coverage of the requirement.</p>
Undefined covering requirement/entity	<p>The covering element does not exist anymore or contains a typing error.</p> <p>For example, the high level requirement "is covered by" a low level requirement that is captured but undefined.</p>	<ul style="list-style-type: none"> • Rename the covering element. • Define the covering element.

Error Messages	Explanation	Corrective Action
Unknown document type	<p>The project configuration has been defined with a type of analysis not available in the project configuration.</p> <p>For example, this could happen when:</p> <ul style="list-style-type: none"> • a project defined with a local type by a User A, has been opened by a User B with a Rhapsody Gateway configuration that does not include the type defined by User A • the types file has been lost or the file has been moved • a type is not available anymore 	<p>Rhapsody Gateway automatically replaces the initial Type of Analysis by the default LostType one.</p> <ul style="list-style-type: none"> • add the document type to the configuration • recover the file or move the file at the dedicated place • select a type for the document <p>It is important not to save the project without making a correction otherwise the right type will be lost in the project file.</p>
Unknown element type	<p>This situation happens when a reference element type does no longer exist in the rqt file.</p>	<p>Contact the Support Team for assistance.</p>
Unknown parent element	<p>A regular expression or an XML syntax has been defined to define the parent element.</p>	<p>Contact the Support Team for assistance.</p>

Warning Messages

Several warning cases have been identified. For most of the cases corrective actions are proposed. Even if it is only a warning, it is better to avoid warnings in your analysis project.

Try to solve warnings with the helpful information found below. The impact analysis must be redone after a corrective action.

The following table shows the identified warning messages:

Warning Messages	Explanation	Corrective Action
Attribute defined several times	An attribute has been captured several times in the same requirement. For example, this could happen when a requirement capture has failed in the document, because it does not comply with the analysis type definition. These requirement attributes are captured but are linked to the previous requirement.	Remove the redefined attribute.
Bad section level	Bad nesting of sections or bad section type definition. The captured sections from the analyzed document are not following the hierarchy defined in the type of analysis. For example, a Word “heading 3” section underneath a “heading 1” section.	<ul style="list-style-type: none"> fix the hierarchy issue in your source document correct the type of analysis activate the option “Ignore structure” in the project configuration editor for the concerned document. See this option in the Project Configuration / Description.
Element modified but not found in original document	An element has been captured from a modification document, but the same element is not found in the original document supposed to be modified.	Delete the element from the modification document.
Element with parent not found in the original document	An attribute had been added to a requirement from Rhapsody Gateway but now the requirement has been deleted from the original document.	Remove the attribute from Rhapsody Gateway.
Link defined several times	Two links are defined on the same element.	Delete one of the links.

Warning Messages	Explanation	Corrective Action
Reference attribute defined several times	A reference attribute has been captured several times in the same requirement For example, this could happen when a requirement capture has failed in the document, because it does not comply with the analysis type definition. These requirement reference attributes are captured but are linked to the previous requirement.	Remove the redefined reference attribute.
Reference attribute without reference	A reference attribute has been captured but could not be attached to a reference.	<ul style="list-style-type: none"> • add a reference • delete the reference attribute
Requirement defined in several documents, and the documents are covered by different documents	A requirement, a derived requirement or a macro-requirement of a document is also captured in another document.	Define more precisely the requirements of the documents.

Information Messages

Few information messages are located in the Rule check section.

The following table shows the identified warning messages:

Information Messages	Explanation
Derived requirement	Derived requirements are listed in Derived requirement part of the Rule check.

Generating Reports

This section gives you information about generated reports.

Rhapsody Gateway supports several generation formats:

- ◆ RTF for Word
- ◆ MIF for FrameMaker
- ◆ Interleaf
- ◆ HTML
- ◆ Text only
- ◆ Excel

Rhapsody Gateway generates the following default reports:

- ◆ **Traceability Matrix**—Lists the upstream to downstream covered links and the downstream to upstream covering links.
- ◆ **Analysis Results**—Summarizes the coverage analysis for a project.
- ◆ **Project Description**—Describes the project and its documents.
- ◆ **Upstream Impact Analysis**—Lists the upstream traceability information for selected elements of the project.
- ◆ **Downstream Impact Analysis**—Lists the downstream traceability information for selected elements of the project.
- ◆ **Synthesis of Added Information**—Summarizes any added attributes, references, text and covering links in the project.
- ◆ **Rules Checking**—Contains a summary of any rules highlighted by the project.

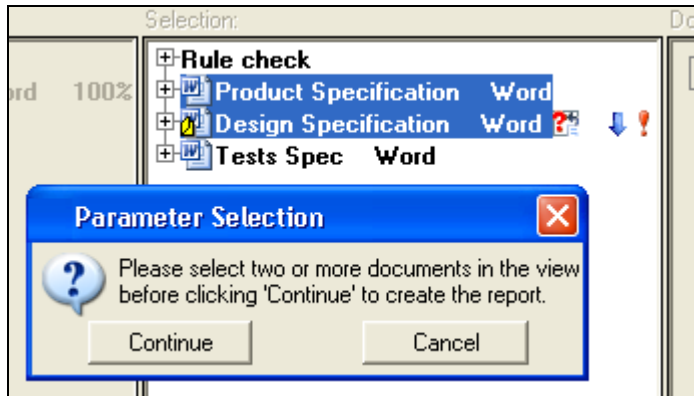
Note

The Support Team and our experts can provide report templates corresponding to your specific needs concerning requirement management. Do not hesitate to contact us.

Generating the Traceability Matrix Report

Select **Reports > Library Reports > Traceability Matrix**.

Rhapsody Gateway opens the dialog box shown in the following figure.



Select at least two documents (only the root element of the document tree) and click **Continue**.

Rhapsody Gateway opens a **Save As** dialog box. Select a style and a format for report generation from the Type drop-down list box, the location of your report file, and name the report.

Rhapsody Gateway generates a bi-directional traceability matrix, such as the example shown in the following figure.

Traceability Matrix		
1. Product Specification is covered by Design Specification		
Coverage ratio: 100%		
Upstream	Text	Downstream
PS_AI_REQ1	The hardware shall support 10 analog input channels	2.1 Analog Input
PS_AI_REQ1	The hardware shall support 10 analog input channels	DS_AI_REQ1
PS_AI_REQ1	The hardware shall support 10 analog input channels	DS_AI_REQ2
PS_AI_REQ1	The hardware shall support 10 analog input channels	DS_AI_REQ3
PS_AO_REQ1	The hardware shall support 2 analog output channels	2.2 Analog Output
PS_AO_REQ1	The hardware shall support 2 analog output channels	DS_AO_REQ2
PS_AO_REQ1	The hardware shall support 2 analog output channels	DS_AO_REQ3
PS_AO_REQ1	The hardware shall support 2 analog output channels	DS_AO_REQ4
PS_AO_REQ1	The hardware shall support 2 analog output channels	DS_AO_REQ5
PS_CNTR_REQ1	The hardware shall support 1 counter	3 Counters
PS_CNTR_REQ1	The hardware shall support 1 counter	DS_CNTR_REQ1
PS_CNTR_REQ1	The hardware shall support 1 counter	DS_CNTR_REQ2
PS_CNTR_REQ1	The hardware shall support 1 counter	DS_CNTR_REQ3
PS_CNTR_REQ1	The hardware shall support 1 counter	DS_CNTR_REQ4
PS_CNTR_REQ1	The hardware shall support 1 counter	DS_CNTR_REQ5
PS_DIO_REQ1	The hardware shall support 2 digital I/O channels	2.3.1 Compatibility
PS_DIO_REQ1	The hardware shall support 2 digital I/O channels	DS_DIO_REQ4
PS_DIO_REQ1	The hardware shall support 2 digital I/O channels	DS_DIO_REQ5
PS_DIO_REQ1	The hardware shall support 2 digital I/O channels	DS_DIO_REQ6
PS_USB_REQ1	The hardware shall support USB 1.0	1.1 USB 1.0 Speeds
PS_USB_REQ2	The hardware shall support USB 2.0	DS_USB2_REQ1
PS_USB_REQ2	The hardware shall support USB 2.0	DS_USB2_REQ2
PS_USB_REQ2	The hardware shall support USB 2.0	DS_USB2_REQ3
2. Design Specification covers Product Specification		
Coverage ratio: 100%		
Downstream	Text	Upstream
1.1 USB 1.0 Speeds	Hardware supports USB 1.0	PS_USB_REQ1
DS_USB2_REQ1	Low Speed: 1.5 Mbps	PS_USB_REQ2
DS_USB2_REQ2	Med Speed: 12 Mbps	PS_USB_REQ2

Generating the Analysis Results Report

Select **Reports > Library Reports > Analysis Results**.

You do not have to select any element before generation as the report is a summary of the project information.

Rhapsody Gateway opens a **Save As** dialog box. Select a style and a format for report generation from the Type drop-down list box, the location of your report file, and name the report.

Rhapsody Gateway generates the Analysis Results report, such as the example shown in the following figure.

Analysis Results

1. Project covers

Document name	File	Type	Number of requirements
Product Specification	ProductSpec.doc	Word	6
	is covered by	Design Specification	100%
Design Specification	DesignSpec.doc	Word	24
	covers	Product Specification	100%
	is covered by	Tests Spec	100%
Tests Spec	TestSpec.doc	Word	0
	covers	Design Specification	100%

2. Derived requirements

Document	Paragraph	Identifier
Design Specification	2.3.1	DS_DIO_REQ1
Design Specification	2.3.1	DS_DIO_REQ2
Design Specification	2.3.1	DS_DIO_REQ3
Design Specification	1.1	DS_USB1_REQ1
Design Specification	1.1	DS_USB1_REQ2

3. Undefined requirements

Document	Paragraph	Entity/Requirement	Identifier
Design Specification	2.2.1	DS_AO_REQ1	PS_AO_REQ199

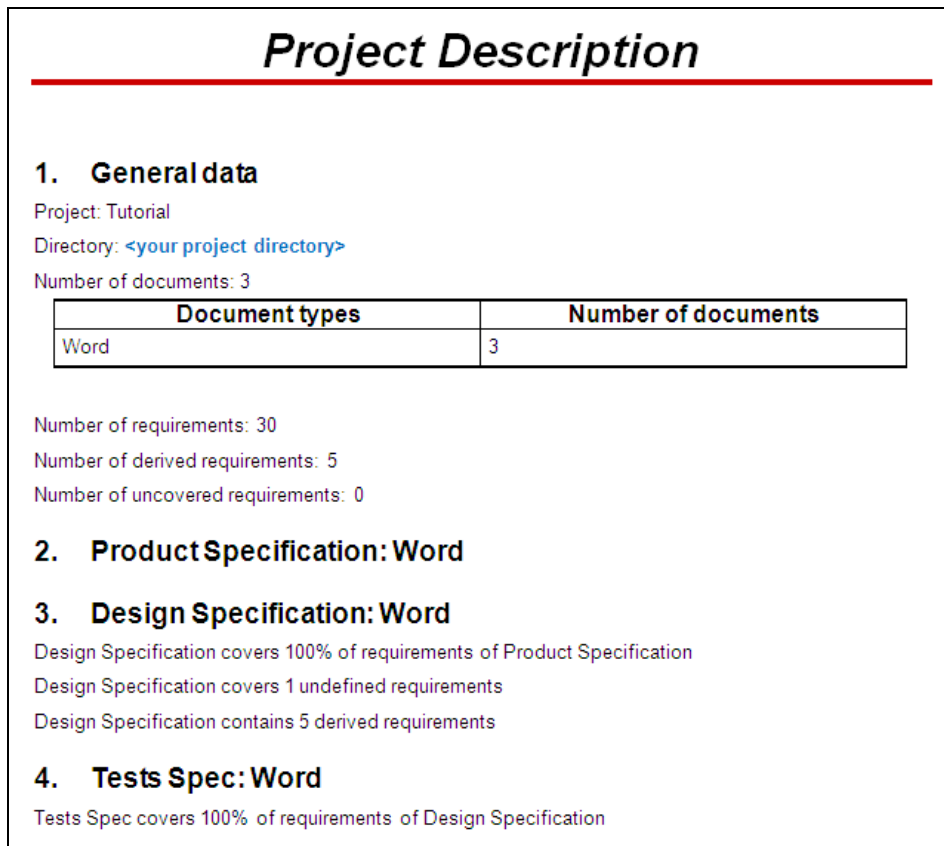
Generating the Project Description Report

Select **Reports > Library Reports > Project Description**.

You do not have to select any element before generation as the report is a summary of the project information.

Rhapsody Gateway opens a **Save As** dialog box. Select a style and a format for report generation from the Type drop-down list box, the location of your report file, and name the report.

Rhapsody Gateway generates the Project Description, such as the example shown in the following figure.

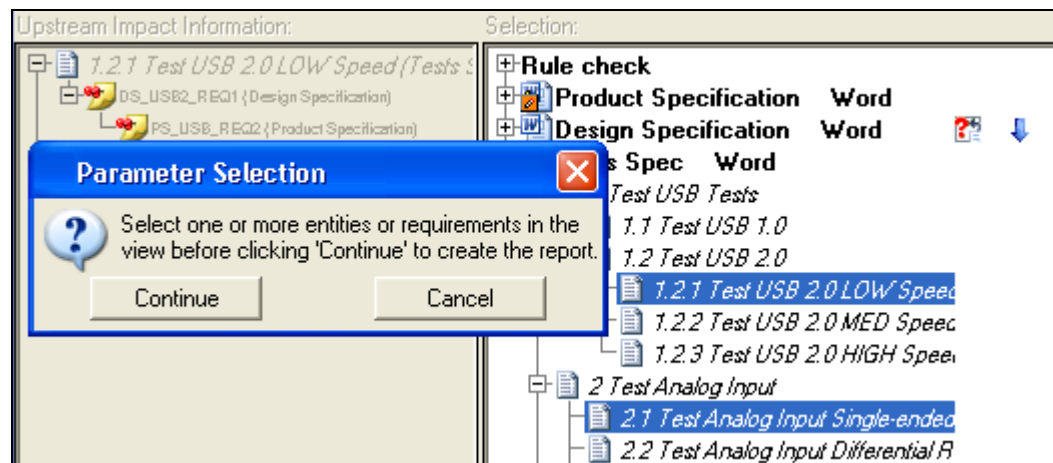


Generating the Upstream Impact Analysis Report

This report lists the upstream traceability information for a low level element selected in the project.

Select **Reports > Library Reports > Upstream Impact Analysis**.

Rhapsody Gateway opens the dialog box shown in the following figure.



Select one or several low level elements and click **Continue**.

Rhapsody Gateway opens a **Save As** dialog box. Select a style and a format for report generation from the Type drop-down list box, the location of your report file, and name the report.

Rhapsody Gateway generates the Upstream Impact Analysis report, such as the example shown in the following figure.

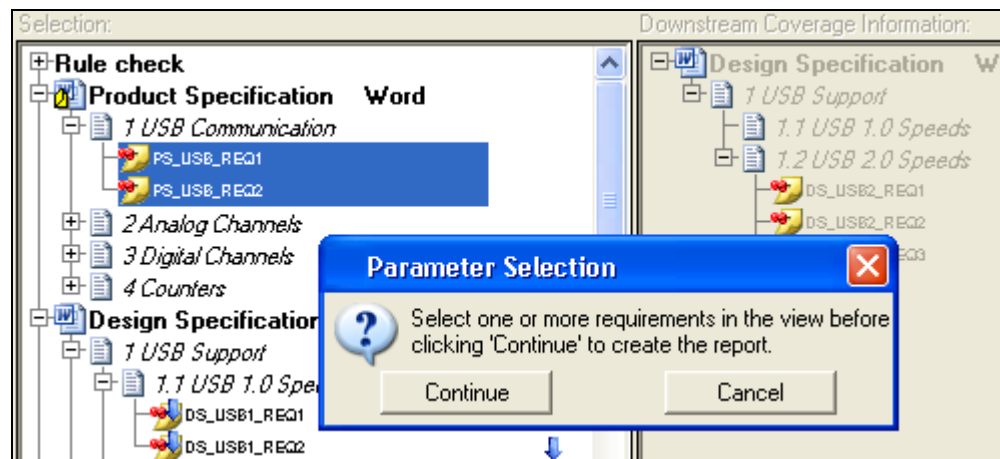
<i>Upstream Impact Analysis</i>	
1. 2.1 Test Analog Input Single-ended Resolution	
Entity/Requirement	Upstream
2.1 Test Analog Input Single-ended Resolution	DS_AI_REQ1
DS_AI_REQ1	PS_AI_REQ1
2. 1.2.1 TestUSB 2.0 LOW Speed	
Entity/Requirement	Upstream
1.2.1 Test USB 2.0 LOW Speed	DS_USB2_REQ1
DS_USB2_REQ1	PS_USB_REQ2

Generating the Downstream Impact Analysis Report

This report lists the downstream traceability information for a high level requirement selected in the project.

Select **Reports > Library Reports > Downstream Impact Analysis**.

Rhapsody Gateway opens the dialog box shown in the following figure.



Select one or several high level requirements and click **Continue**.

Rhapsody Gateway opens a **Save As** dialog box. Select a style and a format for report generation from the Type drop-down list box, the location of your report file, and name the report.

Rhapsody Gateway generates the Downstream Impact Analysis report, such as the example shown in the following figure.

<i>Downstream Impact Analysis</i>	
1. PS_USB_REQ1	
Requirement	Downstream
PS_USB_REQ1	1.1 USB 1.0 Speeds
2. PS_USB_REQ2	
Requirement	Downstream
PS_USB_REQ2	DS_USB2_REQ1
PS_USB_REQ2	DS_USB2_REQ2
PS_USB_REQ2	DS_USB2_REQ3
DS_USB2_REQ1	1.2.1 Test USB 2.0 LOW Speed
DS_USB2_REQ2	1.2.2 Test USB 2.0 MED Speed
DS_USB2_REQ3	1.2.3 Test USB 2.0 HIGH Speed

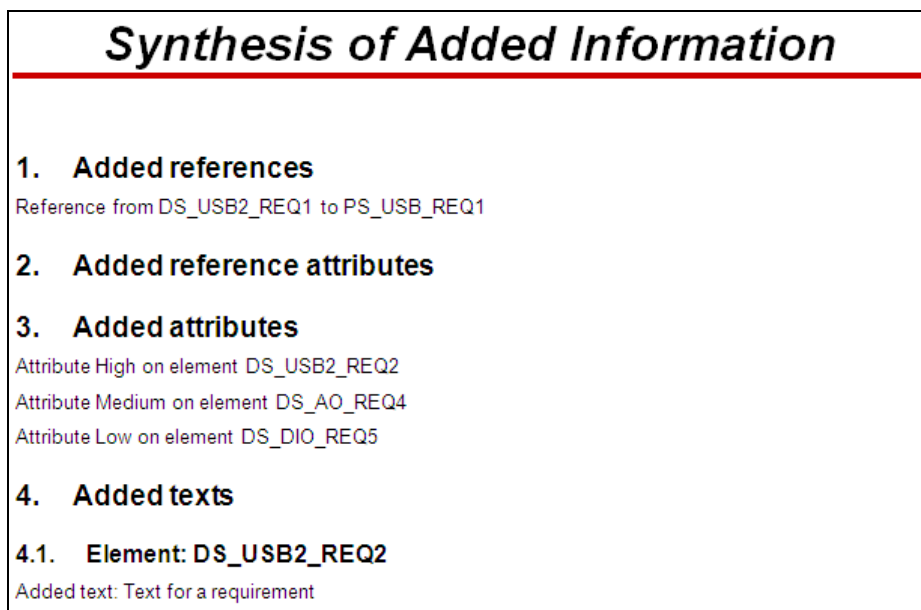
Generating the Synthesis of Added Information Report

Select **Reports > Library Reports > Synthesis of Added Information**.

You do not have to select any element before generation as the report is a summary of the project information.

Rhapsody Gateway opens a **Save As** dialog box. Select a style and a format for report generation from the Type drop-down list box, the location of your report file, and name the report.

Rhapsody Gateway generates the Synthesis of Added Information report, such as the example shown in the following figure.



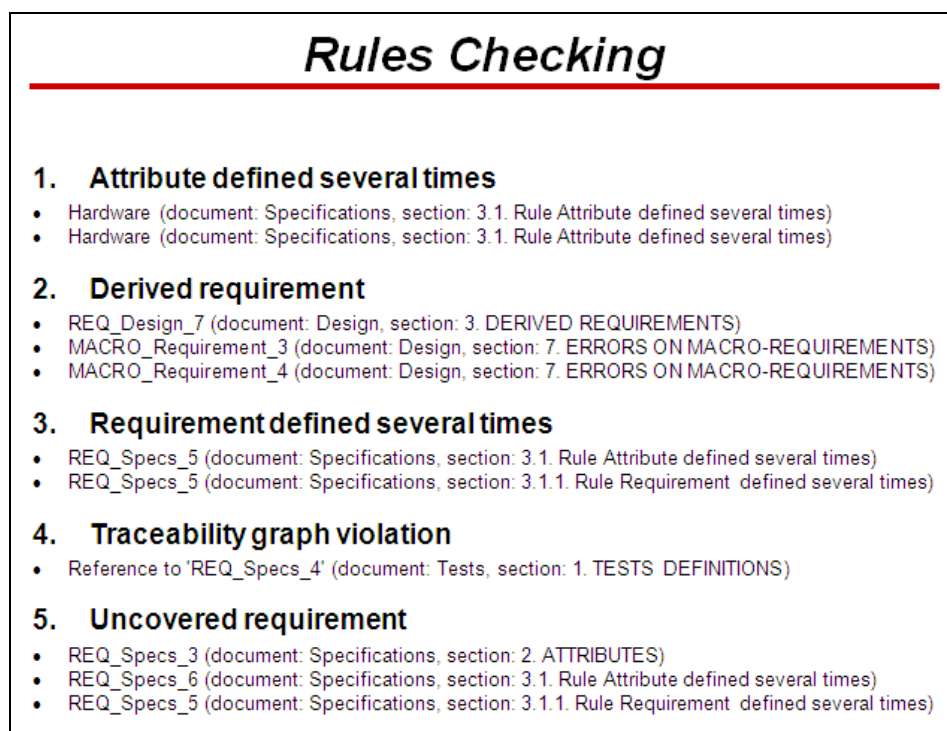
Generating the Rules Checking Report

Select **Reports > Library Reports > Rules Checking**.

You do not have to select any element before generation as the report is a summary of the project information.

Rhapsody Gateway opens a **Save As** dialog box. Select a style and a format for report generation from the Type drop-down list box, the location of your report file, and name the report.

Rhapsody Gateway generates the Rules Checking report, such as the example shown in the following figure.



Customizing your Report Style

You can customize the style of your report for each generation format by editing templates.

Default templates are located in the <installation_dir>\Config\Doc_Templates directory. See the section about configuration files to learn more about the management of the customized templates.

Templates are files that use the format (and the extension) corresponding to the report generation format:

- ◆ Templates for RTF (Word) generation shall be named <template-name>.rtf
- ◆ Templates for Excel generation shall be named <template-name>.xls
- ◆ Templates for HTML generation shall be named <template-name>.htm
- ◆ etc.

By defining different templates, you can create different styles for the same content, depending on your generation format or final usage of the generated report.

All the templates contain two tags: %endheader and %begintrailer, as shown in picture of the customized Downstream Impact Analysis report, at the end of next section.

The text between those tags will be replaced by the analysis results generated from Rhapsody Gateway, but the formatting defined will be used for generation.

Word document generation

For example, consider the Downstream impact analysis report generated using the default `Portrait.rtf` template. The result looks like the report shown in the following figure (the default style shown in the following figure may change depending on your Rhapsody Gateway configuration).

<i>Downstream Impact Analysis</i>	
1. PS_USB_REQ1	
Requirement	Downstream
PS_USB_REQ1	1.1 USB 1.0 Speeds
2. PS_USB_REQ2	
Requirement	Downstream
PS_USB_REQ2	DS_USB2_REQ1
PS_USB_REQ2	DS_USB2_REQ2
PS_USB_REQ2	DS_USB2_REQ3
DS_USB2_REQ1	1.2.1 Test USB 2.0 LOW Speed
DS_USB2_REQ2	1.2.2 Test USB 2.0 MED Speed
DS_USB2_REQ3	1.2.3 Test USB 2.0 HIGH Speed

You can customize the portrait.rtf file, modify the Word styles (take care to modify the Word styles themselves, using Format > Styles...) and create a new template my_style.rtf, such as the one shown in the following figure.



When you generate reports, Rhapsody Gateway opens a **Save As** dialog box: the my_style template is available in the Type drop-down list box. Select it, select the location of your report file, name the report and click OK to generate.

You get a report with the same content but with the styles you have defined, as the example shown in the following figure for our example.

This text is out of the zone defined by the tags and will not be replaced

Downstream Impact Analysis

1. PS_USB_REQ1

Requirement	Downstream
PS_USB_REQ1	1.1 USB 1.0 Speeds

2. PS_USB_REQ2

Requirement	Downstream
PS_USB_REQ2	DS_USB2_REQ1
PS_USB_REQ2	DS_USB2_REQ2
PS_USB_REQ2	DS_USB2_REQ3
DS_USB2_REQ1	1.2.1 Test USB 2.0 LOW Speed
DS_USB2_REQ2	1.2.2 Test USB 2.0 MED Speed
DS_USB2_REQ3	1.2.3 Test USB 2.0 HIGH Speed

OLE and Rich text object can be generated in a word document.

Excel generation

Rhapsody Gateway can generate document content in several spreadsheets. User can add a simple “PAGE BREAK” tag in their favorites excel templates in order to generate one document section per sheet. As a result you can have automatically one matrix/table per sheet for instance instead of a very long single sheet.

	B2	fx PAGE BREAK
	A	B
1	This document has been generated by Regtify	
2	%endheader	PAGE BREAK
3	title	
4	sect1	
5	sect2	
6	<u>sect3</u>	
7	sect4	
8	sect5	
9	sect6	

To specify the spreadsheet name in which the report will be generated, the user has to specify the START_REPORT tag in the target cell where the report will be generated.

Overview of the Product Work Files

This section gives an overview of the files used by Rhapsody Gateway.

Note 1

Modification of these files may lead to abnormal behavior, or even data losses. Users manually editing the files do so at their own risk. In case of any doubt, contact the Support Team BEFORE modifying the files.

Note 2

Most of the files are defined with the objective to support multi-language capability of the product, including Chinese and Japanese. For this reason, files are saved using the UTF8 format and not a plain text or ANSI format.

Saving these files in ANSI or other non UTF8 format may break the product opening process. If you decide to directly edit a file, please use a text editor supporting the UTF8 format and be sure to save the edited file in the same format as the original one.

Rhapsody Gateway takes into account configuration files located:

- ◆ In its installation directory: in this case the default or user-defined configuration is available for all projects.
- ◆ In the project directory: in this case the configuration (always user-defined) is available only for the project.

You can read about these topics in:

- ◆ Main Configuration Files in the Installation Directory
- ◆ Adding Configuration Files in the Project Directory
- ◆ Project Files

Main Configuration Files in the Installation Directory

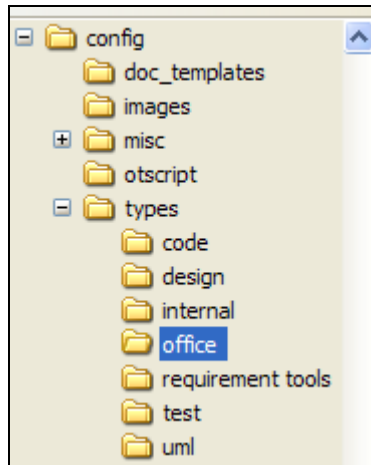
Several kind of information are defined in the configuration files, such as types, templates, etc.

Types Definition

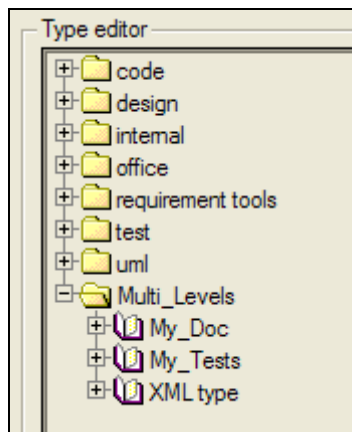
The files defining the default types of analysis are located in the <Installation directory>\config\types directory.

This directory contains subdirectories; each subdirectory is displayed as a folder in the Rhapsody Gateway types editor:

- ◆ “Config” directory and subdirectories



- ◆ Types hierarchy in the Types editor



Each subdirectory contains some files with the .types extension.

These files have the following structure:

```
[Types]
Names=<type1>,<type2>
```

```
[type1]
... (type1 definition)
```

```
[type2]
... (type2 definition)
```

type1, type2,... are the types displayed underneath the folder in the Types Editor.

If the .types files are read-only, types cannot be modified from the Types Editor.
Library types are in read-only mode.

Note

To forbid the use of **Internal Types**, you have to edit the `internal.types` file from the `<Installation directory>\config\types\internal` directory, then to remove the `InternalType` name from the list of type names, such as follows:

```
[Types]
Names=InternalType,_ProjectReference,LostType
```

If existing projects were using `InternalType`, these types are changed to `LostType`.

Report Templates

Templates for reports generation (structure and contents) are located in the `<installation_dir>\Config\Doc_models` directory.

The files located in this subdirectory are XML files created from the Reports Editor.

The Support Team or our Experts can provide you with ready to use reports compliant with your requirements management process and needs. They have to be dropped in that subdirectory.

Templates for Report Styles

Templates defining the “style” of your reports according to the generation format (RTF, HTML, Excel,...) are located in the `<installation_dir>\Config\Doc_templates` directory.

Templates are files using the format (and the extension) corresponding to the report generation format, and that can be edited directly in the editing tool (Word for RTF, HTML editor for HTML, etc.):

- ◆ Templates for RTF (Word) generation shall be named `<template-name>.rtf`
- ◆ Templates for HTML generation shall be named `<template-name>.htm`
- ◆ etc.

Once created, these templates can be selected from the “Type” drop-down list box of the **Save As** dialog box, which opens when you select a report generation.

Adding Configuration Files in the Project Directory

When you perform an additional customization in your project environment, configuration files are located in the project directory, or in subdirectories.

You can also add configuration files in the project directory, or in its subdirectories, to make a configuration available only for the project.

Note

Select **File > Open Project Directory** to quickly open the project directory.

Types Definition

The `<project_name>.types` file contains the information about the different types of analysis created for your project from the Types Editor.

Rhapsody Gateway will also take into account all the files contained in the project directory with the `.types` extension.

Therefore, if you customize default types:

- ◆ You can make them available for all projects by locating those files in the installation directory. See the section about Default configuration files to learn more.
- ◆ You can make them available for any other project by copying the types file into the new project directory. You do not have to rename it.

Report Templates

The `doc_models` subdirectory contains XML file(s) for reports created from the Reports Editor.

Rhapsody Gateway will also take into account all the files contained in the `doc_models` subdirectory of the project directory.

Therefore, if you customized reports:

- ◆ You can make them available for all projects by locating those files in the installation directory. See the section about Default configuration files to learn more.
- ◆ You can make them available for any other project by copying the file into the new project directory; in a `doc_models` subdirectory (create it if it does not already exist).

Templates for Report Styles

The `doc_templates` subdirectory contains file(s) for report styles.

Rhapsody Gateway will also take into account all the files contained in the `doc_templates` subdirectory of the project directory.

Therefore, if you customized report styles:

- ◆ You can make them available for all projects by locating those files in the installation directory. See the section about Default configuration files to learn more.
- ◆ You can make them available for any other project by copying the file into the new project directory; in a `doc_templates` subdirectory (create it if it does not already exist).

As for default ones, these templates can be selected from the “Type” drop-down list box of the **Save As** dialog box opened when you select a report generation.

Project Files

Project Configuration File

The `<project_name>.rqtf` file contains the definition of the project configuration, defined from the project editor window.

This file is located in the project directory.

Analysis Results File

The file `<project_name>.rqtfimage` is created after the first analysis of project information. This file contains the analysis results.

This file is in a binary and is proprietary, therefore you cannot edit it. If you delete it, Rhapsody Gateway will re-analyze all the project documents to re-create this file.

Note

If you want to exchange information between teams or with the Support Team, you can send the rqtimage files and use the product as a viewer: **Select File > Open** and select “Project snapshot” from the File Type drop-down list box of the Open dialog box.

The project directory may contain a subdirectory called `Snapshots`. These files contain the analysis results saved as snapshots using the Snapshot editor.

They are named automatically with the following syntax:

`<project_nameYYMMDDHHNN>.rqtimage`

The information `YYMMDDHHNN` specifies the date the file was saved:

- ◆ `YY` is the year
- ◆ `MM` is the month
- ◆ `DD` is the day
- ◆ `HHNN` is the time in hours and minutes

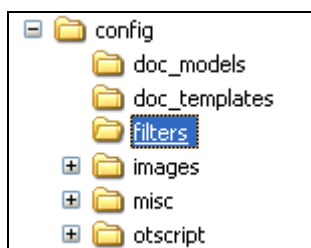
Filter Definition File

The file `<project_name>.filters` contains the definitions of project filters created from the Filters editors, and the status of the current filter activated for the project. The file also contains information concerning display filters such as user’s selection about show/hide requirements, show/hide empty sections, etc. This file may not exist.

The filter file is located in the project directory. Several filters files can be placed in the project directory, they are all taken into account.

Sharing Filter Files

Some filter files can be placed in library to be used for each project. Copy the filter file into the `filters` directory of `<Installation directory>\config` directory to place the filter in library.



Environment Variables Declaration

The positioning of some environment variables allows you to parameterize certain data such as the redefinition of directories.

TMP Environment Variable

The temporary files generated by Rhapsody Gateway are principally intermediate files, when these files are not stored.

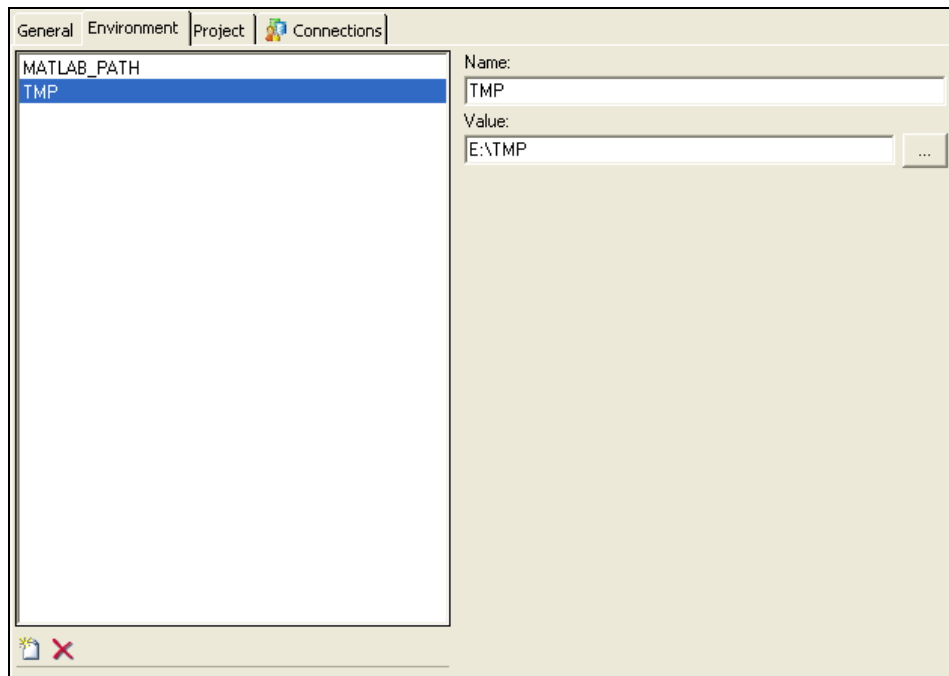
By default these temporary files take place into the user temporary directory:

<User Local Settings>\Temp

It is possible to change the temporary files location by moving the TMP environment variable. This is useful when temporary files take a lot of place.

To redefine the temporary files location, follow these steps:

1. Open the **Options** dialog box (**Tools > Options**).
2. Create a new environment variable named TMP.
3. In the **Value** field, assign the new temporary files location.



Debugging Directory

When the tools coupled with Rhapsody Gateway encounter problems, they return debugging files placed into the <User Application Data>\TNI\<Rhapsody Gateway> directory.

To modify the location of these files, follow these steps:

Edit the .ini file.

In the [General] section (create this section if it does not exist), define the variable: ApplicationDataDir.

Assign the new location to the ApplicationDataDir key.

Appendix: Command Line Options

This section presents all other available Rhapsody Gateway command line options.

-l <eng|fra|jpn>

This option allows the user to run Rhapsody Gateway in another language than the default (computer related) one.

-l must be followed by:

- * eng for English
- * fra for French
- * jpn for Japanese

Example: Rhapsody Gateway -l eng

Config="<ConfigDir1>, <ConfigDir2>, ..."

This option allows you to run the application loading several configuration directories.

This is useful when files are shared between several users.

In this case, a common configuration directory can be created containing its own types, otscript, images, doc_models directories.

Then running Rhapsody Gateway with the Config option allows to use this shared configuration directory.

Example: Rhapsody Gateway Config="C:\Program Files\...\Rhapsody Gateway x.x\config,S:\Shared\config_200901"

Note

The first configuration directory must be the tool “config” directory.

Note

The path to specify for configuration directories must be an absolute path.

-regserver

This option allows you to register COM server adding entries to the operating system registry.

Example: Rhapsody Gateway -regserver

Note

This option is Windows-compatible only.

-unregserver

This option allows you to remove registry entries added through '-unregserver' command.

Example: Rhapsody Gateway -unregserver

Note

This option is Windows-compatible only.

-sync

This option allows you to run the application in X synchronous mode. The synchronous mode forces the X server to perform each X client request immediately and not use buffer optimization. It makes the program easier to debug and often much slower.

Note

This option is Linux-compatible only.

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