IBM® Rational® Rhapsody® Gateway Add On

User Guide

Rhapsody®

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User Guide

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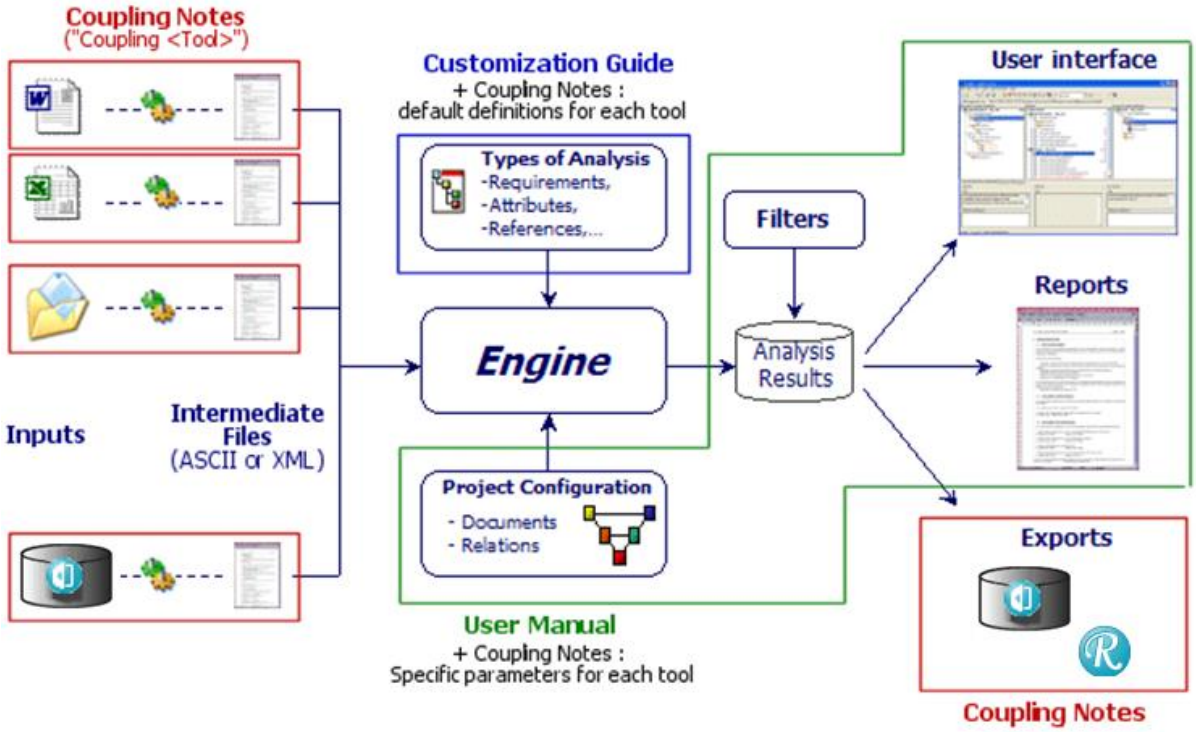
How to Use the User Guide

This chapter introduces the organization of the documentation.

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 Guide* 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 Guide* 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 Guide* 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 Guide*, and familiarize yourself with all the windows, features and analysis results calculation.

Capture and Analysis Process

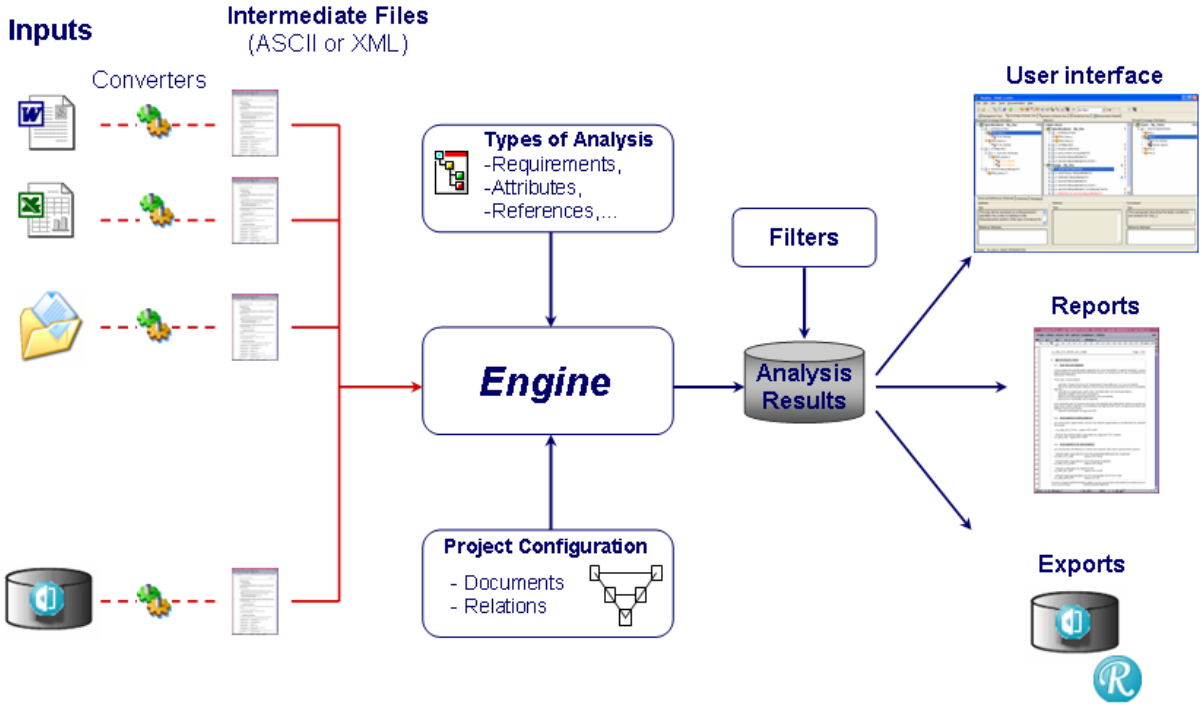
This chapter explains how the source information is captured and analyzed.

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 Guide*. 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** list 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 Guide*.
- The filters are defined using the **Filters Editor**, described in this *User Guide*.
- 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 cover any requirement. This requirement is defined in a covering document. 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.

Some attributes can have their label defined and used as a type definition. They are named generic attributes. Their purpose is to be able to handle new attributes without modifying the type.

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, requirementn entity, macro-requirement) detected immediately above it.

Text supports **rich text** properties such as:

- text color and background color
- bold, italic, underline, strikethrough, superscript, subscript
- bulleted list and numbered list
- left, right and center alignments
- tables
- pictures
- OLE objects

Important:

Following formattings are not supported by rich text management:

- table style: line cells, line styles, line color, cell background color, border spacing, etc.
- font changes
- merging table cells

Many couplings are now supporting **rich text** principles.

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. However a more detailed comparison is possible concerning the label, the text and the attributes.

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 pharmaceutics and medical devices;
- etc.

Main Window

This chapter describes Rhapsody Gateway and its content.

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:

- **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 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:

- **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**—Only 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 search for a string in an Identifier, a Label, a Text and/or an Attribute. You can also search for marks. Entire word, match case and regular expression options are available for the search. You can also press <**Ctrl**> + <**F**>.
- **Find Next**—Searches the next occurrence of the string defined in the **Find** dialog box. You can also press <**F3**>.
- **Find Previous**—Searches the previous occurrence of the string defined in the **Find** dialog box. You can also press <**Shift**> + <**F3**>
- **Marks**—Provides submenus to create and manage **Marks**.
- **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**—Only in the Graphical View, changes the direction of a link created from Rhapsody Gateway.

View Menu

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

- **Edit Filters**—Opens the filter editor.
- **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:

- **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.

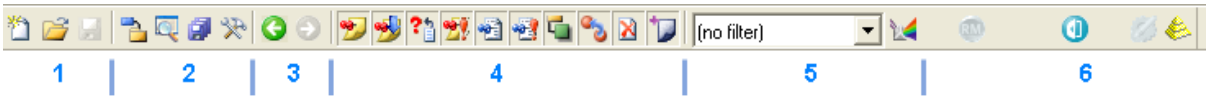
Reports Menu

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

- **Edit Reports**—Opens the report editor to create reports and edit report contents.
- **Library Reports** (installed by default)—Generates:
  - **Traceability Matrix**—a traceability matrix between selected documents
  - **Analysis Results**—a report containing the synthesis of analyzed elements
  - **Project Description**—a report with the project description
  - **Upstream Impact Analysis**—a report for upstream impact analysis from an element selected at a low level
  - **Downstream Impact Analysis**—a report for downstream impact analysis from an element selected at a high level
  - **Synthesis of Added Information**—a report containing the list of information added from Rhapsody Gateway
  - **Rules Checking**—a report containing the list of rule violations
  - **Requirement Attributes**
  - **Requirement Details View**.
- **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 list 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.

The icons are described below:

 —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

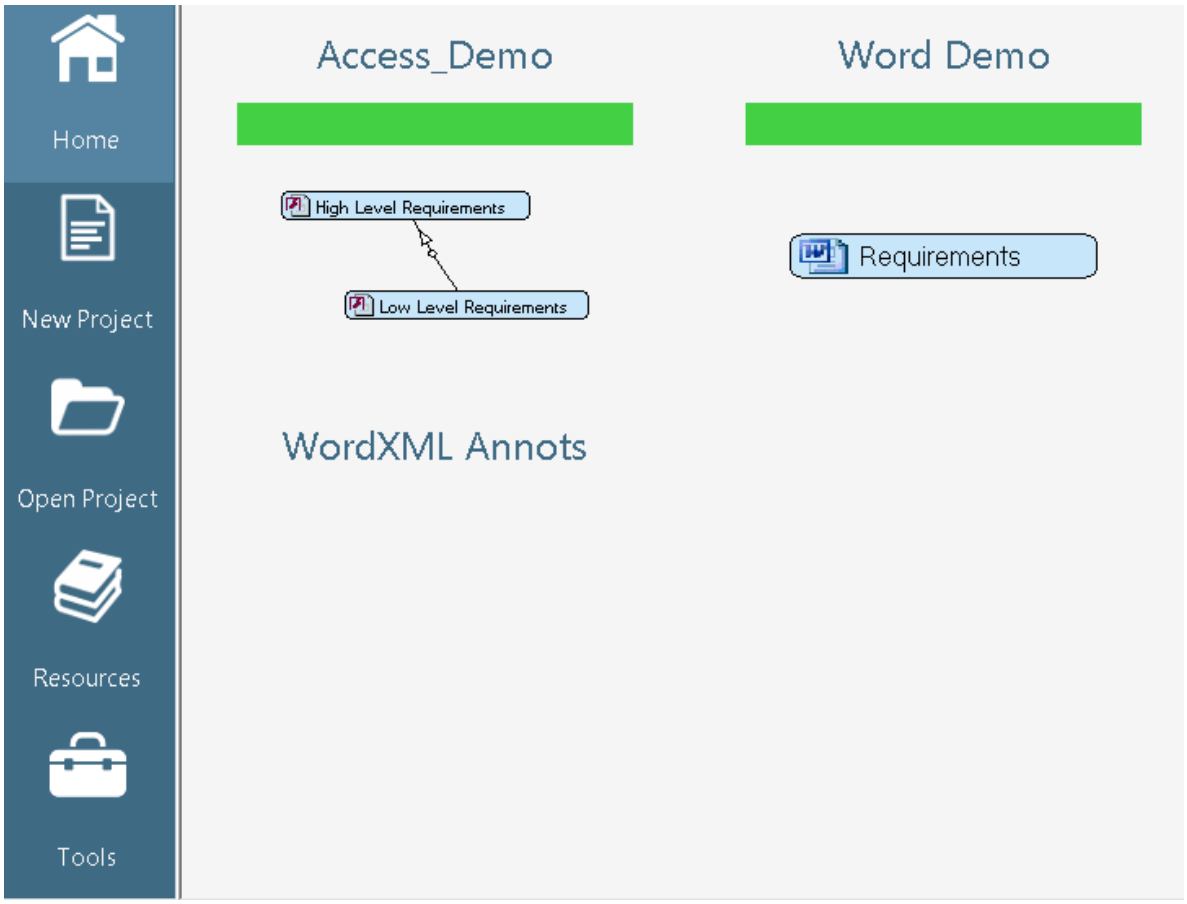
The project workspace is the main area of the application. This area displays the project information and analysis for the loaded project. The project workspace contains multiple view tabs for displaying the contents of the project. Each view may contain one or more panes.

The project workspace contains the following views:

- **Welcome Page**—Gives a direct access to project creation and project opening. Displays the recent project overviews and documentations.
- **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.

Welcome Screen

The Welcome Screen is displayed at Rhapsody Gateway's launching. You can also access it selecting **View > Welcome Screen**.



Description

The Welcome Screen contains a toolbar and a graphical view:

- The **Home** button lets you coming back to the Welcome Page initial view. By default, the graphical view shows recent projects with their representation as thumbnail preview. Double-click a project to open it.
- The **New Project** button opens the Save As dialog box to give a name and create a new project.
- The **Open Project** button allows you to open an existing project.
- The **Resources** button gives you access to resources by type category. Each category is displayed in the graphical view and contains types. For a selected type, you can visualize all documentations and examples available for this type.
- The **Tools** button lets you access in the graphical view the Rhapsody Gateway Rhapsody GatewayOptions and tools which do not need a project.

Management View

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

Description

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.

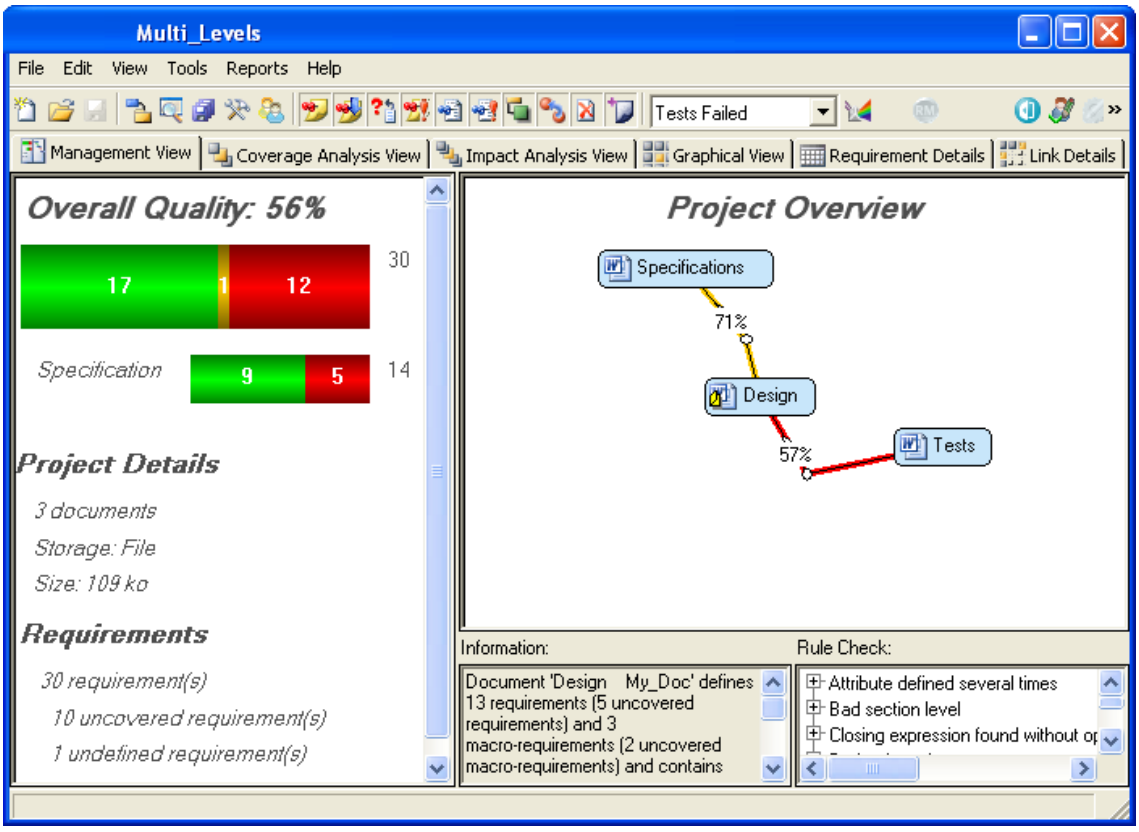
  Depending on the coverage ratios, links are displayed in green, orange or red:

  - 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 *Understanding the Coverage Ratios* 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**.



- **Navigate**—Navigates to the source file corresponding to the selected document in the third party tool. This option is available if you right-click a document in the Project Overview area.

Coverage Analysis View

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

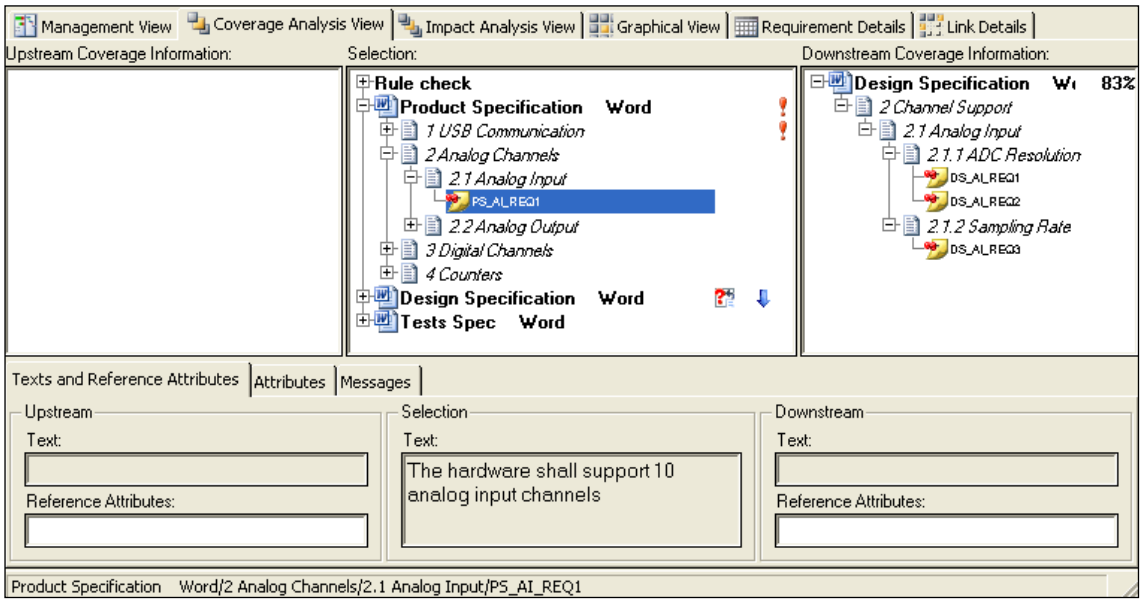
Description

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.

Note

When a document is the source of a coverage link, this link is not displayed in the **Upstream Coverage Information** or **Downstream Coverage Information** areas.

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 of Selection column:

- **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 dialog box to define a search action. You can search for a string in an Identifier, a Label, a Text and/or an Attribute. You can also search for marks. Entire word, match case and regular expression options are available for the search. You can also press <**Ctrl**> + <**F**>.
- **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 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: **Define a Boolean Attribute** and **Define a Value Attribute**. This option is available if internal types are activated. 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. This option is available if internal types are activated. See the section on the addition of elements to learn more.
- **Evaluate**—Opens the OTScript Evaluator
- **Force Reload**—Reloads and reanalyzes the selected document(s) in order to update analysis results.

These items are available in the **Coverage Analysis View** of Upstream/Downstream Coverage Information columns:

- **Select**—Open the selected element in the central 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.
- **Navigate to cover**—Opens the covering document in which the covering element is highlighted.
- **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.
- **Delete**—Deletes the selected reference attribute or the selected coverage. You can only delete a reference attribute added from Rhapsody Gateway.
- **Add a reference attribute**—Allows the addition of an attribute for the selected element. 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.

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

In the **Text and References Attributes** pane, the following contextual 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:

- **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**. This option is available if internal types are activated. 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 contextual menu is available if you click the **Attributes** area and if an element is selected in the **Selection** column:

- **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

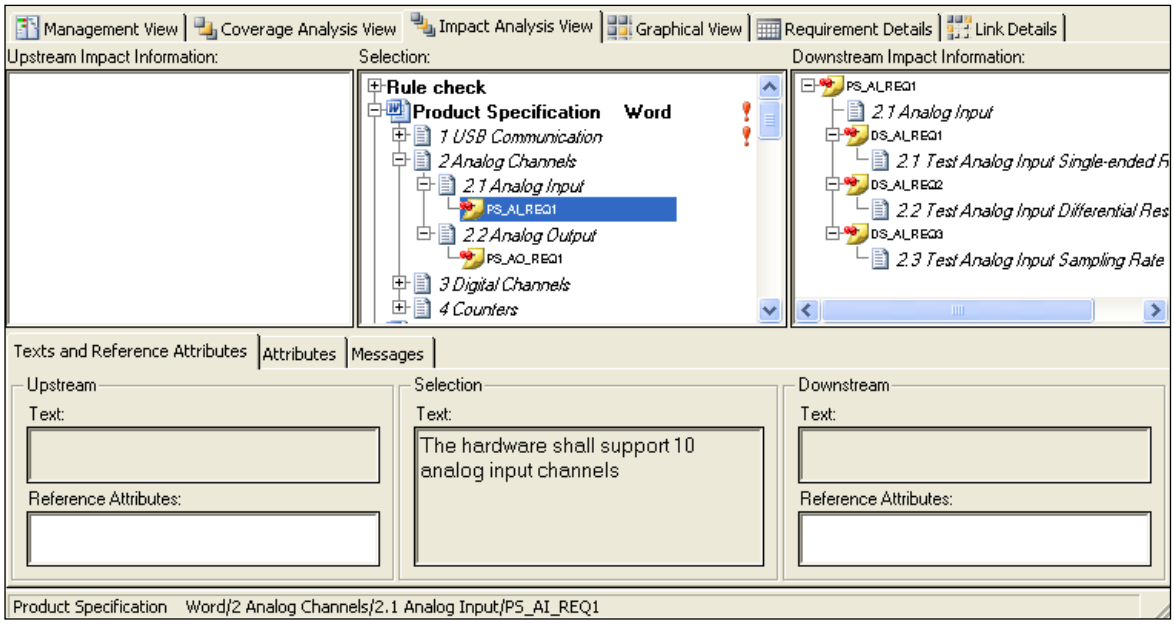
To activate the Impact Analysis View, click the **Impact Analysis View** tab in the project workspace of the main window.

Description

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.

Note

When a document is the source of a coverage link, this link is not displayed in the **Upstream Impact Information** or **Downstream Impact Information** areas.

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:

- **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…* sections for more information.
- **Delete**—Deletes the selected reference attribute or cover link. You can only delete a reference attribute added from Rhapsody Gateway.
- **Find**—Opens a dialog box to define a search action. You can search for a string in an Identifier, a Label, a Text and/or an Attribute. You can also search for marks. Entire word, match case and regular expression options are available for the search. You can also press <**Ctrl**> + <**F**>.
- **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: **Define a Value Attribute** and **Define a Boolean Attribute**. This option is available if internal types are activated. 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. This option is available if internal types are activated. See the sections on the addition of elements to learn more.
- **Evaluate**—Opens the OTScript Evaluator
- **Force Reload**—Reloads and reanalyzes the selected document(s) in order to update analysis results.

These items are available in the Impact Analysis View of Upstream/Downstream Impact Information columns:

- **Select**—Open the selected element in the central 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.
- **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.
- **Delete**—Deletes the selected attribute or cover link. You can only delete an attribute added from Rhapsody Gateway.

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

In the **Text and References Attributes** pane, the following contextual 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:

- **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**. This option is available if internal types are activated. 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 contextual menu is available if you click the **Attributes** area and if an element is selected in the **Selection** column:

- **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

The **Graphical View** displays each document as an object with its traceability elements displayed in a tree view within the object.

Description

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:

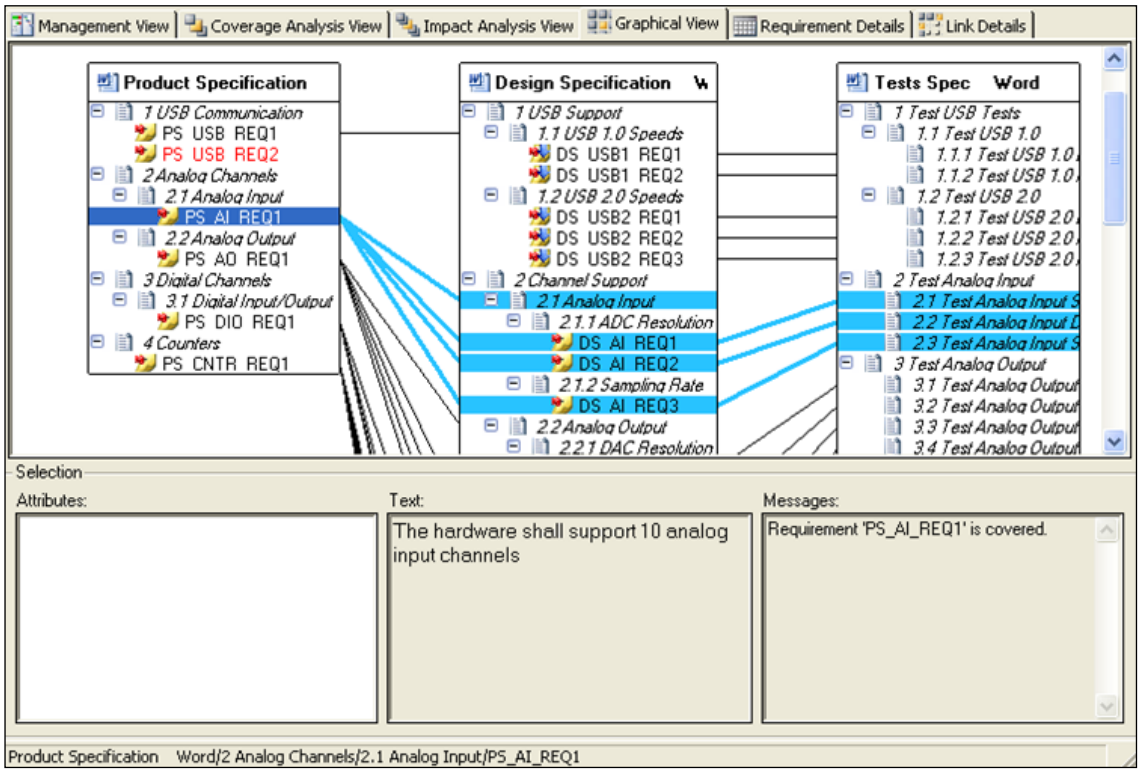
Link Color	Description
(Black)	Standard link
(Red)	Traceability violation
(Green)	Link created from Rhapsody Gateway
(Blue)	Link with a reference attribute attached

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.

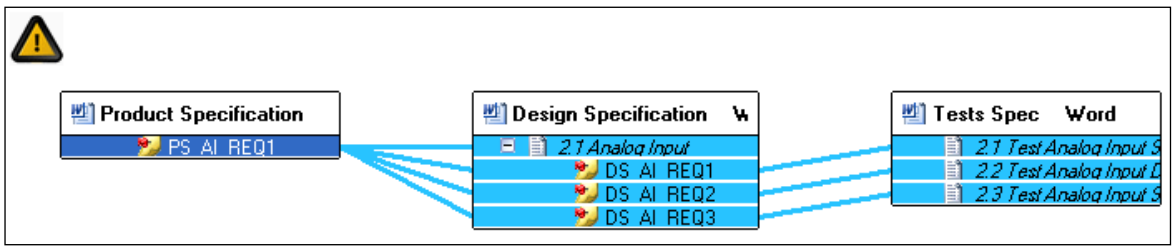


Click the header of a document. When you make this selection the entire document is selected.

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 the view to select **View Graph for Selection** from the contextual menu, the view will only display the highlighted elements from the three documents, as shown in the following figure.



Select the view then right-click **Show All Elements** to show all the elements of the documents again.

Hiding documents of a graph

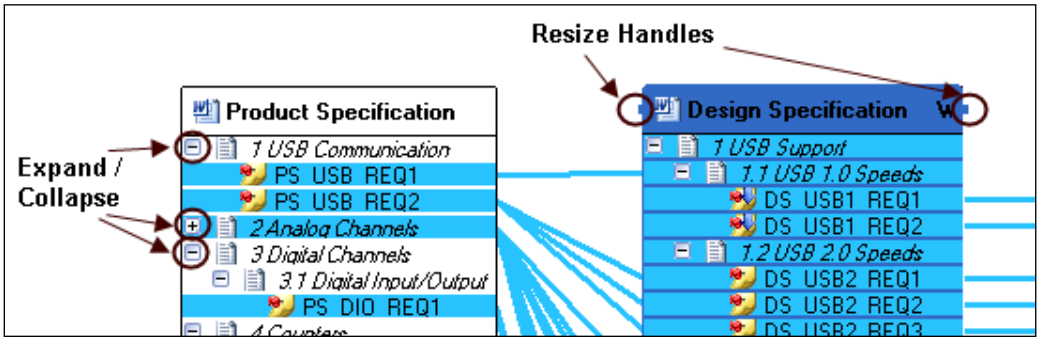
Select the document then right-click **Hide Selected Documents**. When you make this selection, the view hides the selected document and displays the traceability information for the remaining two documents.

Select the view then right-click **Show Hidden Documents** 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 contextual 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 contextual menu.

Note

When a document is the source of a coverage link, this link is not displayed in the **Graphical View**.

Contextual Menus

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 menus and items are available in the Graphical View:

- **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.
- **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
- **Force Reload**—Reloads and reanalyzes the selected document(s) in order to update analysis results.

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

- **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**. This option is available if internal types are activated. 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 contextual menu is available:

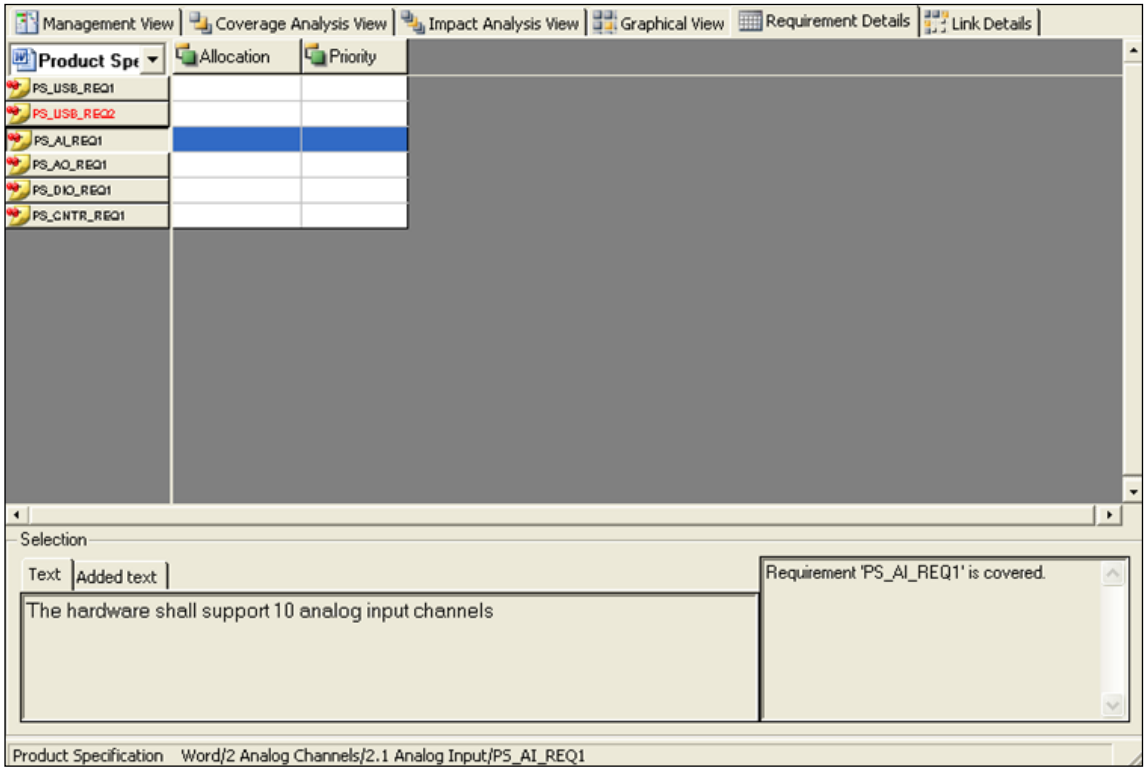
- **Add a reference attribute**—Adds an attribute to the reference selected in the **Graphical view**. Opens two submenu items: **Define a Boolean Reference Attribute** and **Define a Value Reference Attribute**. This option is available if internal types are activated. See the section on the addition of elements to learn more.
- **Delete selected attributes** —Deletes the selected attribute. You can only delete an attribute added from Rhapsody Gateway. This option is available if internal types are activated.

Requirement Details View

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

Description

The document displayed is selected from the list 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. For generic attributes, the column title is the label.



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:

- In the first column, right-click one of the requirements then select **Sort by Identifier**.
- 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 contextual menu:

- **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 contextual menu:

- **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 contextual menu:

- **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

The Link Details pane displays covering information between a covering document and its covered documents.

Description

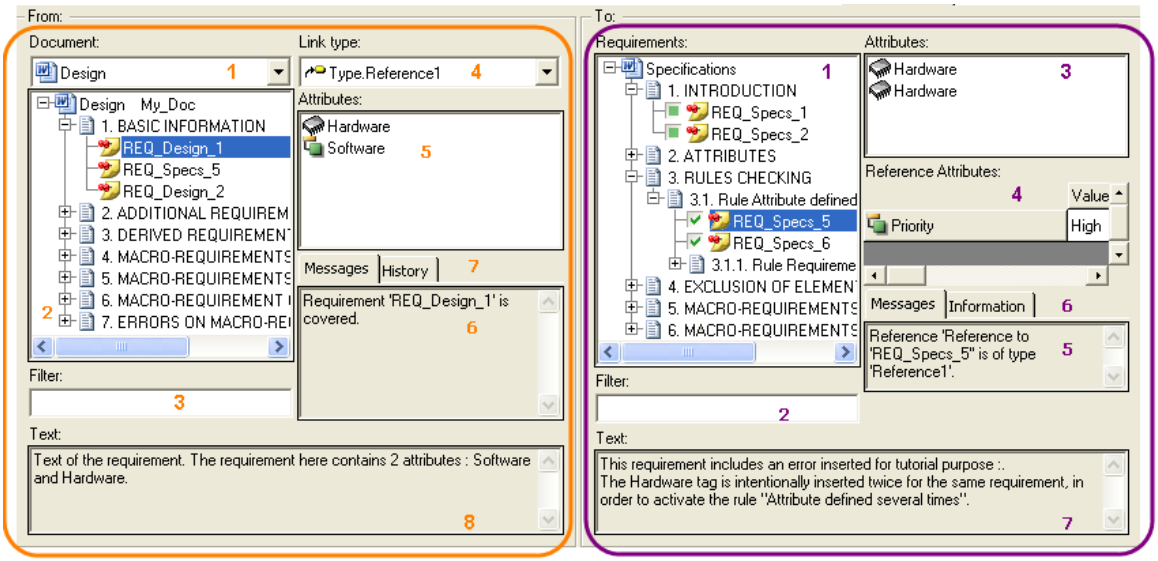
It also enables you to create suspicious links. See *Suspicious links management* section.

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.
- **Filter** (3)—Allows you to filter the requirements of the covering documents to only visualize some of them. This field is case-sensitive and supports regular expressions. See next section for filters details.
- **Link type** (4)—Shows the reference types defined in the added types of modification for the selected document in a combo-box.
- **Attributes** (5)—Shows all the attributes of the selected element.
- **Messages** (6)—Displays the message associated to the selected element.
- **History** (7)—Displays the links creation and the links removal history for the selected element. This tab is optional.
- **Text** (8)—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

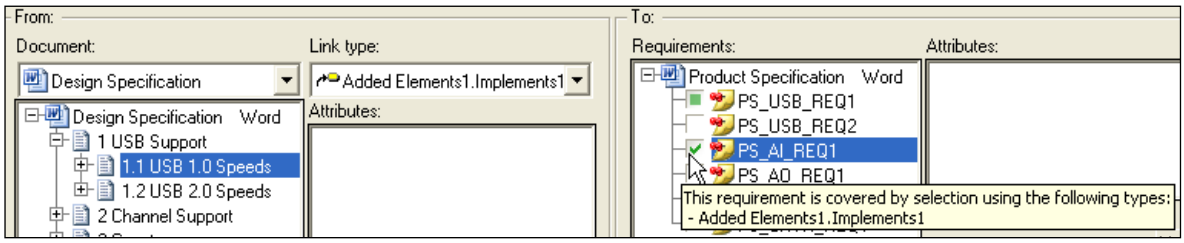
Requirements of the covered documents can be filtered out in the Requirements area to make it easy to visualize.

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.

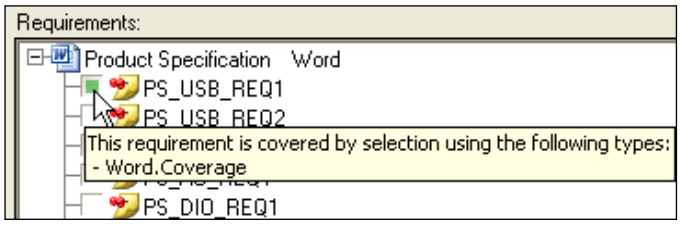
Coverage Display

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 Options > General 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 **Options > General** 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 (I.E. “cover link between PS_AO_REQ1 and DS_USB2_REQ1”).

By the same way, when you click to delete a cover link, you can add a comment. Add for example: “deletion of link between PS_USB_REQ1 and the Design specification document”. This comment is displayed in the **History** area.

Menus

Contextual menus and Edit menu contain the following options:

- **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. This option is available if internal types are activated.
- **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.

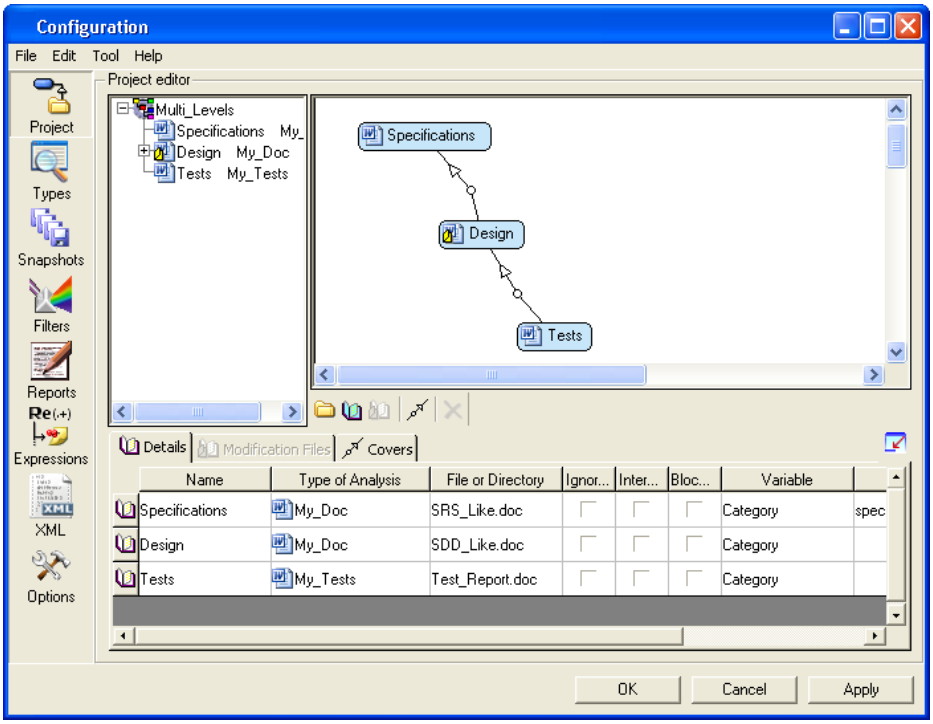
- **Add link**—Creates a link if it is possible. This option is available if internal types are activated.
- **Delete link**—Deletes a link if it is possible. This option is available if internal types are activated.

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*.

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 Guide* for more information about configuring projects.

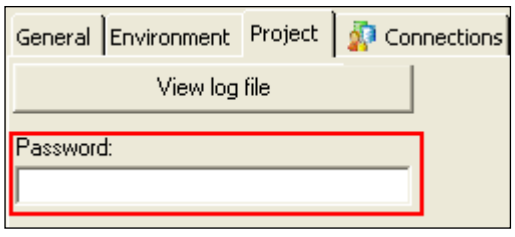
- **Types**—Allows you to create new types or customize existing types for your project. Refer to the *Customization Guide* for more information about customizing types.
- **Snapshots**—Allows you to create, manage and compare snapshots of your project. Refer to the **Detection of Requirement Changes** chapter in this *User Guide* 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 list on the toolbar of the Rhapsody Gateway main window. Refer to the **Filters Usage and advanced Analysis** section of this *User Guide* 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 Guide* 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, each time you try to open the Configuration dialog box, a dialog box is displayed to enter your password.

Access 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 is displayed indicating who locked the file.

- 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.

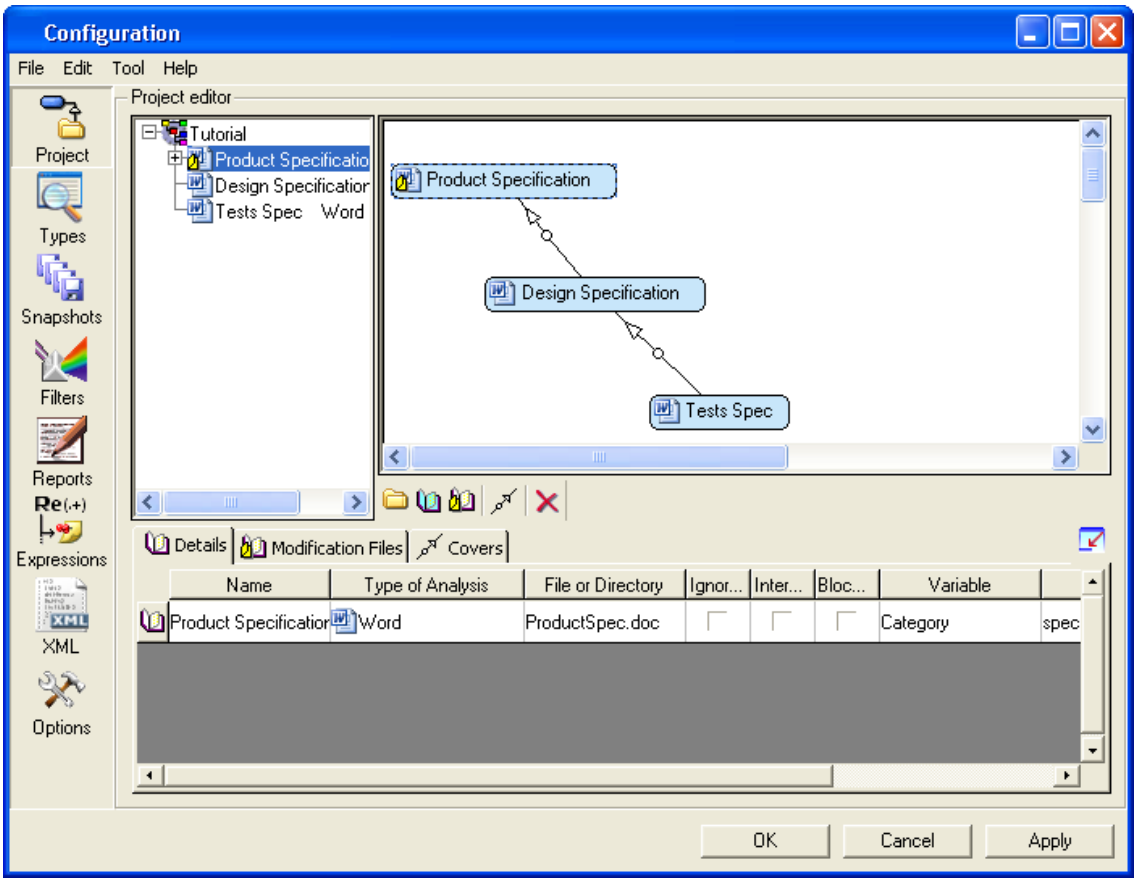
Project Configuration

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.

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:

- **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 list displays the list of generic and customized types that can be used to analyze the document.
- **File or Directory**—Click  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 Elements**—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**—When this option is selected in the Project Editor, an intermediate file called `<document_name>.txt` or `<document_name>.xml` and corresponding to the analysis of the source document is stored in a directory named **intermediate** in the project directory (the file is usually deleted at the end of the conversion process). For non file based types, the default option is set by Rhapsody Gateway and cannot be modified.

  ### Note

  If the type is a multi-type, intermediate files are stored in `intermediate\document_name` **directory in the project directory.**

  If this option is selected even if the **Ask for reloading** option is also selected, Rhapsody Gateway will not 'Ask for reloading' except if the intermediate file date has changed.

  Keep this intermediate file available for training or customization purpose, see the Customization Guide to learn more about the intermediate files content.

- **Block reloading**—When this option is activated, Rhapsody Gateway will avoid the reloading of the corresponding document.
- **Variable**—This list is automatically completed by Rhapsody Gateway and depends on the type applied to the document. It is used in relation with the **Value** to define additional specific parameters for the Type. This parametrize the analysis of the document.

Variables and expected Values are described in the *Coupling Notes* for the interfaced third party tool.

- **Value**—See the explanation above for Variables. The Value box is used to define Variable values. Depending on the selected variable, this element can be a list, a text field, or an option box. See *Adding a Document* section.
- **Access**—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. Right-click 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.

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

- **Sources->Target**—All the connections between documents are listed as source document followed by target document.
- **Kind**—Three kinds of covering links are available: cover, dependency and mirror. For further details on these traceability elements, refer **Traceability Links** section.
  - **Cover** is depicted as  .
  - **Dependency** is depicted as  .
  - **Mirror** is depicted as  .

  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.
- **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:

 —Used to add a folder. See the *Using Folders* 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 create coverage link between two documents. You can create successively several covers.

—Deletes the selected element (document, link or folder).

—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.

Context Menu

You can manage the project documents from the tree:

- **Up**—Moves up the document in the tree.
- **Down**—Moves down the document in the tree.
- **Delete**—Removes the document in the tree and in the graphic view.

Adding a Document

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

1. Click **Add a document** . 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 the **Type of Analysis** column. Select from the list the type you want to apply.
4. Click **File or Directory** column. The File Browse button appears on the right side of the field. Click this button then 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. **Optional**: If parameters have to be defined for the analysis,

   ♦ Select a specific parameter amongst those available in **Variables.**

Note

Available parameters are described in the *Coupling Notes* for the tools on which type of analysis is based (Word, Excel, etc.)

– Depending on the kind of expected value, in the **Value** box:

  ▪ Select a value in the list

  ▪ Select the parameter by checking the combo-box

  ▪ Type a patch, an integer, etc.

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 **Add a cover**  . The icon stays pushed and the cursor moves to the Traceability Description Area.

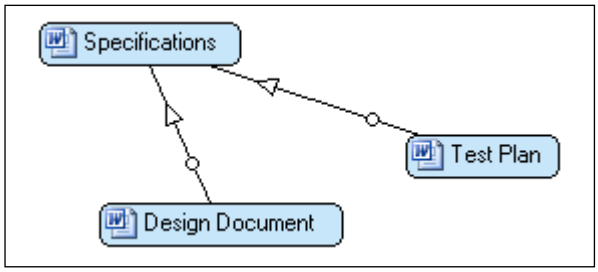
2. Click the covering (low level) document object first and then click the covered (higher level) document object. An arrow appears between the two documents. This arrow indicates that the low level document covers the high level document.

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.

Note:

To release **Add a cover**  , press Esc or click anywhere in the graphic view.

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

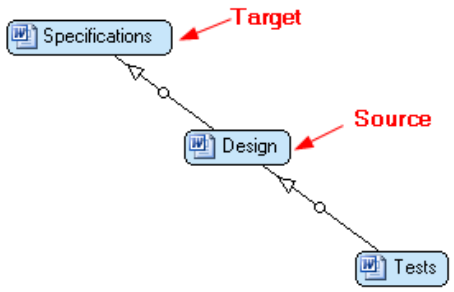
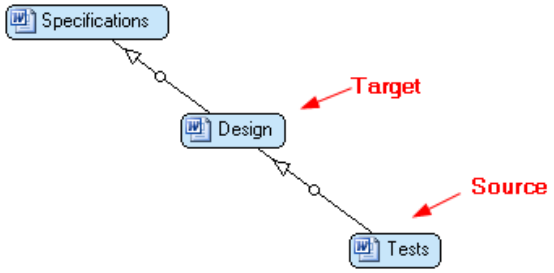


Note

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.

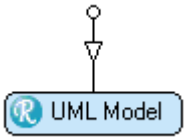
Note

The usual traceability uses upstream covers; the link is captured from the Design document. When using **inverse traceability**, the link is also captured from the Design document but the source and the target of the traceability graph are defined as follows:

Traceability	Inverse traceability
	

Note

A reflexive coverage link corresponds to a document covered by itself.



A reflexive link has a specific effect on coverage:

- If standalone, the document has to be covered by itself.
- If not, the link completes other coverage links. It behaves like a OR coverage.

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 contextual menu appears if you right click in the Traceability description area:

- **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.
- **Cleanup Link**—Activated only if you select a link. Re-draws the selected link.
- **Compare values**—Select this item to ask for the check in requirements of: label, attributes and text values. Some rule check errors can be raised.
  This option is only available for mirror links. By default it is not selected.
- **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.

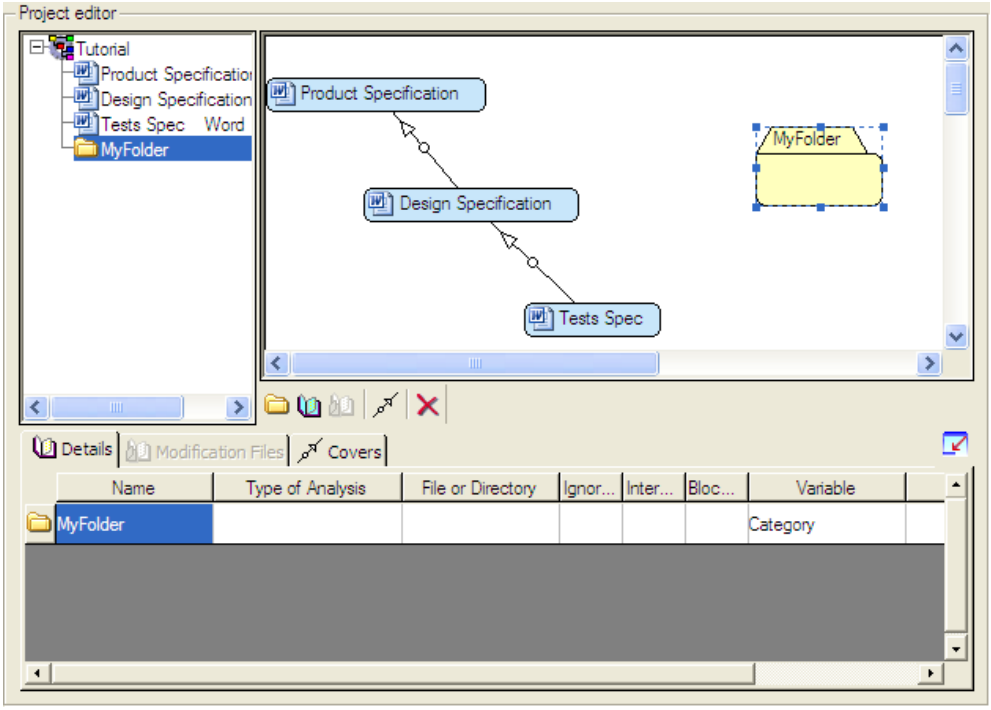
Concerning folders, note the following point:

- 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 **Add a folder**  . 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 **Name** column to rename the folder. The name in the folder object displays the new name.
4. Optional: Click **Type of Analysis** column to select a type to associate with the folder.

   All the documents created within the folder will have by default this type.



To navigate into the folder, double-click the folder. To go out of the folder, double-click in 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 **Add a cover**  . The icon stays pushed and 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.

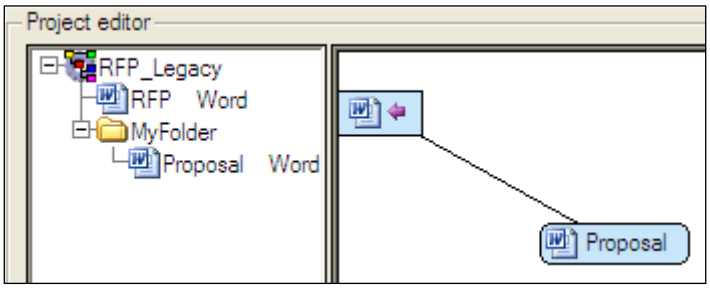
You can also click the covering document or folder by keeping the mouse button pressed and hovering over the covered document or folder and then releasing your mouse button. This creates a link.

Note:

To release **Add a cover**  , press Esc or click anywhere in the graphic view.

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 **Add a Cover** to create of a link between documents. The created link has no arrow; the direction is defined by the arrow icon of the port.



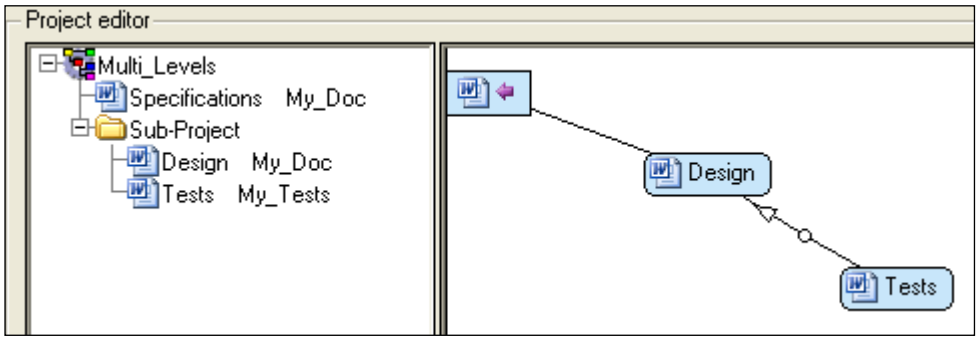
Note

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:

-  —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 first the document, then click 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 first the port then the document.

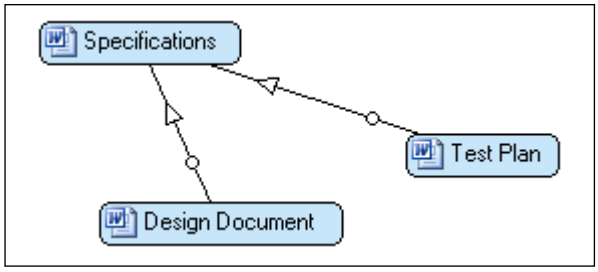
It is better to consider a folder as a package of requirements that belong to the same project hierarchy level. But in some cases it is useful to add coverage links inside a folder. Use the **Add a cover** option to create links between internal documents.



Document Covered by Combination of Several Others

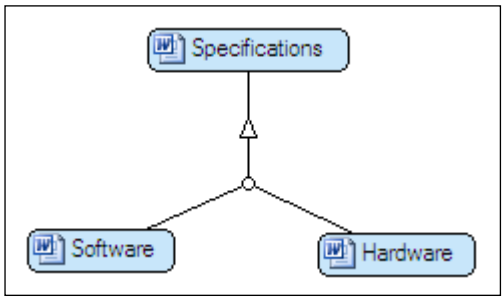
In a lot of cases, a high level document is not fully covered by only one lower level document, but by the combination of several documents. This is typically the case when you consider a system specification that will be refined into two sub-systems specifications. The sub-systems specifications together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

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 specification 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. If the document contains generic attributes and the modification document contains specific attributes, attributes are merged in the Requirement Details view.
- 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 **Add a Modification Document**  .
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 list 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 this button then 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.

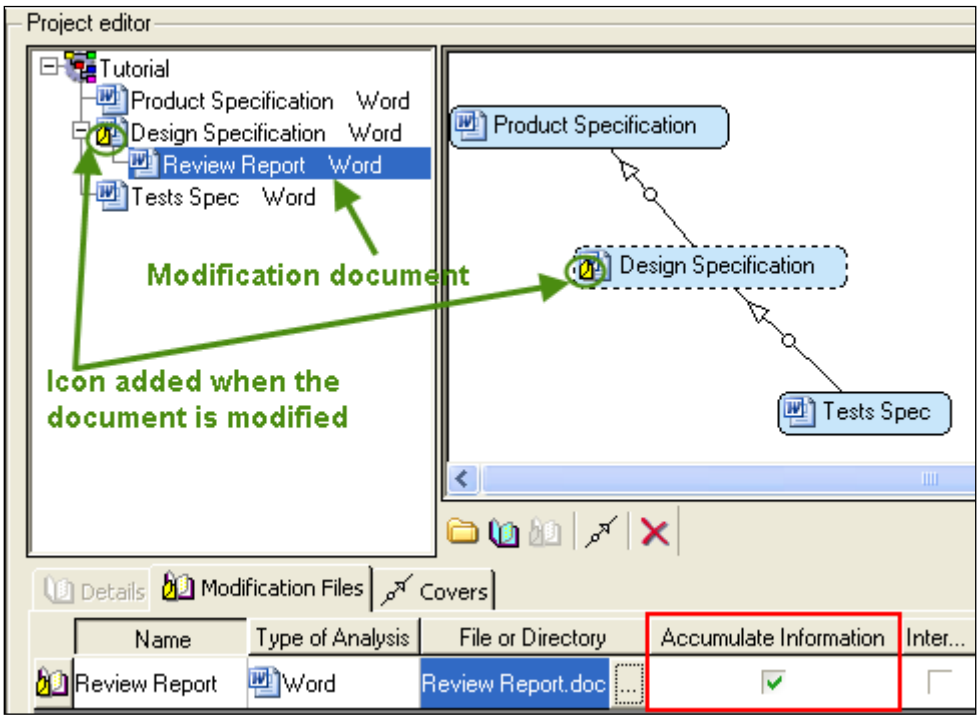
The **Accumulate information** option indicates to Rhapsody Gateway if the information captured in the Modification Document completes or replaces the information captured in the project document.

Note

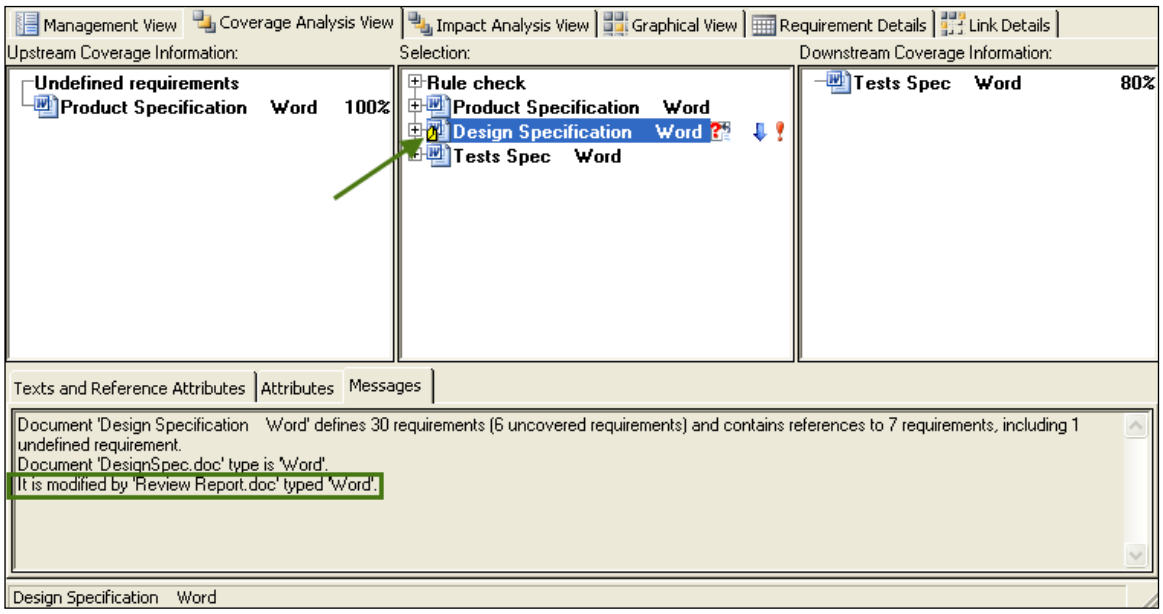
Modification files do not remove elements coming from other modification files.

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 selected. 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 in two ways:

- Advanced additions are based on the integration of modification documents using a “Type for added elements”.
- Additions create an “Internal Type” that you cannot edit or manipulate. You can see *Types Definition* section at the end of this document but prefer “Type for added elements”.

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 **Copy**. Open your current project. From the traceability description area of the project editor, right-click **Paste**.

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.

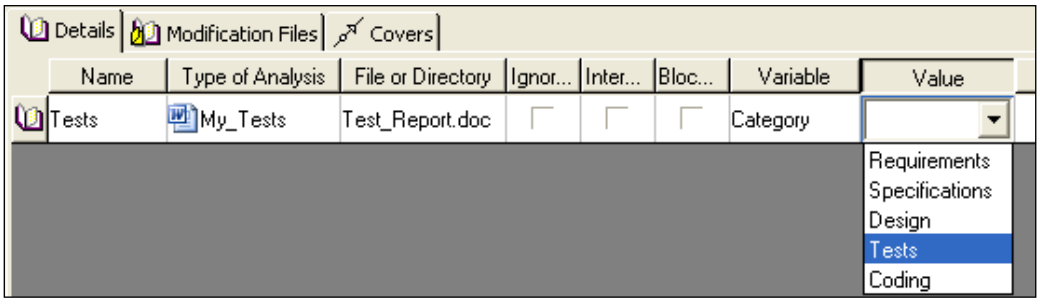
The input files to be analyzed are not moved; the paths to these files are automatically updated in the **File or Directory** field of the **Document Details Area**.

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:

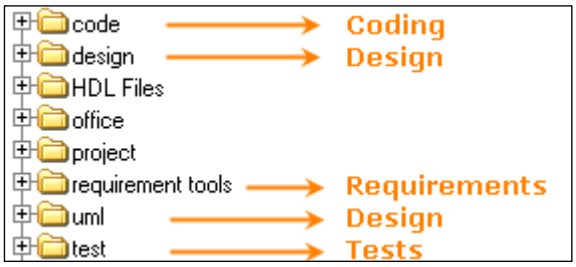
1. Select a document in the **Project Editor**.
2. In the document **Details** area, a **Category** field, which is not a parameter of the document type, can be selected from the list of **Variable**. Select **Category**.
3. Click **Value** to know the category values. The available category list appears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

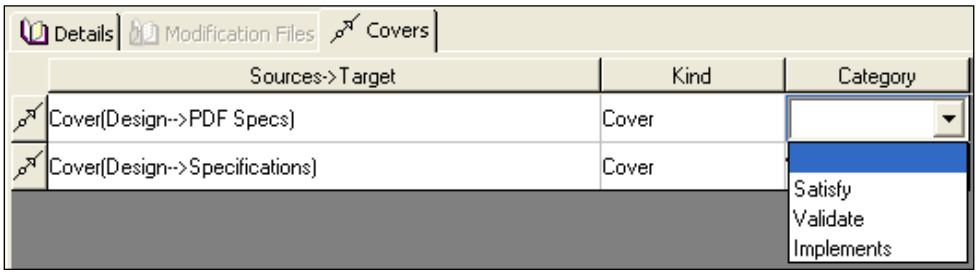
- Associating a category to a folder:
  - if the documents inside this folder do not have any associated category or have a default associated category (types folder association), the category associated to the folder is propagated to these documents.
  - if the documents inside this folder have already 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 list of Category. Select **a category**.



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

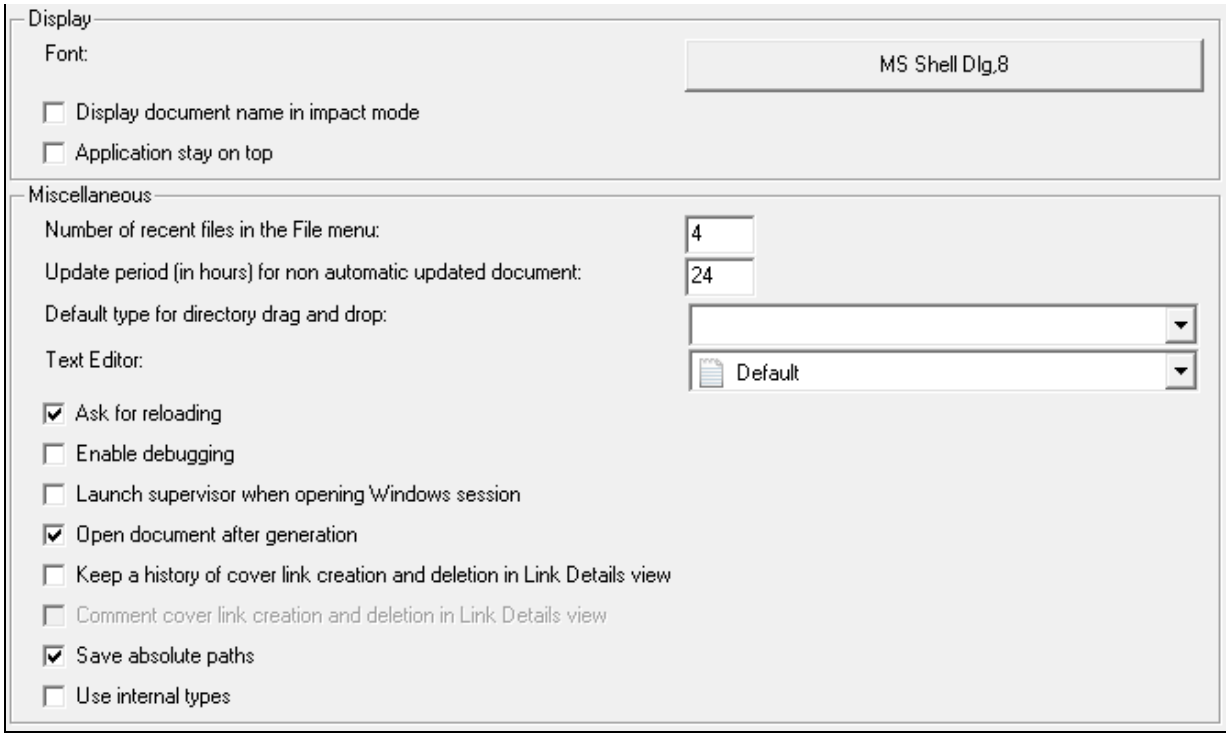
Project Options

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

The Options dialog box allows you to configure some options for your project. In the minimal version of the tool, this dialog box contains four panes: General, Environment, Project and Connections.

Overview of the General Option Pane

The General pane looks like the following:



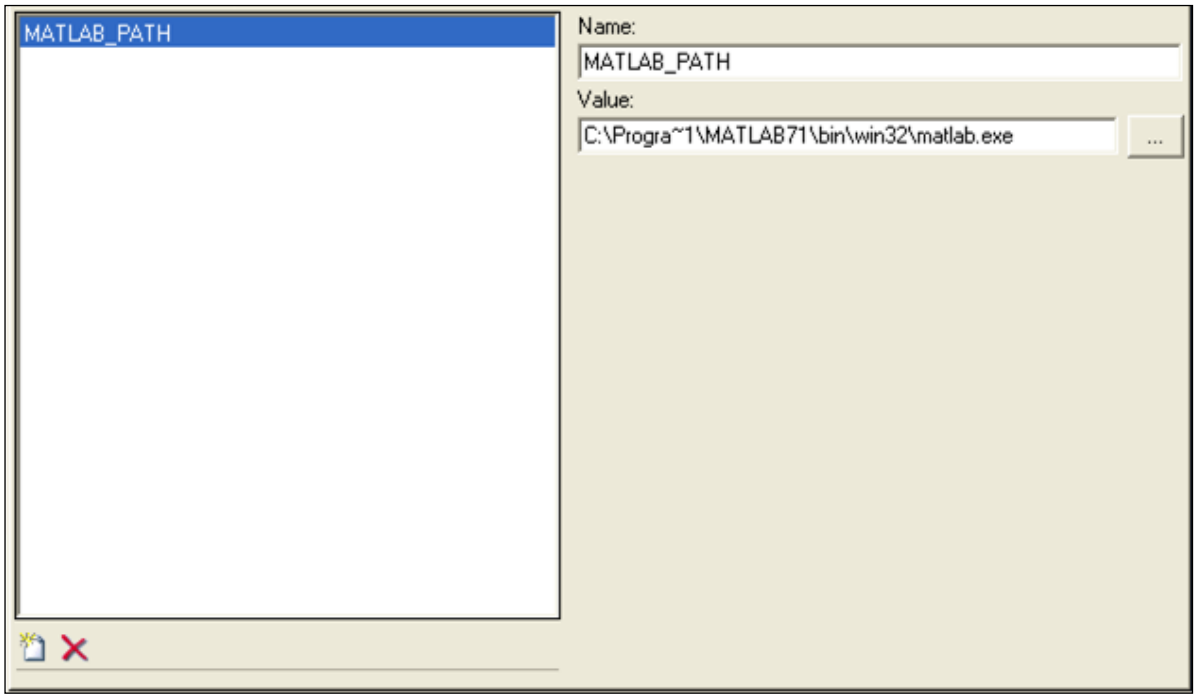
This window contains the general following fields:

- **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. You can enter a floating value.
- **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.
- **Text Editor** —Select the text editor you want to use to open a text document when you click **Navigate**.
- **Ask for reloading**—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 *Link Details* chapter.
- **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 *Link Details* chapter.
- **Save absolute paths**—Avoids saving absolute paths in the .rqtf file. The goal is to preserve file contents when Rhapsody Gateway project is moved. This is particulary useful for Configuration Management.
- **Use internal types**—Selects this check box to allow the usage of internal types in the tool. It is recommended to use Added Element Types.

Overview of the Environment Option Pane

The Environment pane looks like the following:

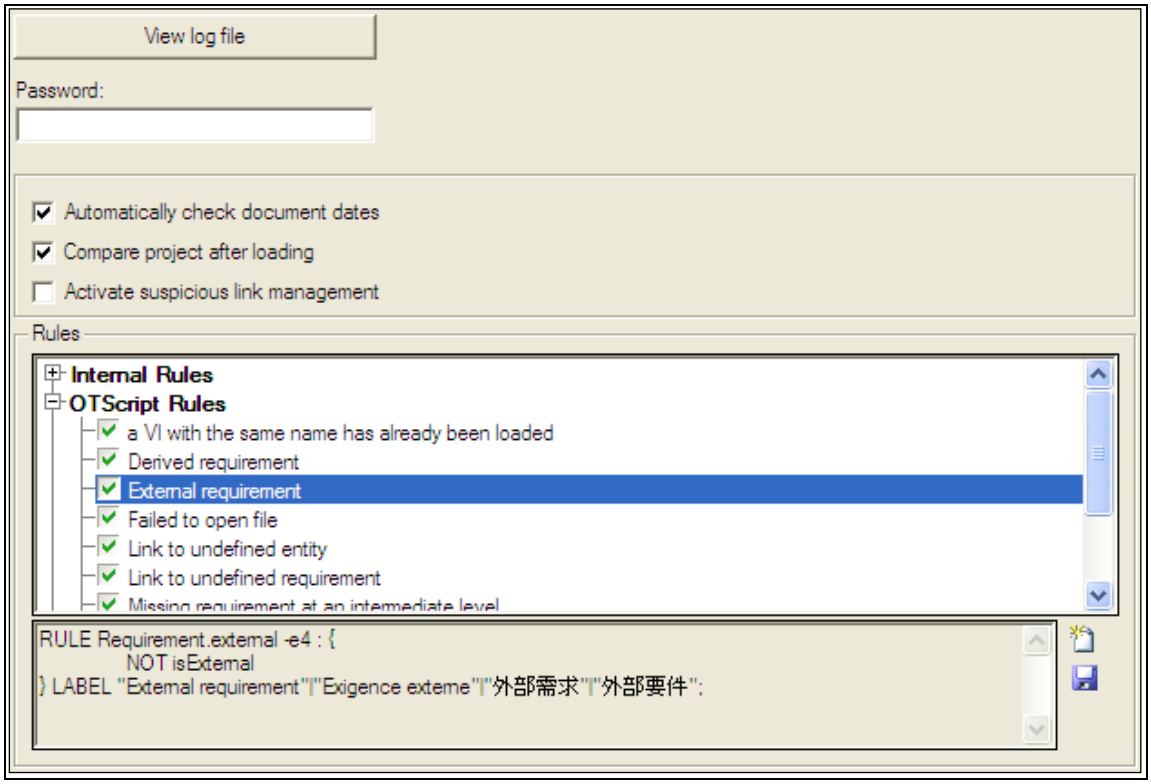


This window contains the following fields:

- **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:

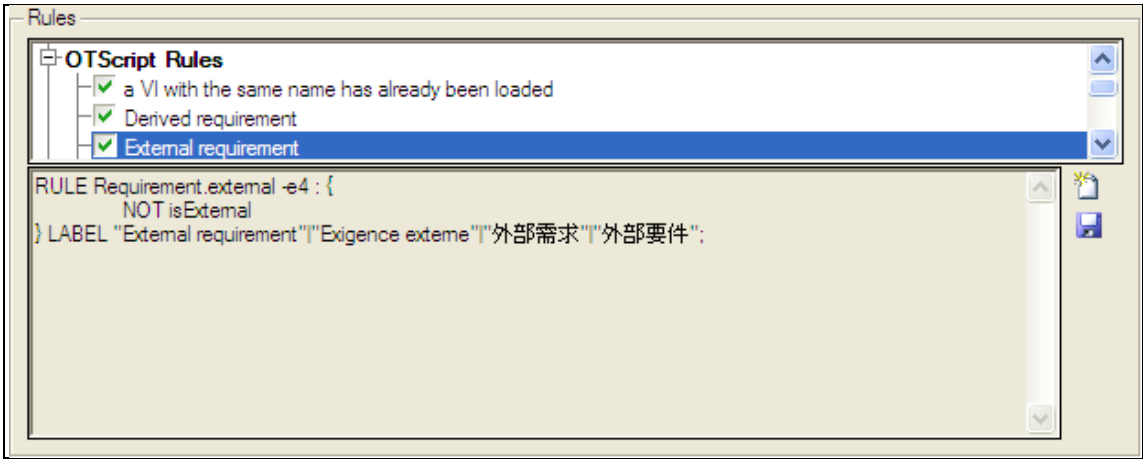
- **View log file**—Opens the file containing the list of actions performed by Rhapsody Gateway. This file can help for your discussions with the Support Team.
- **Password**—This field is used to define a password for access to the Configuration dialog box. See the chapter about restricted access to 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.
- **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:

- **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 creates a new rule. 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 **New rule**. 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 **Save** to validate your rule. The rule is added checked and in italics in the rules list.

   This rule can be modified afterwards.

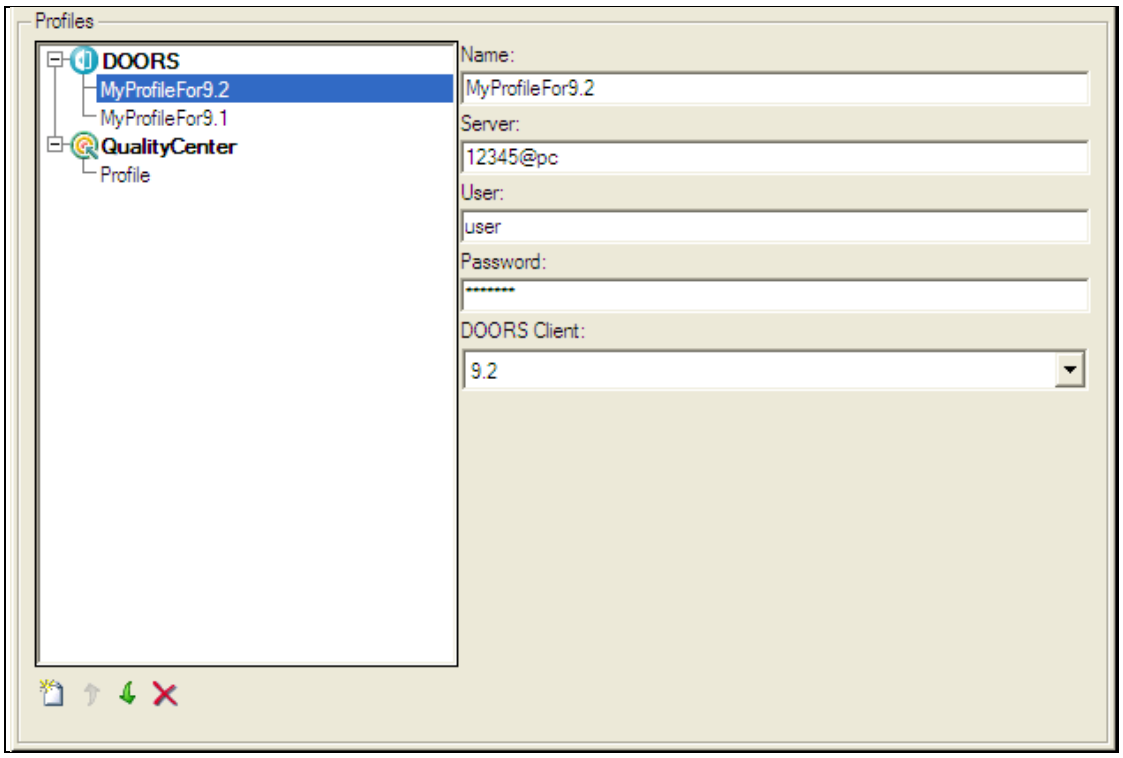
During the creation phase, errors can appear:

- 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:

- **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.

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 **Back** 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 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 contextual 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.

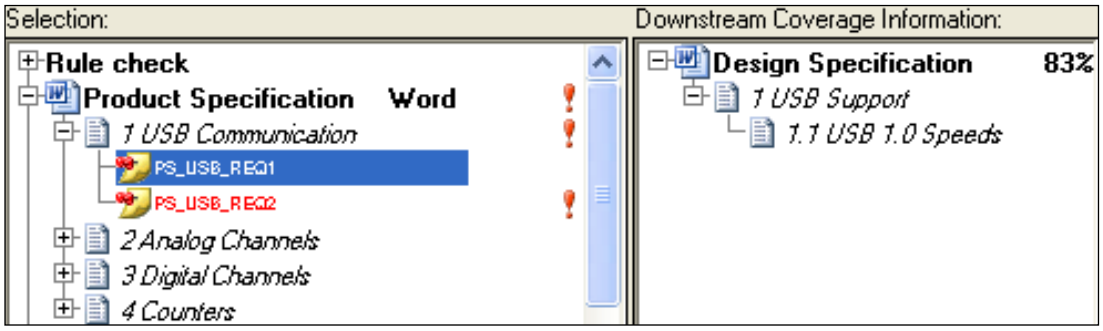
Using the Coverage Analysis View

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

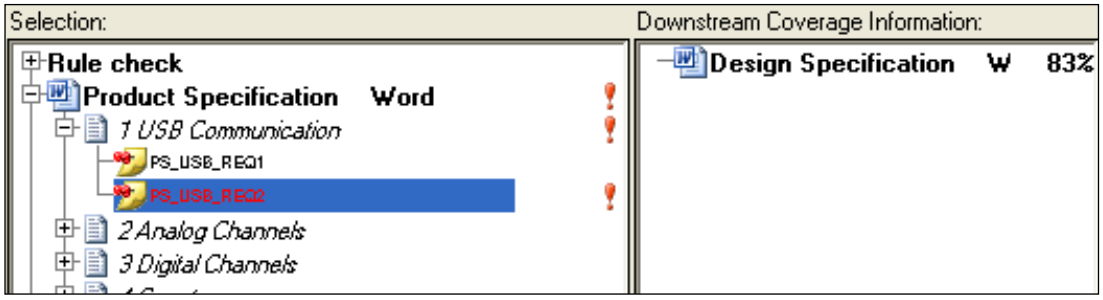
This section describes the behavior of **Upstream Coverage Information** and **Downstream Coverage Information** according to the done actions on the **Section** tab.

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.



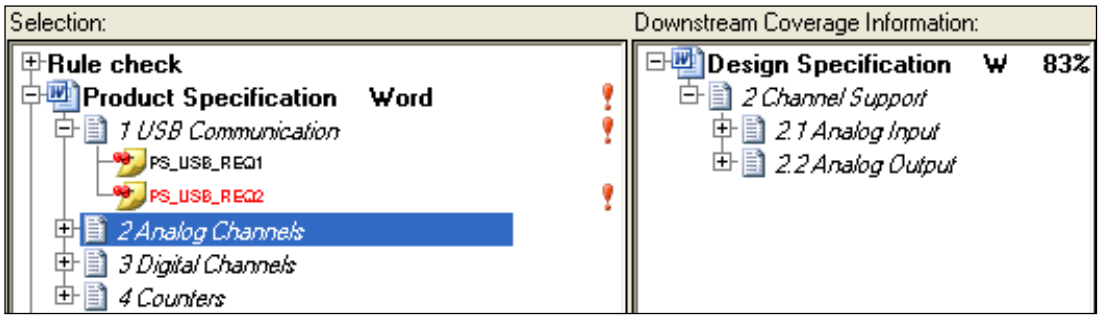
In the following figure, the **Downstream Coverage Information** column does not display any covering elements because the covering document does not contain a reference to the requirement.



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

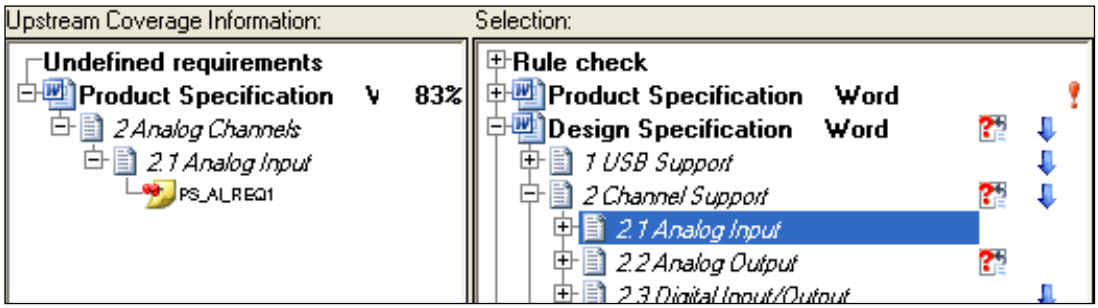
"2.1 Analog Input" section contains reference to the PS_AI_REQ1 requirement and the "2.2 Analog Output" section contains reference to the PS_AO_REQ1 requirement.



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.



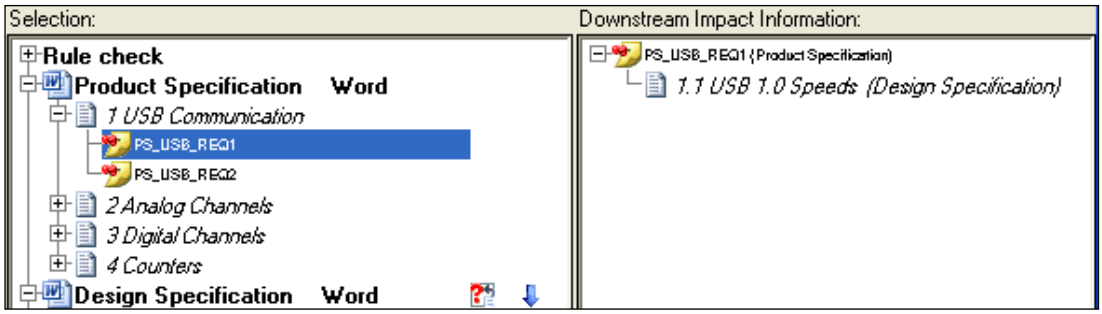
To summarize, the **Coverage Analysis View** allows you to select elements from a project document and displays requirement coverage one level upstream and one level downstream from the selected document. For analysis of requirements coverage for several levels both upstream and downstream, use the **Impact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

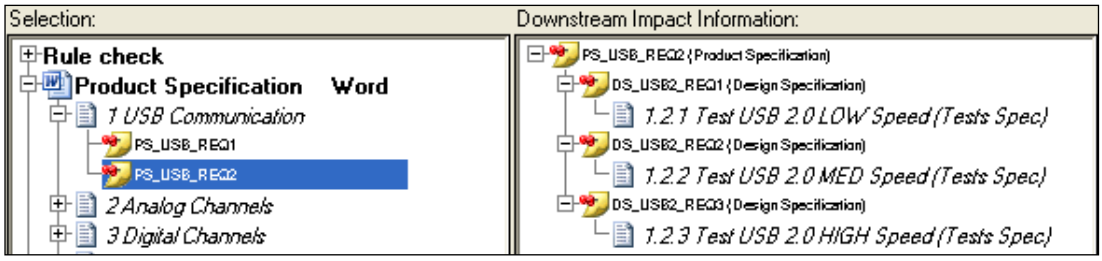


Note

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.



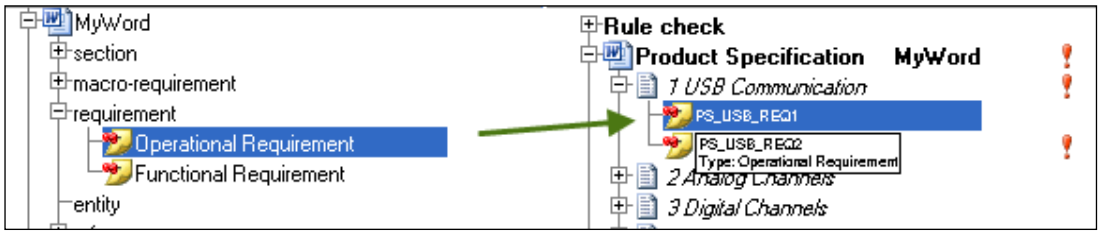
This is the main difference with the Coverage Analysis View, because in this case the Coverage Analysis View displays only the coverage of the PS_USB_REQ2 requirement by the requirements contained in the "Design Specification" document, at the immediate downstream level, but not the lower level information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

Displaying Requirement and Reference Types

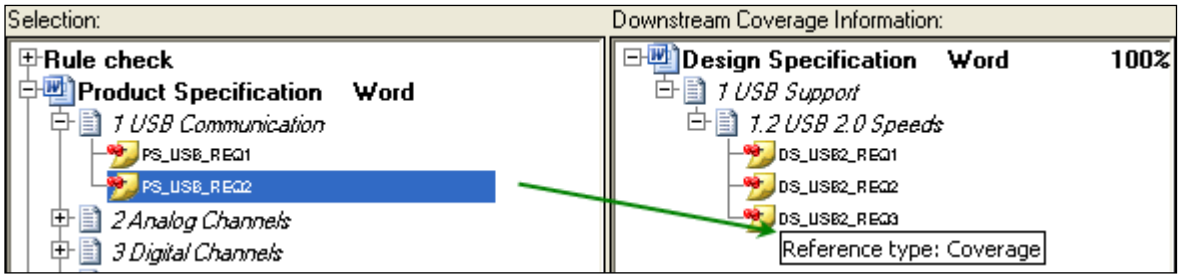
Your types of analysis can be defined to support several kinds of requirements, attributes, sections, references, etc.

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.

—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

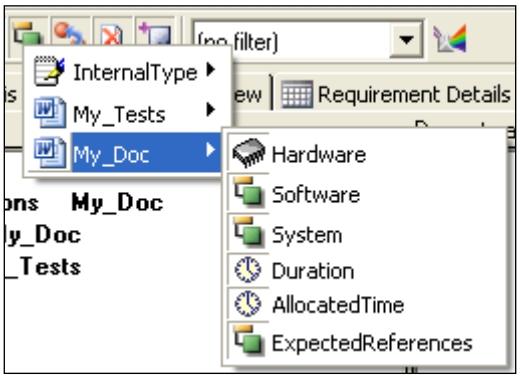
—Displays or hides "empty" sections (sections not containing any traceability information)

—Displays or hides information added from Rhapsody Gateway

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.

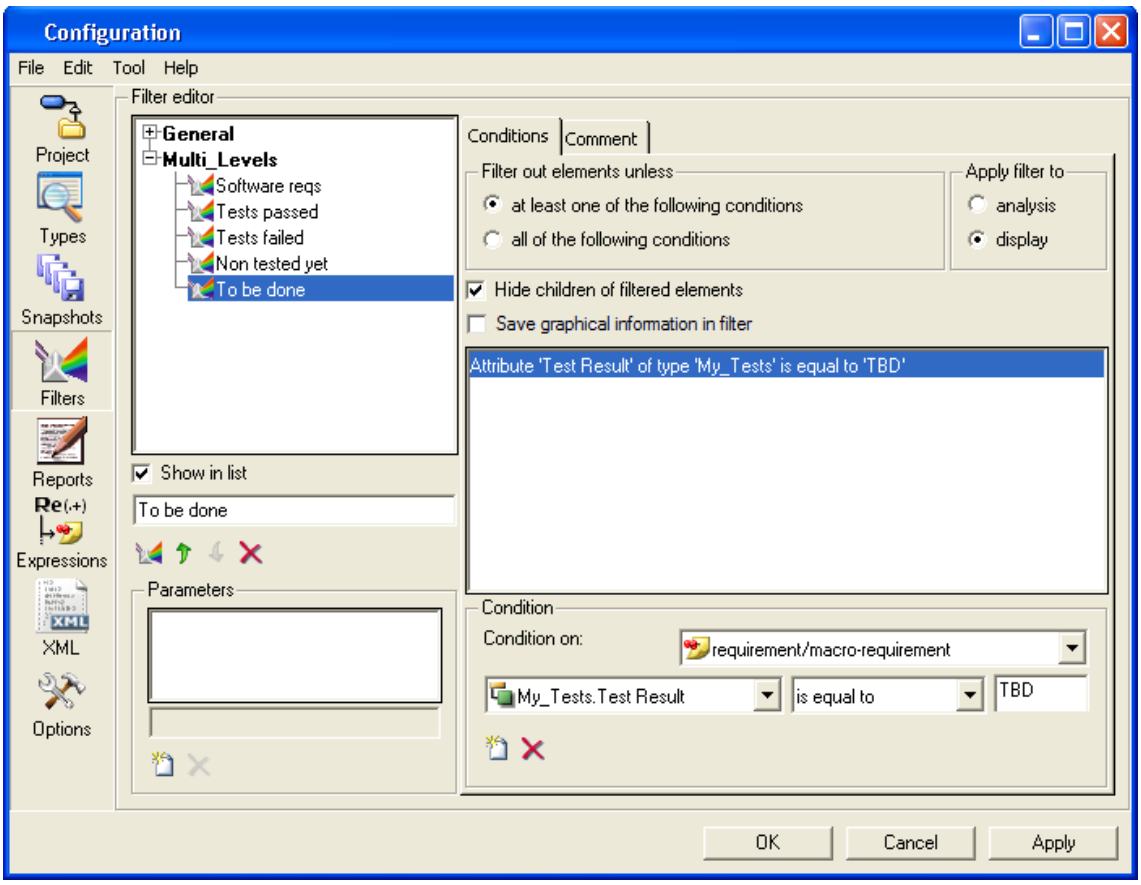


Note

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 **View > Edit Filters** or click **Filters** 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:

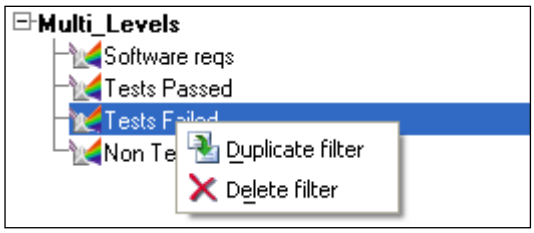
—Creates a new filter.

—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 ref in the filter list area and in the filters list of the main window.

Parameters definition area

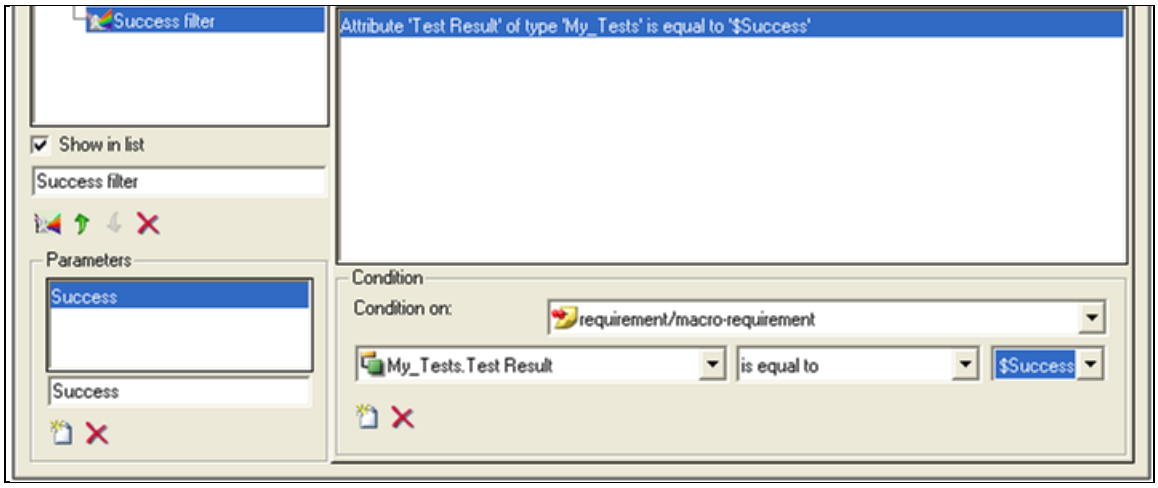
The bottom left area of the dialog box contains an area to define parameters and options to manage the parameters:

—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:



Using environment variables

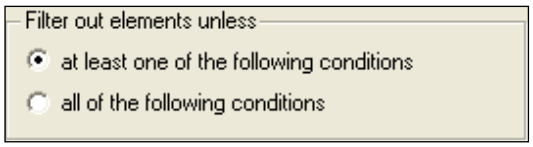
If a filter is based on a variable, this value can be defined when applying the filter. If the attribute is an enumeration, possible values are suggested within a list. In this case, enter `$<variableName>` in the value field of the condition declaration.

Filters definition area

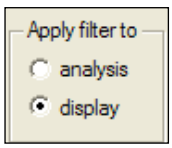
The **Conditions** pane contains several areas:

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 **Hide link if target is hidden** option is used the link to filtered requirement is also hidden. It avoids the raising of an erreor.

For a specific filter, the **Save graphical information in filter** option is used to save graphical information in the filter file such as document positions and sizes in the Graphical View and column widths, sort criterion and order in the Requirement Details View. By default, this option is not selected and global filter information are saved in the `.rqtf` file.

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

-  —Creates a new condition, which is added to conditions in the multilines conditions area.
-  —Deletes the selected condition.

  Condition on—This area contains four fields to let you define a condition: the application class, the receivers, the operators and the values.
  A selection in a field implies the elements available in the next fields. The application class contains the kind of elements concerned by the condition: **requirement/macro-requirement**, **entity**, **section** or **reference**.

  Concerning the receivers the '*.<element type>' is the only receiver which is independent of the document type for covering links or attributes. Operators can be unary or binary. You can filter for instance on *.Priority attribute.

  Values have four possible values:

  – nothing when the operator is unary
  – an input field to type a textual value
  – a list of enumerated values for enumerated attributes
  – a list of rules for a rule operator

The table below lists available operators depending on receivers:

operators	value	description	receivers
contains does not contain	yes	If the receiver contains or not the typed value	Attribute / Reference attribute Entity Link Macro-requirement / Requirement Reference Section
is marked by is not marked by	yes	If the receiver is marked by the typed value or not	Entity Link

operators	value	description	receivers
is of this type is not of this type	no	If the receiver is of the same type or not	Macro-requirement / Requirement Reference Section
text contains	yes	If the receiver text contains the typed value	Entity Macro-requirement / Requirement Section
some attributes no attribute	no	If the receiver has some attributes or not	
is equal to is not equal to	yes	If the receiver is equal or not to the typed value	Attribute / Reference attribute Reference Link
document name contains	yes	If the receiver document name contains or not the typed value	Macro-requirement / Requirement
verifies rule does not verify rule		If the receiver verifies or not the selected rule	
covered requirements are present	no	If all the covered requirements of the receiver are present	
has incoming references has no incoming references		If the receiver has incoming or no incoming references	
has outgoing references has no outgoing references		If the receiver has outcoming or no outcoming references	
is covered is uncovered		If the receiver is covered or not	
is present is absent		If the receiver is present or not	
is present as incoming is absent as incoming	no	If the receiver is present as incoming or not	Reference Link
is greater than	yes	If the receiver is greater than the typed value or not	Attribute / Reference attribute

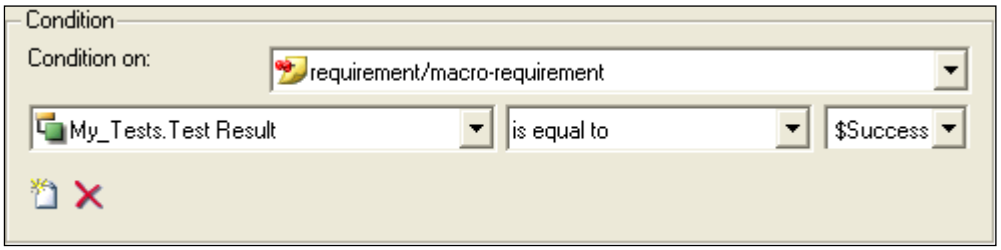
operators	value	description	receivers
is less than			
is true is false	no	If the receiver is true or false	Filter

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 list to build the condition:
   - The first list 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 list contains conditions (is present / is absent / is equal to /etc.)
   - Depending on the condition, Rhapsody Gateway displays an additional field to enter the value.

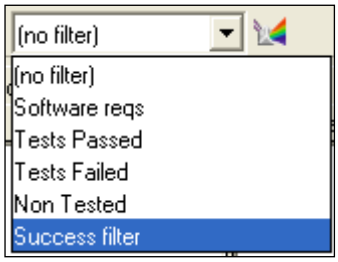
   For instance, if the condition is "is equal to", enter the target value in this additional field. A possible value is the parameter value, so as to fill out this field with `$<parameterName>`.

   If the element selected in the first 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 list 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 type the parameter value.

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

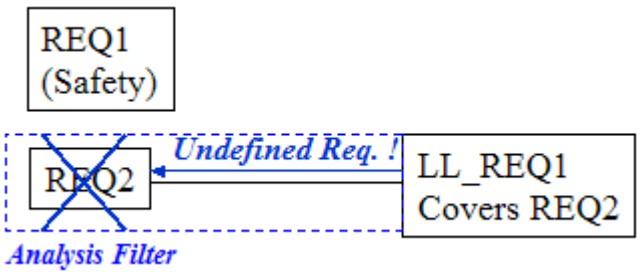
Impacts of Filters Definition

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

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

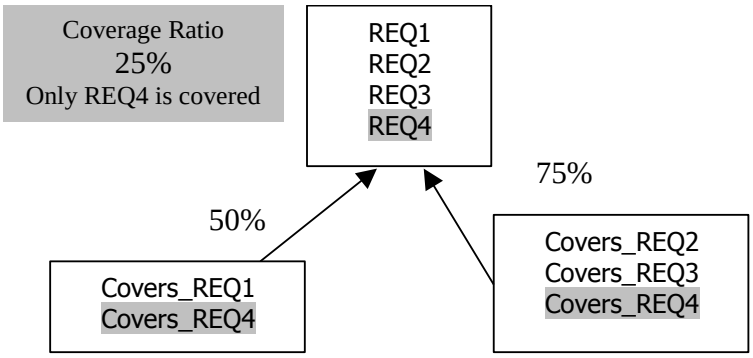
Coverage Ratio in the Management View

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.

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



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	Tests (Filtered)	Comments
REQ_2 (Low Priority)		Specifications are covered by tests “passed “at 70% 7 requirements tested with a result in “Passed” / 10 specification requirements
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:

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

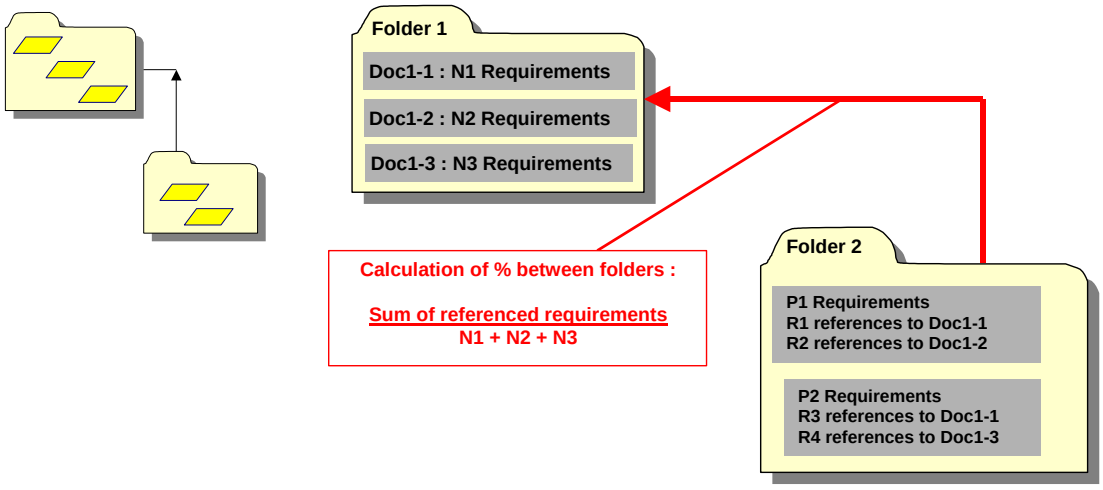
This calculation is applied whether coverage links are folder-folder, folder-lower level documents, or documents-lower level folders types.

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

Other coverage ratio calculations depend on the configuration graph.

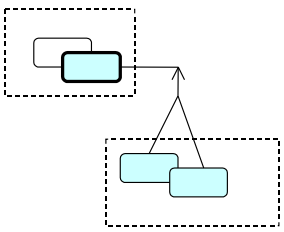
Coverage Link between a Low Level Folder and a High Level Folder

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

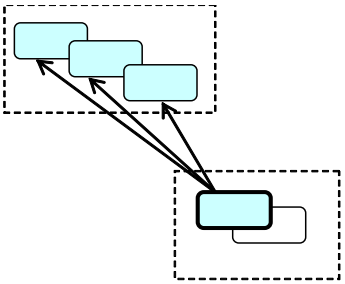


When a high level document or an element (section, requirement, etc.) of the high level document is selected, the lower level display behaves as if you have the configuration shown at the right.

In addition, you can expand / collapse the folder and the coverage ratio between folders is displayed.

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
- in the standard format, the coverage ratio between elements of the low level document and the high level documents.

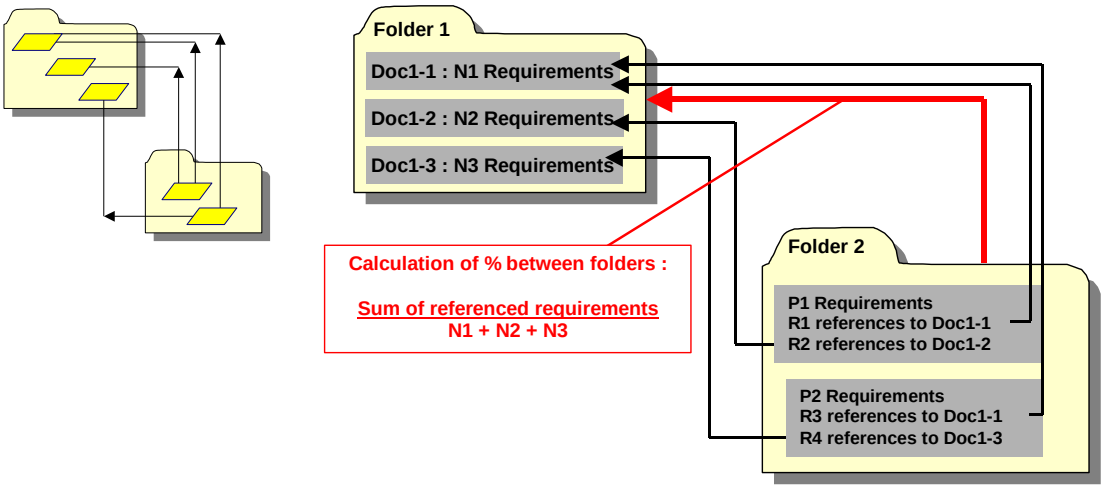


When a lower level document, or an element (section, requirement, etc.) of the lower level document is selected, the high level display behaves like the configuration shown at the right.

In addition, you can expand / collapse the folder and the coverage ratio between folders is displayed.

Coverage Links between Documents in a Folder

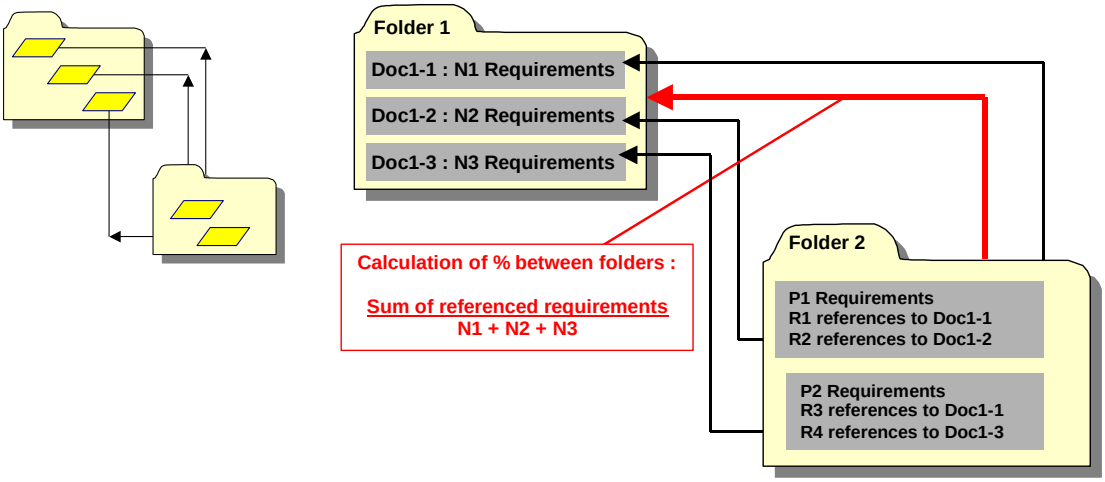
Direct links between documents contained in a folder can be created using folder ports (see the section concerning project configuration to learn more). In this case configuration looks like:



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:

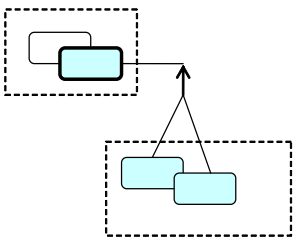


In the case of coverage links between a high level document and a lower level folder, the high level document behaves like if it has combined coverage links with the documents in the lower level folder. When a high level document, or an element (section, requirement, etc.) of the high level document is selected, Rhapsody Gateway displays

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

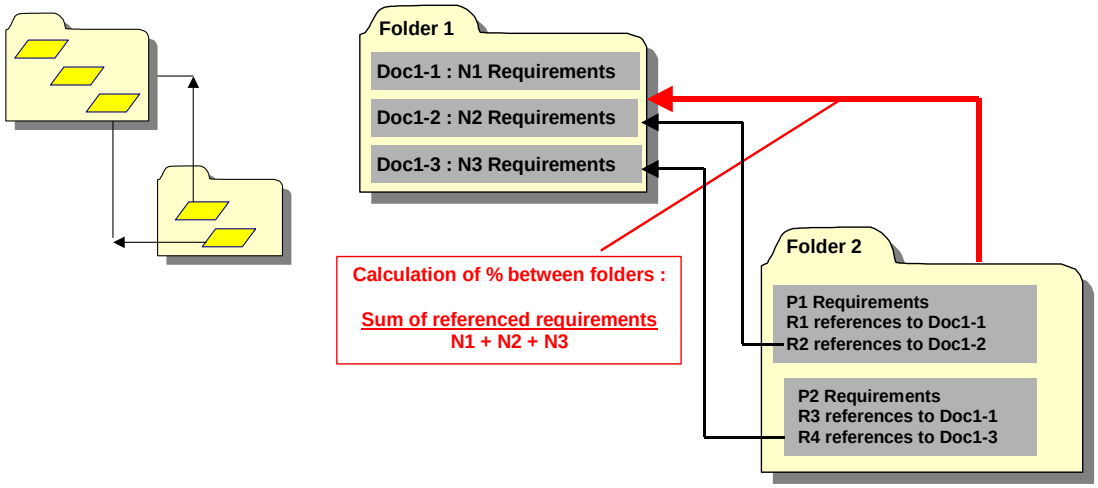


The information displayed is equivalent to the information displayed in the configuration shown at right.

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:

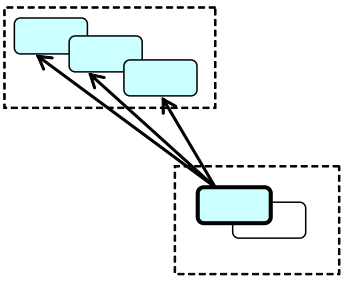


In the case of coverage links between a low level document and a high level folder, the low level document is considered as covering all the documents contained in the high level folder. When a high level document, or an element (section, requirement, etc.) of the high level document is selected, Rhapsody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

- the folder and the coverage ratio between folders
- 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
- 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.

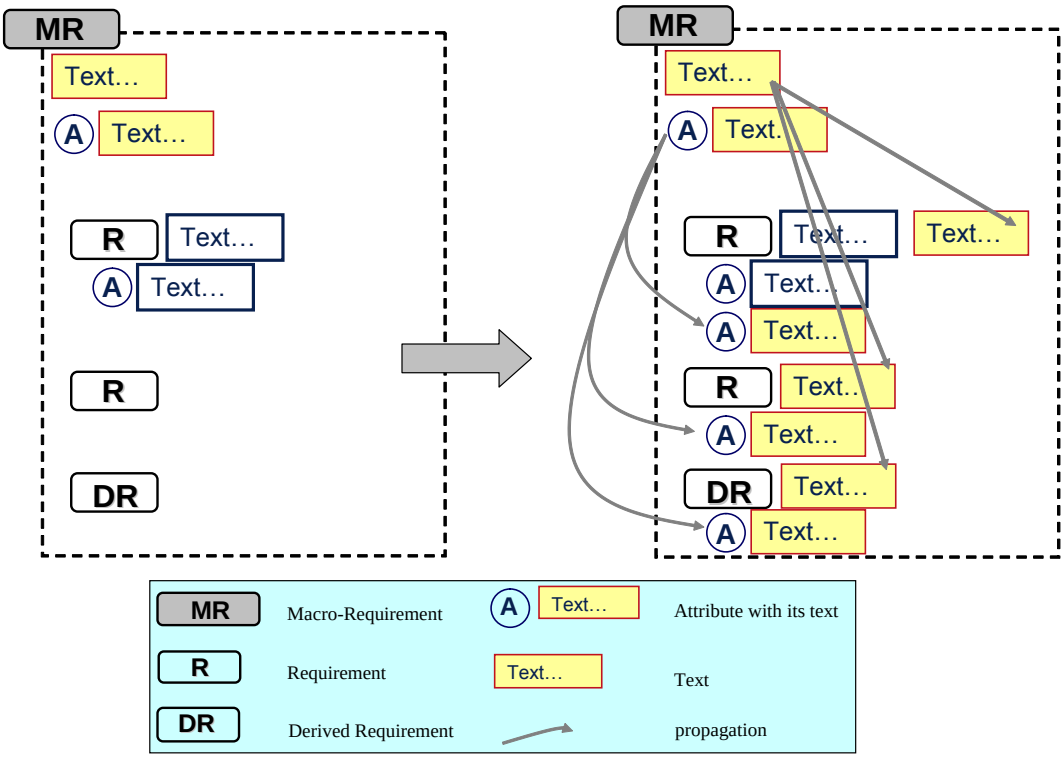
In addition, you can expand / collapse the folder and Rhapsody Gateway displays the coverage ratio between folders.

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.

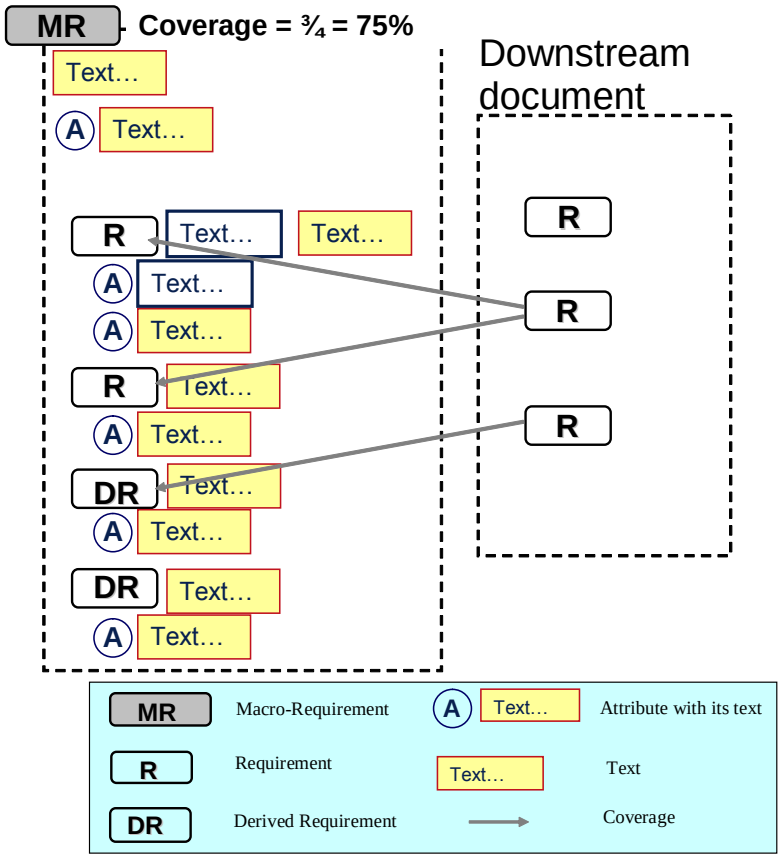
Propagation of Elements Attached to the Macro-requirement

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.

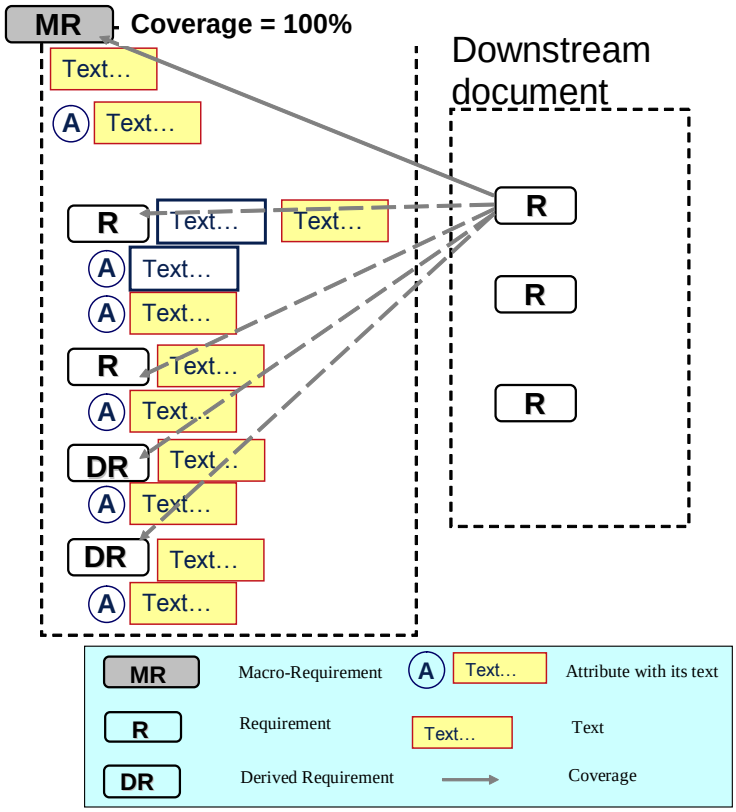


If the macro-requirement is referenced directly by a low level element, it is considered to be 100% covered, and all requirements and derived requirements are considered to be covered by the covering element.

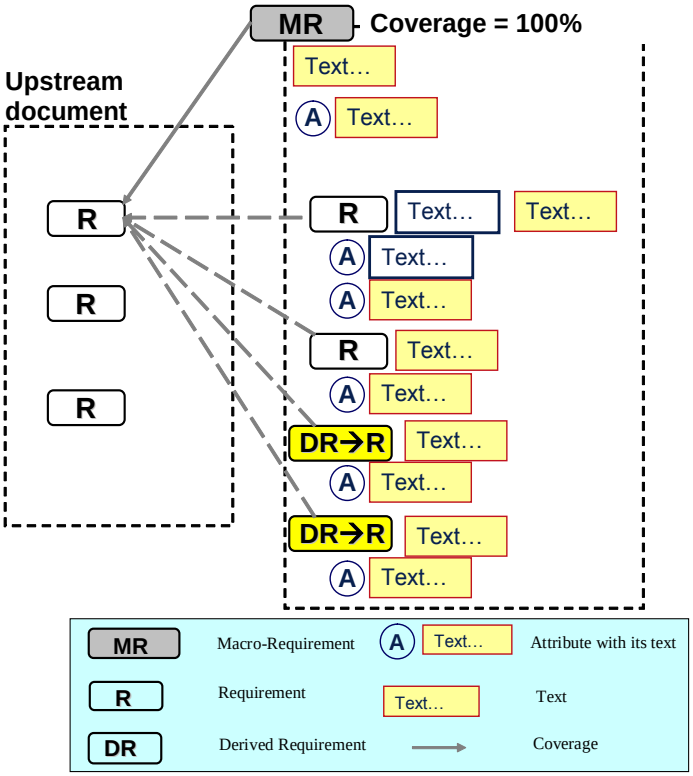
The macro-requirement is considered uncovered if it is not 100% covered.

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.



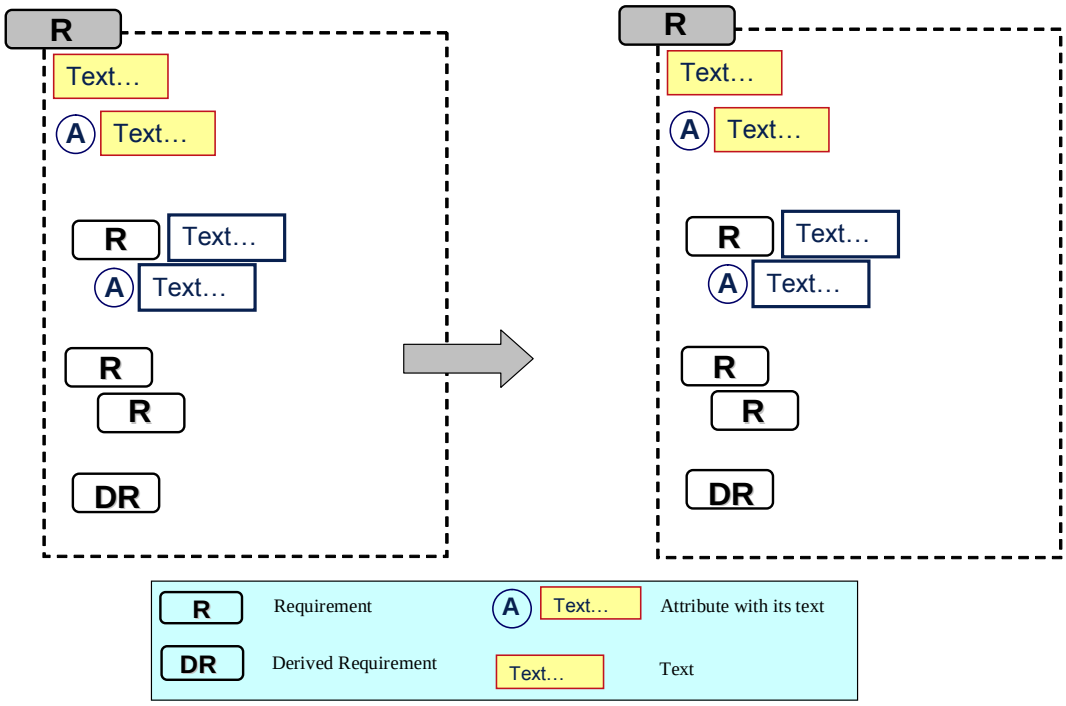
Note

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.

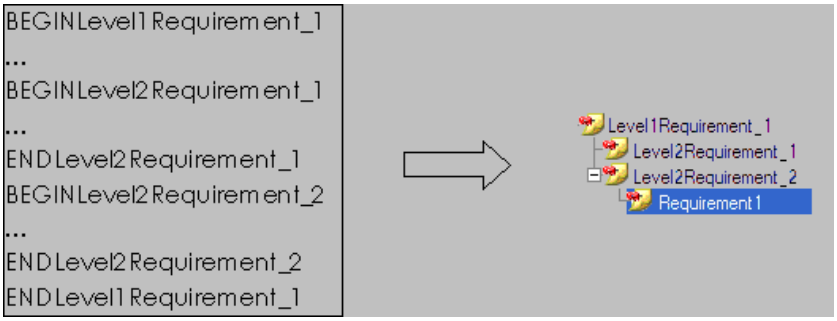
Using Requirements Hierarchy

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 lifecycle, 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.

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.

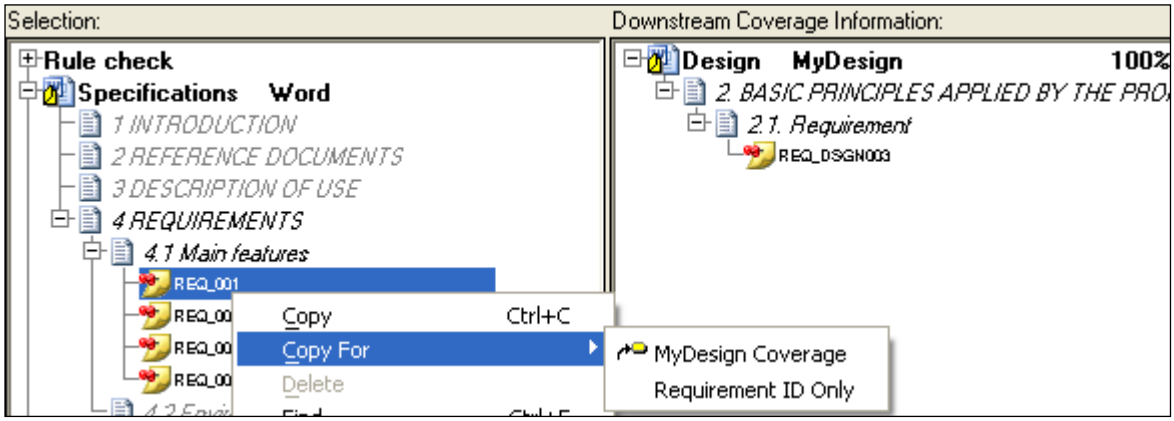
However for text-oriented documents such as Word files, FrameMaker files and code files, you need to add coverage information as text strings. You can effectively use Rhapsody Gateway project workspace to create coverage links in a source file or a text file. These actions are explained in this section.

Features for Inserting Coverage Information in Project Files

In the project, right-click a high level requirement in the **Selection** column. The contextual menu contains a **Copy** item and a **Copy For** submenu.

The **Copy** item copies the requirement name to paste it in the source or text files.

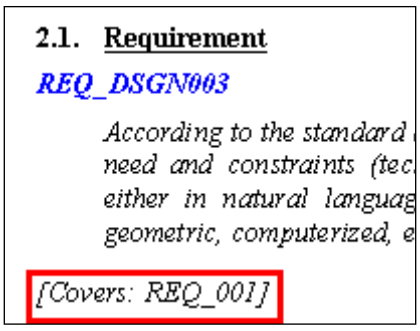
The **Copy For** submenu contains the reference types defined in the type of analysis for the document covering the requirement you selected in the **Selection** column.



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—Internal Type

This section corresponds to Internal Type uses which are basic capabilities of user modification.

With them you can add information from Rhapsody Gateway without modifying the source documents of the project:

- Coverage links (references)
- Attributes
- Reference Attributes
- Text.

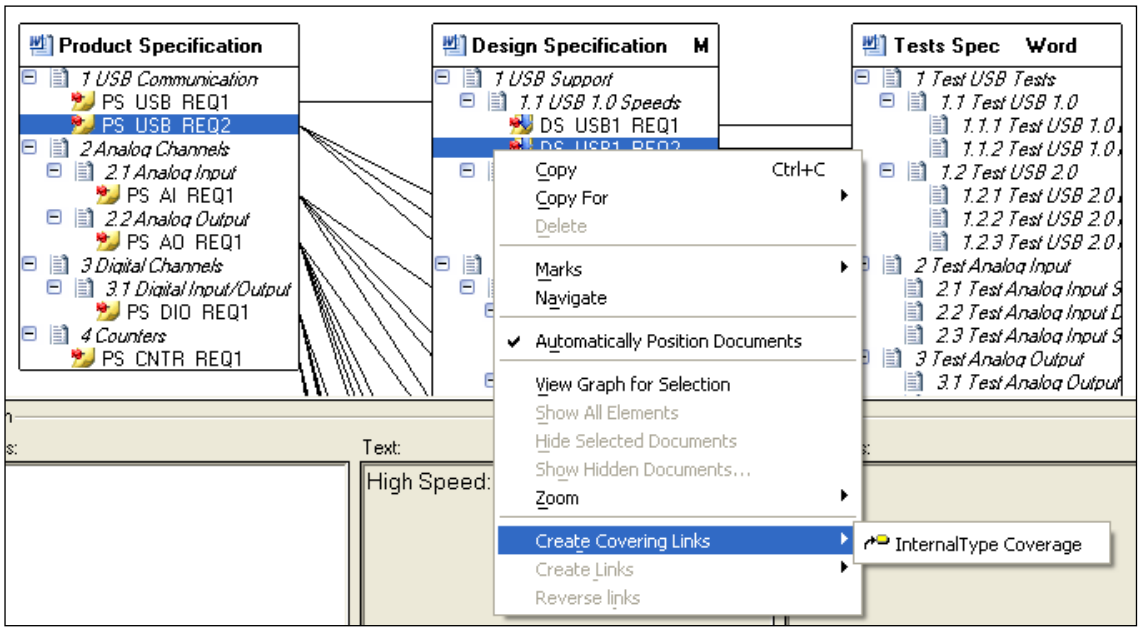
However it is recommanded to avoid using internal types and to prefer Added Element Types.

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 > Coverage** (the name "InternalType Coverage" may depend on your project configuration).



New links are displayed in green.

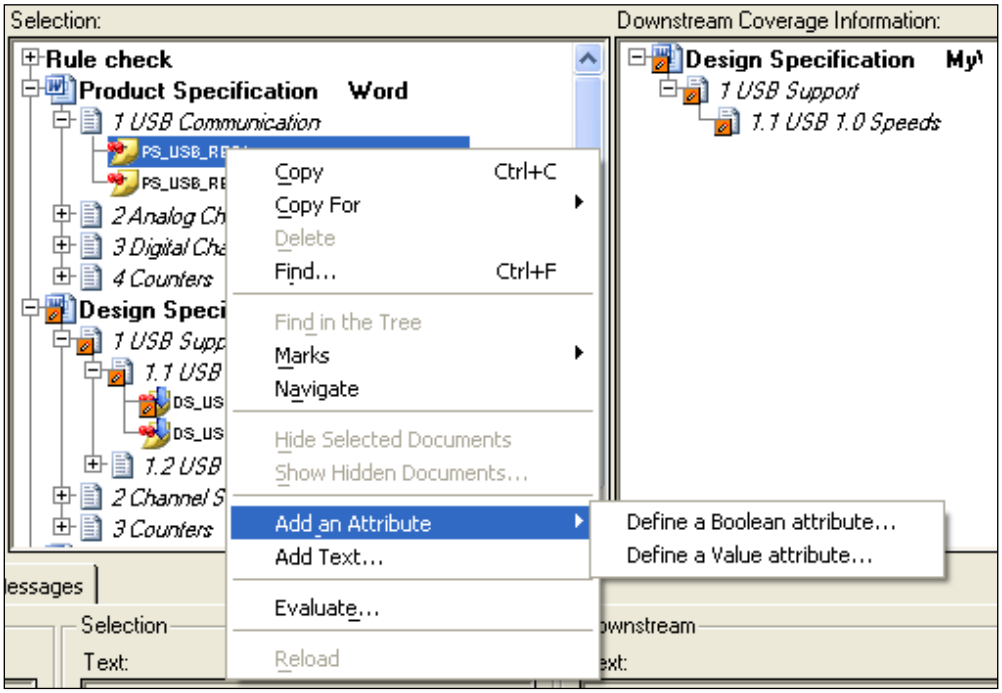
To delete a covering link first select it, then right click **Remove**. You can delete the link only if it has been created from Rhapsody Gateway.

Adding Attributes

You can 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 **Add an Attribute** in the contextual menu, then **Define a Boolean Attribute** or **Define a Value Attribute** in the contextual submenu, as shown in the following figure.



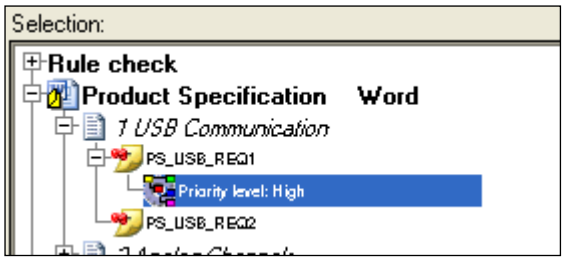
Note

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

3. A dialog box appears. Enter the attribute name then click **OK**.
4. If you have selected **Define a Value attribute**, the additional dialog box appears.

   Enter the attribute value then click **OK**.

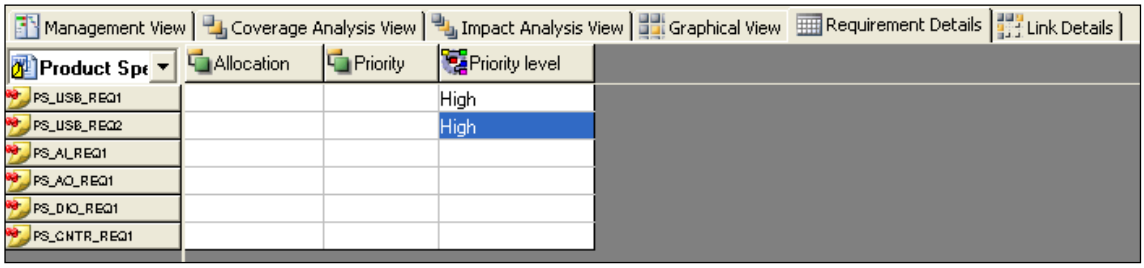
The attribute is displayed underneath the requirement, as shown in the following figure, and in the **Attributes** panes when the requirement is selected.



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.

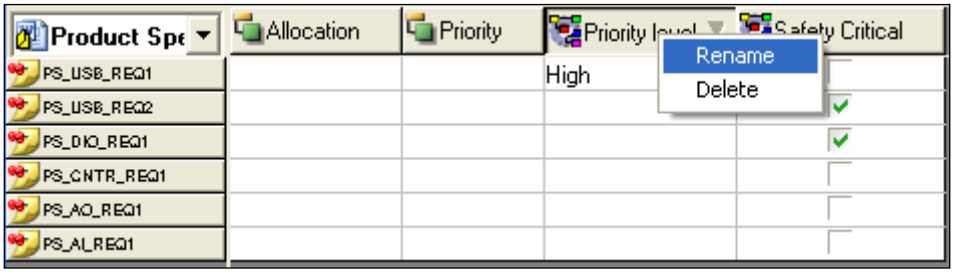
However, these columns can be edited, as follows:



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

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 right-click **Rename**.



2. A dialog box appears. Rename the attribute then click **OK**.

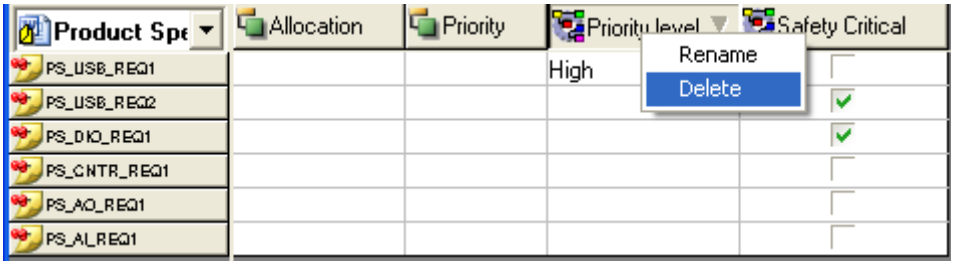
Deleting Added Attributes

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 **Remove**.

To remove a category of attributes, follow these steps:

1. Use the **Requirement Details** view.
2. Select the header of the attribute column then right-click **Delete**.

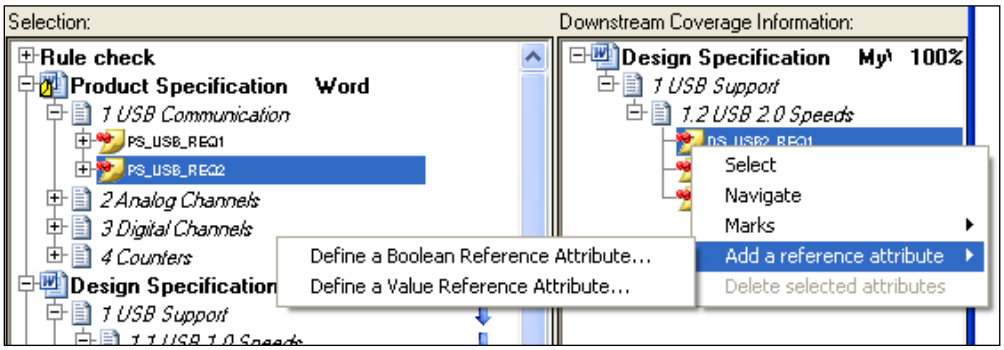


Adding Reference Attributes

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



Note

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

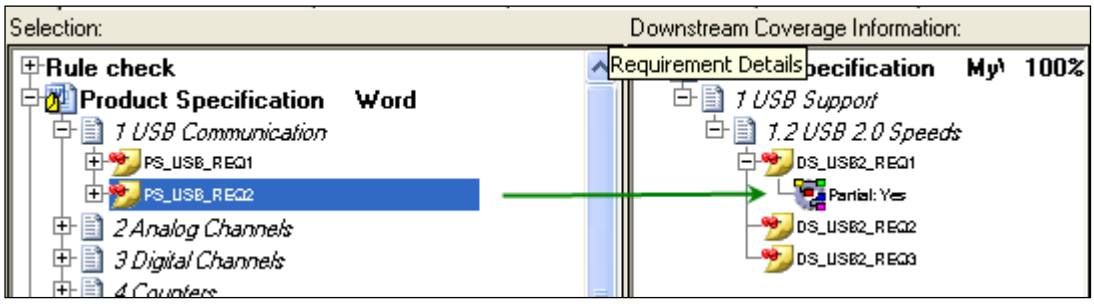
4. A dialog box appears.

   Enter the reference attribute name then click **OK**.

5. If you selected **Define a Value Reference Attribute…**, an additional dialog box appears.

   Enter the reference attribute value then click **OK**.

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 **Remove selected attributes**.

Adding Text

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

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

   A dialog box appears.
3. Enter the text you want to add then click **OK**.

   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 contextual 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, a dialog box appears listing the information added from Rhapsody Gateway but no longer captured in the project documents. The **Element modified but not found in original document** rule is 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 **Remove**.

Adding Information from Rhapsody Gateway—Added Element Type

The basic capabilities allow you to create information, but there have 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 Internal Type.

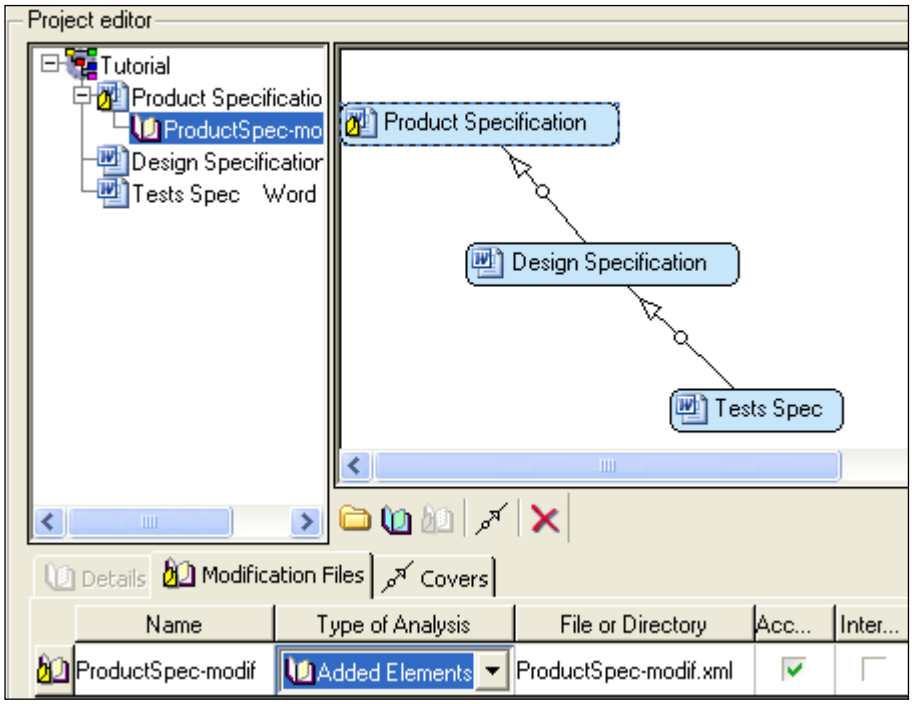
The *Customization Guide* gives you all the details concerning creation and customization of Types for added elements. However the concepts concerning added elements use for projects are considered in this *User Guide*.

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.

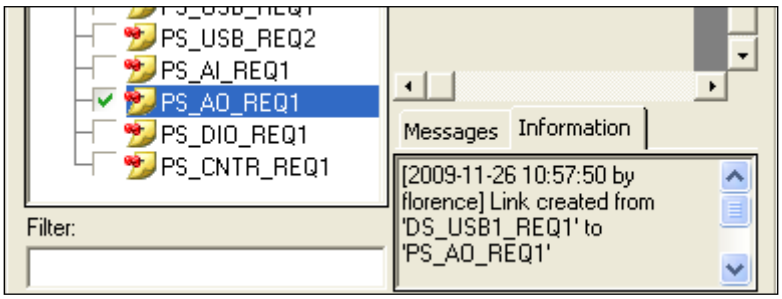
As shown below, select the type for the added document from the **Type of Analysis**. You do not need to edit the other fields.



Adding Covering Links

You can create coverage links with a specific reference in the **Link Details** View. These coverage links are displayed by a check-mark in the **Link Details** view.

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.



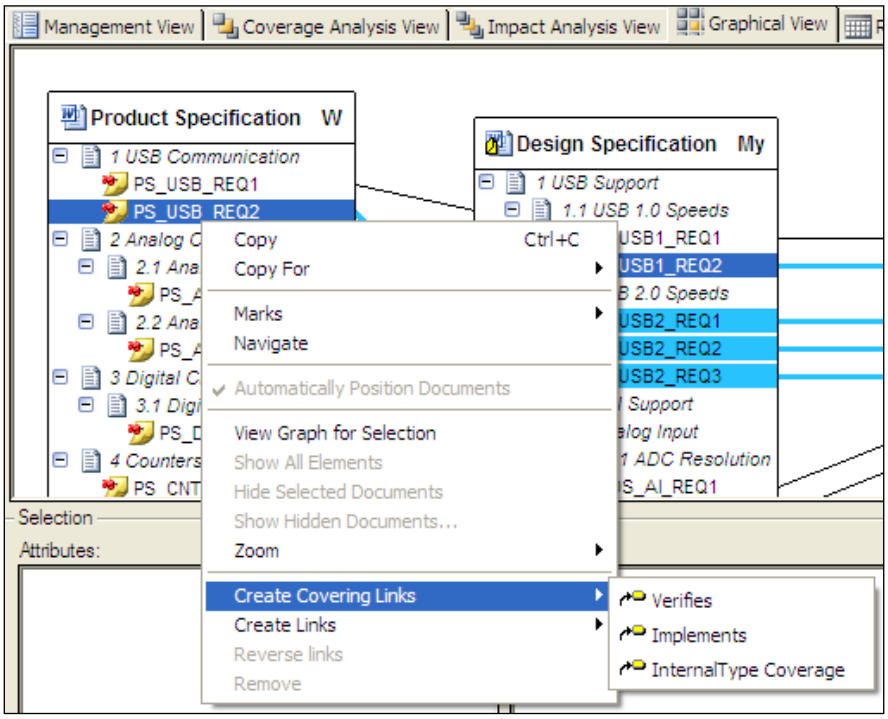
A check is added next to the covered requirement. A message is added in the **Information** area.

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.**

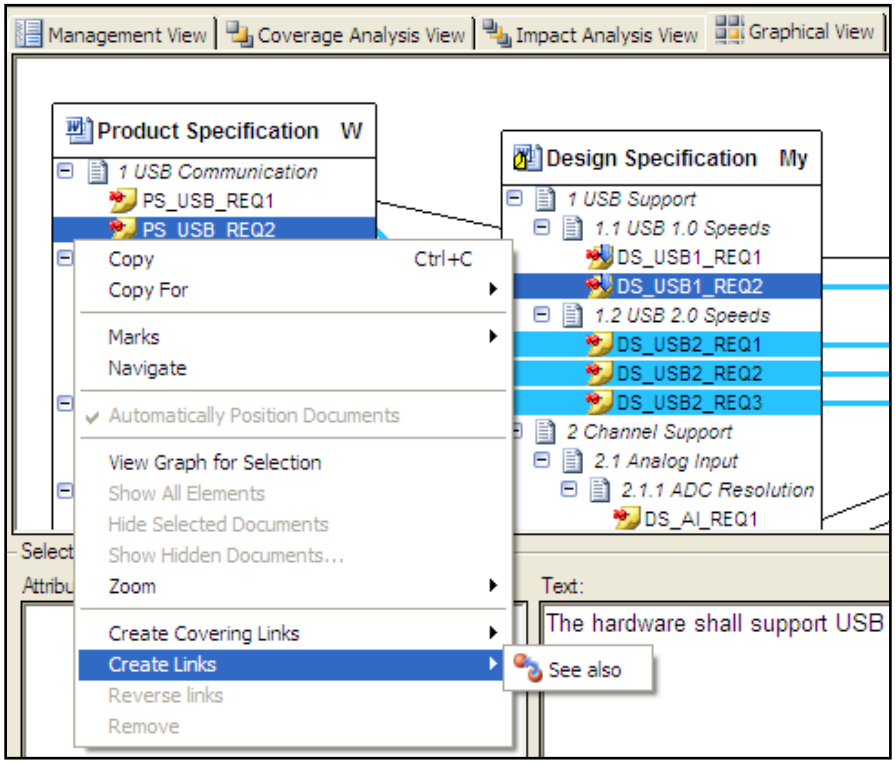
1. Make a multiple selection of the requirements you want to link. You can use the [Ctrl] key to create a multiple selection / de-selection.
2. Right-click **Create Covering Links** then select a covering link.



Adding Links

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

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 **Create Links** then one of the links coming from the modification file.



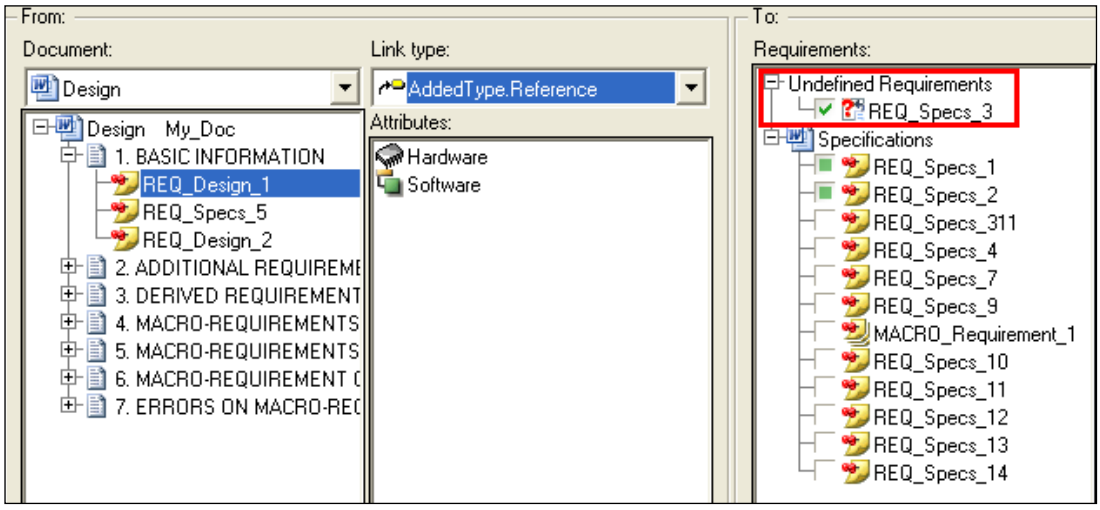
Deleting Links

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.

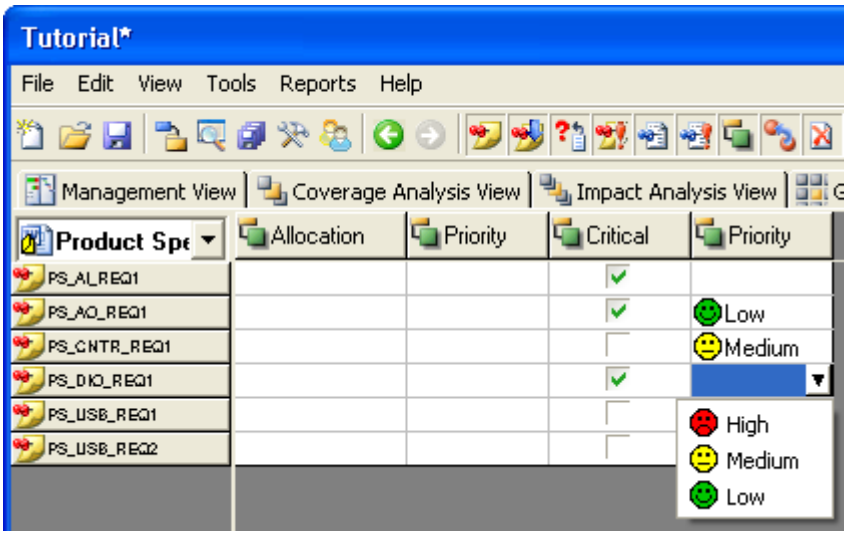
From the **Link Details** view, the behavior varies a little.

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 *Internal Type* section to learn more about this feature.

Assigning Reference Attribute

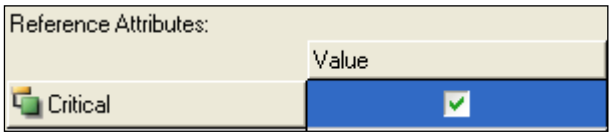
You can assign values to reference attributes from the **Link Details** view.

1. Create a covering link or select a covering link with a check-mark.

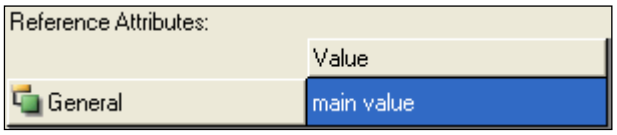
   The Reference Attributes area becomes enabled.

2. 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.

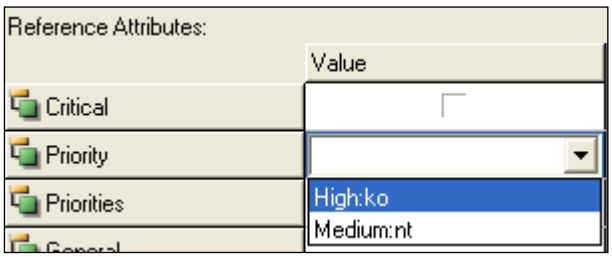
   - If the reference attribute has been defined as a Boolean attribute in the type for added element, then the field is displayed as a check box. Check or uncheck this check-box to choose the value:



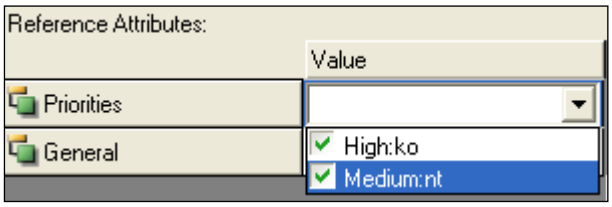
   - If the reference attribute has been defined without specific values in the type for added element, then type a value in the field:



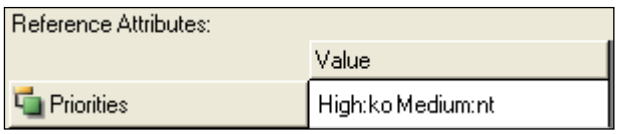
   - If the reference attribute has been defined with specific values in the type for added element, then select an available value in the combo-box which shows the choice:



   - 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:



   The field contains the set of selected values.



You can assign values to reference attributes from the **Graphical View**.

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 appears. Enter the reference attribute value.

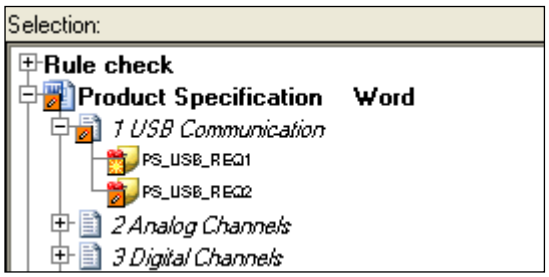
Adding Marks

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.



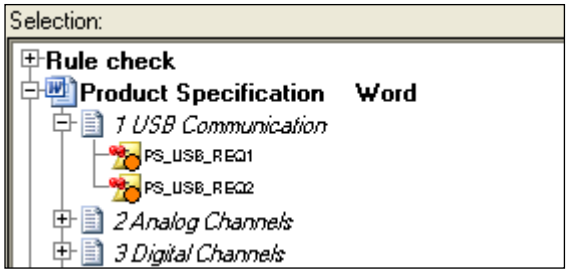
See the section about *Detection of Requirement Changes* to learn more.

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.

Right-click **Marks > Modifications**.

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, right-click **Marks > Next**. The [**F2**] key is a helpful shortcut.

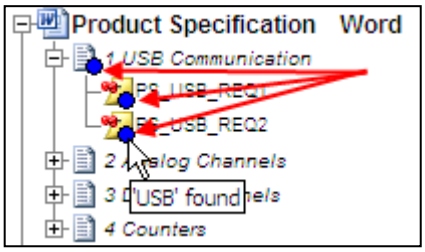
To navigate from one mark to the previous one, right-click **Marks > Previous**. The [**Shift + F2**] key is a helpful shortcut.

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

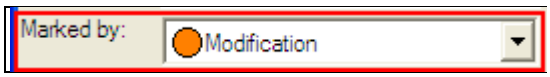
- **Individually**—select the marked element and right-click **Marks > Remove mark** to remove all the marks of the element.
- **Globally**—right-click **Marks > Remove all marks** to remove all the marks of a given category.
- **Recursively**—right-click **Marks > Remove marks recursively** to remove a mark and all its children in one click.

Automatic Highlight of Search Results

Marks can be used to highlight the results of a search action. The **Find** dialog box contains a **Mark all** button. If you select **Mark all**, all the elements found are automatically highlighted with Marks. If you hover over an element, information is displayed to indicate which information is found for this element.



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



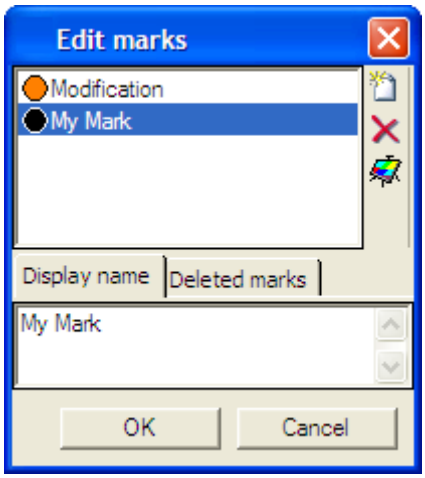
You can navigate to next or previous mark by clicking **Next** or **Previous** button.

Creating your own marks

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

1. Right-click **Marks > Edit**.

   The dialog box shown in the following figure opens:



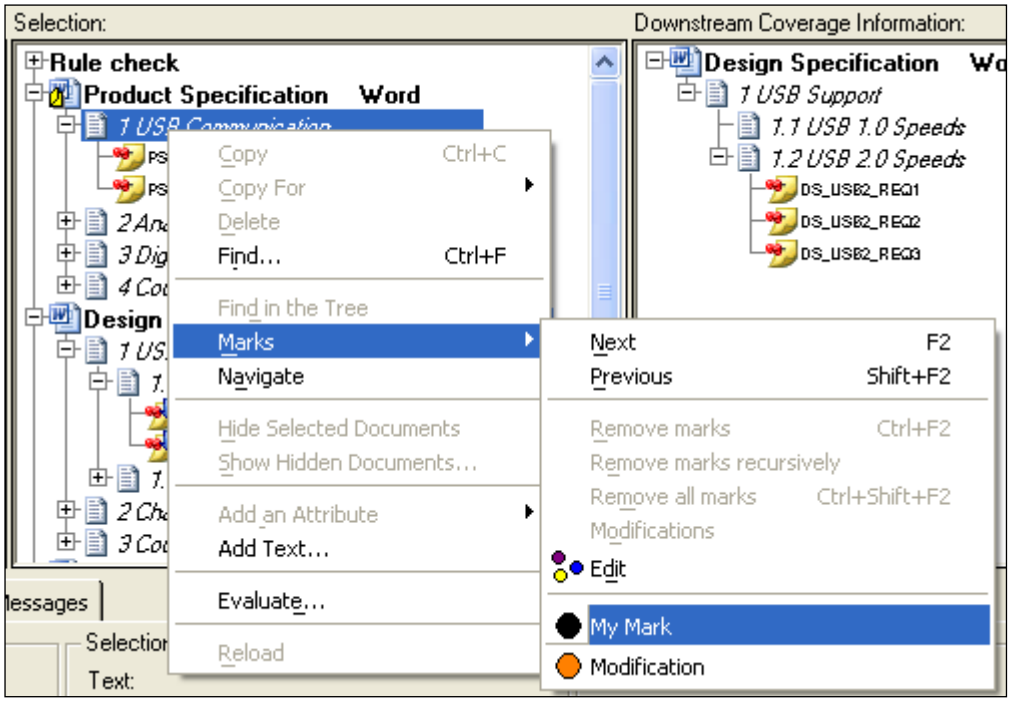
2. Click  to create a new mark.

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**.

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 contextual 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 contextual 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 ot 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.

Right-click **Delete** 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

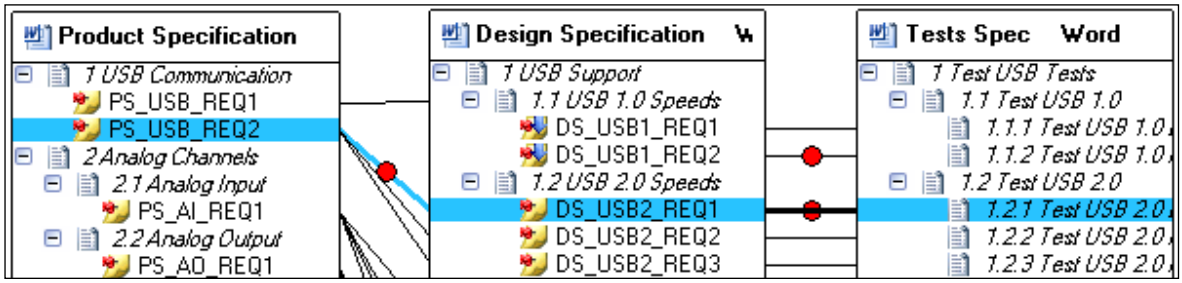
A suspicious link is a link that must be verified. A link becomes suspicious when a covered requirement or a covering element has changed. A change is for instance a text modification.

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

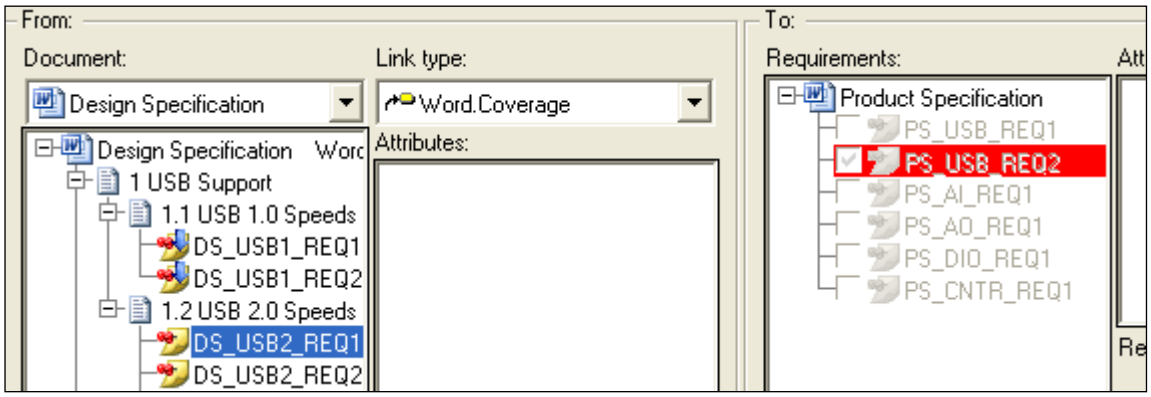
Changes on attributes can impact suspicious link state. If the **User Management** plugin is installed, users can manage rights concerning suspicious links on their projects.

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.



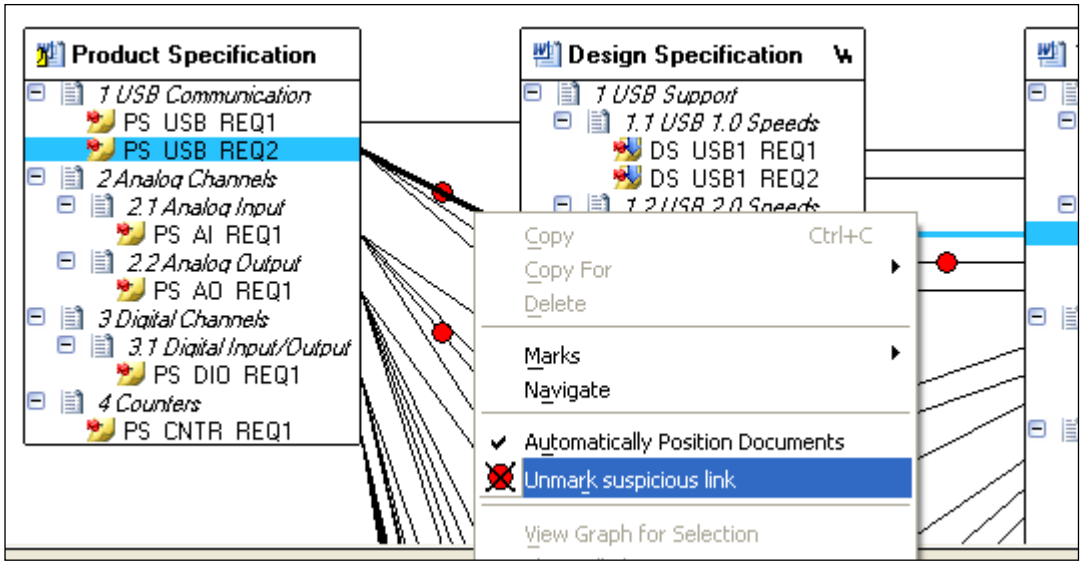
In the **Link Details** view, covering links with the selected link type and marked as suspicious are underlined in red.



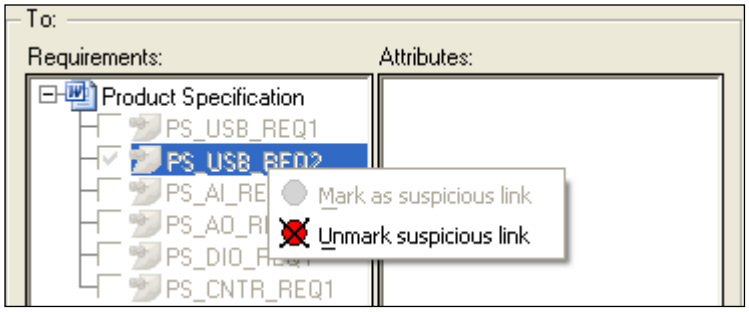
Covering links with another link type and marked as suspicious are underlined in orange.

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 right-click **Unmark suspicious link**.

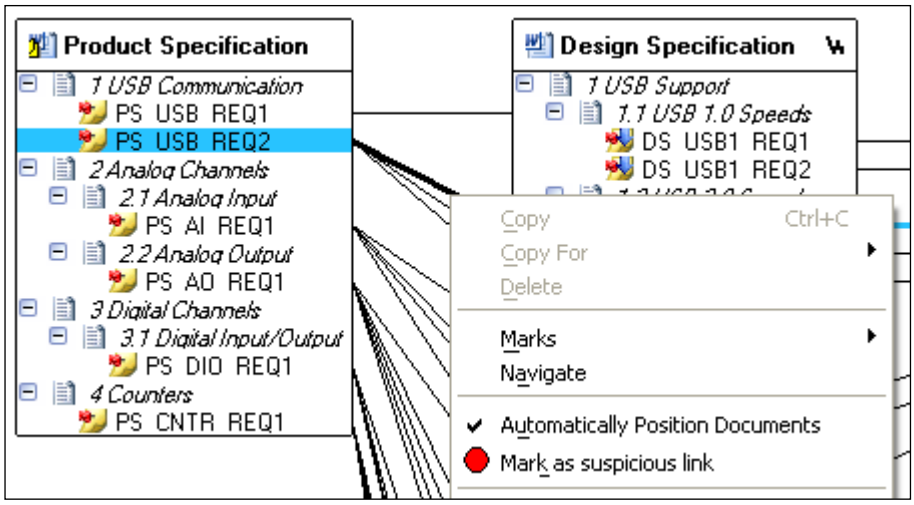


The corresponding same item is available in the **Link Details** contextual menu, when clicking a suspicious link in the view.

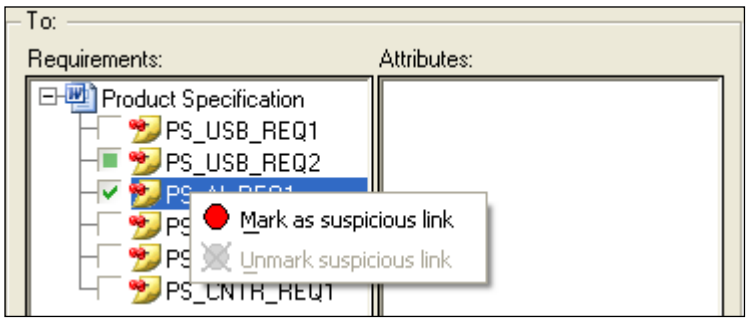


Mark a link as suspicious

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.

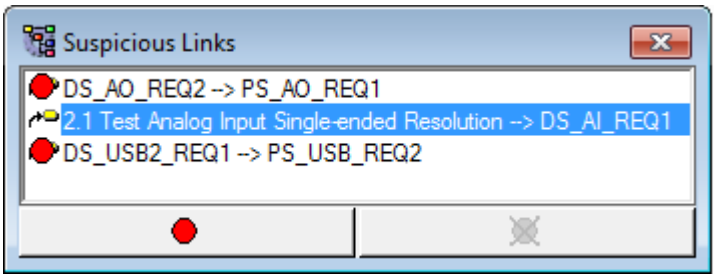


Edit suspicious links

You can manage and navigate between all suspicious links using the Suspicious links dialog box.

Select **Tools > Edit Suspicious links** to display the suspicious links. The menu item is displayed if the project supports suspicious links (if **Activate suspicious link management** is selected in **Options > Project** tab) and is available if the project contains suspicious links.

All suspicious links are listed inan external dialog box. Use this box to review and manage links. You can select one or more links and double-click to select them in the current view, you can also mark links as suspicious or remove the marks.


Suspicious Links
DS_AO_REQ2 --> PS_AO_REQ1
2.1 Test Analog Input Single-ended Resolution --> DS_AI_REQ1
DS_USB2_REQ1 --> PS_USB_REQ2

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.

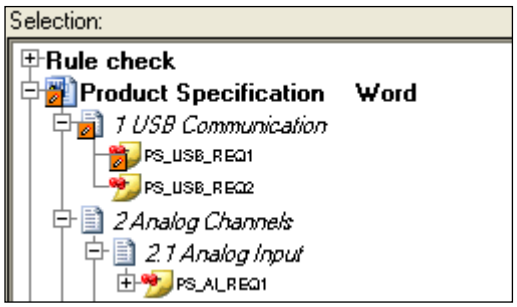
You can read about these topics in:

- 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:

- —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.

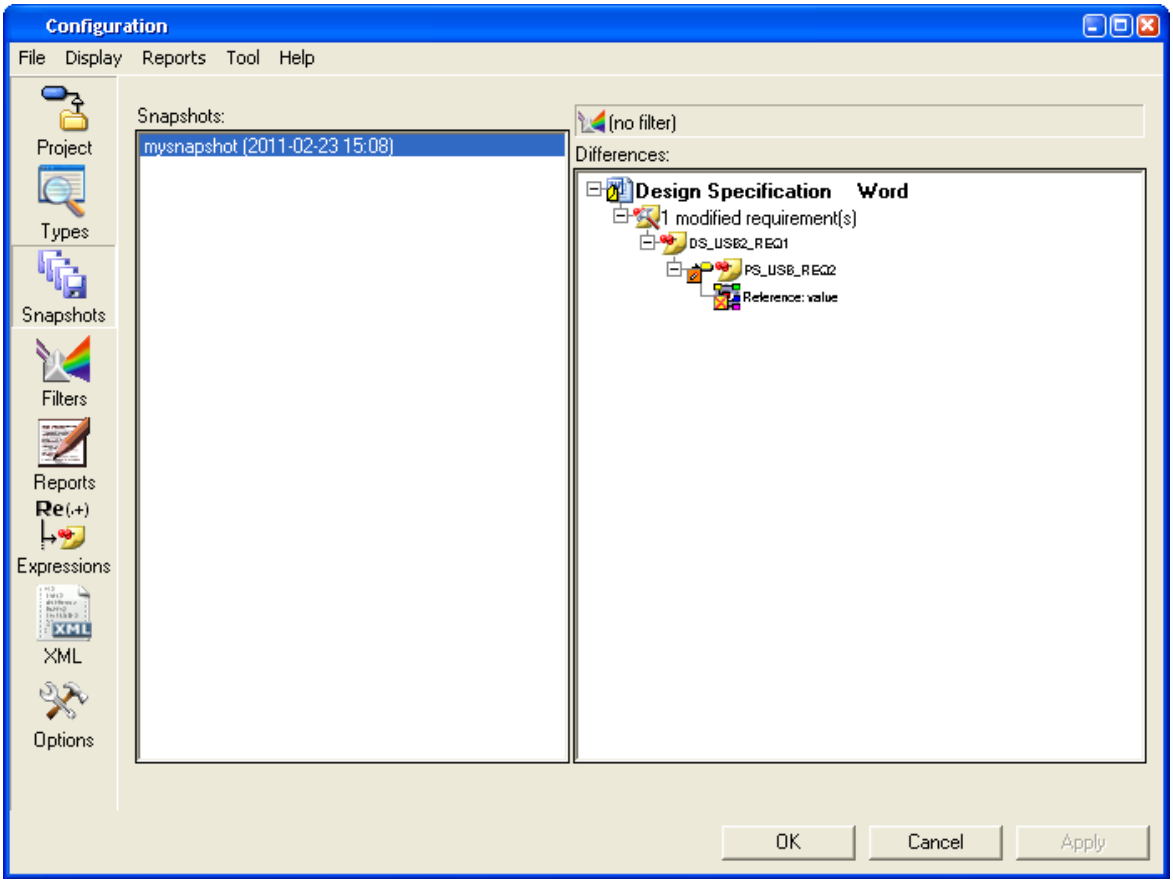
- Once analysis results are highlighted by orange icons to show the modifications detected by Rhapsody Gateway, select **Edit > Marks > Modifications**. Rhapsody Gateway automatically adds a "Modification" mark to the elements that have an orange icon (not to their parents as it does for the orange icons, 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:

- **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:

- **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:

- **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:

- **Evaluate**—Opens the OTScript Evaluator.

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

- **Help topics**—Opens the *User Guide* and *Customization Guide* 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 and click **OK**.

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

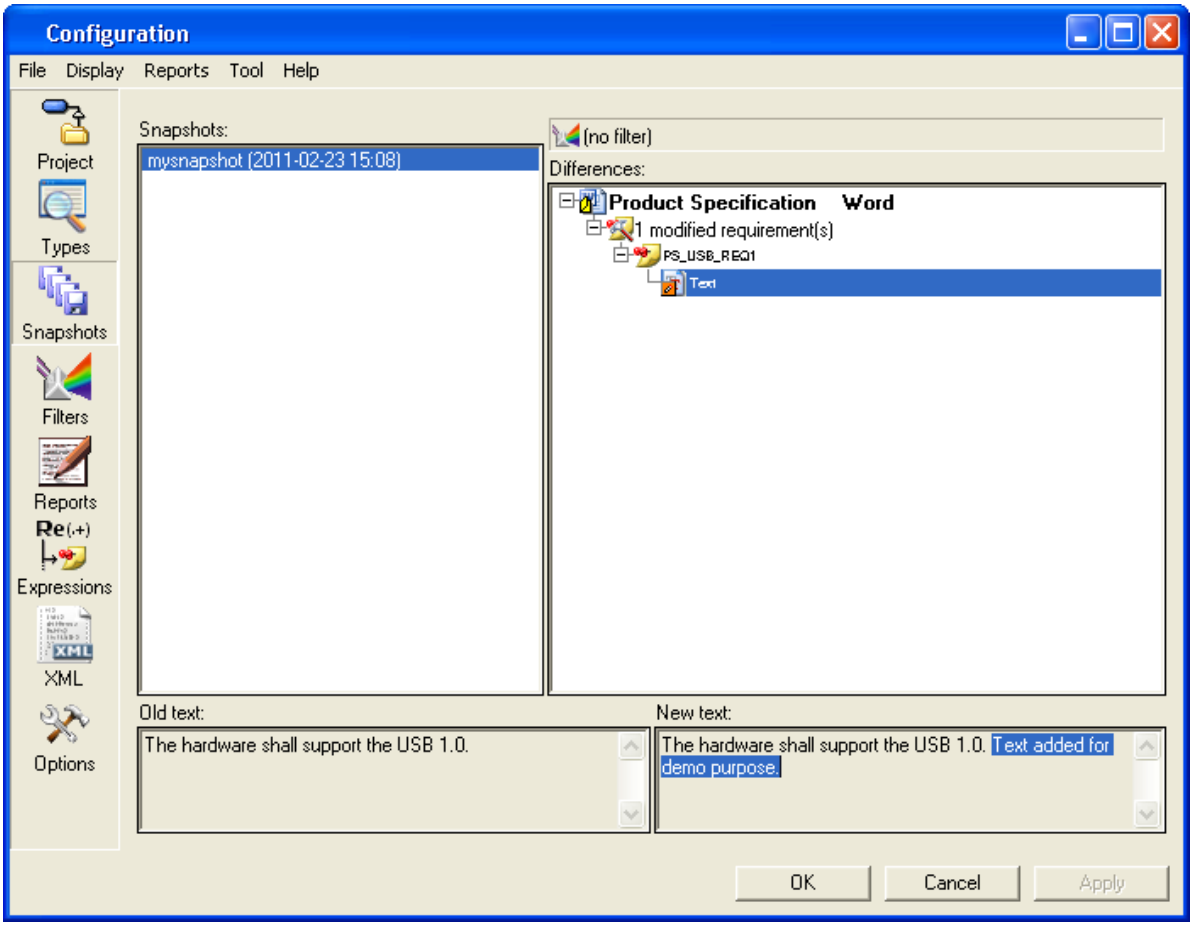
Using Snapshots to Compare Results

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. New and old texts or attribute values are displayed in the **Snapshot** editor. 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.

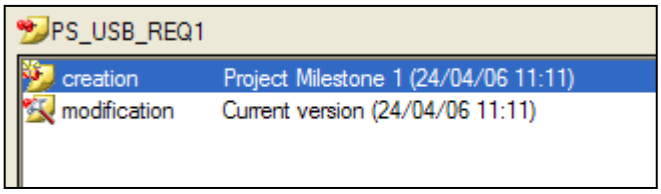


Element History

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 right-click **Display > View element history** or **View element history**.

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, right-click **Display > View snapshots** or **View snapshots**.

Opening a Snapshot

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

Double-click 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 contextual 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 Rhapsody Gateway **project with File** mode to Rhapsody Gateway **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 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.

One corrective action is to uncheck the rule in trouble in the Rules part of the Project General option.

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 `.rqtf` 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: • 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: • the source file structure or the intermediate file contains some inconstancies, such as the lack of closing expression • the analysis type contains an incomplete definition of parents/children combination for sections	• 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	The COM dialog with an interfaced tool fails. For example, causes could be: • 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	• Reinstall the tool. • Treat the COM error. If this error is persistent, contact your IT administrator or the Support Team.
Conversion problem	The document cannot be analyzed by Rhapsody Gateway. For example, this could happen when the document to be analyzed has: • an unknown format • an obsolete format such as a Word 95 file	No corrective action can be proposed.
Converter not found	The project configuration has been defined with a type of analysis based on a converter not available in the current project configuration. For example, this could happen when a specific converter has been developed for a user and the user has upgraded his Rhapsody Gateway version. 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.	• Add the converter from the old version into the new one. • Rewrite the converter. • Load a new converter.

Error Messages	Explanation	Corrective Action
Cover link source not found	The capture information defined as a coverage link source in the analyzed document has not been found. See Defining References section in the *Customization Guide* to learn more. 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.	• Verify the source • Verify the regular expression definition
Covered document not found	The `.rqtf` file corresponding to the project configuration has been corrupted. In this file a covered document is declared but the document itself is not defined in the configuration.	Users must avoid manual modification of Rhapsody Gateway files. In this case the user can resave the project from the project editor.
Covering document not found	The `.rqtf` file corresponding to the project configuration has been corrupted. In this file a covering document is declared but the document itself is not defined in the configuration.	Users must avoid manual modification of Rhapsody Gateway files. In this case the user can resave the project from the project editor.
Cyclic graph creation not allowed	This error happens when we define a P parent of an E element and if this P parent is already a child of E.	Change the parent/child relationship.
Document not found	The capture information from the analyzed document defined as a document in a coverage link or a link has not been found. See Defining References and Defining Links sections in the *Customization Guide* to learn more.	• Verify the document • Verify the regular expression definition

Error Messages	Explanation	Corrective Action
Document not readable	The document is not available for analysis. For example, this could happen when: • 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	• Check the access rights or ask the administrator. • Move or create the missing file. • Correct the type of analysis.
Embedded document not found	This happens if a document included in a folder is not found. The `.rqtf` file is corrupted.	Users must avoid manual modification of Rhapsody Gateway files. • Correct manual modifications if this is probably the cause of the problem. • Contact the Support Team.
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.

Error Messages	Explanation	Corrective Action
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”.	• 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 *Customization Guide* and more specifically information about Fields.	• 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: • 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	• 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.
Mirror requirement with different attribute value	A requirement which exists in the upstream document and which also exists in the downstream document, has not the same label, text or attribute values.	Correct attribute values with are different.
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.

Error Messages	Explanation	Corrective Action
Multiple use of same GUID	Several elements with the same GUID are captured: • When the same document containing GUID is added twice in the project. • When following actions are done: import a document containing GUID, export in a third tool (e.g. DOORS) then re-import in the same project.	Do not insert twice the same document or do not import the same document with capture of GUID.
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: • the source file structure, or the intermediate file contains some inconstancies, 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 *Customization Guide* and more specifically information about Fields.	• Verify the parent. • Verify the regular expression definition.

Error Messages	Explanation	Corrective Action
Post-processing error	Error in the post-processing.	This error has a parameter. Consult this parameter to correct.
Requirement defined several times	A requirement or a derived requirement is defined several times in the same document. For example, a requirement cannot have the same name definition as a derived requirement. **Warning:** this rule is ignored if the **Merge homonymous requirement** option is checked in the type declaration, refer to *Customization Guide*.	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	Two sections of the same hierarchical level have the same identifier. For example, this could happen when two titles have the same identifier number.	Correct the sections in the document to be analyzed.
Self covering requirement	A requirement reference references itself.	Delete or modify the coverage.

Error Messages	Explanation	Corrective Action
Too many results found. A capture expression may be wrong	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. For instance, such error can appear when 10 regular expressions are providing more than 5000 results. Simple case with requirements captured from table rows: `(7000 requirement rows) x (1 requirement identifier + 1 requirement label + 1 requirement text + 7 attribute values) = 70000 results`	If you do need to capture more than 50 000 results with the same expression it would be necessary to increase the maxFoundResults limit. Edit your `.ini` file and define a variable `maxFoundResults=<your number>` in the `[General]` section. Create this section if it does not exist. Do not hesitate to contact the Support Team for assistance.
Traceability Graph Violation	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. Double-click a Traceability graph violation error in the Rule check of Rhapsody Gateway to reach the source object. To visualize the target object of a Traceability graph violation error, select a source object then open the Message pane.	• 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	The analyzed document contains an attribute of an enumerated attribute with a value out of the defined list of values.	• Add the new value to the enumerated attribute in the types. • Modify the value in the document with a correct one.

Error Messages	Explanation	Corrective Action
Uncovered requirement	A requirement, a derived requirement or a macro-requirement is not referenced in any covering document. No error is raised for requirements of low level documents. This rule is not applied in a self-covering document case.	Define the coverage of the requirement.
Undefined covering requirement/entity	The covering element does not exist anymore or contains a typing error. For example, the high level requirement "is covered by" a low level requirement that is captured but undefined.	• Rename the covering element. • Define the covering element.
Unknown document type	The project configuration has been defined with a type of analysis not available in the project configuration. For example, this could happen when: • 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	Rhapsody Gateway automatically replaces the initial Type of Analysis by the default **LostType** one. • add the document type to the configuration • recover the file or move the file at the dedicated place • select a type for the document It is important not to save the project without making a correction otherwise the right type will be lost in the project file.
Unknown element type	This situation happens when a reference element type does no longer exist in the rqtf file.	Contact the Support Team for assistance.
Unknown parent element	A regular expression or an XML syntax has been defined to define the parent element.	Contact the Support Team for assistance.

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.	• 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.	• 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.
Reuse of deleted requirement identifier	A requirement has been deleted using the **Expression to delete an element** field and a requirement with the same identifier is recreated.	Rename the new requirement.

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 and 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**.

A **Parameter Selection** dialog box appears.

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

The **Save As** dialog box appears. Select a style and a format for report generation from the Type list, the location of your report file, and name the report.

Rhapsody Gateway generates a bi-directional traceability matrix, such as below:

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

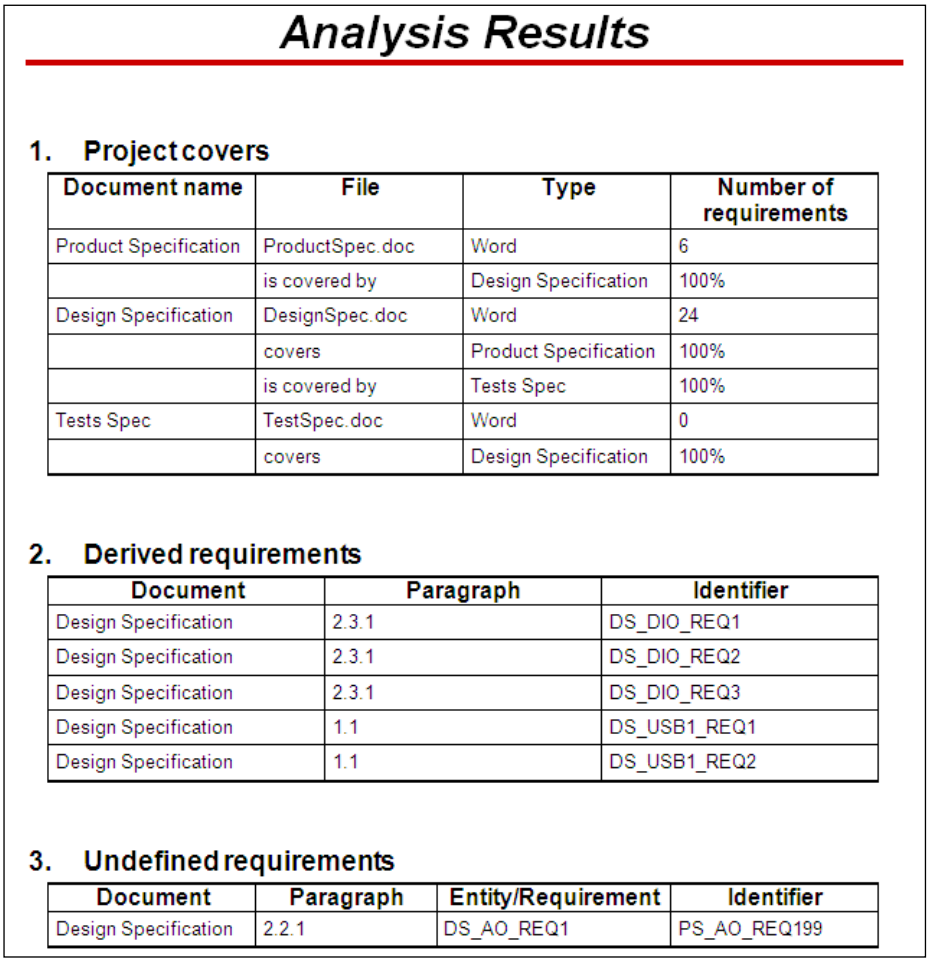
Generating the Analysis Results Report

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.

The **Save As** dialog box appears. Select a style and a format for report generation from the Type list, the location of your report file, and name the report.

Rhapsody Gateway generates the Analysis Results report, such as below:



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

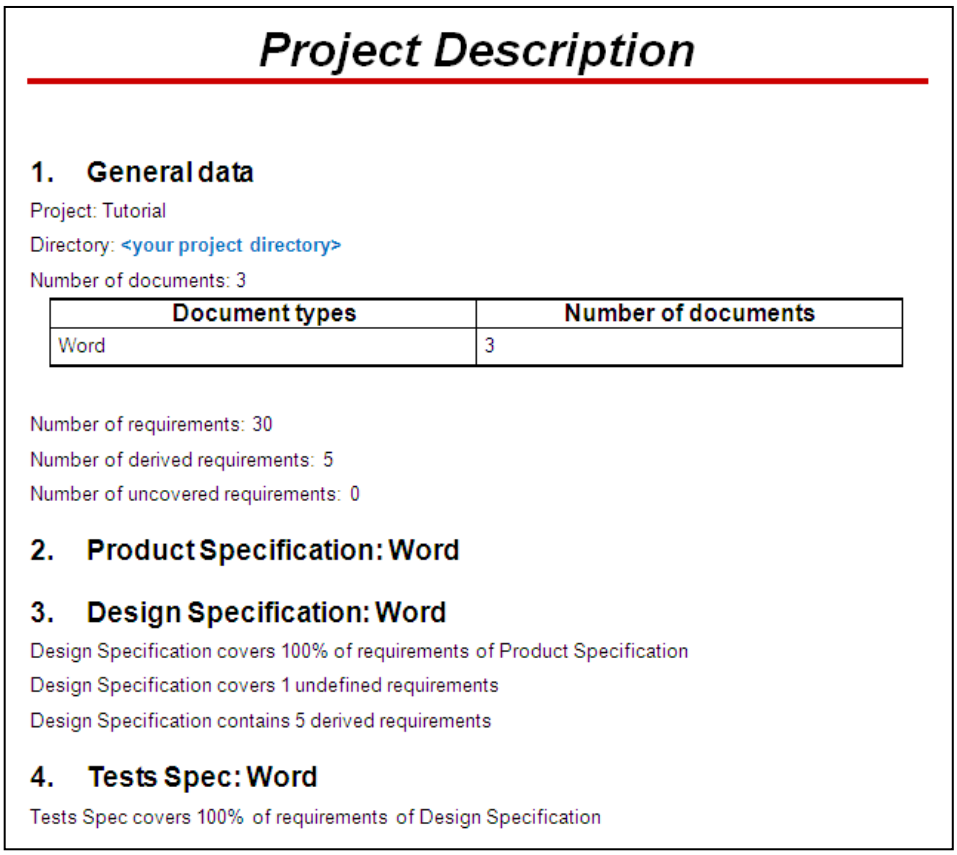
Generating the Project Description Report

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.

The **Save As** dialog box appears. Select a style and a format for report generation from the Type list, the location of your report file, and name the report.

Rhapsody Gateway generates the Project Description, such as below:



Project Description

1. General data

Project: Tutorial

Directory: <your project directory>

Number of documents: 3

Document types	Number of documents
Word	3

Number of requirements: 30

Number of derived requirements: 5

Number of uncovered requirements: 0

2. Product Specification: Word

3. Design Specification: Word

Design Specification covers 100% of requirements of Product Specification

Design Specification covers 1 undefined requirements

Design Specification contains 5 derived requirements

4. Tests Spec: Word

Tests Spec covers 100% of requirements of Design Specification

Generating the Upstream Impact Analysis Report

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

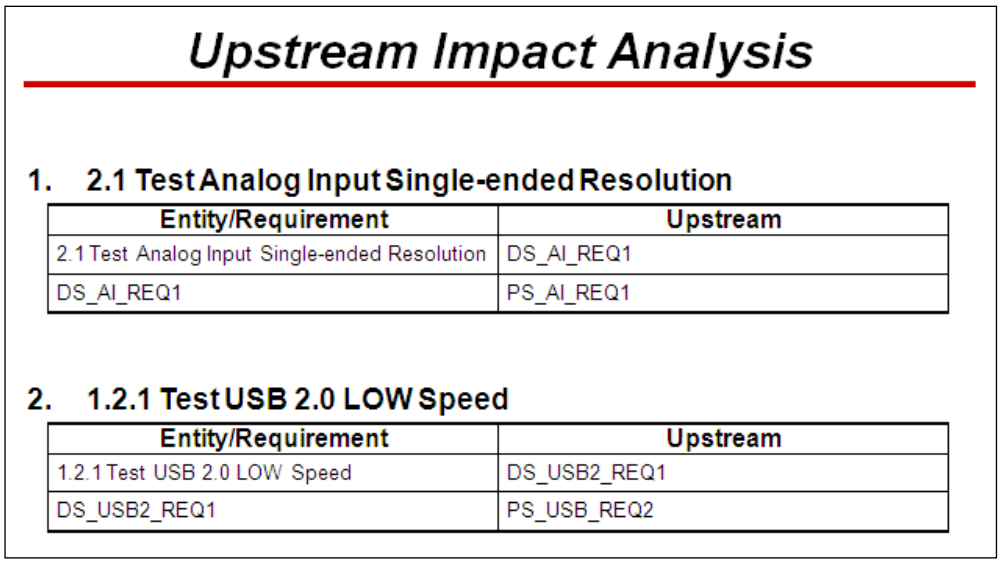
Select **Reports > Library Reports > Upstream Impact Analysis**.

A dialog box appears to select one or several low level elements.

Select elements and click **Continue**.

The **Save As** dialog box appears. Select a style and a format for report generation from the Type list, the location of your report file, and name the report.

Rhapsody Gateway generates the Upstream Impact Analysis report, such as below.



Upstream Impact Analysis

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 Test USB 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.

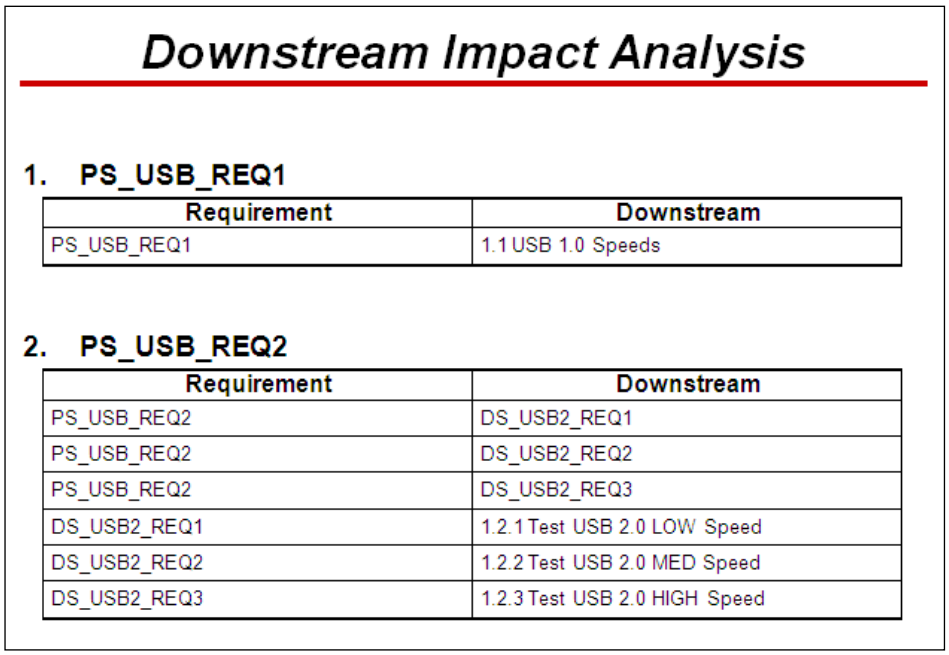
Select **Reports > Library Reports > Downstream Impact Analysis**.

A dialog box appears to select one or more high level requirements

Select requirements and click **Continue**.

The **Save As** dialog box appears. Select a style and a format for report generation from the Type list, the location of your report file, and name the report.

Rhapsody Gateway generates the Downstream Impact Analysis report, such as below.



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

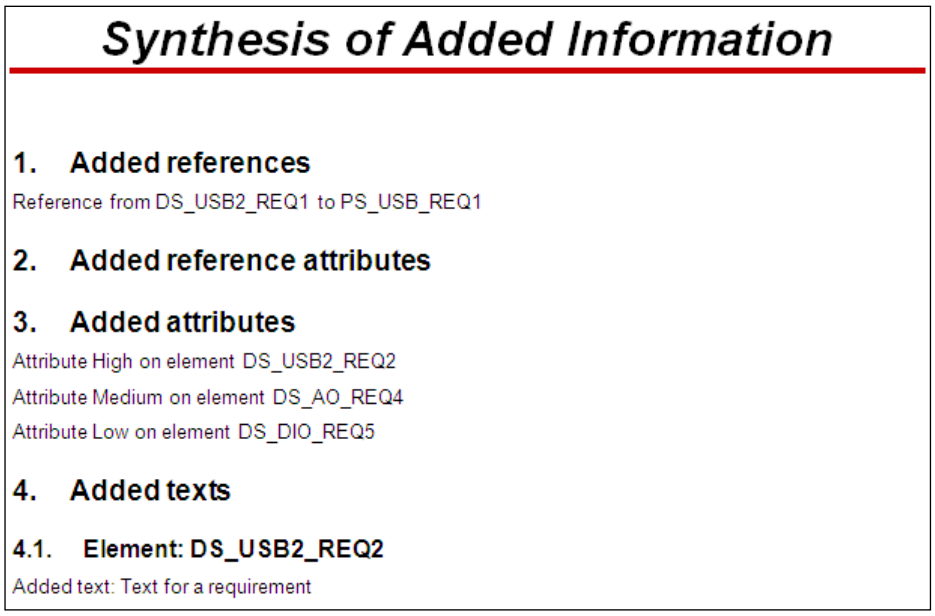
Generating the Synthesis of Added Information Report

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.

The **Save As** dialog box appears. Select a style and a format for report generation from the Type list, the location of your report file, and name the report.

Rhapsody Gateway generates the Synthesis of Added Information report, such as below.



Synthesis of Added Information

1. Added references

Reference from DS_USB2_REQ1 to PS_USB_REQ1

2. Added reference attributes

3. Added attributes

Attribute High on element DS_USB2_REQ2

Attribute Medium on element DS_AO_REQ4

Attribute Low on element DS_DIO_REQ5

4. Added texts

4.1. Element: DS_USB2_REQ2

Added text: Text for a requirement

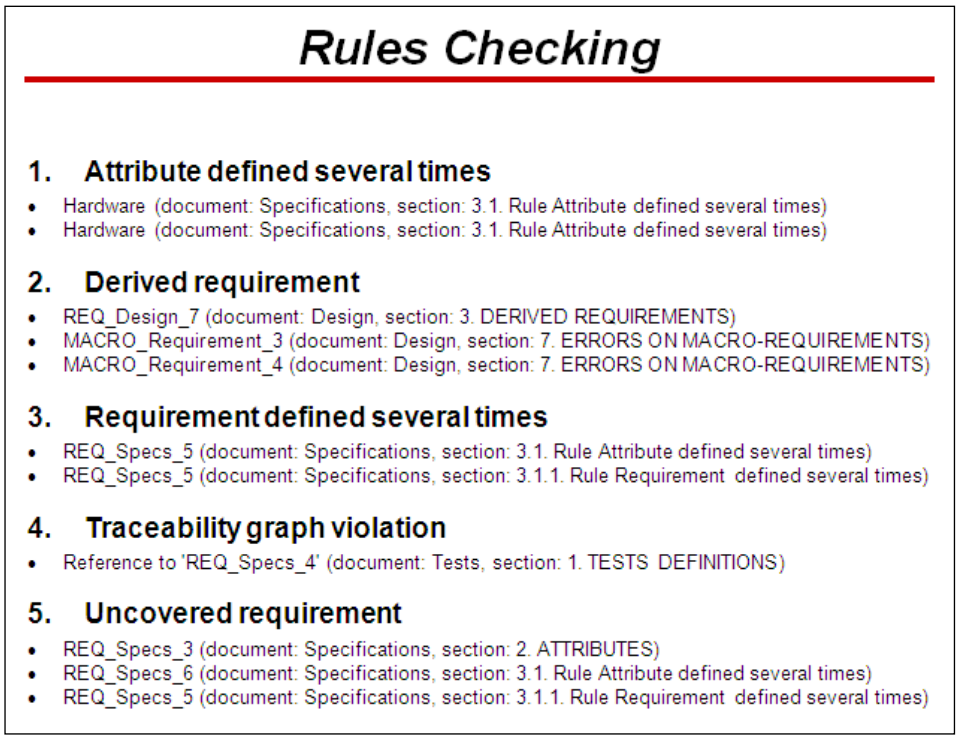
Generating the Rules Checking Report

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.

The **Save As** dialog box appears. Select a style and a format for report generation from the Type list, the location of your report file, and name the report.

Rhapsody Gateway generates the Rules Checking report, such as below.



Rules Checking

1. Attribute defined several times

- Hardware (document: Specifications, section: 3.1. Rule Attribute defined several times)
- Hardware (document: Specifications, section: 3.1. Rule Attribute defined several times)

2. Derived requirement

- REQ_Design_7 (document: Design, section: 3. DERIVED REQUIREMENTS)
- MACRO_Requirement_3 (document: Design, section: 7. ERRORS ON MACRO-REQUIREMENTS)
- MACRO_Requirement_4 (document: Design, section: 7. ERRORS ON MACRO-REQUIREMENTS)

3. Requirement defined several times

- REQ_Specs_5 (document: Specifications, section: 3.1. Rule Attribute defined several times)
- REQ_Specs_5 (document: Specifications, section: 3.1.1. Rule Requirement defined several times)

4. Traceability graph violation

- Reference to 'REQ_Specs_4' (document: Tests, section: 1. TESTS DEFINITIONS)

5. Uncovered requirement

- REQ_Specs_3 (document: Specifications, section: 2. ATTRIBUTES)
- REQ_Specs_6 (document: Specifications, section: 3.1. Rule Attribute defined several times)
- REQ_Specs_5 (document: Specifications, section: 3.1.1. Rule Requirement defined several times)

Generating your Report

Select **Reports > Project Reports > your_report**.

Depending on your report, you may have to select elements or not before generation your report.

The **Save As** dialog box appears. Select a style and a format for report generation from the Type list, the location of your report file, and name the report.

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

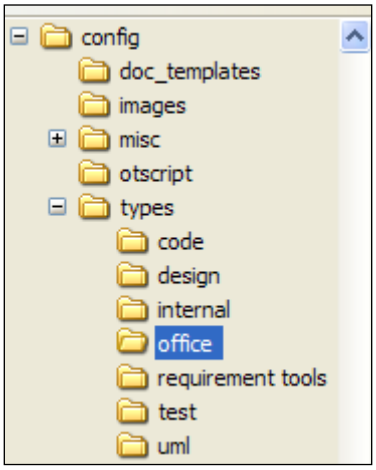
Several kind of information are defined in the configuration files, such as types, templates, etc.

Types Definition

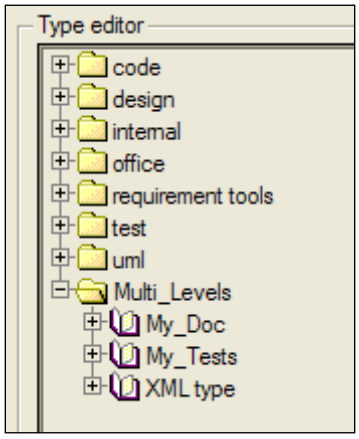
The files defining the default types of analysis are located in the `<Installation directory>\config\types` directory.

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" list 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" list 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 rqtfimage files and use the product as a viewer: **Select File > Open** and select "Project snapshot" from the File Type list 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>.rqtfimage`

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

Note

The snapshot directory can be redefined. The default `<Project directory>/snapshots` directory can be overloaded by setting `[Files]` `SnapshotDirectory='<path>'` where `<path>` is a relative path in `.INI` file.

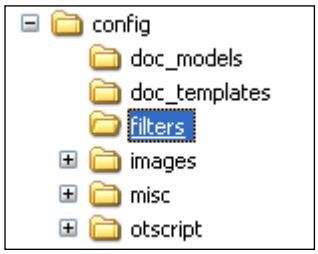
Filter Definition File

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.

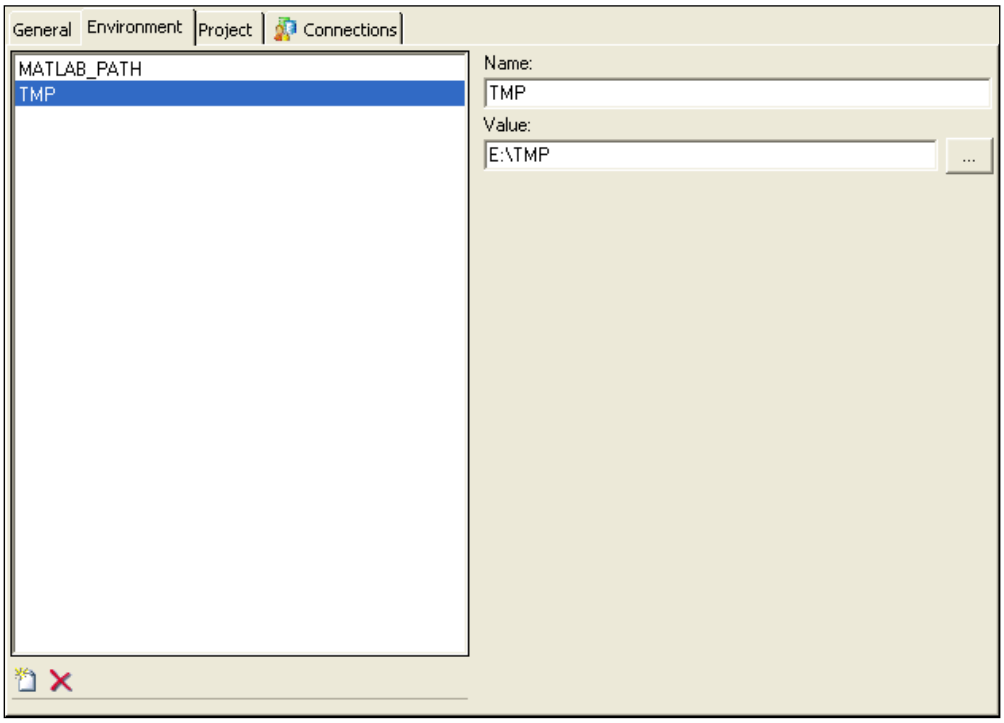
By default these temporary files take place into the user temporary directory:

```
<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.

You can redefine the temporary files location.

1. Select **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 `%APPDATA%\DassaultSystemes\`<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.