User Guide **PUBLIC**

SAP PowerDesigner
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Requirements Management

SAP PowerDesigner Documentation Collection

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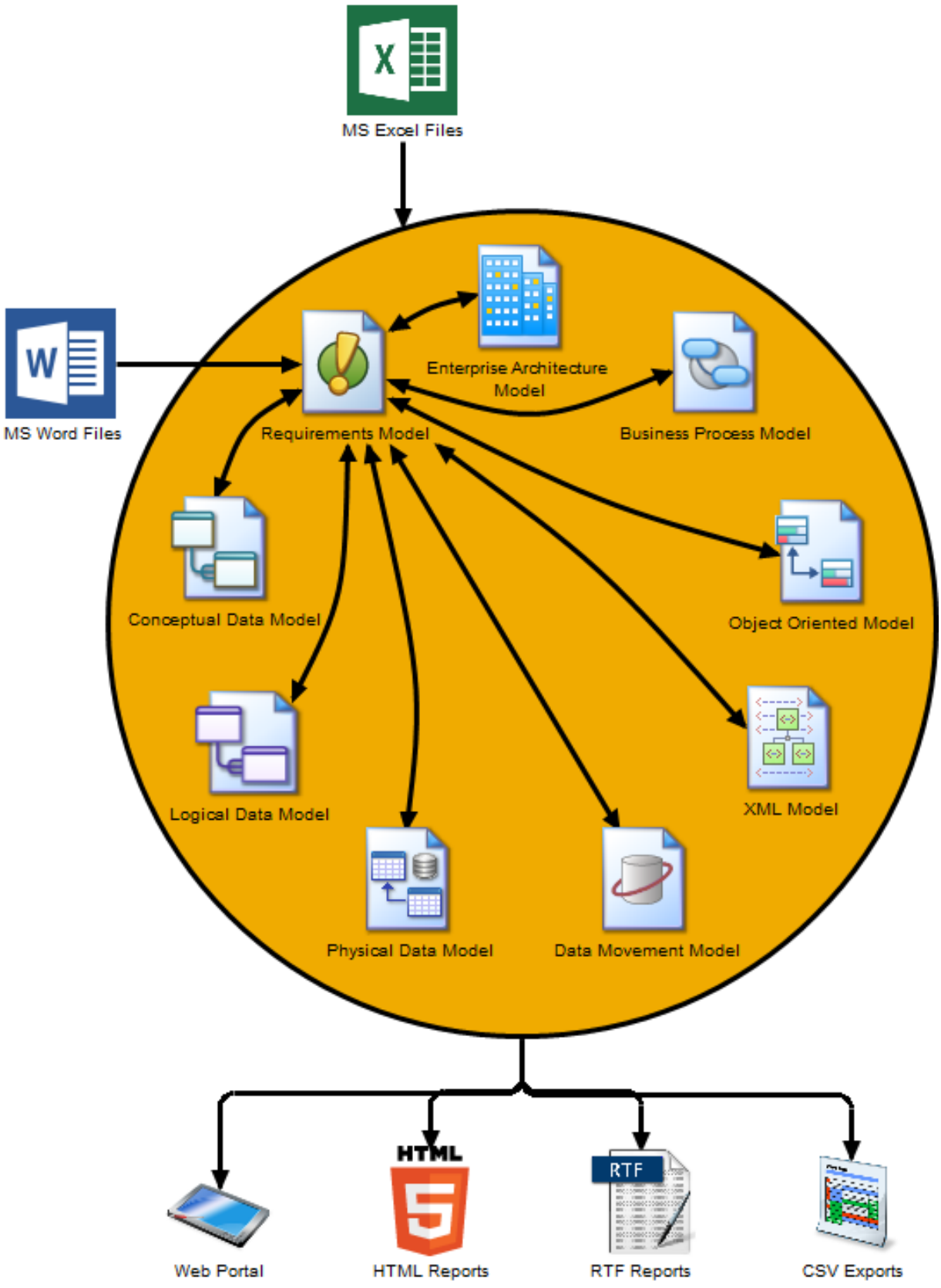
1 Getting Started with Requirements Modeling

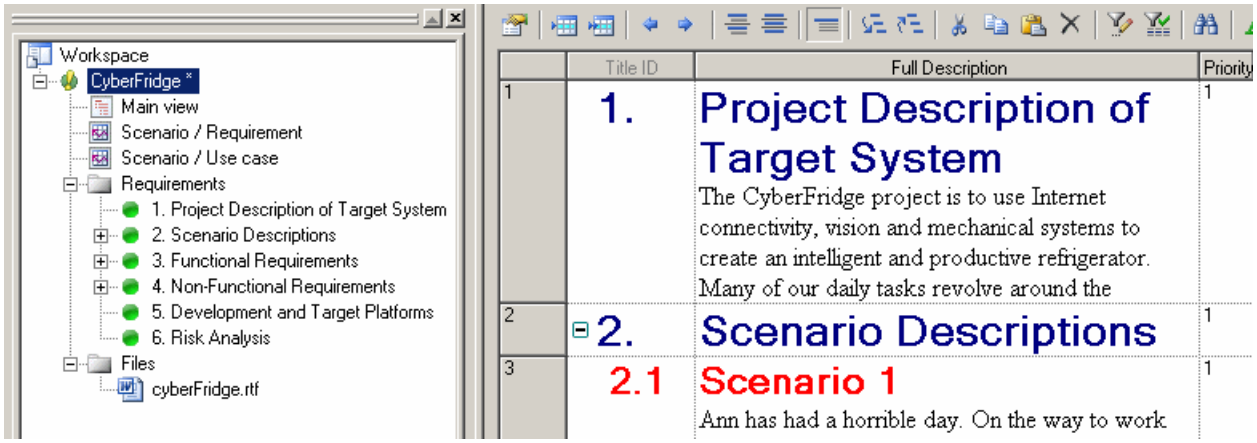
A requirements model (RQM) helps you analyze any kind of written requirements and link them with users and groups who will implement them and with design objects in other models. You can use an RQM to represent any structured document (e.g. functional specification, test plan, business goals, etc.) and import and export hierarchies of requirements as MS Word documents.

> **Note**
>
> You can view, create, and edit requirements document views in your Web browser using PowerDesigner Web. Viewing or editing traceability and user allocation matrices is not currently supported. For more information, see *PowerDesigner Web > Requirements Documents*.

You can create an SAP® PowerDesigner® RQM by importing an MS Word document, and keep the model and document synchronized along with all the design models and objects:


MS Excel Files
MS Word Files
Enterprise Architecture Model
Requirements Model
Business Process Model
Conceptual Data Model
Object Oriented Model
Logical Data Model
XML Model
Physical Data Model
Data Movement Model
Web Portal
HTML Reports
RTF Reports
CSV Exports

The following example shows a requirements model containing various views and an attached Word document, which specifies the requirements of the CyberFridge project:



Special thanks to Dr Gregory Abowd and his team, Jeffrey Corn (Manager), Travis Works (Architect), John Garrard (Programmer), Kesniel Acton (Technical Writer), and Dinesh Krishna (Quality Assurance), who designed the CyberFridge project – Copyright 2004, Georgia Tech Research Corporation, Atlanta, Georgia 30332-0415, All Rights Reserved

> **Note**
>
> Demo requirements models are available in the **`Examples`** directory.

Suggested Bibliography

- INCOSE (International Council on Systems Engineering) – http://www.incose.org

1.1 Creating an RQM

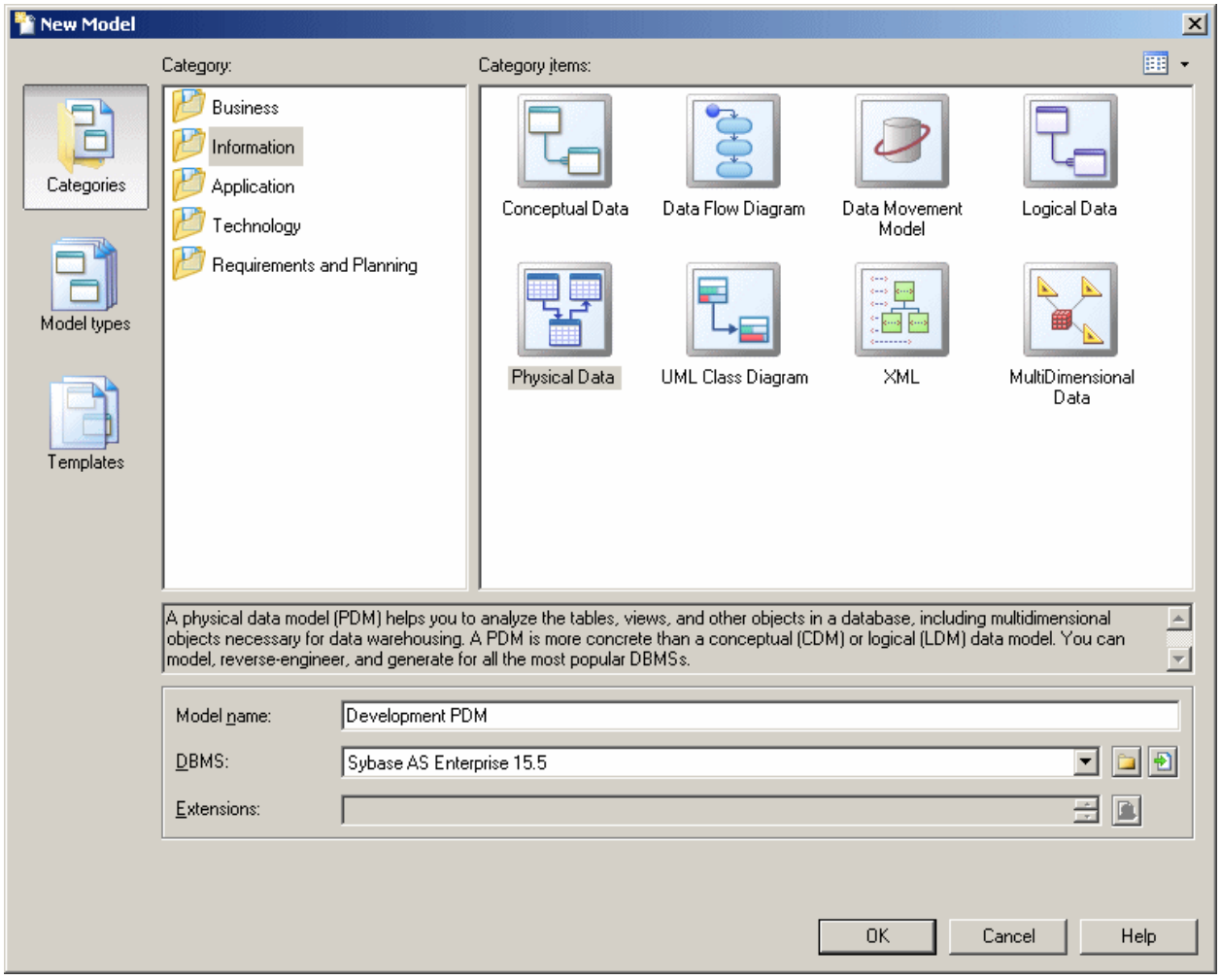
You create a new requirements model by selecting *File* > *New Model*.

Context

> **Note**
>
> In addition to creating an RQM from scratch with the following procedure, you can also create a model by importing an existing MS Word document (see Working with Word Documents and RQMs [page 49]).

The New Model dialog is highly configurable, and your administrator may hide options that are not relevant for your work or provide templates or predefined models to guide you through model creation. When you open the dialog, one or more of the following buttons will be available on the left hand side:

- *Categories* - which provides a set of predefined models and diagrams sorted in a configurable category structure.
- *Model types* - which provides the classic list of PowerDesigner model types and diagrams.
- *Template files* - which provides a set of model templates sorted by model type.



Procedure

1. Select *File* > *New Model* to open the New Model dialog.
2. Click a button, and then select a category or model type (*Requirements Model*) in the left-hand pane.
3. Select an item in the right-hand pane. Depending on how your New Model dialog is configured, these items may be first diagrams or templates on which to base the creation of your model.

   Use the *Views* tool on the upper right hand side of the dialog to control the display of the items.
4. Enter a model name. The code of the model, which is used for script or code generation, is derived from this name using the model naming conventions.
5. [optional] Click the *Select Extensions* button and attach one or more extensions to your model.
6. Click *OK* to create and open the requirements model .

> **Note**
>
> Sample RQMs are available in the Example Directory.

1.1.1 RQM Properties

You open the model property sheet by right-clicking the model in the Browser and selecting *Properties*.

Each requirements model has the following model properties:

Property	Description
Name/Code/Comment	Identify the model. The name should clearly convey the model's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the model. By default the code is auto-generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the *Code* field.
Filename	Specifies the location of the model file. This box is empty if the model has never been saved.
Author	Specifies the author of the model. If you enter nothing, the Author field in diagram title boxes displays the user name from the model property sheet Version Info tab. If you enter a space, the Author field displays nothing.
Version / Repository	Specify a user-defined version name and the read-only repository version number of the model. You can control which of these version values is displayed in a diagram Title symbol through the display preferences for the Title symbol.
Default view	Specifies the view displayed by default when you open the model.
Keywords	Provide a way of loosely grouping objects through tagging. To enter multiple keywords, separate them with commas.

The following tabs are also available:

- *Detail* - Provides fields to record workloads assigned to four individuals or groups. Model workloads are read-only fields calculated as the sums of all requirement workloads.
- *Requirement Traceability Links* - Lists links to design objects and external files.

1.2 Customizing your Modeling Environment

The PowerDesigner requirements model provides various means for customizing and controlling your modeling environment.

1.2.1 Setting Model Options

You can set RQM model options by selecting *Tools* > *Model Options* or right-clicking the diagram background and selecting *Model Options*.

You can set the following options on the Model Settings page:

Option	Description
Name/Code case sensitive	Specifies that the names and codes for all objects are case sensitive, allowing you to have two objects with identical names or codes but different cases in the same model. If you change case sensitivity during the design process, we recommend that you check your model to verify that your model does not contain any duplicate objects.
External Shortcut Properties	Specifies the properties that are stored for external shortcuts to objects in other models for display in property sheets and on symbols. By default, *All* properties appear, but you can select to display only *Name/Code* to reduce the size of your model. **Note** This option only controls properties of external shortcuts to models of the same type (PDM to PDM, EAM to EAM, etc). External shortcuts to objects in other types of model can show only the basic shortcut properties.

For information about controlling the naming conventions of your models, see *Core Features Guide > Modeling with PowerDesigner > Objects > Naming Conventions*.

1.2.1.1 Customizing Requirement Codes

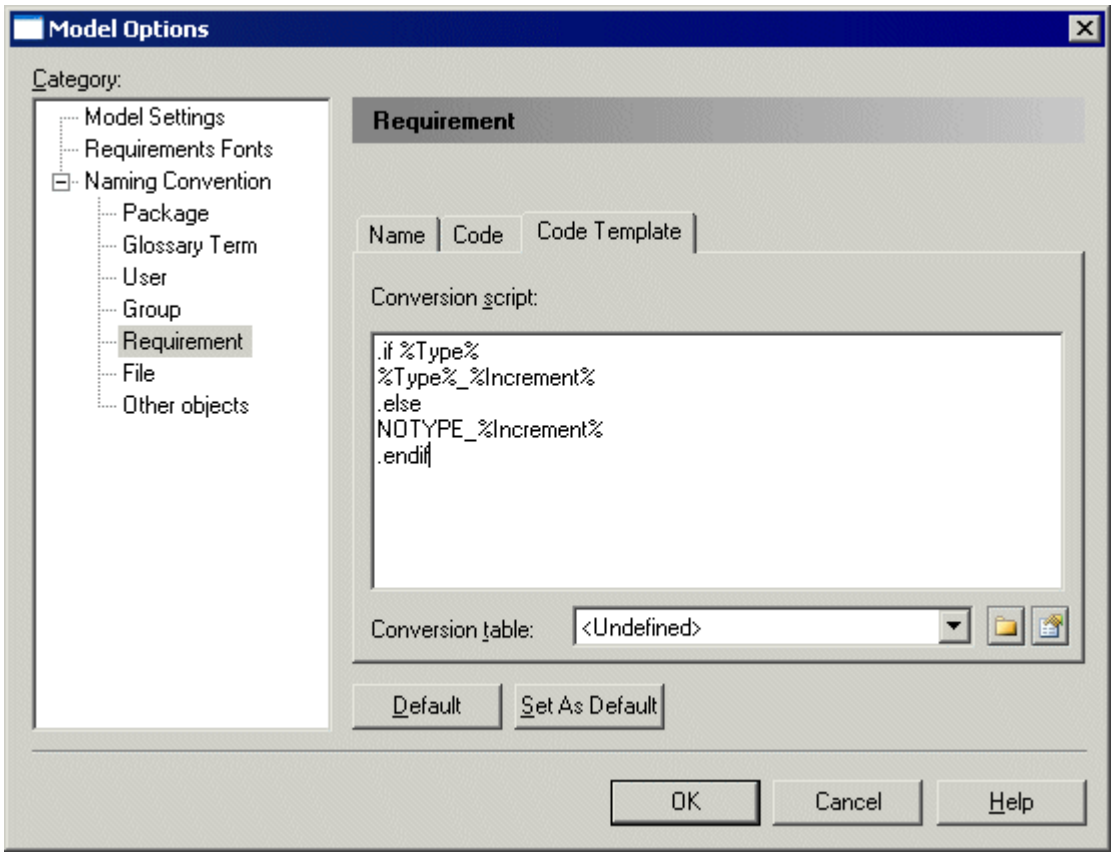
Requirement codes are automatically computed from the other attributes of the requirement. You can customize requirement codes in the *Code Template* tab of the *Requirement* page of the *Model Options* dialog.

Procedure

1. Select *Tools* > *Model Options* to open the Model Options dialog, and then select *Naming Convention* > *Requirement* in the *Category* tree view.

2. Click the *Code Template* tab and enter a GTL script in the *Conversion Script* field.

   The default script is `REQ_%-4:Increment%` in which the RQM-specific `%increment%` variable ensures code uniqueness. For detailed information about writing GTL scripts, see *Customizing and Extending PowerDesigner > Customizing Generation with GTL* .



3. [optional] Select a conversion table.
4. Click *OK* to return to your model.

> **Note**
>
> You can modify individual requirement codes directly in the requirement property sheet or the document view. If you modify a code, the *User-Defined* button is depressed to indicate that the modified code no longer follows the code template definition. To return to the default code template click the *User-Defined* button to release it.

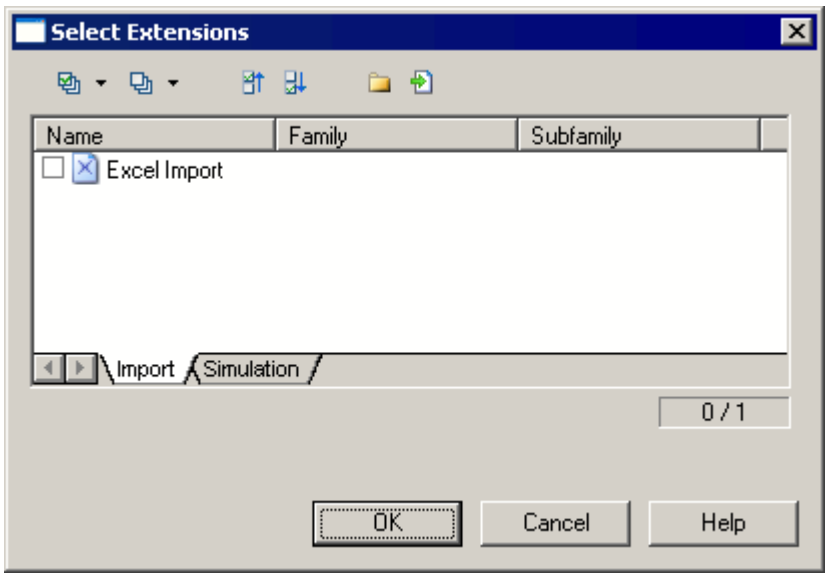
For detailed information about working with naming conventions, including conversion tables, see *Core Features Guide > Modeling with PowerDesigner > Objects > Naming Conventions*.

1.2.2 Extending your Modeling Environment

You can customize and extend PowerDesigner metaclasses, parameters, and file generation with extensions, which can be stored as part of your model or in separate extension files (*.xem) for reuse with other models.

To access extensions defined in a `*.xem` file, simply attach the file to your model. You can do this when creating a new model by clicking the *Select Extensions* button at the bottom of the New Model dialog, or at any time by selecting *Model* > *Extensions* to open the List of Extensions and clicking the *Attach an Extension* tool.

In each case, you arrive at the Select Extensions dialog, which lists the extensions available, sorted on sub-tabs appropriate to the type of model you are working with:



To quickly add a property or collection to an object from its property sheet, click the menu button in the bottom-left corner (or press F11) and select *New Attribute* or *New List of Associated Objects*. For more information, see *Core Features Guide* > *Modeling with PowerDesigner* > *Objects* > *Extending Objects*.

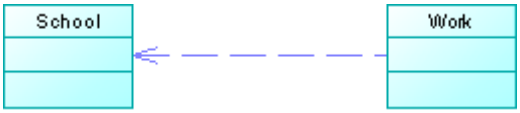
To create a new extension file and define extensions in the Resource Editor, select *Model* > *Extensions*, click *Add a Row*, and then click *Properties*. For detailed information about working with extensions, see *Customizing and Extending PowerDesigner* > *Extension Files* .

1.2.3 Traceability Links

Traceability links provide a flexible means for creating a connection between any object in any type of model and any other object in the same model or any other model open in your workspace. Traceability links have no formal semantic meaning, but can be followed when performing an impact analysis or otherwise navigating through the model structure.

To create a traceability link between objects in the same diagram, select the *Link/Traceability Link* tool in the Toolbox. Click inside the symbol of the object that is dependent and, while continuing to hold down the mouse

button, drag the cursor and release it on the symbol of the object on which it depends. In this example, the **Work** entity is shown as being dependent on **School** through a traceability link:



To create a traceability link to any object in any model that is open in the Workspace, open the property sheet of the dependent object, click its *Traceability Links* tab, and click the *Add Objects* tool. Use the *Model* list to select a different model, select the object to point to and click *OK* to create the link and return to the dependent object's *Traceability Links* tab. You can optionally specify a type for any traceability link in the *Link Type* column.

Click the *Types and Grouping* tool to perform various actions on this tab:

- To make a link type available for selection in the *Link Type* column, click the *Types and Grouping* tool and select *New Link Type*. Enter a *Name* for the link type and, optionally, a *Comment* to explain its purpose, and then click *OK*.

  > **Note**
  >
  > Traceability link types created in this way are stored as stereotypes in an extension file embedded in the model. To work directly with this file click the *Types and Grouping* tool and select *Manage Extensions*. For detailed information about working with these files, see *Customizing and Extending PowerDesigner > Extension Files* .

- To control the display and grouping of links, click the *Types and Grouping* tool and select:
  - *No Grouping* - to display all the links in a single list.
  - *Group by Object Type* - to display links to different types of objects on separate sub-tabs. To add a link to a new object type, click the plus sign on the leftmost sub-tab.
  - *Group by Link Type* - to display different link types on separate sub-tabs. To add a new link type, click the plus sign on the leftmost sub-tab.

> **Note**
>
> To see all of the objects that point to an object via traceability links, open its property sheet, click its *Dependencies* tab, and click the *Incoming Traceability Links* sub-tab.

2 Requirements Views

A requirements model contains a set of requirements and other objects, which can be displayed and manipulated in any number of requirements views.

To create a requirement view, select *Requirements* > *Create a [Type] View*, or click one of the following tools in the view toolbar:

Tool	Description
	*Create a Requirements Document View* - A requirements document view displays a list of written requirements in a hierarchic grid. Multiple views can be created with different filters to display various subsets of requirements. See Requirements Document Views [page 15].
	*Create a Traceability Matrix View* - A traceability matrix view displays the links between requirements and objects from other types of models, external files or other requirements. See Traceability Matrix Views [page 21].
	*Create a User Allocation Matrix View* - A user allocation matrix view displays the links between requirements and the users and groups who will fulfill them. See User Allocation Matrix Views [page 23].

You can navigate between requirements views in the Browser or by selecting *View* > *Diagram* > *Select View* to open the Select View dialog box, and double-clicking the view to open.

You can create the following kinds of objects in an RQM:

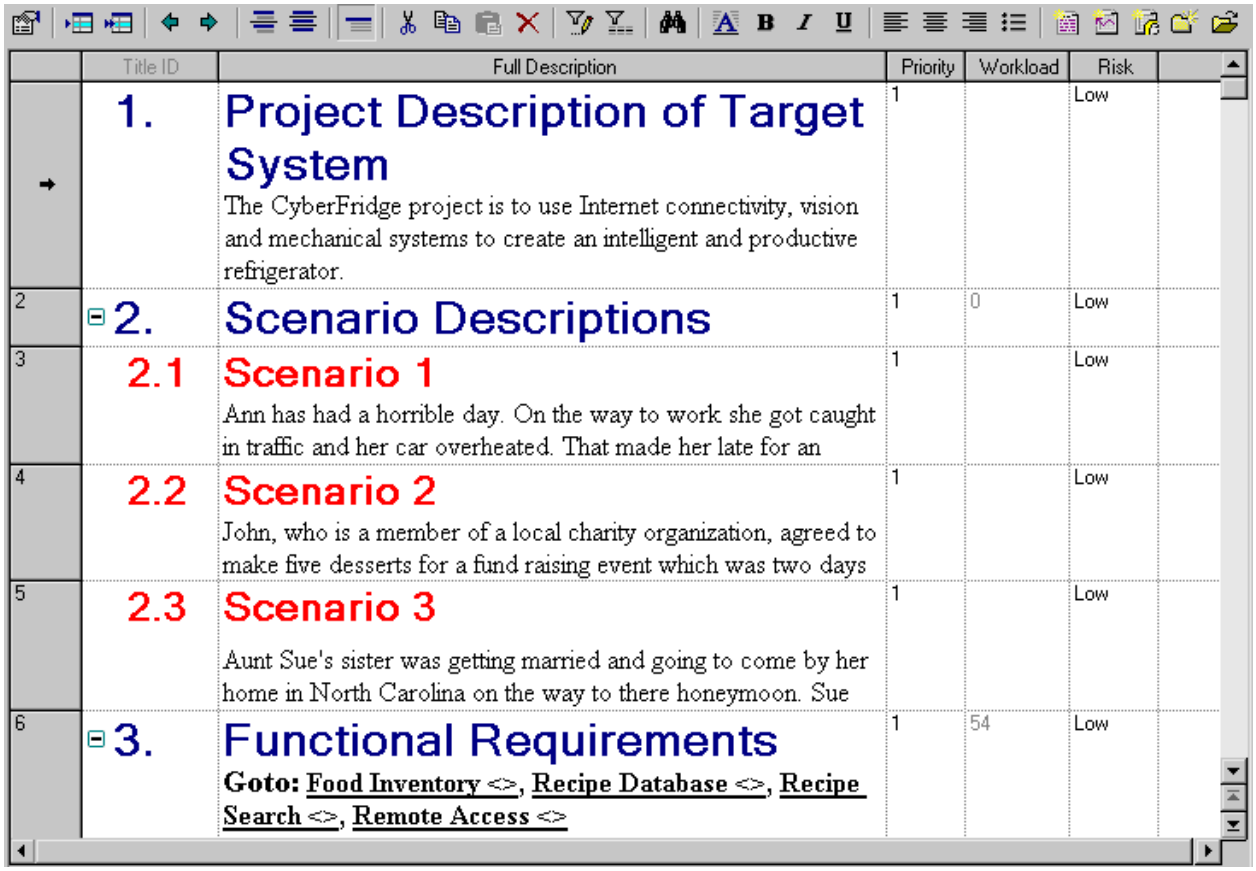
Object	Description
Requirement	A feature that must be provided by the development process, which should be defined as precisely as possible, and can be assigned to a user or group for implementation (see Requirements (RQM) [page 24]).
User	A person that is involved in the implementation of one or more requirements (see Users and Groups (RQM) [page 40]).
Group	A group of users that is involved in the implementation of one or more requirements (see Users and Groups (RQM) [page 40]).
Glossary term	[deprecated] A word used in a requirements model, which should be defined as precisely as possible to avoid misunderstandings and to set a common vocabulary (see Glossary Terms (RQM - Deprecated) [page 42]).
Business rule	Written statements describing rules that your business must follow (see Business Rules (RQM) [page 43]).

To view or edit a requirement view's properties, right-click its Browser entry and select *Properties*. The *General* tab contains the following properties:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the *Code* field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Traceability matrix type	[traceability matrix views only] Specifies the type of linked objects (Design Object, File or Requirement) displayed in the matrix.
Parent	Specifies the name of the model or package to which the view belongs.
Default view	Specifies that the view is displayed by default when opening the model.

2.1 Requirements Document Views

A requirements document view displays a list of written requirements in a hierarchic grid. Multiple views can be created with different filters to display various subsets of requirements.



	Title ID	Full Description	Priority	Workload	Risk
→	1.	**Project Description of Target System** The CyberFridge project is to use Internet connectivity, vision and mechanical systems to create an intelligent and productive refrigerator.	1		Low
2	2.	**Scenario Descriptions**	1	0	Low
3	2.1	**Scenario 1** Ann has had a horrible day. On the way to work she got caught in traffic and her car overheated. That made her late for an	1		Low
4	2.2	**Scenario 2** John, who is a member of a local charity organization, agreed to make five desserts for a fund raising event which was two days	1		Low
5	2.3	**Scenario 3** Aunt Sue's sister was getting married and going to come by her home in North Carolina on the way to there honeymoon. Sue	1		Low
6	3.	**Functional Requirements** **Goto: Food Inventory <>, Recipe Database <>, Recipe Search <>, Remote Access <>**	1	54	Low

To create a requirements document view, select *Requirements* > *Create a Requirements Document View*, or click the *Create a Requirements Document View* tool in the view toolbar.

You can create multiple requirements document views in a single RQM. You can filter the requirements displayed in views (see Customizing Columns and Filtering Rows [page 19]) or separate your hierarchy of requirements into packages (see Packages (RQM) [page 38]), which can have their own views.

The following tools are available on the requirements view toolbar:

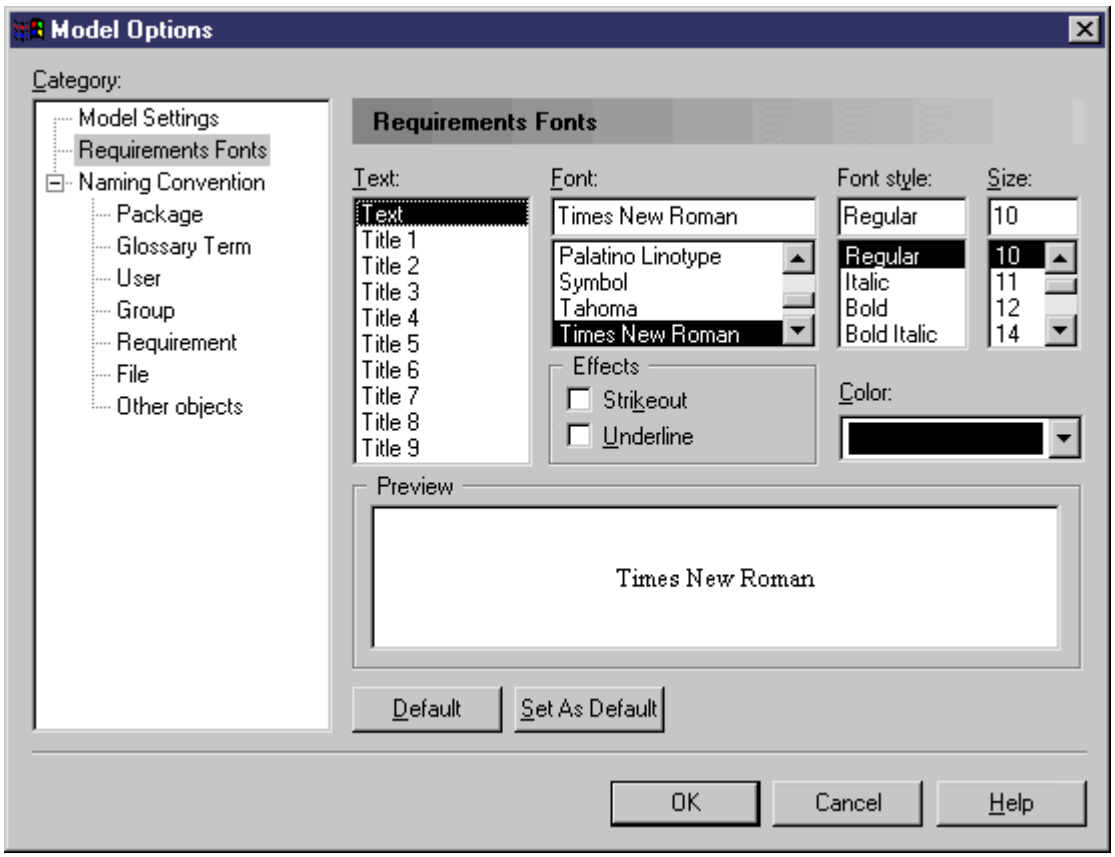
Tools	Description
	*Properties* (`Alt` + `Enter`) - Opens the property sheet of the selected requirement.
	*Insert an Object* (`Ctrl` + `I`) and *Insert a Sub-Object* (`Ctrl` + `Shift` + `I`) - Create a new requirement as a sibling, or as a child to the selected requirement.
	*Promote* and *Demote* - Raises or lowers the selected requirement by one level.

Tools	Description
	*Show Titles and Texts* and *Show Titles Only* - Shows the titles and descriptions or only the titles of all requirements in the view. Also available from ▶ *Requirements* ▶ *Show Titles and Texts* ◥ and ▶ *Requirements* ▶ *Show Titles Only* ◥.
	*Show Current Title and Text / Show Current Title Only* - Toggle between showing the title and description or only the title of the selected requirement. Also available from ▶ *Requirements* ▶ *Show Current Title and Text / Show Current Title Only* ◥
	*Expand all Objects* and *Collapse all Objects* – Opens or closes all levels in the requirements hierarchy. Also available from ▶ *Requirements* ▶ *Expand all Objects* ◥ and ▶ *Requirements* ▶ *Collapse all Objects* ◥
	*Cut* (Ctrl + X), *Copy* (Ctrl + C), and *Paste* (Ctrl + V) - Perform the standard clipboard actions.
	*Delete* (Ctrl + X) - Deletes the selected requirement.
	*Customize Columns and Filter* - Opens a dialog to change the columns displayed in the list or define a filter (see Customizing Columns and Filtering Rows [page 19]).
	*Enable/Disable Filter* - Toggles the filter specified in the Customize Columns and Filter dialog.
	*Find* (Ctrl + F) - Opens a dialog to search for text.
	*Format* (Ctrl + M) - Opens a dialog to specify fonts and styles.
	*Bold*, *Italic*, and *Underline* - Format the selected text.
	*Align Left*, *Align Center*, and *Align Right* - Align the selected text.
	*Bullets* - Indent and bullet the selected text.
	*Create a Requirements Document View*, *Create a Traceability Matrix View*, and *Create a User Allocation Matrix View* - Creates a new view.
	*Create a Package* - Creates a package, which you use to subdivide your requirements. You will be prompted to specify a first view in the package.
	*Open a Requirements View* - Opens a dialog to move to another view.

Tools	Description
	*Export to Excel* - Saves the list to a *.xls, *.xlsx, or *.csv format (specify the format in the *Save as type* field in the Save as dialog).

2.1.1 Customizing Title and Description Fonts

To set model options for requirements fonts, select *Tools* > *Model Options*, and select the *Requirements Fonts* sub-category in the left-hand Category pane.



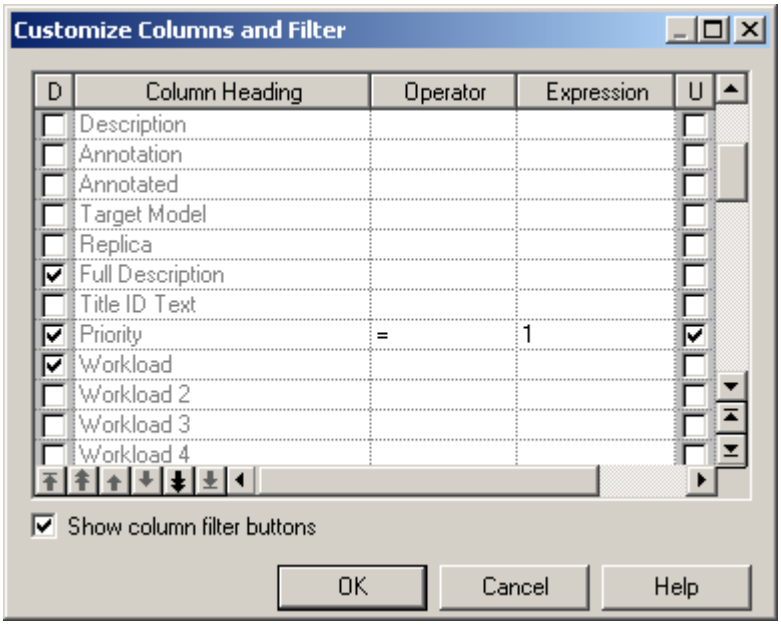
You can specify the font and its characteristics for any of the requirement levels by selecting the level in the *Text* box and the necessary requirements in the other fields.

2.1.2 Customizing Columns and Filtering Rows

You can customize the columns displayed and use criteria to filter the rows in a requirements document view.

Procedure

1. Click the *Customize Columns and Filter* tool:



2. To specify columns to display, select or clear check boxes in the *Displayed (D)* column.
3. To reorder the display of columns, use the arrow buttons at the bottom-left corner of the list.
4. To filter the rows displayed, enter an expression in the expression column (see Defining a Filter Expression [page 19]).
5. Click *OK* to return to the view with the changes applied.

2.1.2.1 Defining a Filter Expression

You can define expressions to filter PowerDesigner lists directly in the list with the in-column filters or through the *Customize Columns and Filter* dialog.

The following operators are available

Operator	Finds items that are...
=	[default] Equal to the expression.
>	Greater than the expression.
>=	Greater than or equal to the expression.
<	Less than the expression.
<=	Less than or equal to the expression.
Not Equal	Different from the expression.
In List	Within the comma-separated list of values given in the expression (or the items selected in the list in the in-column filter). For example: `"global", "Architecture", "proc*"`
Not In List	Outside the comma-separated list of values given in the expression (or the items selected in the list in the in-column filter).
Between	Located in the range between defined by the two values given in the expression and separated by a comma. For example, to find values between A and E, enter:`A,E`
Not Between	Located outside the range defined by the two values given in the expression and separated by a comma. For example, to find values outside of the range between A and E, enter:`A,E`
Empty	Null. No expression is necessary with this operator.
Not Empty	Not null. No expression is necessary with this operator.

You can use the following wildcards when entering a filter expression:

Wildcard	Description
*	Any string (from none to any number of characters). For example `P*` finds "protocol" and "Paris".
?	Any character. For example `?????` finds "Table" and "inner" but not "Seller".
\	Escapes the special characters `*`, `?`, and `\`. For example, `\?\\` finds "?\".

Examples

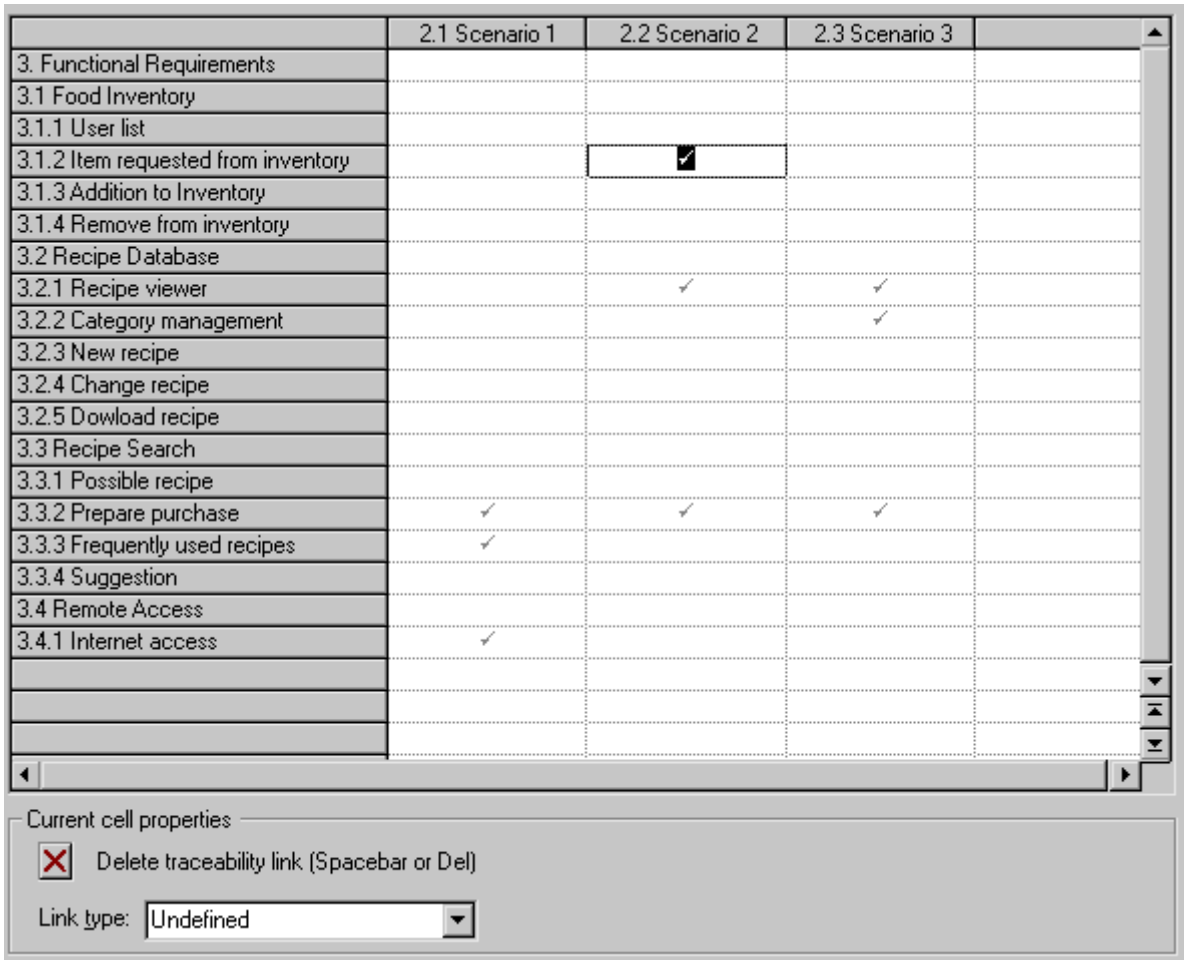
The following examples show some possible combinations of operators and expressions:

Operator	Expression	Find
=	`W*`	Work, Washington

Operator	Expression	Find
=	`*CODE`	AREA CODE, COUNTRY CODE, CITY CODE
>	`1??`	200, 405, 609
Between	`0,8`	0,1,2,3,4,5,6,7,8
In List	`*_emp_???, *_grp_???`	div_emp_fun, _emp_idn, div_grp_fun, _grp_idn
=	`*\?`	Is this book ready for production?

2.2 Traceability Matrix Views

A traceability matrix view displays the links between requirements and objects from other types of models, external files or other requirements.



To create a traceability matrix view, select *Requirements* > *Create a Traceability Matrix View*, or click the *Create a Traceability Matrix View* tool in the view toolbar.

You can create multiple traceability matrix views in a single RQM. You can add and delete links, filter the rows and columns displayed, and print or export the matrix.

The Current cell properties group box displays the type of the link and, for MS Word files, the associated bookmark (see Creating a Bookmark in an MS Word Document [page 33]). You can modify the links in the following ways:

- To add a link, click in the appropriate cell, and then click the *Create traceability link* button at the bottom of the matrix (or press the `Spacebar` or `V`). You can optionally specify the type of link. To define additional link types, see Customizing a List of Values [page 37].
- To delete a link, click in a cell containing a link, and then click the *Delete traceability link* button at the bottom of the matrix (or press the `Spacebar` or *Del*).
- To select all the cells in a row or column, click the appropriate header. To select multiple cells, rows, or columns, use the `Ctrl` key. To select ranges, use the `Shift` key or drag the cursor over the required area.

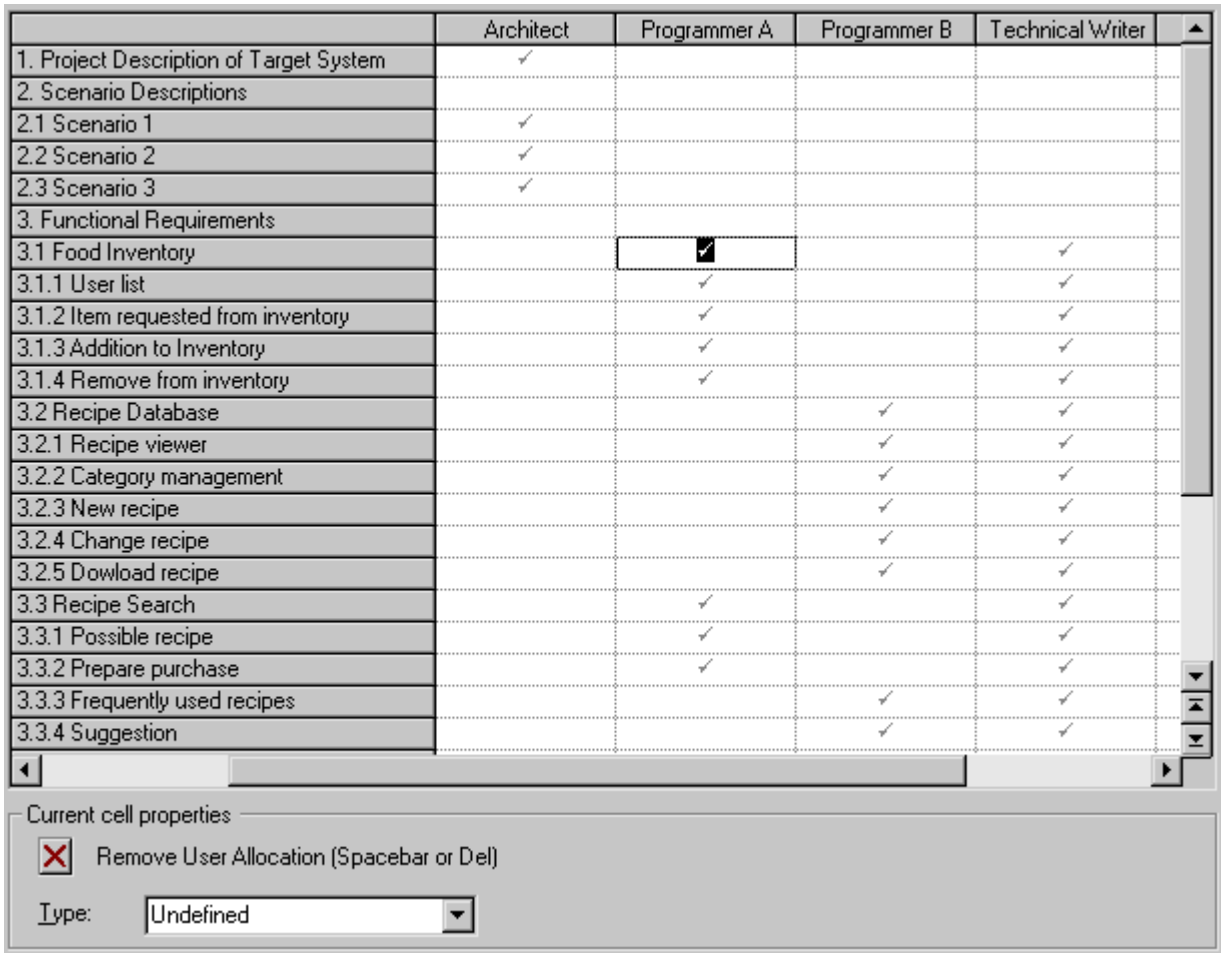
The following tools are available on the traceability matrix view toolbar:

Tools	Description
	*Properties* (`Alt` + `Enter`)- Opens the property sheet of the selected requirement.
	*Copy* (`Ctrl` + `C`) - Copies the entire grid to the clipboard.
	*Select Rows/Columns* (`Ctrl` + `N`) - Opens a selection box which allows you to select rows and columns to display in the matrix either by hand or by defining a filter.
	*Display Only Non-Empty Rows/ Columns* (`Ctrl` + `R`) and *Display Only Empty Rows/Columns* (`Ctrl` + `E`) - Displays only full rows and columns (to focus on requirements with links) or only empty rows and columns (that need to be linked). Also available from *Requirements* > *Display Only Full Rows/Columns* and *Requirements* > *Display Only Empty Rows/Columns*.
	*Vertical/Horizontal Column Header* - Toggles between vertical and horizontal orientation of column headers.
	*Shrink to Fit* - Shrinks row and column headers to fit their contents.
	*Create a Requirements Document View*, *Create a Traceability Matrix View*, and *Create a User Allocation Matrix View* - Creates a new view.
	*Create a Package* - Creates a package, which you use to subdivide your requirements. You will be prompted to specify a first view in the package.

Tools	Description
	*Open a Requirements View* - Opens a dialog to move to another view.
	*Export to Excel* - Saves the list to a *.xls, *.xlsx, or *.csv format (specify the format in the *Save as type* field in the Save as dialog).
	*Change Traceability Matrix Type* - Opens a dialog to let you specify the type of objects you want to link to your requirements. You can choose between: • *Design objects* (from other types of models) – To show how requirements are fulfilled in the analysis and design processes. • *External files* (MS Word, MS Excel, etc) - The links with MS Word are managed automatically. You can also link requirements with pieces of various documents (e.g. a planning document). • *Requirement objects* - to manage interconnected requirements. For example, you could link customer requirements to design requirements, and on to specification requirements. The requirement-to-requirement matrix view allows you to check that all requirements are present at each level. For information about linking requirements to other objects via their property sheet *Requirement Traceability Links* tab, see Linking Requirements with Design Objects and External Files [page 27].

2.3 User Allocation Matrix Views

A user allocation matrix view displays the links between requirements and the users and groups who will fulfill them.



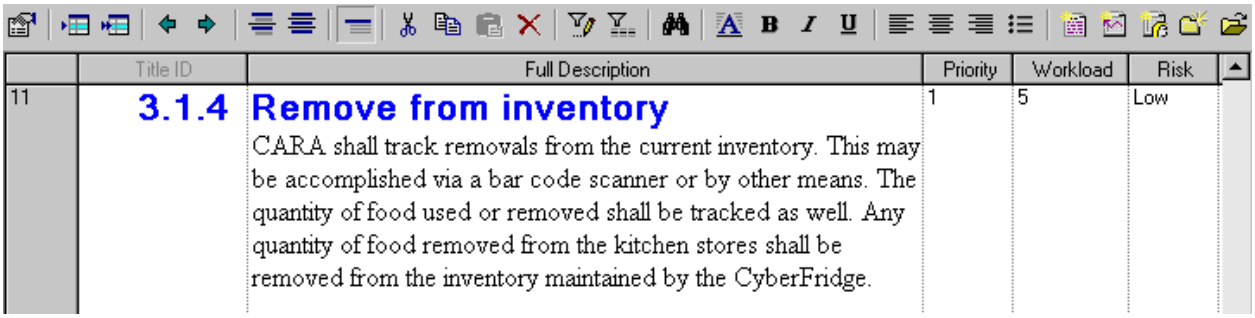
To create a user allocation matrix view, select *Requirements* > *Create a User Allocation Matrix View*, or click the *Create a User Allocation Matrix View* tool in the view toolbar.

You can create multiple user allocation matrix views in a single RQM. You can add and delete links, filter the rows and columns displayed, and print or export the matrix.

> **Note**
>
> User allocation matrix views are completed in the same way as traceability matrix views (see Traceability Matrix Views [page 21]).

2.4 Requirements (RQM)

A requirement is a clear and precise description of a necessary capability or characteristic of a product or process. Requirements can have a priority, status, workload, and other properties assigned to them, and can contain sub-requirements.



Note: All columns (except Title ID) are editable.

Creating a Requirement

You can create a requirement in a requirements document view or from the Browser or *Model* menu:

- Click in an empty row in a requirements document view.
- Click the *Insert an Object* or *Insert a Sub-Object* tool in the toolbar at the top of a requirements document view.
- Select *Model* > *Requirements* to access the List of Requirements, and click the *Add a Row* tool.
- Right-click the model, a package, or a requirement in the Browser, and select *New* > *Requirement*.

Requirement Properties

To view or edit a requirement's properties, double-click its Browser or list entry. The property sheet tabs and fields listed here are those available by default, before any customization of the interface by you or an administrator.

The *General* tab contains the following properties:

Property	Description
Parent	[read-only] Displays the name of the parent requirement. For top-level requirements this is the model name.
Title ID	[read-only] Displays the number expressing the place of the requirement in the requirements hierarchy. For example: 1.3.2.
Title	Specifies a short summary of the requirement.
Code	Generates a unique code for the requirement. You can override an individual requirement code by typing directly in this field. You can also modify the template used to generate the codes (see Customizing Requirement Codes [page 10]).
Description	Specifies a detailed description of the requirement. This field is also available on (and synchronized with) the *Definition* tab.

Property	Description
Keywords	Provide a way of loosely grouping objects through tagging. To enter multiple keywords, separate them with commas.

The *Detail* tab contains the following properties:

Property	Description
Comment	Provides space for any comment on the requirement.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Type	Specifies the type of the requirement. You can specify your own types (see Customizing a List of Values [page 37]).
Status	Specifies the present validation status for the requirement. You can specify your own status levels (see Customizing a List of Values [page 37]). If you change the status of a requirement containing sub-requirements, a message is displayed warning that the change will be propagated to all its sub-requirements. If you change the status of a sub-requirement, it may change the status of its parent requirement, which can only have the lowest status held by any of its sub-requirements.
Priority	Specifies the priority level attached to the requirement. Select a value in the list or type a value. The value cannot be null or negative, and is limited to one decimal (for example: 1.9).
Selected	Specifies that the requirement has been selected to be implemented in the project. If this checkbox is cleared, the requirement is excluded from the project and the sum of workloads.
Risk	Specifies the level of risk associated with implementing the requirement. You can specify your own risk levels (see Customizing a List of Values [page 37]).
Verification	Specifies the type of testing to be applied to the development of the requirement. You can specify your own verification types (see Customizing a List of Values [page 37]).
Workload 1-4	Specifies four separate workloads (see Assigning Workloads [page 37]). Workloads for requirements with sub-requirements are read-only fields calculated as the sums of all sub-requirement workloads.

The following tabs are also available:

- *Requirement Traceability Links* - Lists links to design objects, other requirements, and external files (see Linking Requirements with Design Objects and External Files [page 27]).
- *Related Glossary Terms* - Lists terms attached to the requirement (see Glossary Terms (RQM - Deprecated) [page 42]).

> **Note**
>
> The RQM glossary terms are deprecated and are replaced by the enterprise glossary model (see *Core Features Guide* > *Administering PowerDesigner* > *Deploying an Enterprise Glossary and Library*).

- *User Allocations* - Lists the users and groups attached to the requirement (see Users and Groups (RQM) [page 40]).

2.4.1 Linking Requirements with Design Objects and External Files

You can link requirements to design objects (objects from other types of models), external files, and other requirements on the *Requirement Traceability Links* tab. You can, optionally, specify a *Link Type* for each link.

The following tools are available on this tab:

Tool	Description
	*Properties* - opens the property sheet representing the linked object in the requirements model.
	*Open External File* - opens the linked external file.
	*Add Links to Design Objects* - attaches design objects to the requirement (see Attaching Design Objects to Requirements from the RQM [page 27]).
	*Add Link to External File* – attaches any external file to the requirement. For MS Word files, you can link to a specific bookmark in the file (see Creating a Bookmark in an MS Word Document [page 33]).
	*Add Links to Other Requirements* – attaches another requirement (from the current or another RQM) to the requirement.

> **Note**
>
> Requirement traceability links are similar to but separate from the traceability links that are available for linking any object with any other object, and which are listed on the *Traceability Links* tab (see Traceability Links [page 12]).

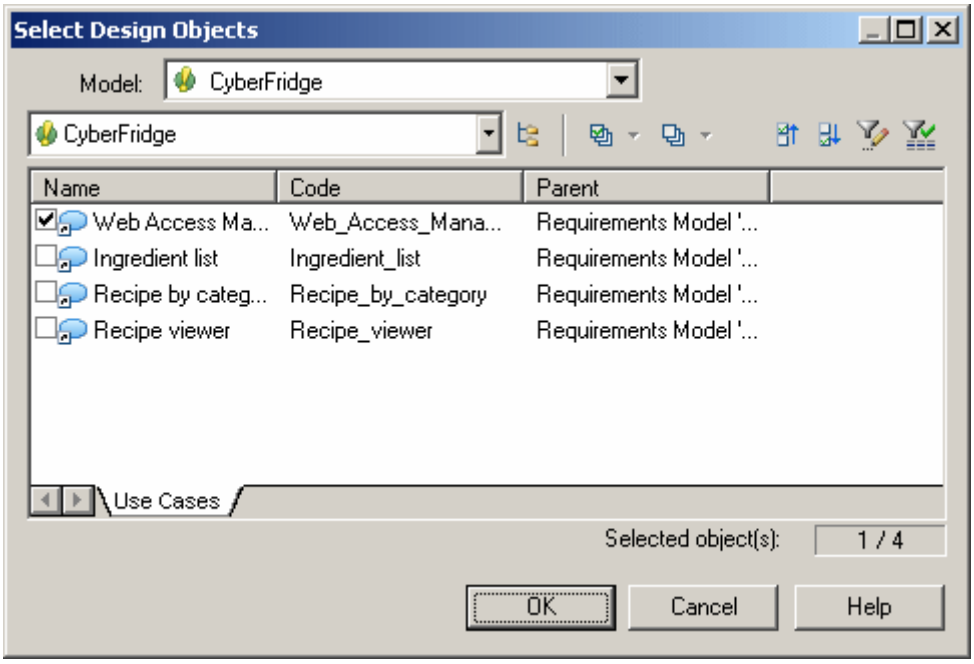
2.4.1.1 Attaching Design Objects to Requirements from the RQM

When a design object fulfils a requirement, you should attach it to the requirement. Both models must be open in your workspace.

Procedure

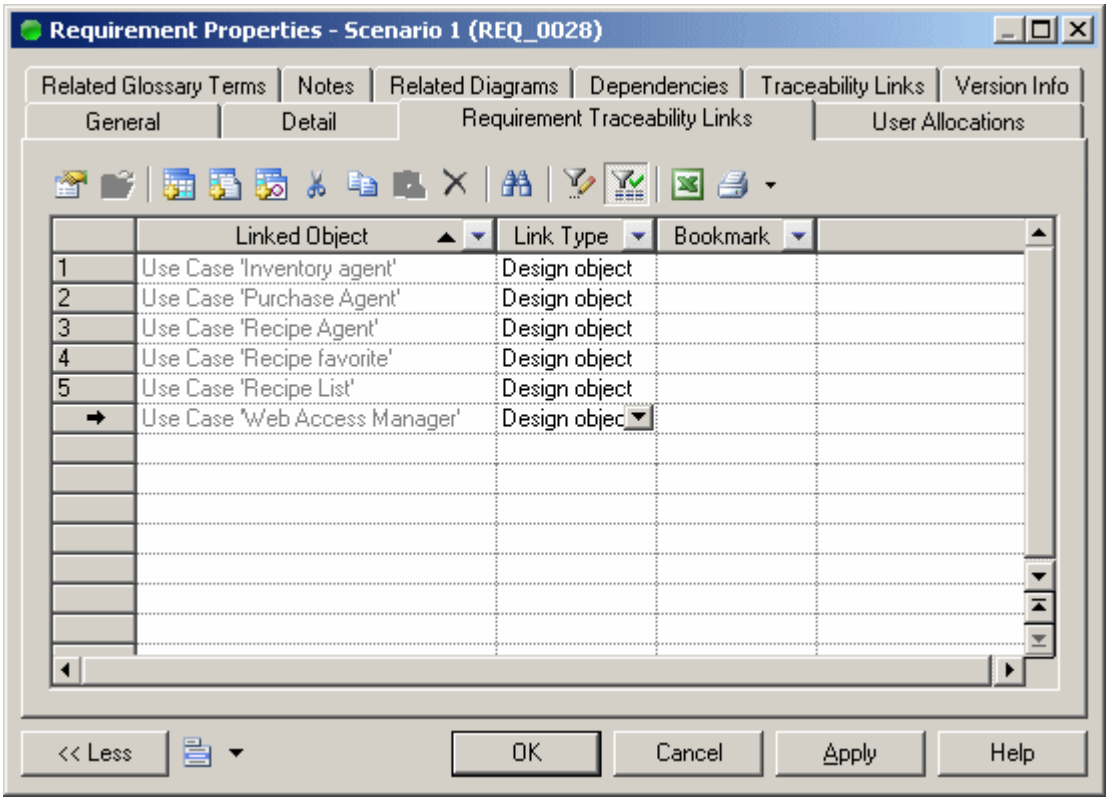
1. Open the property sheet of the requirement and click the *Requirement Traceability Links* tab.

2. Click the *Add Links to Design Objects* tool to open the Select Design Objects dialog.
3. Choose the appropriate design model in the *Model* list, and then select the design objects you want to attach to the requirement.



4. Click *OK*.

   The design objects are attached to the requirement and listed on its *Requirement Traceability Links* tab:

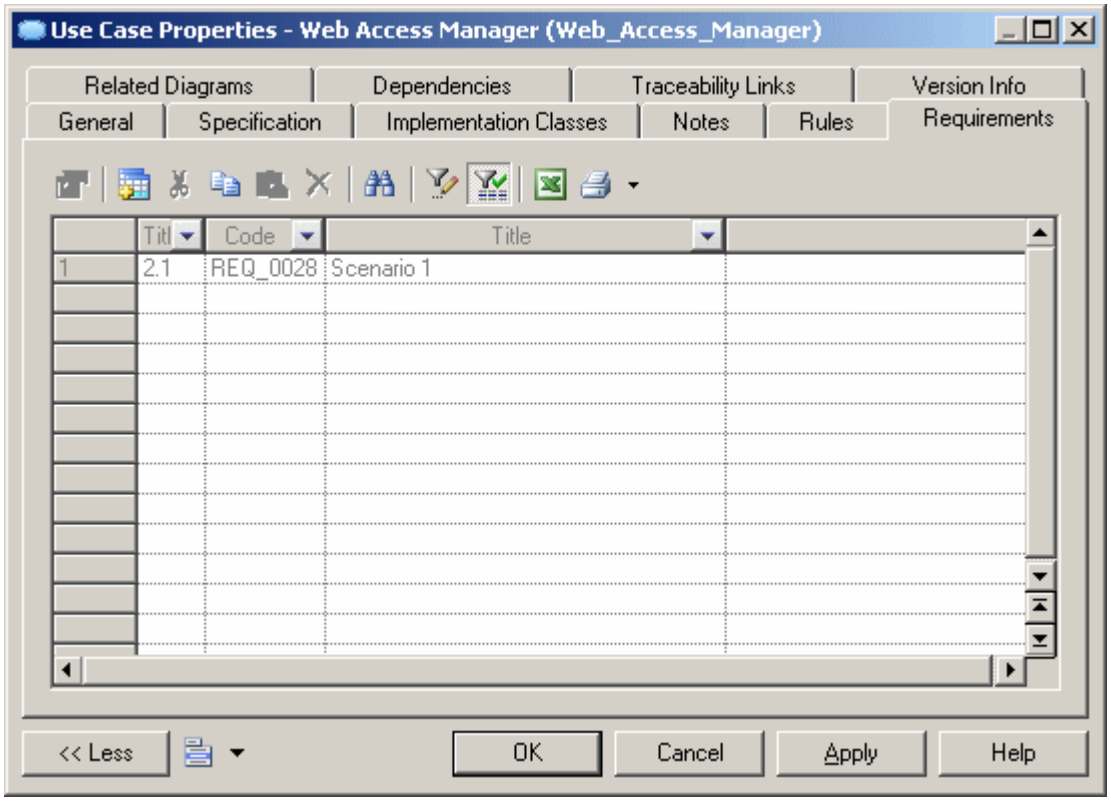


5. Click *OK* to return to your model.

Results

To open the property sheet of a design object from the *Requirement Traceability Links* tab of a requirement property sheet, select it in the list and click the *Properties* tool. As design objects are stored as shortcuts in requirements models, you must click the *Properties* tool to the right of the *Name* field in the shortcut properties sheet to access the full properties of the design object

The requirement is listed on the *Requirements* tab of the design object:



2.4.1.2 Attaching Requirements to Design Objects from the Design Model

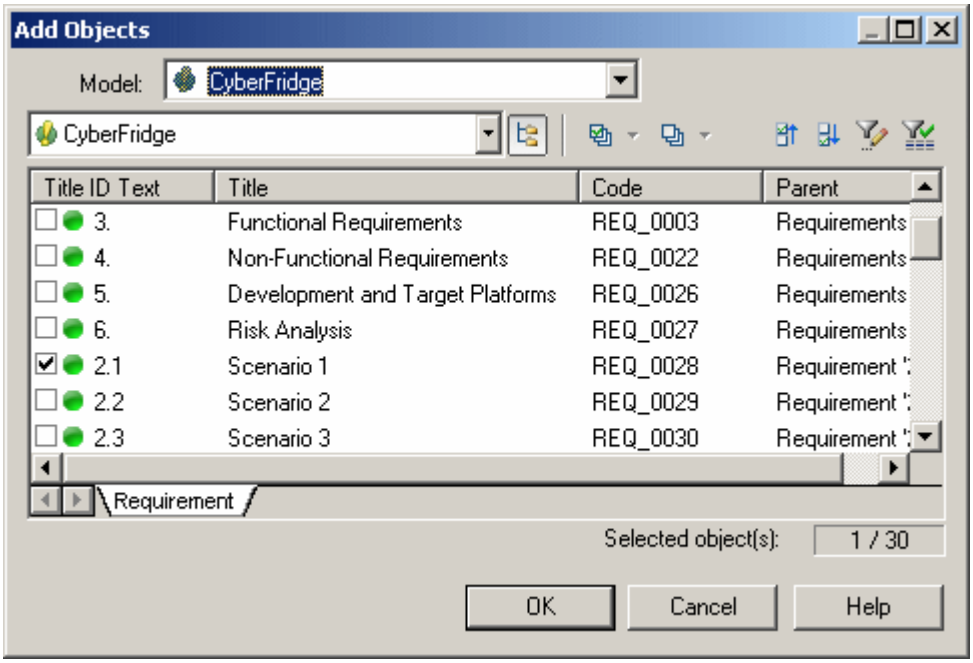
To verify that the design process fulfills the requirements, you should attach requirements to objects in your design models.

Context

> **Note**
>
> Before you can attach requirements to your design objects from your design model you may need to activate the display of the Requirements tab by selecting *Tools* > *Model Options* and selecting the *Enable links to requirements* option in the *All Objects* group box of the *Model Settings* tab.

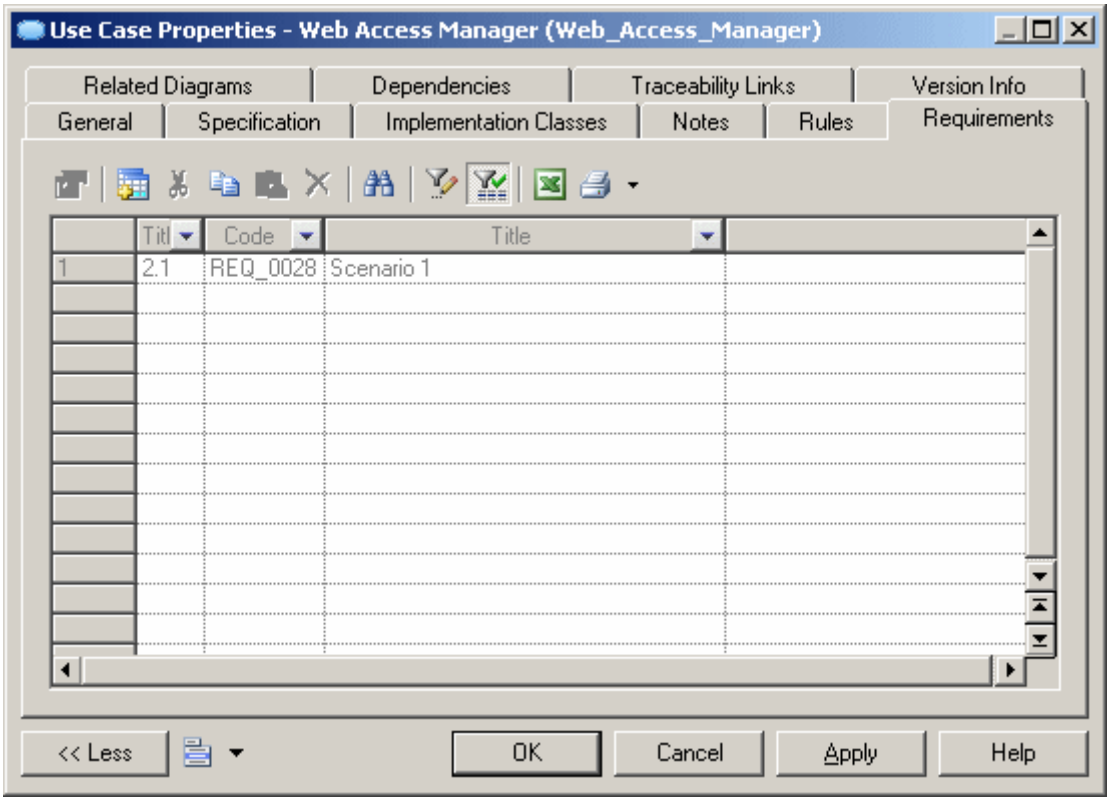
Procedure

1. Open the property sheet of the design object and click the *Requirements* tab.
2. Click the *Add Objects* tool to open a dialog listing all the requirements available in the selected RQM.



3. [optional] Change the selected model to select another RQM open in the workspace or click the *Include Sub-Objects* tool to display all the sub-requirements.
4. Select the requirements you want to attach to the design object, and click *OK*.

   The selected requirements are attached to the design object and listed on its *Requirements* tab.

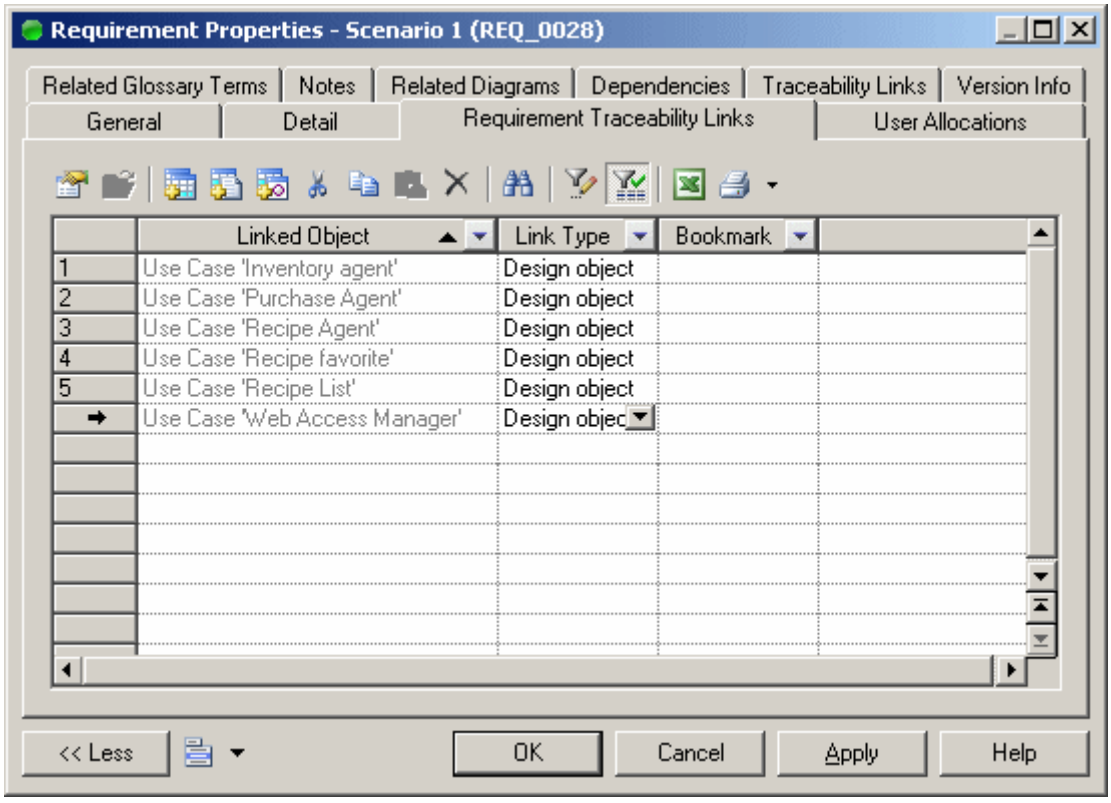


5. Click *OK* to return to your model.

Results

To open the property sheet of a requirement from the *Requirements* tab of a design object property sheet, select it in the list and click the *Properties* tool. As requirements are stored as shortcuts in design models, you must click the *Properties* tool to the right of the *Name* field in the shortcut properties sheet to access the full properties of the requirement.

The design object is listed as a linked object in the *Requirement Traceability Links* tab of the requirement:

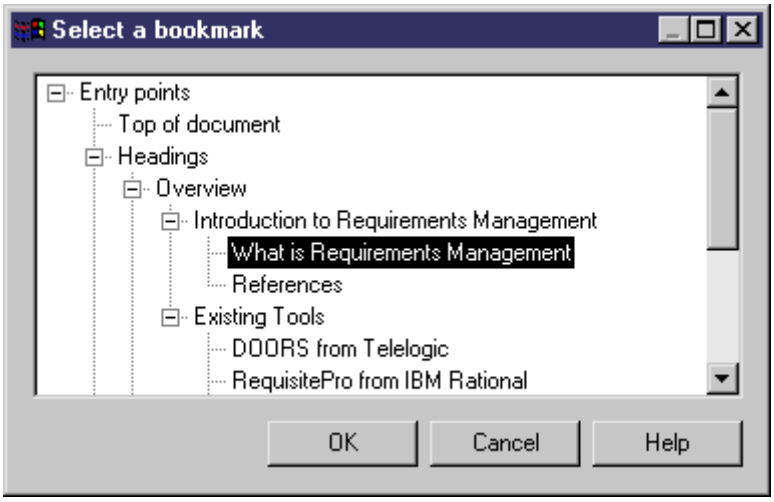


2.4.1.3 Creating a Bookmark in an MS Word Document

You can create bookmarks in a MS Word document attached to the model.

Procedure

1. Open the property sheet of a requirement and click the *Requirement Traceability Links* tab
2. Click the *Add Link to External File* tool and select an MS Word file. A message is displayed indicating that the system is parsing the MS Word document to extract its paragraph titles.
3. When the parsing is over, a dialog is displayed inviting you to select a place in the document to which to attach the requirement. Expand the **`Entry points`** node, to reveal the headings hierarchy, and select a heading:



4. Click *OK*. The selected heading is displayed in the *Bookmarks* column on the *Requirement Traceability Links* tab, and is also available in any traceability matrix view featuring the requirement.

   To open the Word document at the selected location, select the linked file in the *Requirement Traceability Links* tab of the requirement property sheet, and click the *Properties* tool.

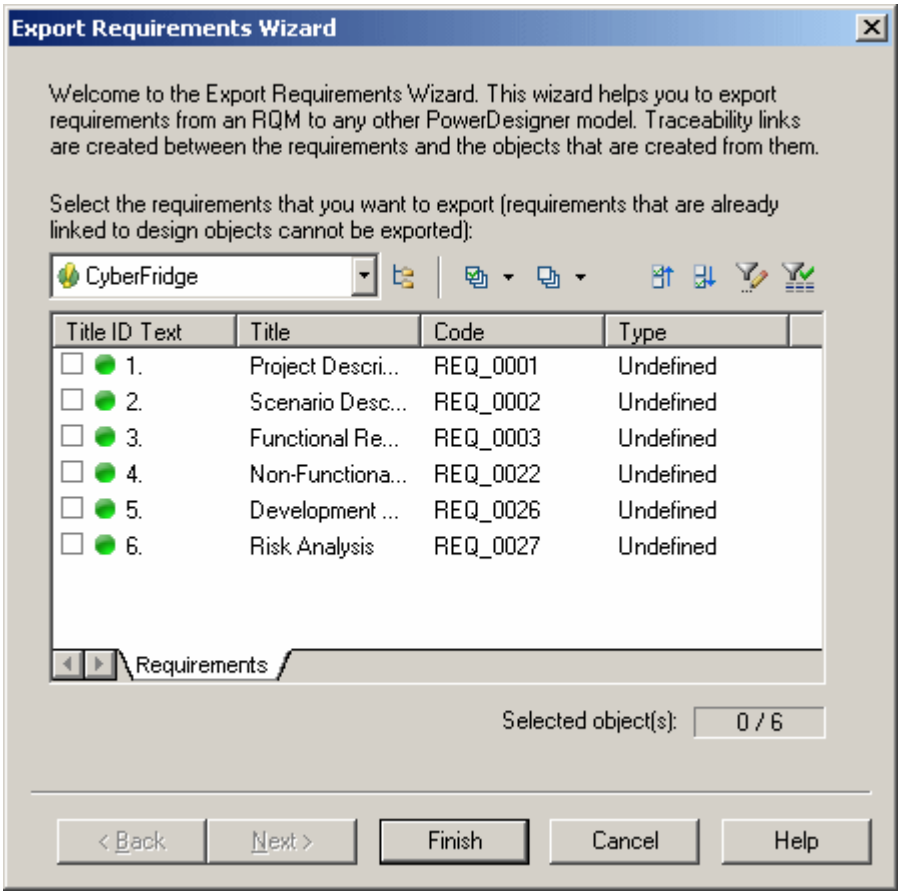
   To modify the location, click the bookmark cell in the *Requirement Traceability Links* tab and click the Ellipsis button.

2.4.1.4 Exporting Requirements as Design Objects

The Requirement Export Wizard allows you to export requirements as design objects in other PowerDesigner models. The resulting design objects bear the same name and code as their originating requirements and are connected to them via requirement traceability links.

Procedure

1. Select *Requirements* > *Export Requirements as Design Objects* to open the Export Requirements Wizard:



2. Specify the requirements that you want to export as design objects, and then click *Next*.
3. Specify the model to which you want to export the requirements from among the models open in the workspace, and then click *Next*.
4. Specify the kind of objects that you want to create in the target model (for example, classes in an OOM), and then click *Finish* to start the export.

   The design objects created from the requirements appear in the specified design model.

Results

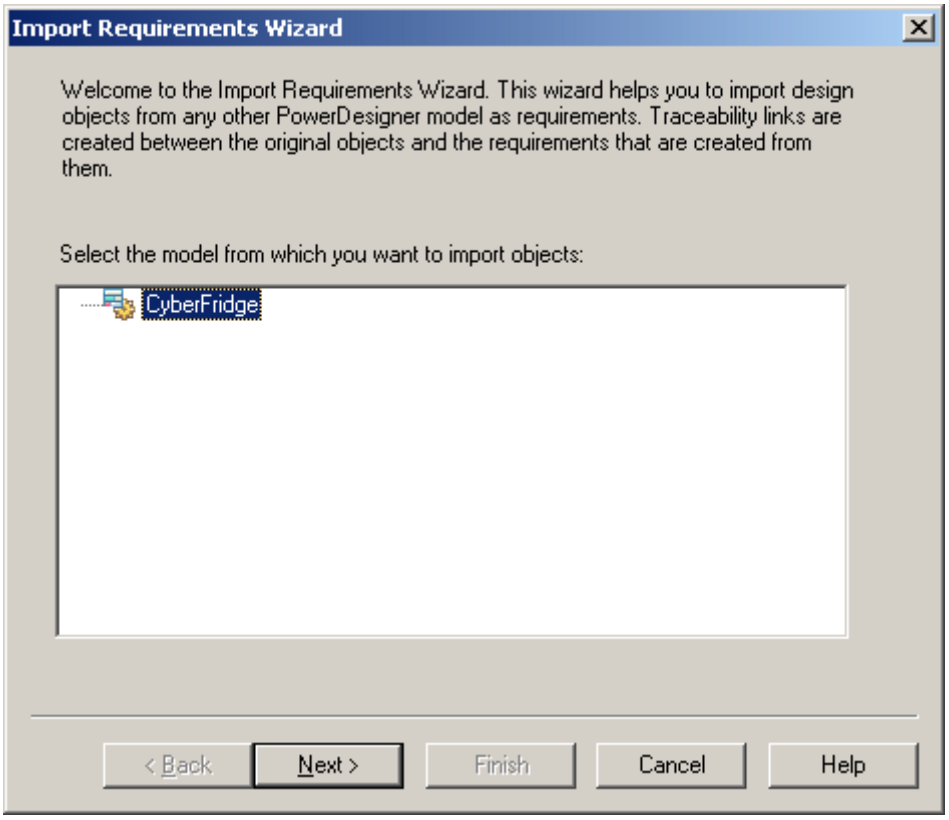
> **Note**
>
> By default, the symbols of the new design objects do not appear in the diagram. To display them, you can either drag and drop the design objects from the Browser to the diagram, or select *Symbol* > *Show* > Symbols, in the menu bar, and select the symbols in the Show Symbols dialog box.

2.4.1.5 Importing Design Objects as Requirements

The Requirement Import Wizard allows you to import design objects as requirements. The resulting requirements bear the same name and code as their originating design objects and are connected to them via requirement traceability links.

Procedure

1. Select *Requirements* > *Import Design Objects as Requirements* to open the Import Requirements Wizard:



2. Specify the model from which you want to import the requirements from among the models open in the workspace, and then click *Next*.
3. Specify the design objects that you want to import to the RQM by selecting them from among the sub-tabs in the selection field, and then click *Next*.
4. Specify the location within the RQM where you want to create the requirements, and then click *Finish*.

   The requirements created from the design objects appear in the RQM at the specified location.

2.4.2 Assigning Workloads

A workload is the time assigned to a person or team to satisfy a requirement. Values must be greater than or equal to zero, and limited to one decimal place (for example: 3.5).

No time unit is enforced to measure workloads but, in order to properly calculate totals, you should decide on and consistently use the same unit (hour or day) for all workloads.

You assign workloads to requirements on their *Detail* tab, where there are fields to record workloads assigned to four individual people or groups.

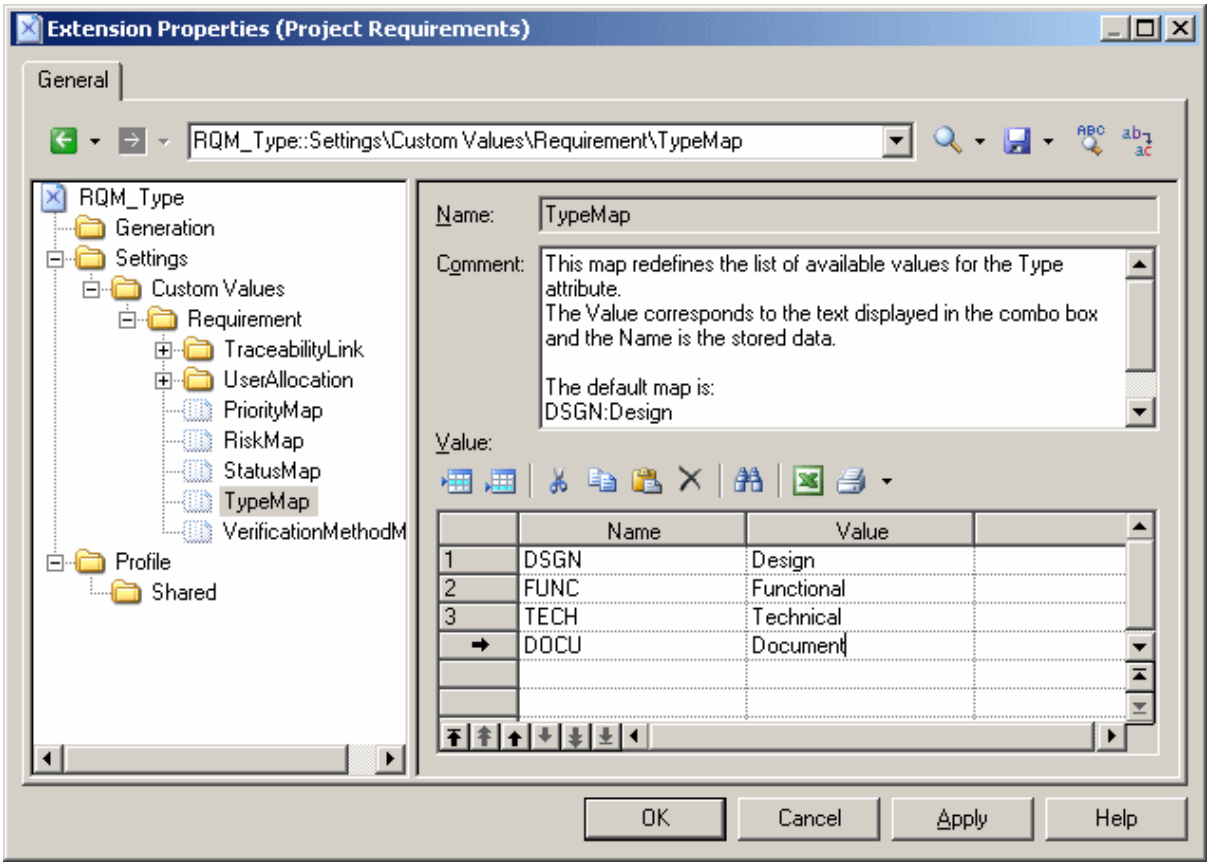
You can only assign workloads to requirements that have no sub-requirements. Workloads for parent requirements, packages, and the model are read-only fields calculated as the sums of all their sub-requirement workloads.

2.4.3 Customizing a List of Values

Some requirement properties such as *Risk*, *Status*, and *Type*, come with predefined lists of values, which you can modify by creating an extension.

Procedure

1. Select *Model* > *Extensions* to open the List of Extensions and click the *Add a Row* tool.
2. Type a name and a code for the new extension, click *Apply*, and then click the *Properties* tool to open it in the Resource Editor.
3. In the left pane, expand the *Settings* > *Custom Values* > *Requirement* category and expand the entries to display the lists available for customization:
   - `Priority`
   - `Risk`
   - `Status`
   - `Type`
   - `Verification Method`
   - `TraceabilityLink/Link Type` (under the category)
   - `UserAllocation/Type`
4. Select a list to display the currently available values in the right-hand panel.
5. In the *Value* table, click the *Add a Row* tool, and then type a new name (which is used internally) and value (which will appear in the property list):



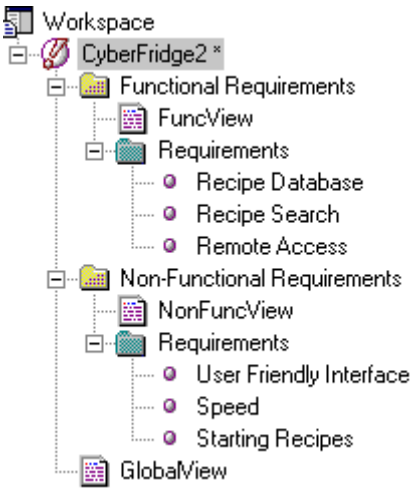
6. Add additional values as necessary, and then click *OK* to save your changes and return to the List of Extensions.
7. Click *OK* to return to your model. The new values are now available in the appropriate property list.

> **Note**
>
> If you have several extensions defining list values attached to your RQM, the union of all the different values defined for each property will be available.

2.5 Packages (RQM)

You can divide your requirements model into packages in order to avoid manipulating the entire set of requirements and to provide views on particular logical subsets of the requirements. You could create packages to represent different tasks, domains, or subject areas.

In a requirements model, packages only appear in the Browser tree view. In the following example, one package contains functional requirements and the other contains non-functional requirements:



You can create packages as peers and divide packages into subpackages as necessary. Each package has its own default requirements view (document, traceability or user allocation view) and you can create others if required.

To add requirements to a package, you can:

- Create requirements directly in the package document view(s).
- In the Browser, select requirements from the model Requirements folder, and drag and drop them onto the package or one of its sub-requirements.

You can link requirements in different packages of the same model together from the *Requirement Traceability Links* tab of the requirements property sheet (see Linking Requirements with Design Objects and External Files [page 27]).

Creating a Package

You can create a package in a requirements document view, or from the Browser or *Model* menu:

- Click the *Create a Package* tool in the toolbar at the top of a requirements document view.
- Select *Model* > *Packages* to access the List of Packages, and click the *Add a Row* tool.
- Right-click the model or package in the Browser, and select *New* > *Package*.

Package Properties

To view or edit a package's properties, double-click its diagram symbol or Browser or list entry. The property sheet tabs and fields listed here are those available by default, before any customization of the interface by you or an administrator.

The *General* tab contains the following properties:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the *Code* field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Use parent namespace	[package only] Specifies that the package does not represent a separate namespace from its parent and thus that objects created within it must have codes that are unique within the parent container. If this property is not selected, then the package and its parent package or model can both contain objects with the same code.
Default view	Specifies the requirements view displayed by default when you open the package
Keywords	Provide a way of loosely grouping objects through tagging. To enter multiple keywords, separate them with commas.

The following tabs are also available:

- *Detail* - Provides fields to record workloads assigned to four individuals or groups. Package workloads are read-only fields calculated as the sums of all requirement workloads (see Assigning Workloads [page 37]).
- *Requirement Traceability Links* - Lists links to design objects and external files (see Attaching Design Objects to Requirements from the RQM [page 27]).

2.6 Users and Groups (RQM)

Users are people concerned by one or more requirements. Users can be assigned to Groups, and users and groups can be associated with requirements. You create users and groups on the model property sheet *Children* tab.

Users and groups are attached to requirements via the *User Allocations* tab of a requirement property sheet (see Requirements (RQM) [page 24]), or via user allocation matrix views (see User Allocation Matrix Views [page 23]).

Creating a User or Group

You can create a user or group from the Browser or *Model* menu:

- Select *Model* > *Users* to access the List of Users (or *Model* > *Groups* to access the List of Groups), and click the *Add a Row* tool.

- Right-click the model or package in the Browser, and select *New* > *User* or *New* > *Group*.

User and Group Properties

To view or edit a user or group's properties, double-click its Browser or list entry. The property sheet tabs and fields listed here are those available by default, before any customization of the interface by you or an administrator.

The *General* tab contains the following properties:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the *Code* field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Email address	E-mail address of the user or group.

The following tabs are also available:

- *Dependencies* - Lists
  - The requirements assigned to that user or group.
  - The groups or child groups linked to that user or group.
- *Group Users* - [groups] Lists the users and groups who belong to the group.

2.6.1 Adding Users and Groups to a Group

You can add users and groups to a group from the group's property sheet.

Procedure

1. Open the property sheet of a group, and click the *Group Users* tab.
2. Click the *Add Objects* tool to open the Add Objects dialog box.
3. The *User* sub-tab lists the available users in the model. Select the users you want to attach to the current group.
4. Click the *Group* sub-tab. This sub-tab lists the available groups in the model. Select the groups you want to attach to the current group and click *OK* to return to the Group property sheet.

The selected users and child groups are displayed on the *Group Users* tab.

2.7 Glossary Terms (RQM - Deprecated)

Glossary terms are clearly defined words used to avoid misinterpretations in a requirements model. Use the *Description* sub-tab on the *Definition* tab of a glossary term property sheet, to give a full and precise description of a glossary term.

> **Caution**
>
> The RQM glossary terms are deprecated and are replaced by the enterprise glossary model (see *Core Features Guide > Administering PowerDesigner > Deploying an Enterprise Glossary and Library*).

Glossary terms are attached to requirements via the *Related Glossary Terms* tab of the requirements property sheet.

Creating a Glossary Term

You can create a glossary term from the Browser or *Model* menu, or from the *Related Glossary Terms* tab in the property sheet of a requirement:

- Select *Model* > *Glossary Terms* to access the List of Glossary Terms, and click the *Add a Row* tool.
- Open the *Related Glossary Terms* tab in the property sheet of a requirement, and click the Create an Object tool.
- Right-click the model or package in the Browser, and select *New* > *Glossary Term*.

Glossary Term Properties

To view or edit a glossary term's properties, double-click its Browser or list entry. The property sheet tabs and fields listed here are those available by default, before any customization of the interface by you or an administrator.

The *General* tab contains the following properties:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the *Code* field.

Property	Description
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.

The following tabs are also available:

- *Dependencies* - Lists the requirements associated with the glossary term.

2.8 Business Rules (RQM)

A business rule is a rule that your business follows. It is a written statement specifying what an information system must do or how it must be structured. It could be a government-imposed law, a customer requirement, or an internal guideline.

In the case of the Requirements Model, a business rule should be used as a super requirement, i.e. a requirement defined for requirements. For instance, a business rule could be a methodological rule for writing requirements.

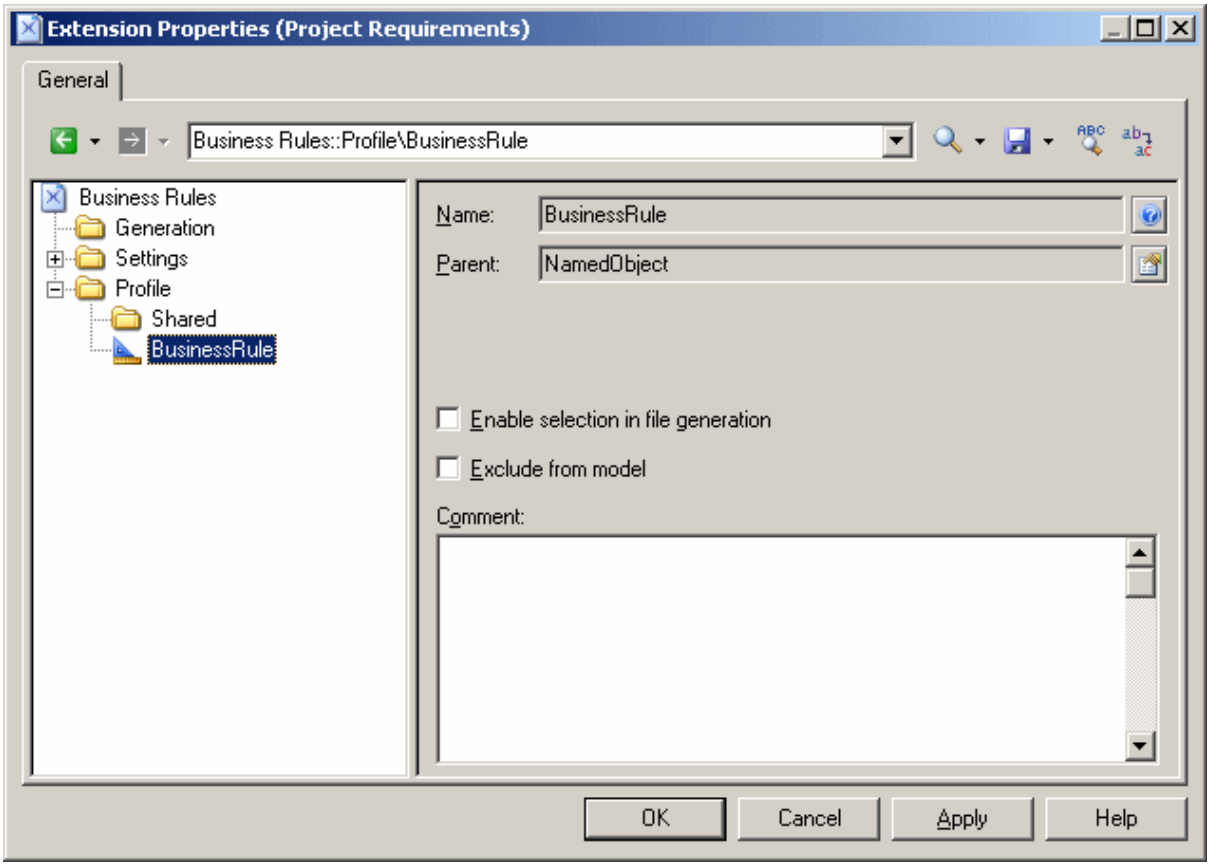
Business rules are not available by default in a requirements model and must be activated before you can use them.

2.8.1 Activating Business Rules in an RQM

Business rules are not available by default in an RQM, and must be activated through an extension.

Procedure

1. Select *Model* > *Extensions* to open the List of Extensions and click the *Add a Row* tool.
2. Type a name and a code for the new extension, click *Apply*, and then click the *Properties* tool to open it in the Resource Editor.
3. In the left pane, right-click the *Profile* category and select *Add Metaclasses* to open the Metaclass Selection dialog, click the PdCommon sub-tab, select BusinessRule, and click *OK* to add this metaclass to your profile:



4. Click *OK* to save your changes and return to the List of Extensions.
5. Click *OK* to return to your model.

You can now create business rules from the List of Business Rules (available at *Model* > *Business Rules*), and attach them to your requirements from the *Rules* tab of your requirements property sheets.

For detailed information about using business rules, see *Core Features Guide* > *Modeling with PowerDesigner* > *Objects* > *Business Rules*.

3 Checking an RQM

The requirements model is a very flexible tool, which allows you quickly to develop your model without constraints. You can check the validity of your RQM at any time.

A valid RQM conforms to the following kinds of rules:

- Each object name or code must be unique a RQM
- Each user must be allocated to at least one requirement
- Each glossary term should be attached to at least one requirement

> **Note**
>
> We recommend that you check your requirements model before generating another model from it . If the check encounters errors, generation will be stopped. The *Check model* option is enabled by default in the Generation dialog box.

You can check your model in any of the following ways:

- Press F4, or
- Select *Tools* > *Check Model* , or

The Check Model Parameters dialog opens, allowing you to specify the kinds of checks to perform, and the objects to apply them to. The following sections document the RQM-specific checks available by default. For information about checks made on generic objects available in all model types and for detailed information about using the Check Model Parameters dialog, see *Core Features Guide* > *Modeling with PowerDesigner* > *Objects* > *Checking Models* .

3.1 Requirement Checks

PowerDesigner provides default model checks to verify the validity of requirements.

Check	Description and Correction
Name/Code contains terms not in glossary	[if glossary enabled] Names and codes must contain only approved terms drawn from the glossary. • Manual correction: Modify the name or code to contain only glossary terms. • Automatic correction: None.
Name/Code contains synonyms of glossary terms	[if glossary enabled] Names and codes must not contain synonyms of glossary terms. • Manual correction: Modify the name or code to contain only glossary terms. • Automatic correction: Replaces synonyms with their associated glossary terms.

Check	Description and Correction
Name/Code uniqueness	Object names must be unique in the namespace. • Manual correction: Modify the duplicate name or code. • Automatic correction: Appends a number to the duplicate name or code.
Empty description on atomic requirement	An atomic requirement (as opposed to a composite requirement) should have a description. • Manual correction: In the requirement property sheet, enter a description in the *Description* box of the *General* tab. • Automatic correction: None.

3.2 User Checks

PowerDesigner provides default model checks to verify the validity of users.

Check	Description and Correction
Name/Code contains terms not in glossary	[if glossary enabled] Names and codes must contain only approved terms drawn from the glossary. • Manual correction: Modify the name or code to contain only glossary terms. • Automatic correction: None.
Name/Code contains synonyms of glossary terms	[if glossary enabled] Names and codes must not contain synonyms of glossary terms. • Manual correction: Modify the name or code to contain only glossary terms. • Automatic correction: Replaces synonyms with their associated glossary terms.
Name/Code uniqueness	Object names must be unique in the namespace. • Manual correction: Modify the duplicate name or code. • Automatic correction: Appends a number to the duplicate name or code.
Existence of user allocation	A user should be allocated to at least one requirement. • Manual correction: Attach the user to a requirement, by using the *User Allocations* tab of the requirement property sheet, or delete the user. • Automatic correction: None

3.3 Group Checks

PowerDesigner provides default model checks to verify the validity of groups.

Check	Description and Correction
Name/Code contains terms not in glossary	[if glossary enabled] Names and codes must contain only approved terms drawn from the glossary. • Manual correction: Modify the name or code to contain only glossary terms. • Automatic correction: None.
Name/Code contains synonyms of glossary terms	[if glossary enabled] Names and codes must not contain synonyms of glossary terms. • Manual correction: Modify the name or code to contain only glossary terms. • Automatic correction: Replaces synonyms with their associated glossary terms.
Name/Code uniqueness	Object names must be unique in the namespace. • Manual correction: Modify the duplicate name or code. • Automatic correction: Appends a number to the duplicate name or code.
Existence of user	A group must contain at least one user or another group of users. • Manual correction: Attach a user or another group to the group, by using the *Group Users* tab of the group property sheet, or delete the empty group. • Automatic correction: None
Circular group definition	One group cannot be at the same time parent and child of another group. • Manual correction: Remove a group (parent group) from the *Group Users* tab of another group (child group) property sheet. The parent group is displayed in the *Dependencies* tab of the child group property sheet. • Automatic correction: None

3.4 Package Checks

PowerDesigner provides default model checks to verify the validity of packages.

Check	Description and Correction
Name/Code contains terms not in glossary	[if glossary enabled] Names and codes must contain only approved terms drawn from the glossary. • Manual correction: Modify the name or code to contain only glossary terms. • Automatic correction: None.

Check	Description and Correction
Name/Code contains synonyms of glossary terms	[if glossary enabled] Names and codes must not contain synonyms of glossary terms. • Manual correction: Modify the name or code to contain only glossary terms. • Automatic correction: Replaces synonyms with their associated glossary terms.
Name/Code uniqueness	Object names must be unique in the namespace. • Manual correction: Modify the duplicate name or code. • Automatic correction: Appends a number to the duplicate name or code.
List of missing terms in object names/codes in package	[if glossary enabled] This special check lists all the terms that are used in the names or codes of all the objects contained in the model or package. • Manual correction: An administrator with write permission on the glossary can double-click the line for this check in the *Result List* to open a merge window in which you can select to add some or all of these missing terms, as appropriate, to the glossary. • Automatic correction: None.

3.5 Glossary Term Checks

PowerDesigner provides default model checks to verify the validity of glossary terms.

Check	Description and Correction
Name/Code contains terms not in glossary	[if glossary enabled] Names and codes must contain only approved terms drawn from the glossary. • Manual correction: Modify the name or code to contain only glossary terms. • Automatic correction: None.
Name/Code contains synonyms of glossary terms	[if glossary enabled] Names and codes must not contain synonyms of glossary terms. • Manual correction: Modify the name or code to contain only glossary terms. • Automatic correction: Replaces synonyms with their associated glossary terms.
Name/Code uniqueness	Object names must be unique in the namespace. • Manual correction: Modify the duplicate name or code. • Automatic correction: Appends a number to the duplicate name or code.
Unused glossary term	A glossary term should be attached to at least one requirement. • Manual correction: Attach the glossary term to a requirement, by using the *Related Glossary Terms* tab of the requirement property sheet, or delete the glossary term • Automatic correction: None

4 Working with Word Documents and RQMs

PowerDesigner provides an optional addin, which allows you to import a Word document into an RQM and to export an RQM to MS Word format. The RQM and the Word document will be linked, allowing you to keep the two versions synchronized.

You can leverage the capabilities of PowerDesigner to link requirements to design objects in other models, while retaining a requirements document in a format familiar to less technical users. You can either start from a Word document and create an RQM, or start from an RQM and create a Word document. In both cases, the Word document and the RQM can be linked to allow easy updating.

> **Note**
>
> The MS Word addin is not installed by default during the PowerDesigner installation process. In order to install it, you must expand the Requirements Model node on the Features page of the PowerDesigner installer, and select the Word Addins feature. For detailed information about installing PowerDesigner, see *Installation Guide* > *Installing PowerDesigner* .

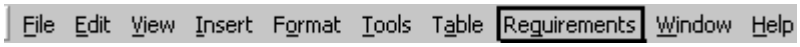
In order to link an RQM with a Word document, your environment must conform to all of the following requirements:

- MS Word 2000 or higher is installed on your machine
- You have selected to install the Word Addins during your installation of PowerDesigner. To do so, expand the Requirements Model node on the Features page of the PowerDesigner installer, and select the Word Addins feature.
- You have enabled the Microsoft Word Import Export add-in in PowerDesigner. To do so, select *Tools* > *General Options*, click the Add-Ins category and then select Microsoft Word Import Export. Note that the add-in only works if the system code page is consistent with the model language. For example, if you are working with a Chinese model, your system code page must be Chinese.
- You have selected the WordToRqm.dot template in MS Word (select *Tools* > *Templates and Add-Ins*).
- The titles in the Word document are formatted with Word heading styles, and use only MS Word numbering.
- Heading styles must not increase by more than one level. For example, a title with Heading 1 must not be followed by a subtitle with Heading 3

4.1 Installing the RQM Menu and Toolbar

The first time you open or create an RQM, the MS Word Import Export add-in is registered in HKEY_CURRENT_USER\Software\Microsoft\Office and by default the Requirements menu and toolbar should appear in the MS Word interface.

Context



The following tools are available in the toolbar:

Tool	Description
	Create/Update a Requirements Model from the Document For more information, see Creating an RQM from a Word Document [page 51] and Updating a Word Document Linked to an RQM [page 64].
	Detach the Document from the Requirements Model For more information, see Unlinking RQMs and Word Documents [page 66].

If the menu and toolbar do not appear in MS Word, you can install them manually:

Procedure

1. In Word, select *Tools* > *Customize*, click the *Commands* tab, and select *Tools* in the Categories pane.
2. Select *COM Add-Ins* in the Commands pane, and drag this command to any menu item.
3. Select the *COM Add-Ins* command to display the COM Add-in dialog box, and select the *PowerDesigner Requirements COM Add-Ins for MS Word* check box. If you deselect the check box, the add-in menu and toolbar disappear from your MS Word environment.

4.2 Creating an RQM from a Word Document

You can create an RQM from a Word document by exporting it from within Word or importing it from within PowerDesigner.

Context

> **Note**
>
> To import a Word document into an existing RQM or one of its packages, right-click the model or package in the Browser, and select *Import from Word Document*.

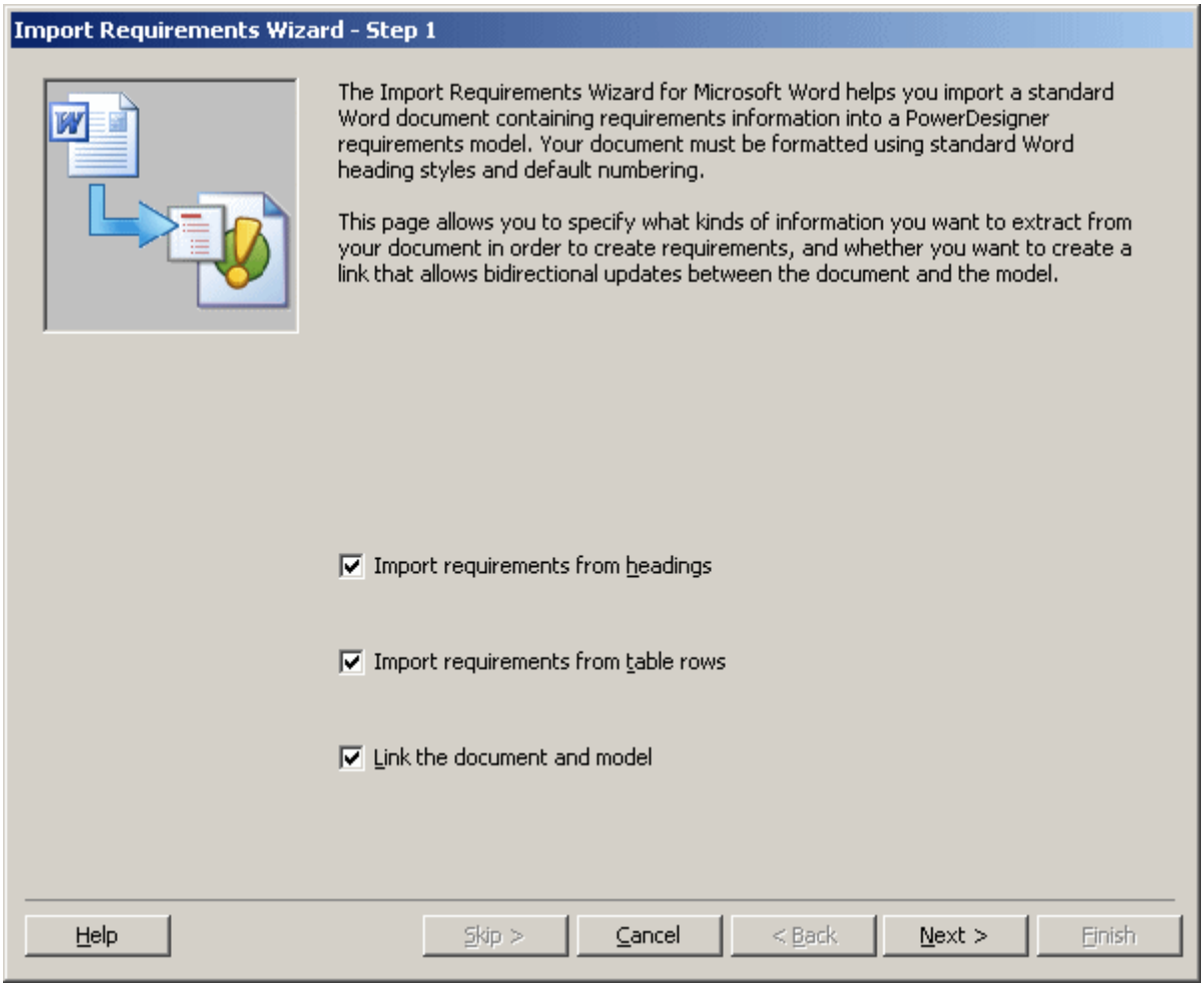
Procedure

1. In PowerDesigner, select *File* > *Import* > *Word Document*, navigate to the document to be imported, and then click *Open*.

   or

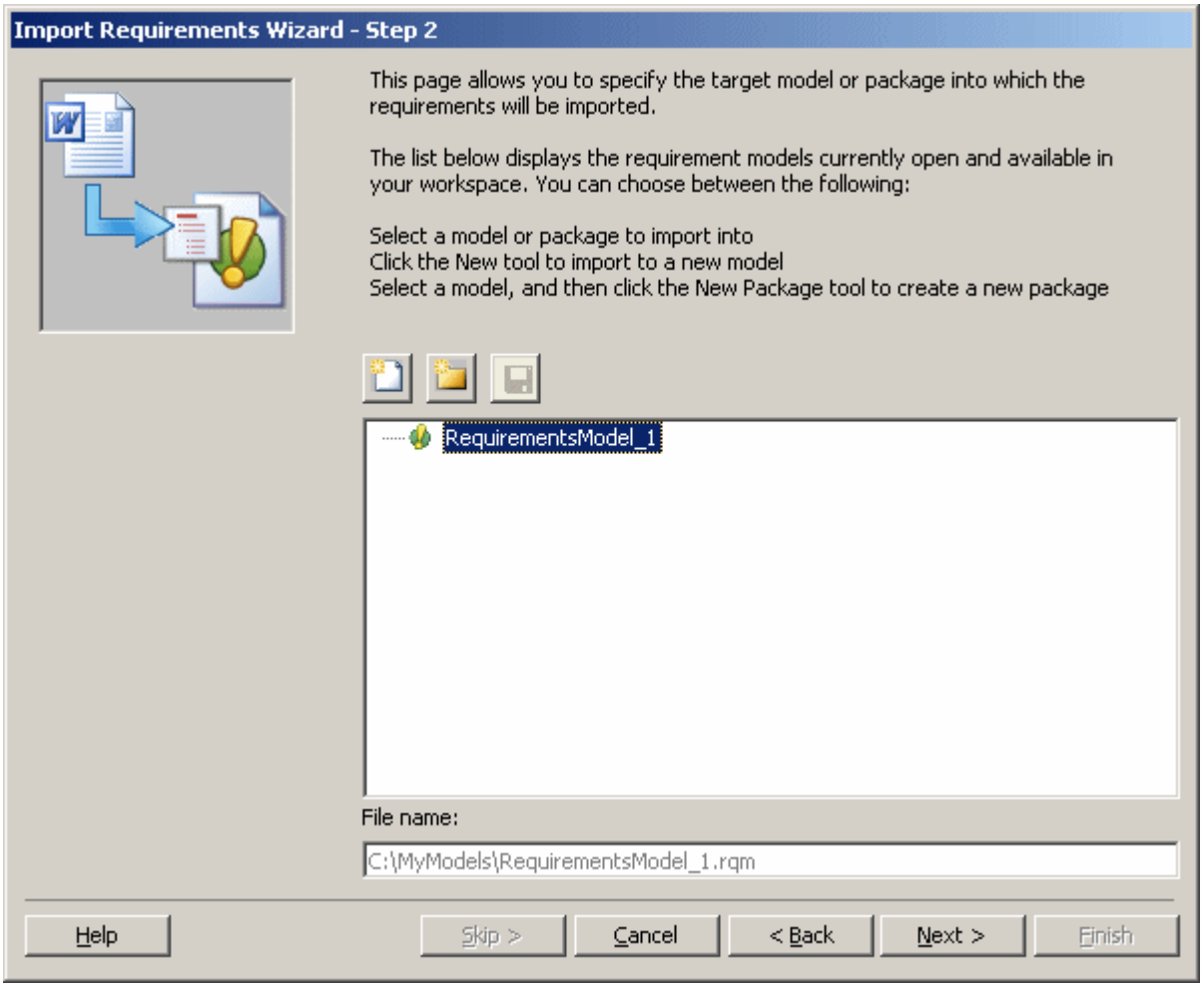
   In Word, with the document open, select *Requirements* > *Create/Update a Requirements Model*, or click the Create/Update a Requirements Model tool.

   If PowerDesigner is not presently open, it will be launched at this time, and the Import Requirements Wizard opens:

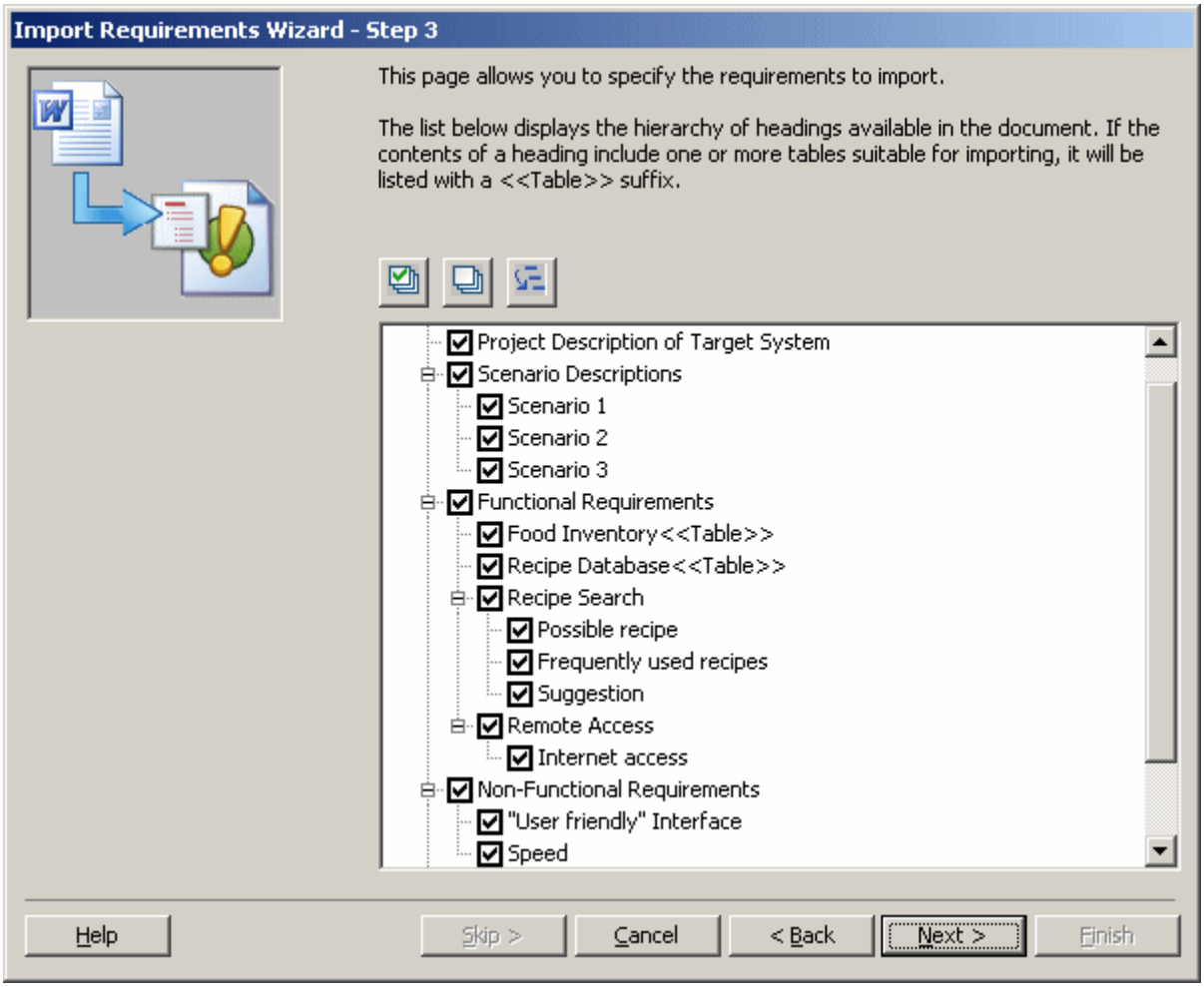


2. Choose whether you want to:
   - Import requirements from document headings (default), and/or
   - Import requirements from document tables

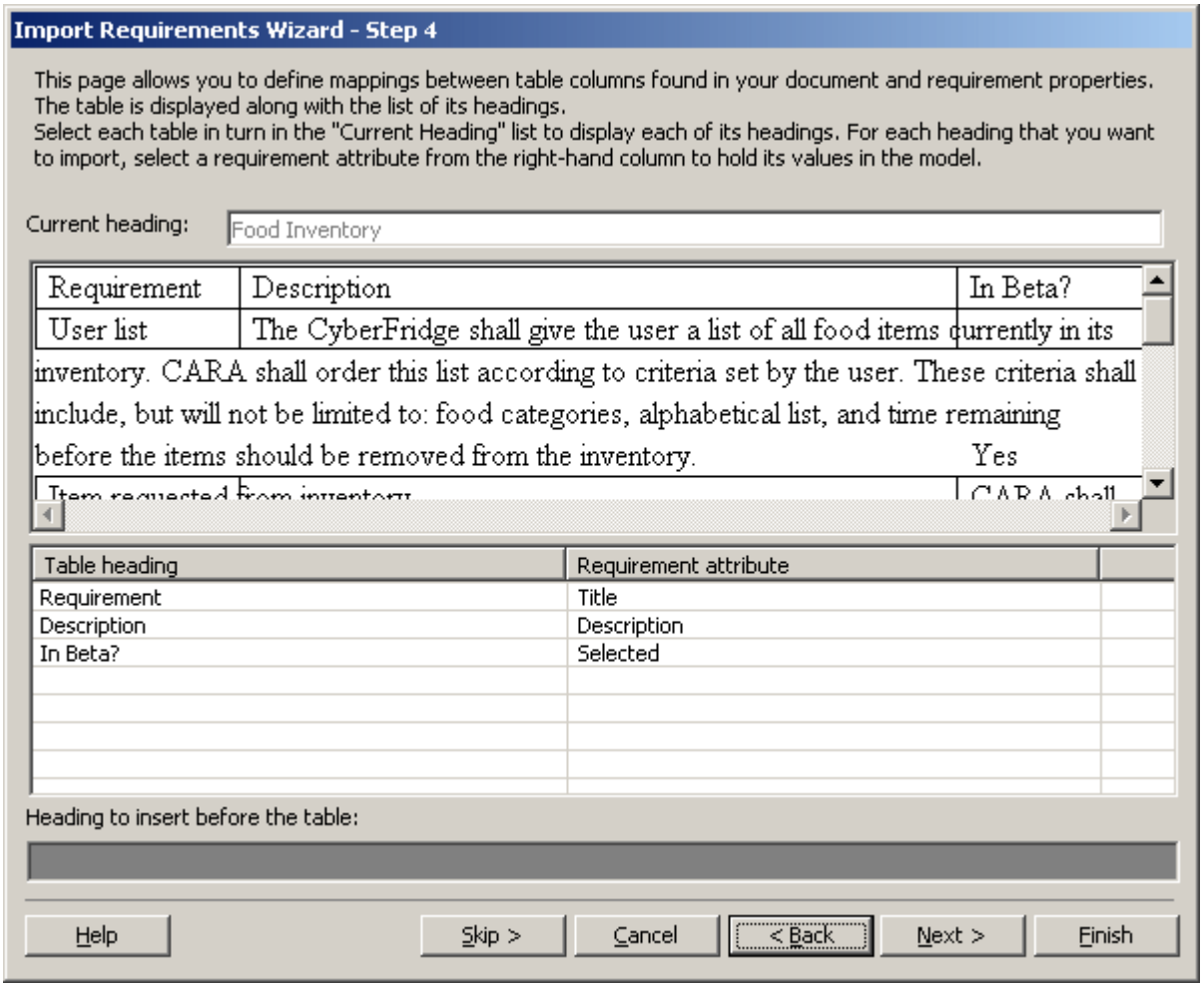
   You can also specify that the document will from now on be linked to the Rqm, enabling easy synchronization of the two.
3. Click Next to go to the next screen:



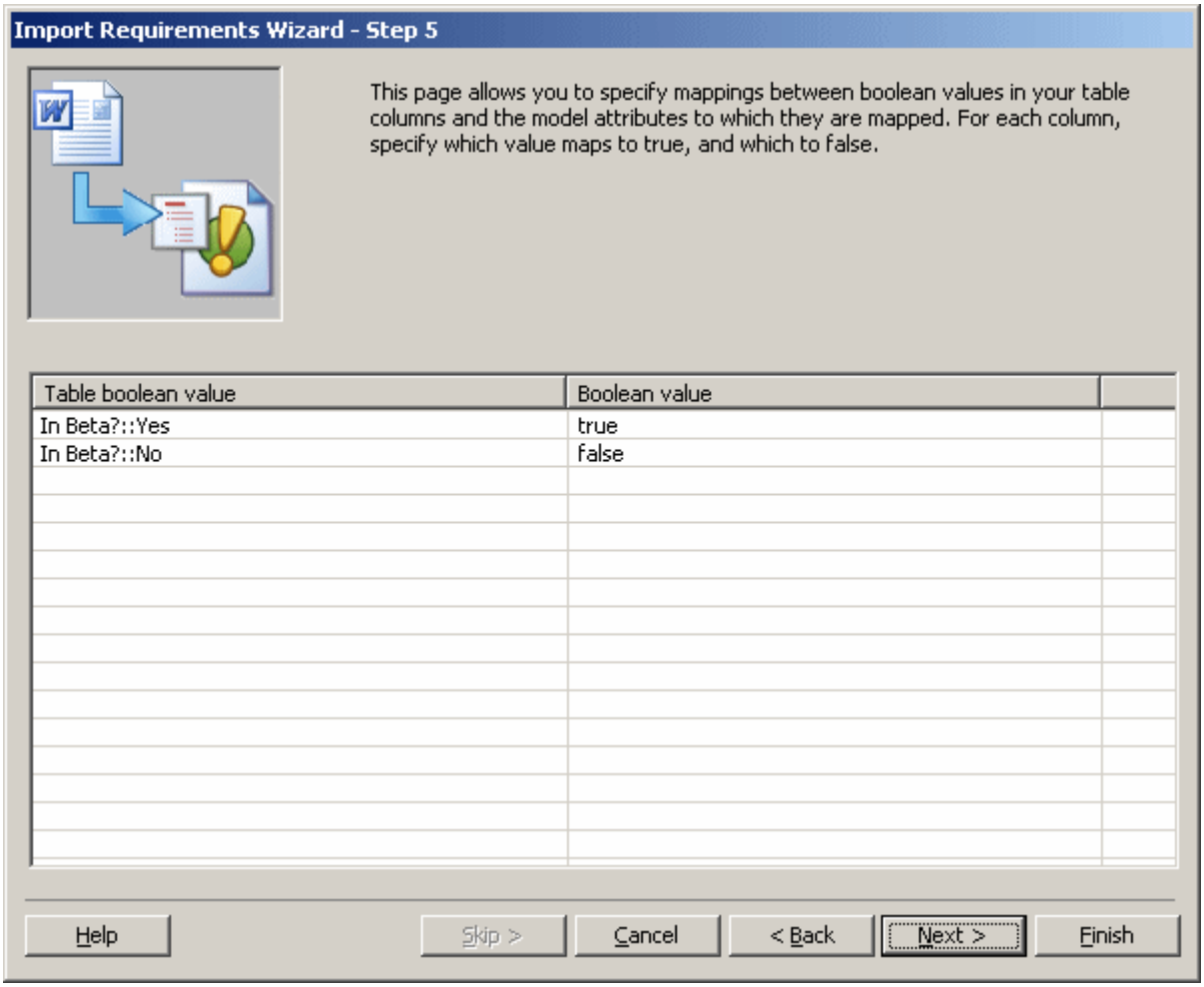
4. This screen lists requirements models open in the PowerDesigner workspace. You can select an existing model or create a new one by clicking the New tool.
5. Click Next to go to the next screen. If the selected model is not saved you will be prompted to save it now:



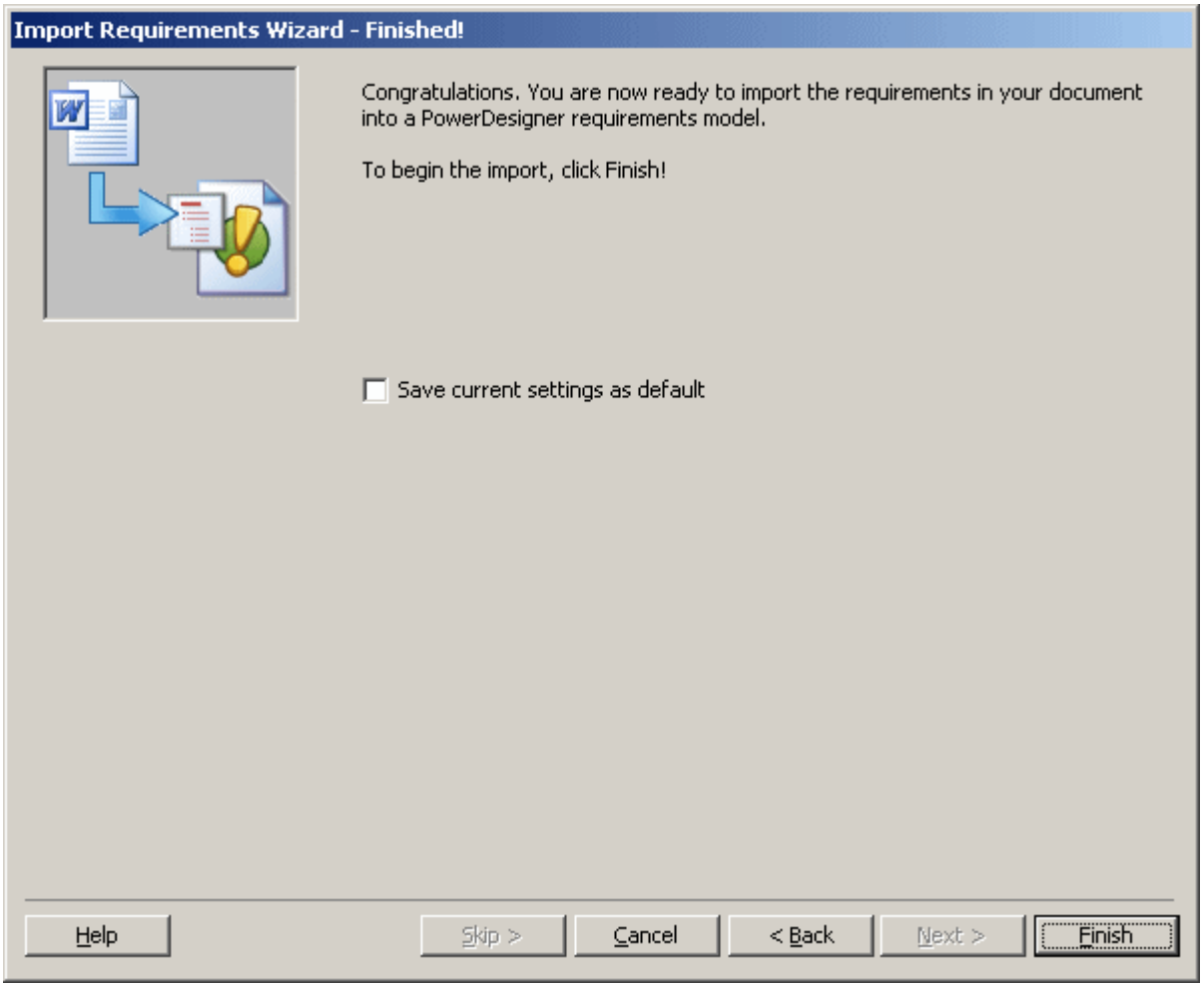
6. This screen lists all the headings available in the Word document. All are selected by default. You can deselect and reselect headings using the tools above the list. When your selections are complete, click Next to go to the next screen:



7. If there are tables in your document and you have selected to import requirements from them, this screen lists the tables and invites you to specify mapping between any unresolved table headings and their equivalent requirement attributes in the RQM. If there is no suitable attribute, you can choose Extended Attribute, and PowerDesigner will create a new extended attribute to hold this column's entries. You can also specify a heading to insert before the table.
8. Click Next to go to the next screen:

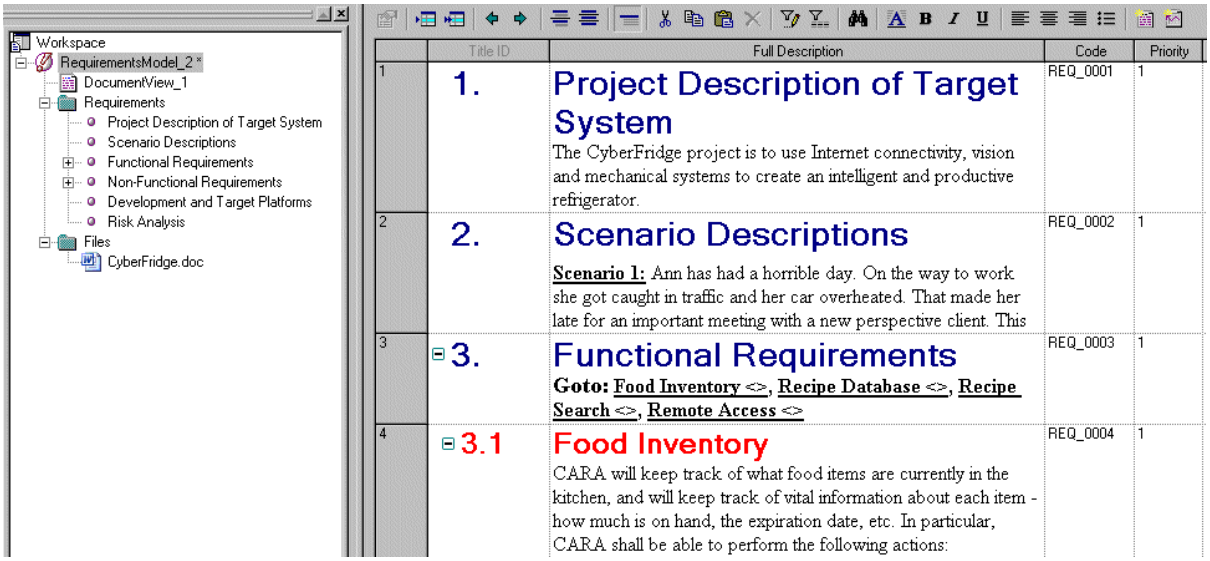


9. This screen allows you to link values in any column that you have mapped to a boolean attribute to true or false for that attribute. Select an appropriate value for each pair of values in each boolean column, and then click Next to go to the next screen:



10. This final screen invites you to save your current settings as the default. Click Finish to begin the import.

    The RQM is created in the PowerDesigner workspace, and the Files folder in the Browser contains the file of the linked Word document:



Results

You can also import a Word document into an existing RQM or one of its packages as follows.

4.2.1 Links Between an RQM and a Word Document

If you select to create a link between the RQM and Word document during the import process, then they will be synchronized and can be updated when either changes.

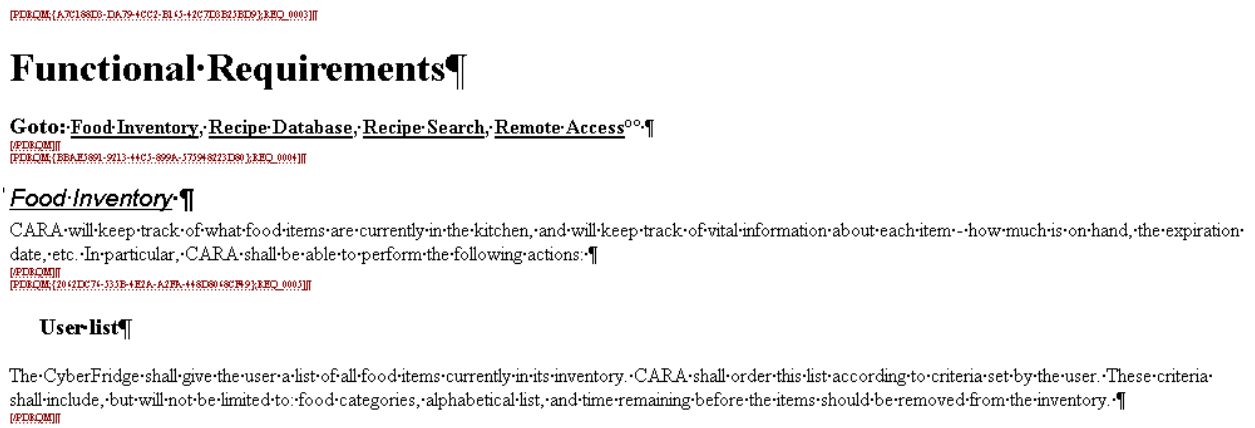
Word Document Properties Sheet

A Word document is linked to an RQM (or package) through custom properties and requirement tags, and the link details are displayed on the Custom tab of the Word document's property sheet.

To display the document property sheet in Word, select *File* > *Info*, click on the *Properties* heading, and select *Advanced Properties*.

Custom Tags

The actual linking is performed by custom tags in the document:



Each requirement is placed between a [PDRQM] tag with a unique ID to indicate its start, and a [/PDRQM] tag to indicate its end. To display the requirement tags, click the Show/Hidetool:

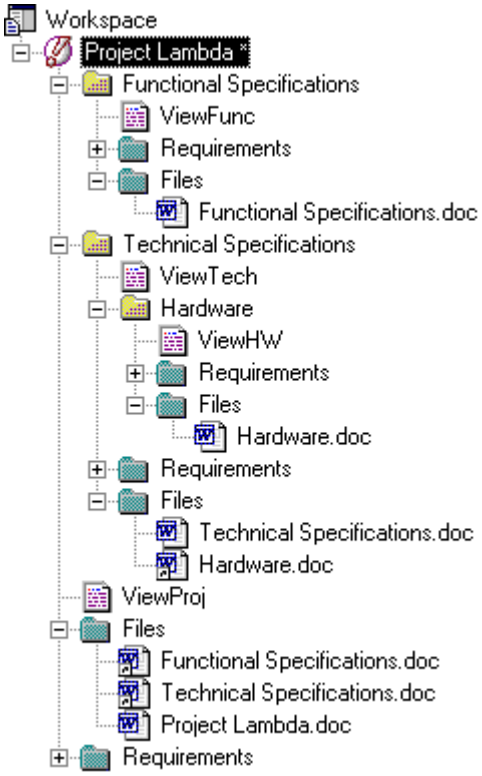
Browser Files Folder

The linked Word document is shown in the PowerDesigner Browser in a Files folder attached to the model (or package).

When an RQM contains packages, each package can be linked to a specific Word document. A package cannot be linked to more than one document.

If the model is itself linked to a document, only the requirements which do not belong to a package are linked to the document.

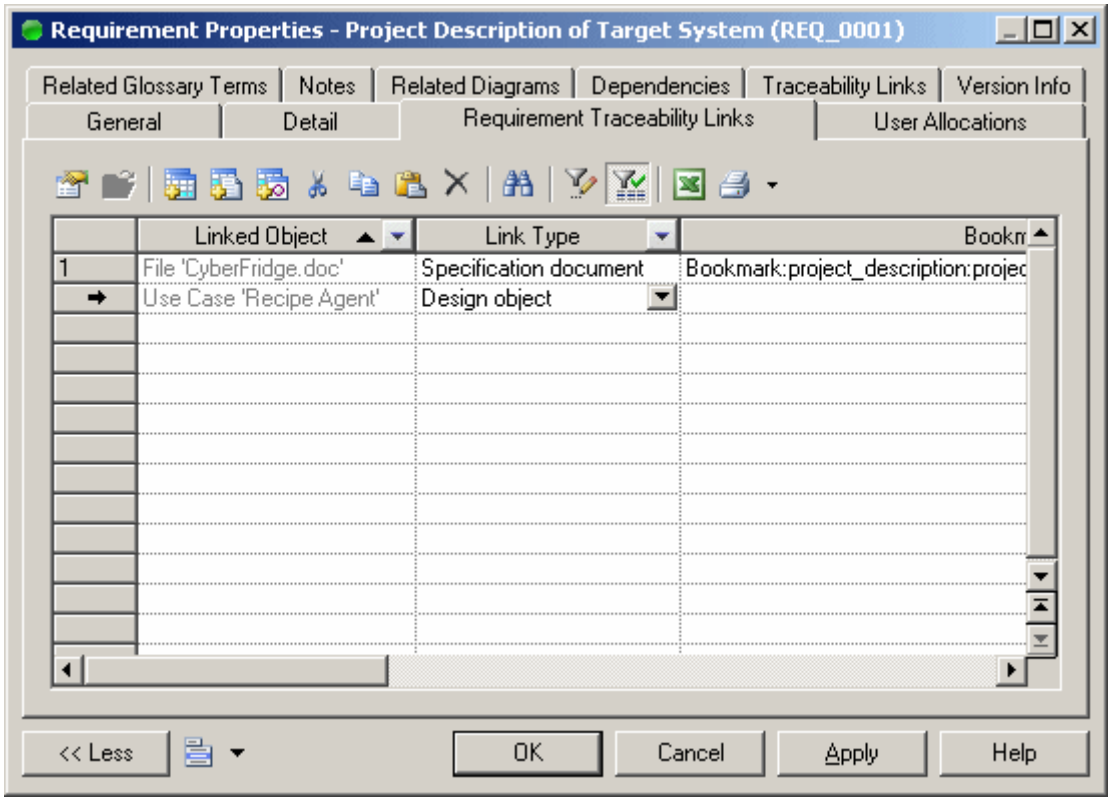
For example:



Note: The Files folder of the model item contains the model file and a shortcut for each package file.

Traceability Links

The link to the document is also shown on the *Requirement Traceability Links* tab of the property sheet of the model and each of the individual requirements:



4.3 Creating a Word Document from an RQM

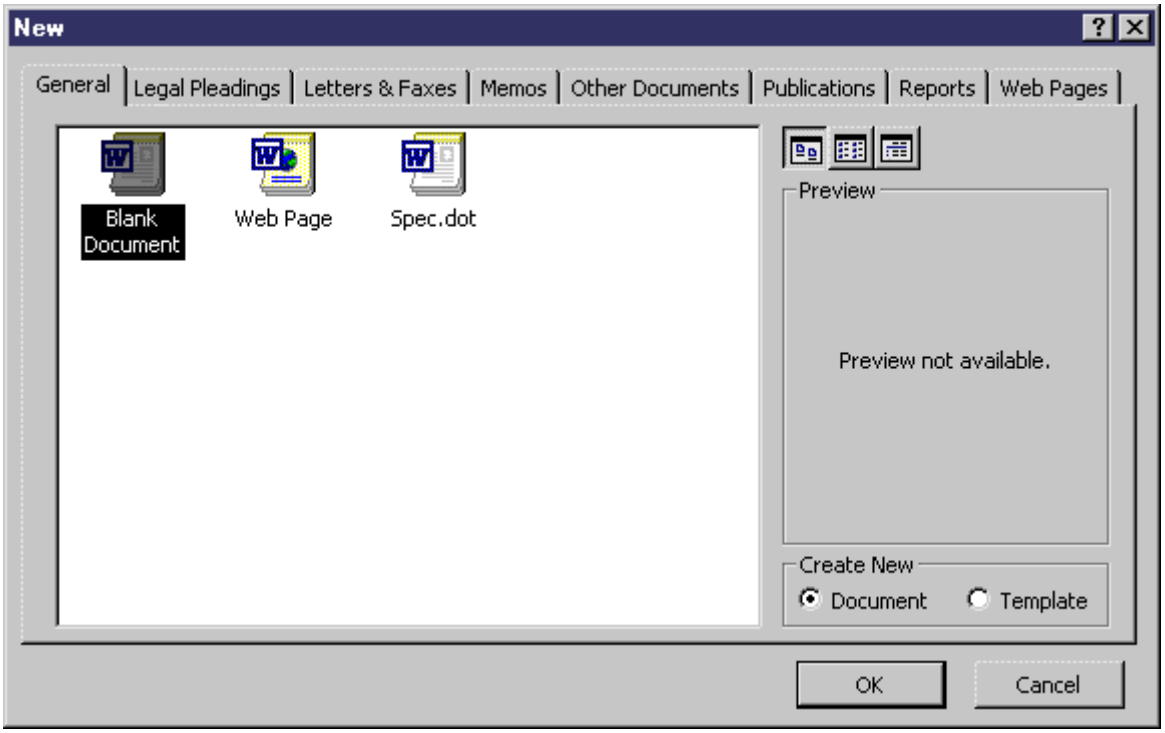
You can export an RQM (or a package containing at least one requirement) into Word format to produce a document in a more portable format.

Context

The following procedure assumes you have an RQM open in the workspace. Word need not be open.

Procedure

1. In PowerDesigner, select *Tools* > *Export as Word Document*.
2. [If the RQM has not been saved] The Save As dialog box will open. Select a directory and enter a file name for the model, and then click *Save*.
3. Word opens with the New dialog box:



4. In the *General* tab, click *Blank Document* or a template icon (with a .dot extension - you might want to use a template for predefined Word heading styles), and click *OK*.
5. The Save As dialog box opens. Select a directory and enter a file name for the document, and then click *Save*.
6. The Export Table Mapping dialog opens. You can choose to:
   - Export composite requirements as headings and subheadings, or
   - Export composite requirements as table rows – you can additionally select which properties to export in this mode, by selecting or deselecting the checkboxes to the left of the list, and the titles of table columns by editing the text in the *Table Header* column.
7. Click *OK* to begin the export. The requirements are written to the document. Each requirement is placed between a [PDRQM] tag with a unique ID to indicate its start, and a [/PDRQM] tag to indicate its end:

[PDRQM:{1DE3828E-B0FE-4191-9C0E-E224E03A3421};REQ_0001]¶

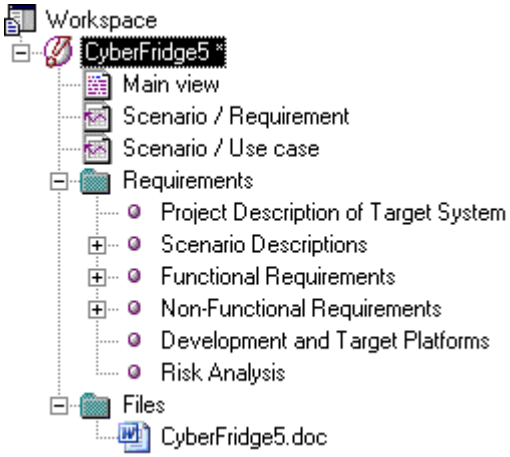
1→ Project·Description·of·Target·System¶

The·CyberFridge·project·is·to·use·Internet·connectivity,·vision·and·mechanical·systems·to·create·an·intelligent·and·productive·refrigerator.·↵
Many·of·our·daily·tasks·revolve·around·the·refrigerator,·and·a·CyberFridge·would·allow·the·automation·of·many·of·these·routine·tasks.··Our·project·is·a·specific·subset·of·this·area·which·will·allow·you·to·use·a·recipe·system·to·determine·what·recipe·you·would·like·to·fix,·and·let·you·know·if·the·items·to·make·it·reside·in·your·kitchen.·Specifically·known·as·C.A.R.A.·(·Clifford·Automated·Recipe·Agent)·the·recipe·agent·will·primarily·serve·the·purpose·of·electronically·making·a·shopping·list·and·telling·to·its·user·the·items·which·are·lacking·for·a·certain·recipe·and·those·items·which·currently·reside·in·the·fridge.·CARA·will·therefore·cross·index·the·current·inventory·of·the·fridge·and·a·recipe·database·in·order·to·suggest·what·meals·to·make·and·what·ingredients·are·to·be·bought(i.e.·our·grocery·list).·The·recipe·database·will·essentially·have·recipes·of·specific·types·of·dishes·(ex.·Chinese,·Italian,··etc.)·which·the·family·living·in·the·home·would·like·to·eat.·The·database·will·also·record·the·more·popular·dishes·selected·previously,·which·are·determined·by·the·number·of·times·a·certain·dish·is··requested·in·relation·to·other·dishes.·Our·database·can·also·be·updated·to·add·new·recipes·at·the·user's·discretion.·¶
¶
[/PDRQM]¶
[PDRQM:{59A198BC-B390-443E-8E77-F67B6449LD0};REQ_0002]¶

2→ Scenario·Descriptions¶

[/PDRQM]¶

The RQM and the Word document are automatically linked, and the Word file is attached to the model (or the package), in the Files folder in the Browser:



4.4 Inserting an RQM into an Existing Word Document

You may want to insert an RQM or one of its packages into an existing Word document. This would allow you to insert a list of requirements maintained in an RQM into a more general project document.

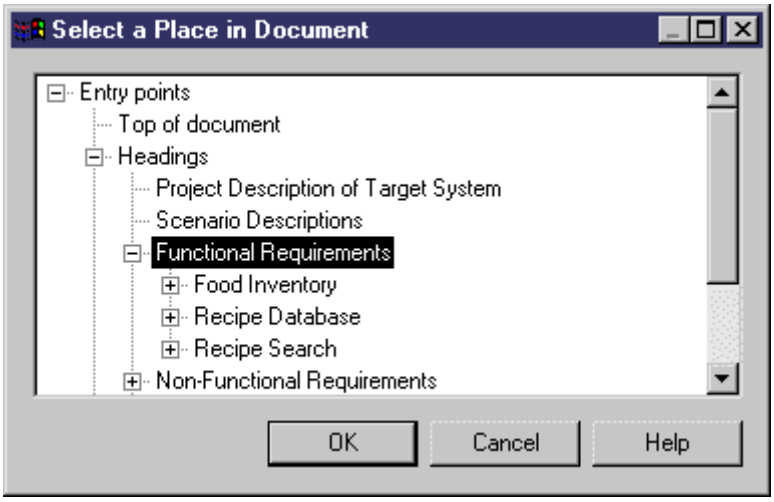
Context

The following procedure assumes you have an RQM open in the workspace, which is not linked to an existing document. Word need not be open.

Procedure

1. In PowerDesigner, select *Tools* > *Merge with an Existing Word Document* to display the Open dialog box.
2. Navigate to the required Word file and click Open. Note that, if Word is already open, you may need to click its blinking taskbar button.

   PowerDesigner parses the document to determine its structure and then the Select a Place in Document dialog box opens:
3. Expand the Entry points node and all its sub-nodes, and select a title beneath which you want to insert the requirements:



4. Click OK to begin the insertion of the RQM in the document. When the process is complete, the RQM and the Word document are automatically linked, and the Word file is attached to the model (or the package), in the Files folder in the Browser.
5. Double-click the Word file in the Browser tree view to open it and view the added requirements.

4.5 Updating a Word Document Linked to an RQM

You can update a Word document linked to an RQM so that it includes any changes made in the model.

Context

> **Note**
>
> If you add graphics to a linked Word document, do not try to update the document from the RQM, you will lose the graphics. Modify the document and then update the model from the document.

Procedure

1. In PowerDesigner, open an RQM previously linked to a Word document and make any necessary changes.
2. Right-click the model or package entry in the Browser and select *Update Word Document*. Word is launched and the document is parsed and updated.

4.6 Updating an RQM Linked to a Word Document

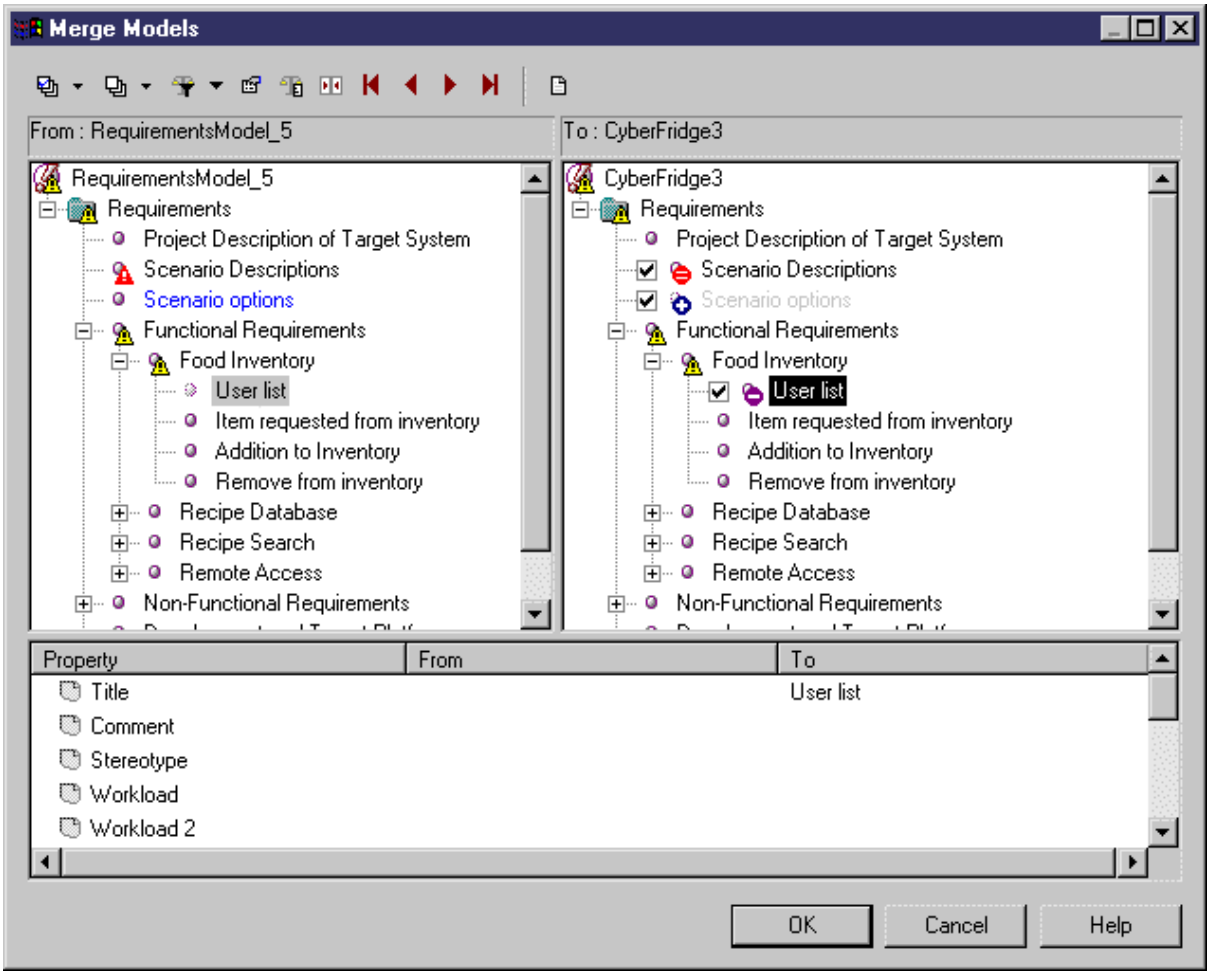
You can update an RQM linked to a Word document so that it includes any changes made in the document.

Procedure

1. In Word, open a document previously linked to an RQM and make any necessary changes.

   > **Note**
   >
   > When editing a Word document linked to an RQM we strongly recommend that you make visible the Field Codes (select *Tools* > *Options*, and select Field Codes in the Show group box). Edits to an existing requirement must be made within its [PDRQM] tags, and new requirements must be added outside of these tags.

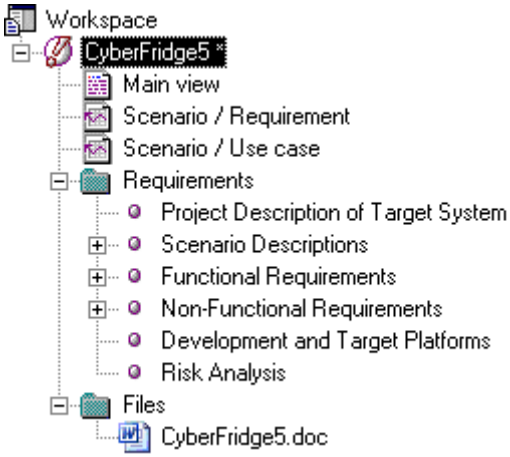
2. Select *Requirements* > *Create/Update a Requirements Model* to open the Import Requirements Wizard to step 3, which displays all the requirements titles in a tree format. The titles already linked to a requirement have their check box selected and grayed. You cannot deselect them. Any new requirements are selected but not grayed and requirements that have been deleted are no longer visible-.
3. Select or deselect headings to import as required, and then click Finish to begin the update. The Merge Models dialog box opens, with the structure of the modified Word document displayed in the left panel, and the existing RQM displayed in the right panel:



4. Review your changes and then click OK to update the RQM.

4.7 Unlinking RQMs and Word Documents

You can detach an RQM from a Word document in Word by selecting *Requirements* > *Detach the Document from the Requirements Model* or in PowerDesigner by deleting the Word file in the Browser.



The requirement tags are deleted from the Word file, which is removed from the *Requirement Traceability Links* tab of the model, package, and requirements property sheets.

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