Using EA

Working with the RTF Generator

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Introduction to RTF Document Generation

Enterprise Architect provides a powerful mechanism for generating high-quality, customized documents directly from the UML model. This whitepaper gives a broad introduction to using the Rich Text Format (RTF) report generator for creating custom reports from Enterprise Architect (EA).

Enterprise Architect supports the definition of reports that are output in RTF. Rich-Text is a format familiar to many word processors; in particular it is supported by Microsoft Word, which is common to many desktops.

The RTF report generator allows users to define a structure for a report to be generated, along with layout and formatting, to suit their specific needs. By adding tables of contents, figure tables, headers and footers, and sections, you can create a layout for a complex document with relative ease.

Since many corporations have their own standard report formats, Enterprise Architect provides an easy-to-use, yet powerful facility for customizing its document generator to meet these standards.

The general topics covered in this paper are listed below.

How to generate Rich-Text documents
How to access the RTF report generator and generate a document.

Introduction to the RTF editor
Using the WYSIWYG editor for customizing document templates in Enterprise Architect.

Simple setup of a document
How to create a simple document using an existing document template.

Starting a document from scratch
A step-by-step guide to the creation of a document from scratch.

Formatting
An overview of various features and hints when using the generator.

Appendix – advanced factors to consider when generating documents
Additional tips on how to take advantage of the RTF generator.

How to Generate Rich-Text Documents

Enterprise Architect can generate Rich-Text reports for an entire model package, or for selected results of a model search.

To generate a report of the currently selected Package in the Project Browser:

♦ Right-click the package in the Project Browser and select Documentation | Rich Text Documentation from the context menu; or

♦ Select Project | Documentation | Rich Text Format Report from EA's main menu; or

♦ Use the F8 keyboard short-cut.

To generate a report based on the results of a model search:

♦ Right-click selected elements and choose from the RTF Report options.

The "Generate RTF Documentation" dialog box will be invoked, as shown below.
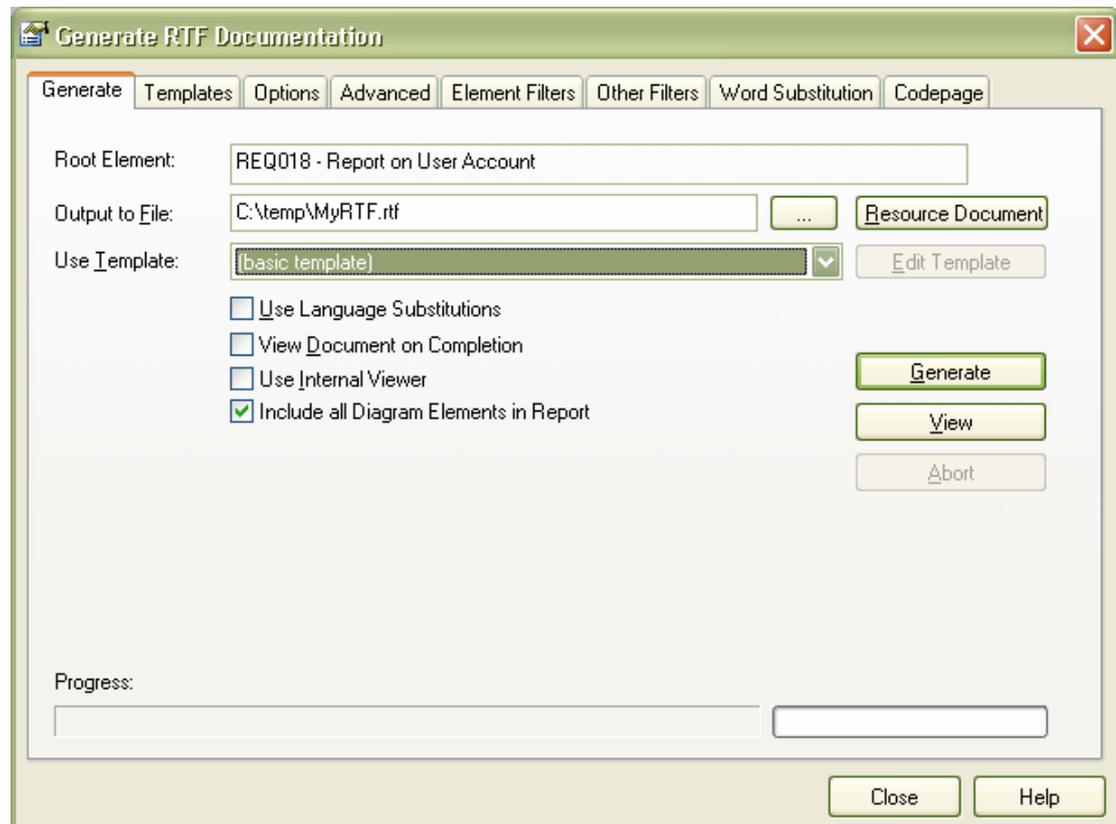
The simplest process for generating a report from here is:

1. Select a template from the Use Template drop-down list.
2. Click on Generate to create the document.
3. Use the View button to see the generated document.

The rest of this whitepaper describes approaches for customizing report templates. If you require further information on getting started with the Rich-Text report generator, please refer to the EA help topic: Creating Documents | RTF Report Generator

Introduction to the RTF Editor

When initially using the RTF report generator, the key window that any user should become familiar with is the RTF editor. This section gives a brief overview of the key features in the editor, along with methods for accessing it.

The editor is accessible from the Generate RTF Report window shown above. To access this, from the main menu, select Project | Documentation | Rich Text Format Report, or press F8.

The Edit Current option is only available to user created templates. It is not enabled for existing system templates. To create a copy of a system template to be edited take the following steps:

1. In the Use Template drop-down select <New Template> to create a new template.

2. In the New Document Template dialog box, fill in the following:

   a. New Template: Give it a name (e.g. "NewTemplate").

   b. Copy Template: Select a template type (e.g. {requirements template}.)

3. Press OK

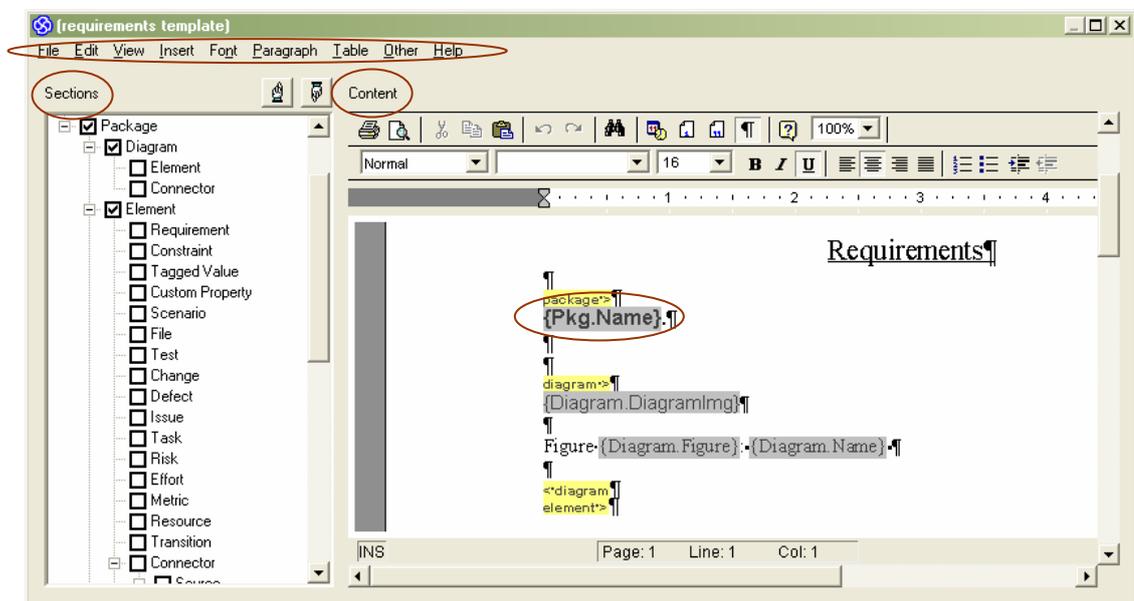This will open the editor as shown below.

Figure 1 – RTF Template Editor

This editor consists of three key areas, as highlighted in the above diagram. These are:

1. Sections
2. Content
3. Menu

Also marked above is an example of a Field {Pkg.name}. A Field produces the final text to be generated in the report.

The details of the area are as follows:

Sections Window

This is a tree of model items that can be placed in the report. These items are related to Packages, Elements and Diagrams in the repository. Ticking one of these boxes will insert a Section such as a 'Package' or 'Element' (see Figure 2 below). Each Section has a specific set of Fields.
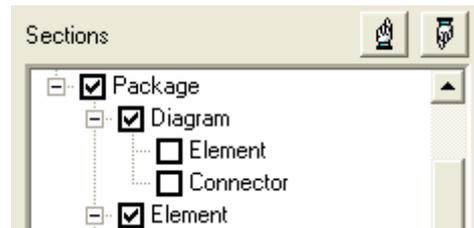
Figure 2 – Sections Area

Sections in this tree can be moved within their parent Section (see the hands at the top). This allows the user to define the precedence of Sections. For example, Package::Diagram can take precedence over Package::Element by selecting it and moving it above Package::Diagram.

Content Window

The content window contains the structure for defining the document contents. Part of this structure is created by selecting items from the Sections window. This creates a bracketed Sections area for adding Fields (i.e. diagram> … <diagram). See Figure 3 – Contents Area below.

Figure 3 – Contents Area

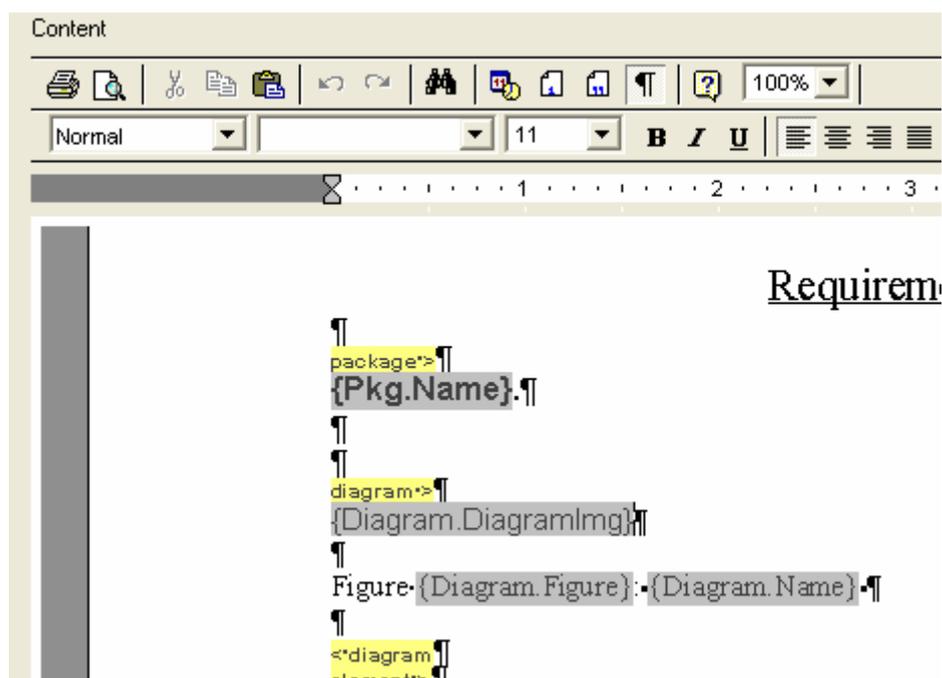Once a bracketed Section area is created in the Contents area (see diagram > … < diagram in Figure 3 – Contents Area). The user then has the option of right-clicking within the Section group and selecting from the context menu any Field related to this group. Figure 4 is an example of the context menu shown when the cursor is in the Diagram Section.
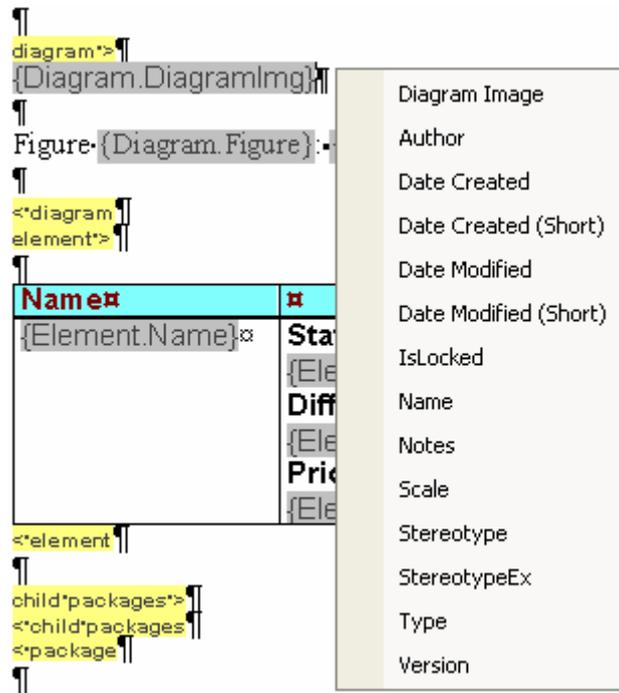

Figure 4 – Inserting Fields

At any point, the user can create additional text or format the text within the group area.

Menu Options

The main menu of the editor provides a set of standard editing features for modifying the text and adding structural definitions. Some of the key features, such as numbering and styles, will be covered in the sections below.

Simple Setup of a Document

In this section we will run through the scenario of setting up a simple document by copying an existing template, making modifications to the document format, and saving the new document template.

Copying a Template

To copy an existing RTF document template, perform the following:

1. From the main menu, select Project | Documentation | Rich Text Format Report.
2. From the Use Template drop-down, select <New Template>.

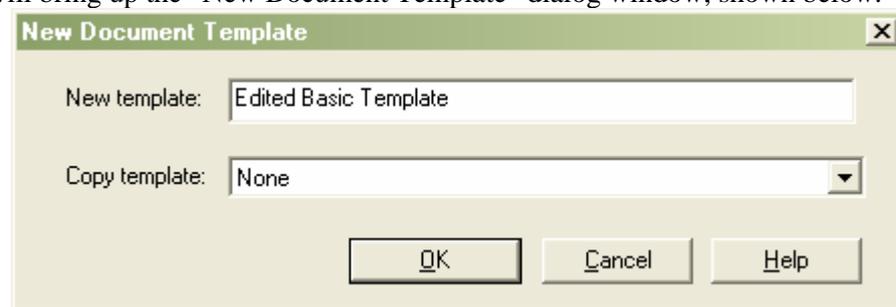This will bring up the "New Document Template" dialog window, shown below.

Figure 5 – Creating/Copying a Template

3. In New Template textbox, type in a new name for your report (e.g. 'Edited Basic Template')
4. In New RTF Document Template window, select from the Copy Template drop-down {Basic Template}.

This will open the RTF editor ready for you to start editing the new template 'Edited Basic Template' based on the {basic template}.

Modifying a Template

When modifying a template there are numerous functions that can be performed to change the template. Some of the key functionality supports the addition and removal of Document Sections and Fields.

The following runs through the process of adding and removing a Section, changing the order of Sections, as well as adding Fields to this Section.

We have created a copy of the basic template above. We can now add a new Section to this report. A Section that is not shown on the {basic template} is the Element::Risk Section. We will move this to the top of the element Section and then add it as a new Section.
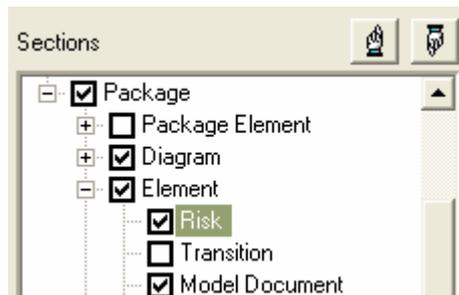
Re-ordering Sections

In the Sections View select the *Risk* section. Use the Up/Down arrows (shown below) to move the *Risk* section up to the top of the Element grouping.

Adding a New Section

To add the *Risk* Section to the Content template, select the box for the Risk Section and click on it to create a tick in the box.

This will create the tags for the Risk Group in the Content Area.

Right-clicking between the risk group tags risk.> … <risk prompts the user with a drop-down list of available fields to add for risks.
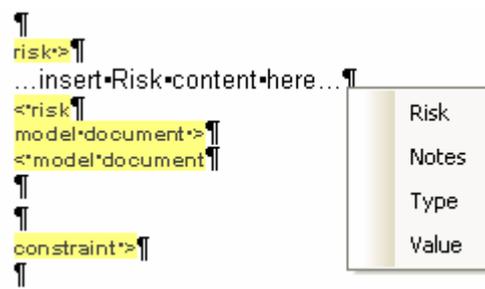
For consistency with the rest of this report we can add these fields into a table.

o Between the risk tags risk.> … <.risk – highlight "… insert Risk content here …"
o To add a table, from the main menu, select Table | Insert Table. When prompted for rows and columns, set the rows to two and columns to four.

This should create the table as follows:

Placing the titles in the first row will set the generator to show the titles as the first row for the Group.

To add the Risk Fields, right-click in the second row and select the appropriate fields to add within each column.

> **Note:** Remove any lines between the end of the table and the end of the <risk section to ensure the table does not create extra lines when generated.

Once this is complete you can save the document. From the main menu, select File | Save. This will save the document in the repository under the title it was created as.

Generating Edited Reports

To run and test this, perform the following:

- o Close the Documentation window
- o Select a package to report on
- o Press F8
- o In the Generate RTF Documentation window using the drop-down Use Template, select the report just saved (i.e. 'Edited Basic Template')
- o Click on Generate to start the report generation
- o Once completed select View to display the completed report.

While the template is still selected in the drop-down, further editing can easily be accessed here by selecting the Edit Current button.

Removing a Section

Removing a Section from the report generator is straightforward. When in Edit mode, simply click on the tick box associated with the Section to be removed. Deselecting it will remove the section from the Content area, including any fields or child Sections.

Starting a Document from Scratch

When starting a new document from scratch, there are a number of features that are not so obvious when using a predefined template. This section will run through these features with recommendations on using them. This section will also cover some additional features used to personalize the document defined in the template.

Creating a New Template

To start with, we will create a new RTF template. To create a new template, perform the following:

- Open the Generate RTF Documentation window (or press F8)
- From the Use template drop-down select <New Template>
- In the New template field add a name for the document
- In Copy template set this to None
- Press OK

This will create a new blank document ready for editing in the Document Editor.

Before adding Document Selections and Fields to the Content area, a key factor is to set the Sections to support recursion through the packages, as well as the order of items within the Section grouping. We will also look at a number of key options for setting up formatting within the document to create a corporate standard document.

Recursion Through Packages and Elements

Most documents you create will use the Package and Element Sections. By default these are set to return just the current package that is selected in the Project View. It is a common scenario that the child packages and child elements are to be presented in a document. To set this so that it recursively returns these children, set *Child Packages* and *Child Elements* at the base of the Sections Tree.

> **Note:** Post version 6.5, the Parent and Element child Sections are now set on, when creating Package and Element Sections respectively.

In addition to the *Child Packages* and *Child Elements*, do the same for the *Element::Diagram* to include the diagram contained in a child element.

There are a set of Child Document sections that work in this manner. The following is a table of Child Documents sections with their corresponding Parent section.

Child Section	Section Rendered when used as a placeholder
Package->Child Package	Package
Package->Element	Package->Element->Child Element
Package->Element->Diagram	Package->Diagram
Package->Element	Package->Diagram->Element
Package->Diagram->Connector	Package->Element->Connector

With these particular sections you can choose to populate a recursive section with template content or leave it unpopulated. The two possible results of this are as follows:

> ➢ If it is populated, it will render the template with the child section layout.
> ➢ If it is left unpopulated, it will use the content from the parent template.

Example of a Rendered Child Section

The example below (Figure 6) shows a template with content between the child element tags. In this example, as it contains content and fields, the child elements of the parent are rendered using the *Child Elements* section.
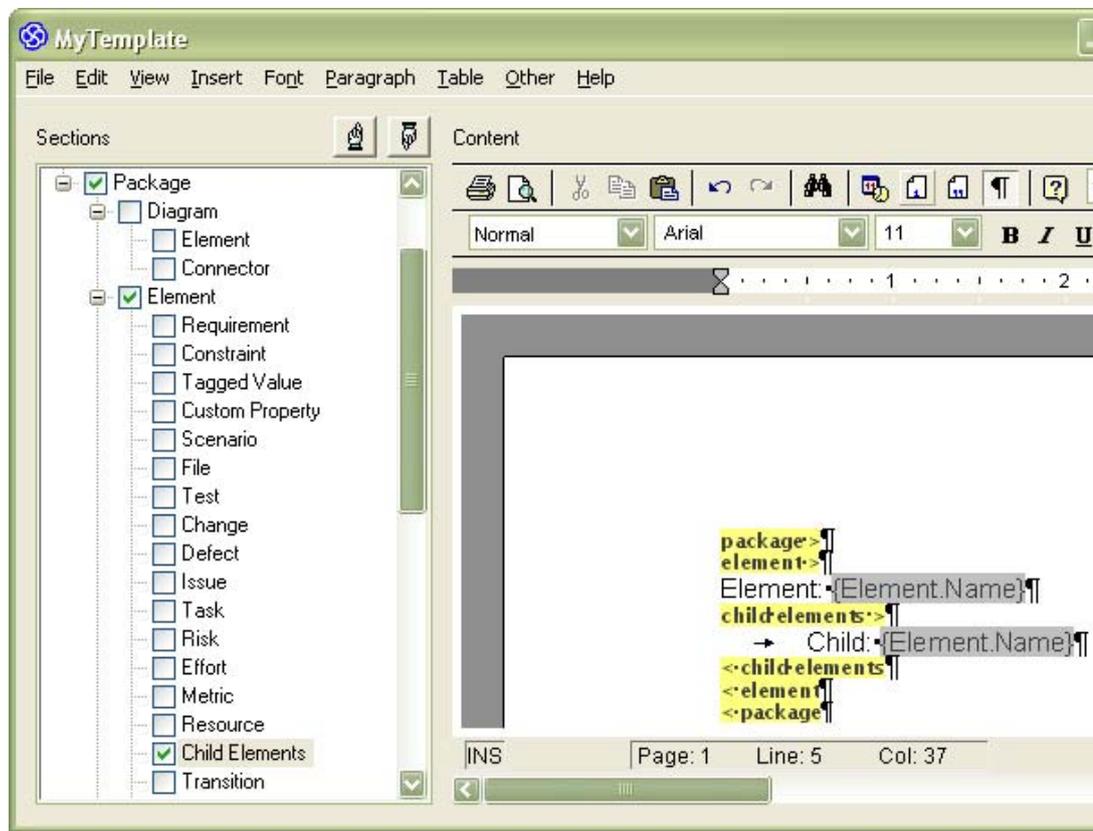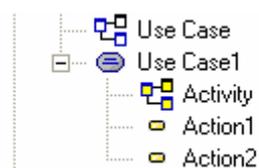

Figure 6 – Child Elements

Below is a simple sample of the output from a Use Case with a child Activity diagram of two actions.

Project View

RTF Output

Element: Use Case1
Child: Action1
Child: Action2

Example of a Non-Rendered Subsection

This second example shows a template with no content between the child element tags. In this example, child elements of the parent are rendered using the *Element* section because the *Child Elements* section is empty. The *Child Elements* section is used as a placeholder.
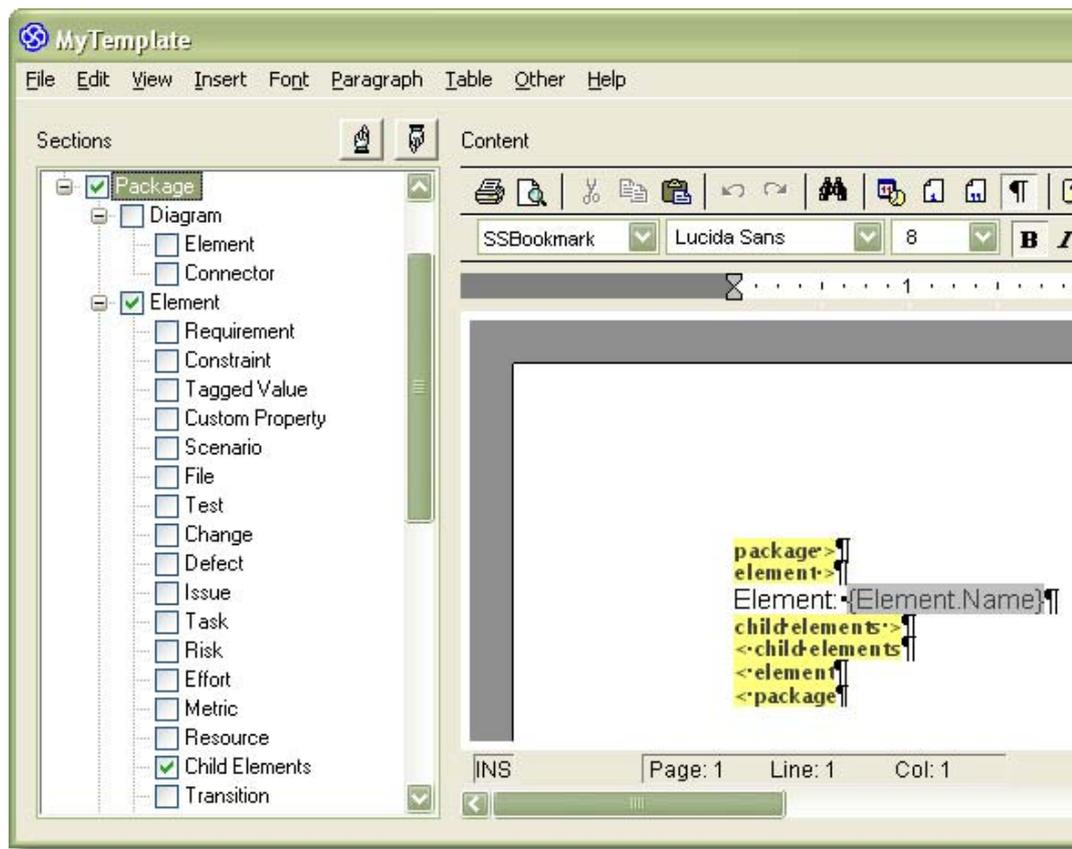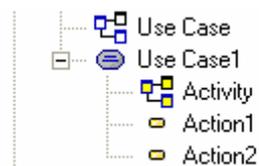

Figure 7 – Non-rendered Sub-section

Below is a simple sample of the output from the same Use Case with a child Activity diagram, but with the Child Elements group unfilled.

Project View

RTF Output

Element: Use Case1
Element: Action1
Element: Action2

Formatting

Having set up the Sections, the next step is to set up the formatting for the document. The main formatting of the document is carried out in the Content area of the report generator.

The following is an outline of some of the key formatting features available in the RTF generator.

1. Header and Footer

To set the header and footer for your document, complete the following.

- From the main menu select View | Page header Footer
- Then select Edit | Edit Page Header Footer
- Now use the cursor to select the header and/or footer to modify it.

> **Tip:** A common trick to use with the header and footer is to add a one row table with the baseline of the table set to show as a line (for more details on this, see "Grouping with Tables" below). Further, setting the table to three columns allows the justification to be set to left-justified and right-justified.

> **Note:** The header and footer areas only support standard text, not Sections or Fields.

2. Table of Contents (TOC)

A table of contents can be created for the report. The table of contents works on the use of header fonts in the report.

> **Note:** The table of contents option menu is not available until headers have been created in the document using the Header 1..9 Styles.

The following gives a simple example of setting up a table of contents.
1) Create a new document
2) Create several new lines (e.g. paragraphs)
3) Type in some text as a header (e.g. "First Paragraph Heading")
4) Highlight the text
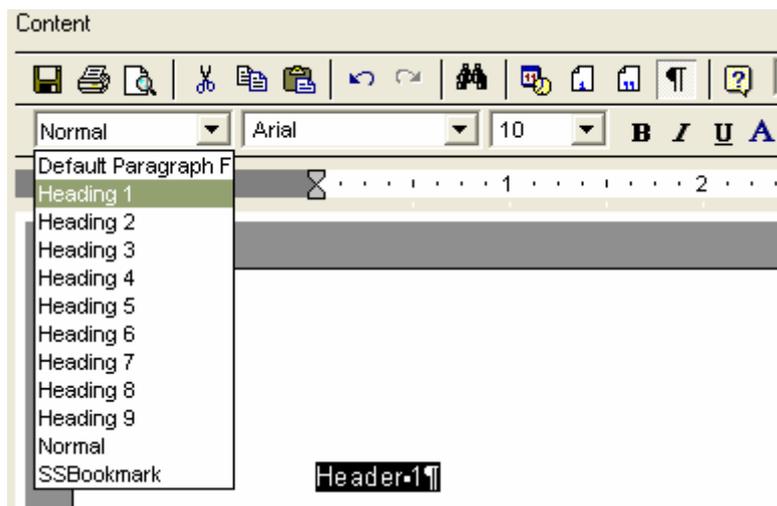5) From the Styles drop-down menu, select Heading 1 (see Figure 8)

Figure 8 – Selecting Heading Styles

6) Create a second line of text with a Header 2 font
7) Select a location at the top of the document for placing the table of contents
8) From the main menu, select Insert | Table of Contents

This will then set the table of contents with the headers listed. Header 1 style will be on the outer margin, Header 2 style is inset. For each level of heading there is an inset created in the table of contents. The following is an example using the example listed above.


3. Grouping with Tables

The RTF report generator allows the user to specify a Section Group around tables in two key ways:

1) Section Start above a table and Section End below a table. This is the simple and most used method. It simply defines that the table will be set as the holder of the group data.
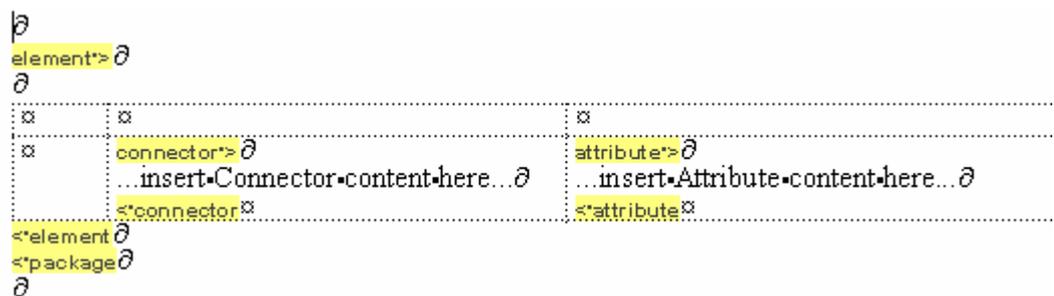
2) Section grouping can also be set up to be within a table that has an outer grouping, so long as the inner group is a child of the outer group.
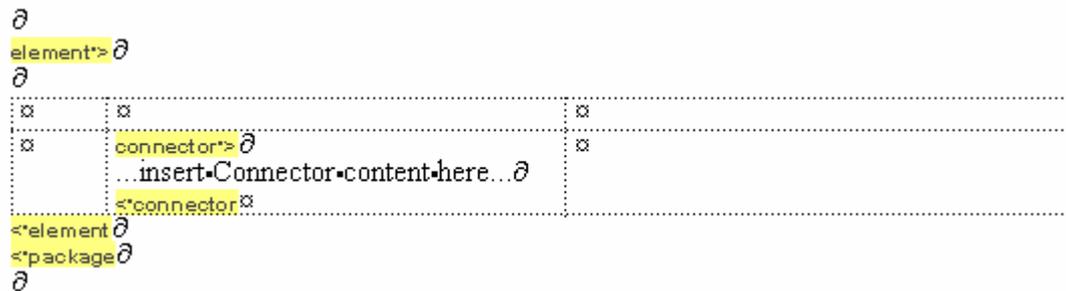
3) Sections under a common group can also be entered in concurrently to a single table – as follows:

When populating a table with more than one Section, there are two points to be aware of: a) the location of the Fields in the selection area, and b) the location of the cursor in the Content area when selecting a group. The following covers these two points.

    a) By default the two Sections used above, Connectors and Attributes, are both located next to each other in the tree. In a scenario where these are separated, it is necessary to move them together using the Up & Down hands in the Sections area.

Further, if attribute>… <attribute needs to be in a cell in front of connector> … <connector, then in the Sections tree the Attribute must be moved to sit above the Connector (by default it sits below).

    b) To ensure the correct placement of a Section group, the position of the cursor must be set (i.e. in the appropriate cell) prior to selecting the item from the Sections area.

Figure 9 illustrates the Section setup just prior to adding the Attribute group. The Attribute group needs to be moved above the Connector. The cursor is placed in the correct position in the table to accept the Attribute to the left of the Connector.
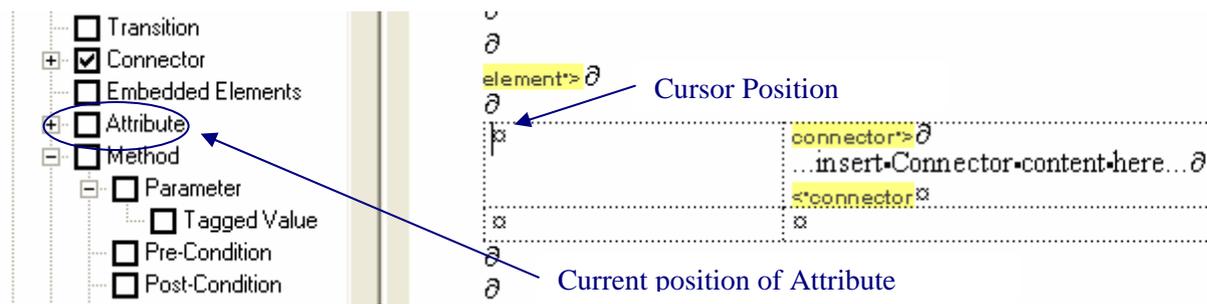
Figure 9 – Pre-Section Placement

In Figure 10, the Section area shows the final placement of the Attribute Section tree. In the Content area, it shows Section group placement in the table where the cursor was positioned.
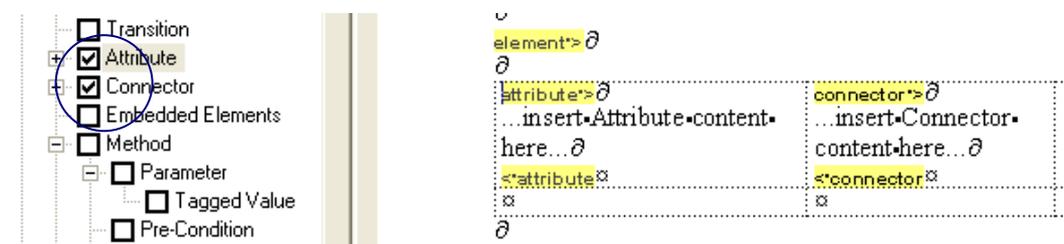
Figure 10 – Post Section Placement

o **Header of Tables**

The first row of a table is always reserved for the header of the table. Subsequent rows are repeated for each entry.

> **Note:** To ensure no lines are placed between repeated rows, the base of the table needs to be flush, on top of the end point of the Section. See the example above, where the table sits on top of element with no line between them.

The above format returns the following table with no spacing between the rows.

	Element Name	Author
	Choose Recipient	Chuck Wilson
	Manage Contacts	Chuck Wilson

Below is a template section that has a line after the table.

This returns the following output with spacing between the rows.

	Element Name	Author
	Choose Recipient	Chuck Wilson

|	Manage Contacts	Chuck Wilson

- o **Coloring Table Lines**
  Setting the lines in a table to be visible on printout is something that is frequently used but maybe not so obvious. The following is a method to create a table and set the color firstly to the default black and modify this to an alternate color.

  - To add a table, from the main menu, select Table | Insert Table. You are then prompted for the number of rows and columns. Press OK.

  - To alter the color of the lines on the table, select a part or the entire table to be altered

  - From the main menu select Table | Cell Border Width. In the Border Width section, set each line you want a border for to at least one.

  - By default, this will set the color to black.

  - To alter the color – from the main menu, select Table | Cell Border Color. This gives you a range of options to set to specific lines or all lines.

4. *Diagram Layout for RTF Reports*

Some report options are defined per Diagram, not in the default settings of an RTF template. These options are described in detail below and may be accessed as follows:

- o Select and right-click a diagram. From the context menu select Properties | Diagram tab
- o From the main menu, select Diagram | Properties | Diagram tab
- o Press F5 | Diagram tab.
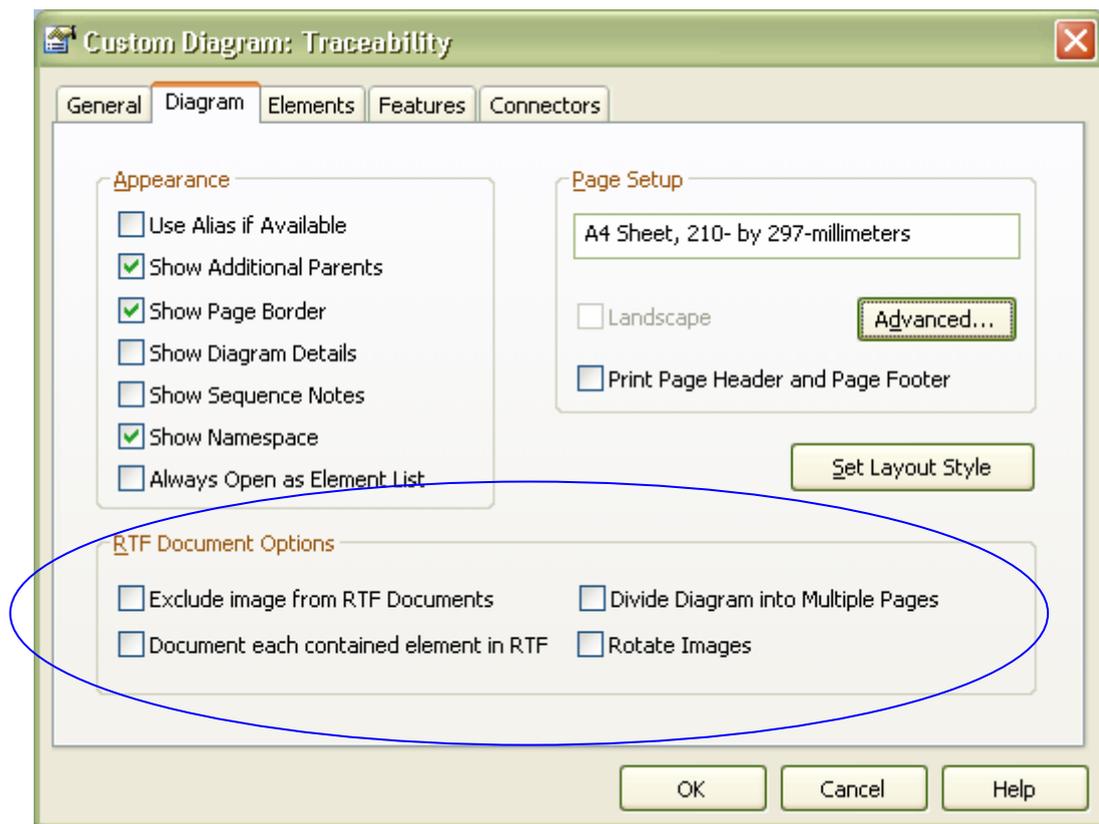
Explanation of RTF Document options for Diagrams:

o **Exclude image from RTF**
   This sets the current diagram to be excluded from any RTF reports generated.

o **Document each contained element in RTF**
   This sets the RTF generator to give the details for any Element in the Diagram that is external to the package the diagram is contained in. This supports the common practice where reference is made to an element external to the package by simply dragging the element from the Project View onto the current diagram. See *5. Reporting on Diagrams with Elements from other Packages* for more detail on what is required to view these in the report.

   > **Note:** If the F8 | [] Include All Diagram Elements in Report – is set on, this option will be overridden to report all diagram elements. This is a default setting.

o **Divide Diagram into Multiple Pages**
   By default large diagrams are scaled to fit a page. This option divides each large diagram into separate pages in the RTF document.

o **Rotate Image**
   This rotates each diagram image by 90 degrees in the RTF document (Note: This only applies to bitmap (.bmp) images).

5. Reporting on Diagrams with Elements from Other Packages

It is common practice in EA to drag an element from a package, external to the current package tree, and insert it as a simple link on the diagram. By default these linked elements are not documented in the RTF report generator. (See *Document Each Contained Element in RTF*).

To set up the report to display text on linked elements in the RTF editor, the Diagram::Element checkbox needs to be ticked. See image below.
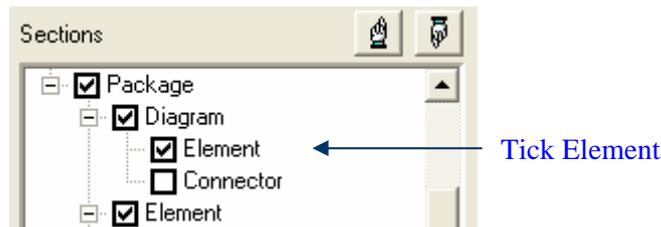
This will create a new section within the diagram section.

diagram->
element >
...insert Element content here...
< element
<diagram

Options:
- To have this include the elements in the same style as they are printed in the Package::Elements Section, simply remove the "...insert Element content here..." to create a blank area.
- If you want the linked elements to be reported in a slightly different manner to elements in the current package, then set up the content appropriately.

Note: The F8 | [] Include All Diagram Elements in Report – is set on by default. This overrides the diagram setting. If this is set off, as stated in stated in *4 - Settings for RTF in the Diagram Properties*, you also need to check the Diagram Properties section of the diagram, is set to include linked elements. To access this use the following:
- Press F5, or from the main menu, select Diagram | Properties
- Tick the [] Document Each Contained Element in RTF option.

6. Include or Exclude a Package in the RTF Reports

EA allows the user to set a Package to be included or excluded from any RTF report. By default a Package is set to be included. To exclude a Package:
- Select the Package in the Project Browser
- Right-click on it, and from the context menu, select Documentation | RTF document options…

This will bring up the following dialogue box for setting a Package to be included or excluded.
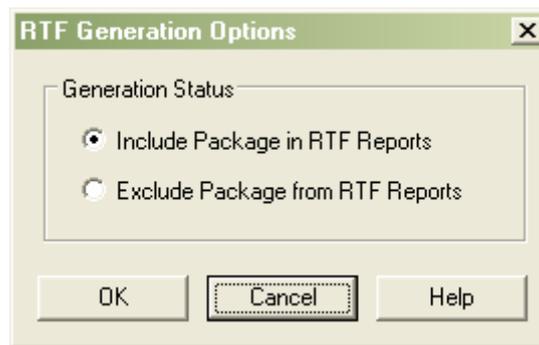
> **Note:** This setting will exclude all sub-packages of the current Package.

7. *Documenting Linked Documents and Document Artifact Elements*

The contents of Linked Documents and Document Artifacts can be included in an RTF report. To add this to a template, in the Sections area, select Model Document.
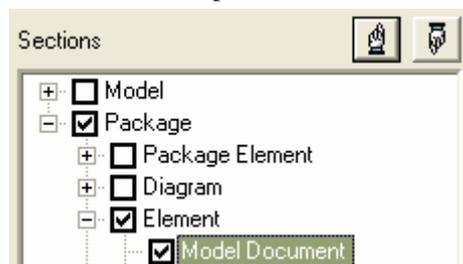
This creates in the Content area
model document>
<model document

As shown below.
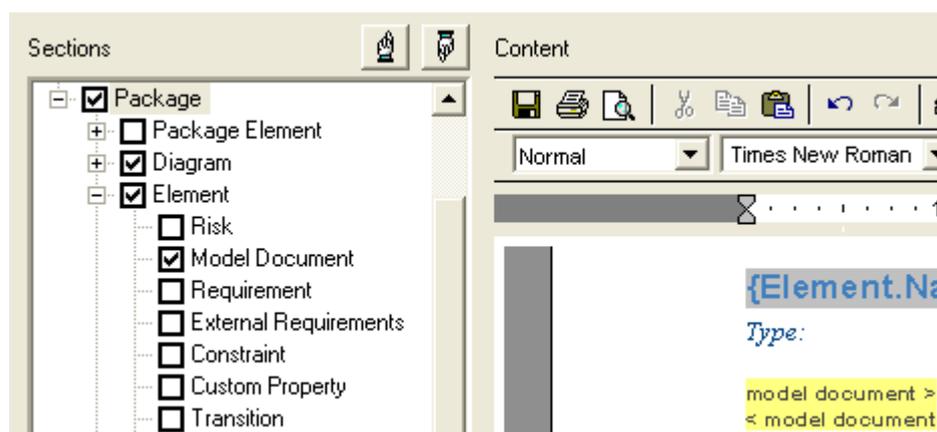
This grouping does not have any fields to be added in the Content area.
The full contents of an Elements *Linked Document*, or an Element of type *Document Artifact*, are output in this section.

Linked Documents associated with Packages can also be reported using the Section:
Package::Package Element::Model Document

> **Note:** If these Documents contain a table of contents – it will be listed in the full documents table of contents. It does not cause a problem but does appear untidy in the main table of contents.

8. Numbering

The RTF editor supports numbering. It allows for standard numbering as well as 1.1.1 style indented numbering. The numbering options are contained in the main menu Paragraph option. Different numbering patterns can be defined using Edit | List and Overrides.

Standard Numbering

To define a numbered paragraph, use the menu option Paragraph | Numbering.

This will generate standard numbering for any section with this set. The following is a simple example.

> package >
>
> Package: {Pkg.Name}
>
> element >
>
> 1. Element: {Element.Name}

Some example output for this is:

> Package: Fulfill Orders
> 1. Element: List Current Orders.
> 2. Element: Package Order

To define indented numbering once the numbering has been set, select Paragraph | Increase Level.

The following is a simple template for indented 1.1 numbering (Note: this does not use automatically incremented Header Fonts – for more information on working numbering on these fonts see "User Defined Numbering" below).

> package >
>
> 1. Package: {Pkg.Name}
>
> element >
>
> 1.1 Element: {Element.Name}
>
> requirement >
>
> 1.1.1.External Requirement:{ElemRequirement.Name}
>
> < requirement
> scenario >
>
> 1.1.1Scenario: {ElemScenario.Scenario}
>
> < scenario

Some example output is as follows:

1.1 Package: Fulfill Orders.
> 1.1.1 Element: List Current Orders
> 1.1.2 External Requirement: REQ031 - List Current Orders
> 1.1.3 Scenario: List Current Order

1.2   Element: Package Order.

The Increase Level numbering is, by default, indented proportionally to the number of indents used. If the 1.1 numbering is required, but without the indentation, this can be set by altering the Horizontal Ruler setting to reflect the paragraph start and indent.

User Defined Numbering

User defined numbering can be set up using the menu items under Edit | List and Overrides.

To create a specific list numbering, perform the following steps.

1) Select Edit | List Overrides | Create List item. This will bring up the following window.
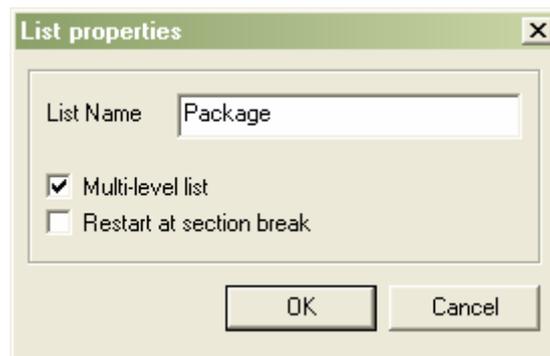
- Define the name of a new listing in the List Name field.
- Select OK.

2) Create the List Override using Edit | List Overrides | Create List Override. This prompts the user with the following window.
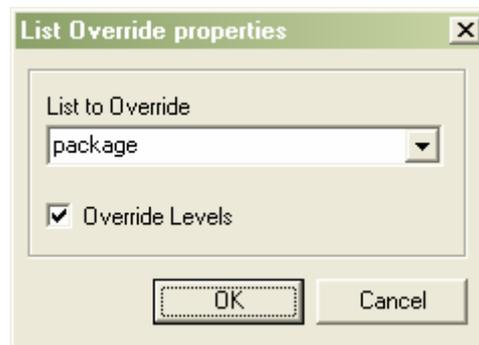
- Select the List to Override just created.
- Press OK.

3) To set the Style of each level you need to set the List Level Properties for each level using Edit | List and Overrides | Edit List Level. This brings up the following window.
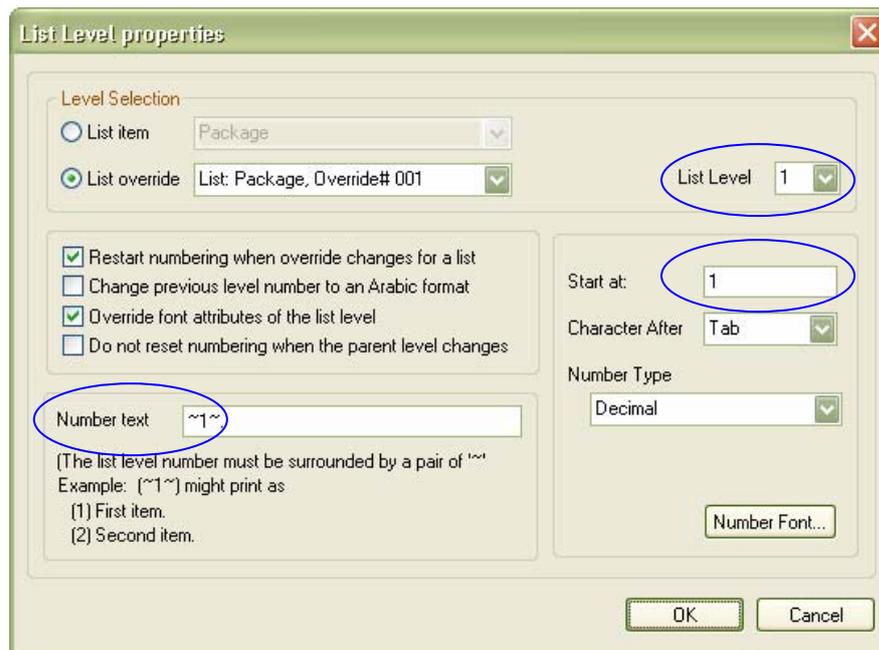
To set the first level numbering (used in the Package Section):

1) From the List Override drop-down, select the List Item just created (i.e. Package).

2) Set the level numbering :
   a. List Level: 1
   b. Number Text: ~1~.

3) Select OK to save changes.

To set the second level numbering (e.g. used for the Element Section):
1) Set List Level to 2
2) Set the Start at from: 0 to 1 (change from 1.0 to 1.1 formatting)
3) Select OK to save changes.

> **Note:** As the heading fonts are incremented for nested packages, if a 1.1.1 starter is required rather than 1.0.0, then the List Levels properties | Start At needs to be set for or all list levels.

To use the new numbering created:
1. In the Content window select the text to be numbered
   package >
    Package: {Pkg.Name}
   element >

2. Set the font heading level

3. The newly created numbering should then be accessible under Paragraph | List Numbering. This will bring up the following option window.
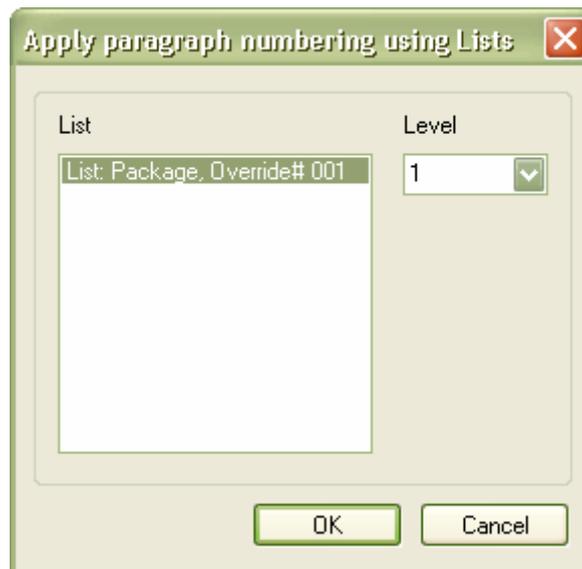
- Select the new numbering (i.e. List Packages, Override# 001)
- Set your level to 1.
- Select OK to set your numbering

4. Select the Element section:
   element >
    Element {Element.Name}.
   child elements >
   < child elements
   < element

5. Set the Heading style (i.e. Heading 2) :

6. Set the numbering to Level 2 - using Paragraph | List Numbering.
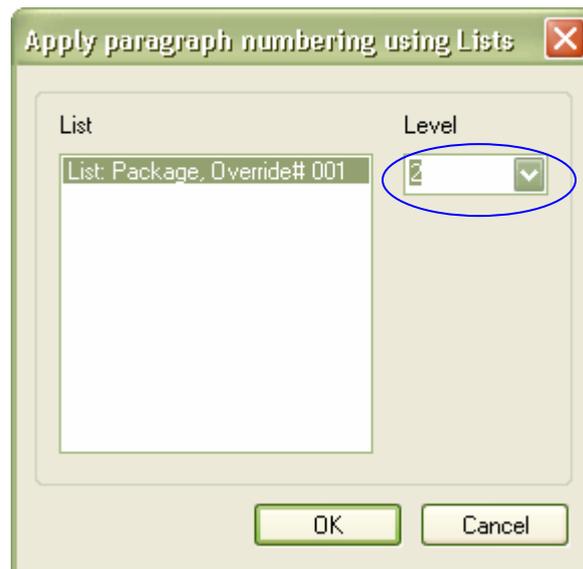
Select OK
The Content window should now reflect the Element numbering.

This will now generate the numbering in accordance with the incremented Heading font.

9. Creating and Editing Styles

The report editor supports creating, editing and deleting Styles. These Styles are saved within the template.

Modifying a Style

The process to modifying a Style is as follows:

1) From the main menu, select Edit | Edit Styles. This will display the following dialog box.
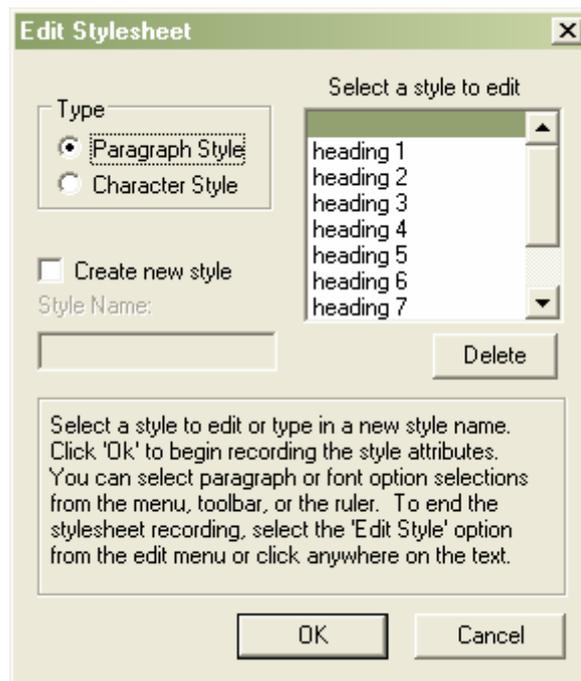
2) Select a Style to modify from the Select a style to edit listing. For example, select Heading 1
3) Select OK.

This will close the dialog box and place the editor in 'Edit Style mode'. To confirm this, select Edit from the main menu. This will show the Edit Style… option ticked.
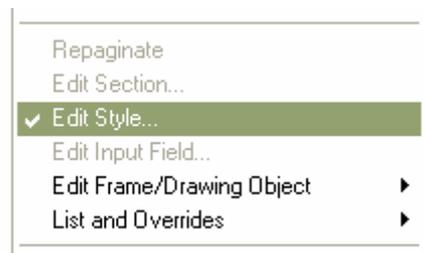
4) To alter the style selected, set the color, font size, etc., using the panel options.
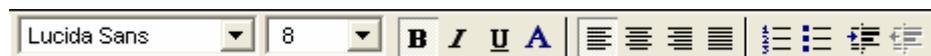
5) To turn off the Style Edit (and to save the settings), select Edit from the main menu. The Edit Style mode should still be active with Edit Style ticked.

6) Select Edit | Edit Styles to toggle out of this mode and save the updated style.

Create a Style

To create a new style, again select from the main menu: Edit | Edit Styles. This will display the Edit Stylesheet dialog box.

1) Set the option Create new style.
2) Type a style name in the text box Style Name.

3) Select OK. The Editor is now in Edit Style Mode.

4) To set the options for the new style, set the color, font size, etc., using the panel options.
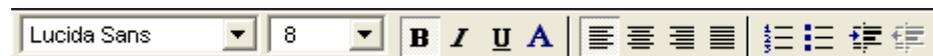
5) To turn off the Style Edit (and to save the settings), select, from the main menu, Edit | Edit Style.

> **Note:** These Styles are saved with the template they are created in, so if a common Style is to be used across multiple documents, a simple master template with pre-defined Styles can be set up as the starter template to be copied for subsequent detailed templates.

10. *Default Template: Normal.RTF*

Enterprise Architect supports a system template file: 'Normal.rtf'. This allows users to define and edit default styles and numbering, etc. Any styles modified in this file will reflect in newly created templates. Existing templates can also be updated to reflect changes to the Normal.rtf, using a feature in the RTF editor: File | Update Styles

The Normal.rtf file is stored with the Enterprise Architect system directory. Use the RTF editor to open and modify it, but ensure there is no body text when saved.

11. *Importing a Company template*

It is common to have existing company templates with predefined headers, footers and sections. These templates can be imported into Enterprise Architect in RTF format, to facilitate document generation that complies with your corporate standards.

To import an existing company template use the following process:

---

1. Save the external document as an RTF formatted document.
2. In Entrprise Architect, create a new blank template: F8 | Templates | New
3. In the RTF editor – select : File | Import
    o From the Import File manager, select the RTF document created above.
4. Save as an EA-RTF Template using: File | Save

> **Note:** Standard graphical images (i.e. Logo in the header, main text or footer) are supported; however, any Word based meta-file graphics will not be imported.

You can now insert RTF Sections into the template, as place-holders for automatically generated model content.

Add Sections from an Existing Template:
You can copy RTF Sections from existing Enterprise Architect templates into your new company template. For example you may want to reuse the structure defined by the {basic template} in your company-specific template. To do this, open two copies of Enterprise Architect (referred to as EA1 and EA2 below):

1. In EA1: Create a new RTF template based on your company template: F8 | Templates | New - in Copy Template select the company template.
2. In EA2 : Create a new RTF template based on one with sections: F8 | Templates | New – in Copy Template select an existing template (i.e. {basic template})
3. Mark & Copy the EA2 section-text (Package> to <Package)
4. Paste this into EA1's template
5. Save the EA1 template
6. Re-open the EA1 template to restore the sections tree.

> **Note:** The styles in the imported template can be updated to include the system styles in Normal.RTF using: File | Update Styles.

Setting Document Options

The RTF generator has two places for setting the document options. One sets the options for the current print session, while the other sets up the default for all runs on this report.

Settings for the Current Run of a Document

- Select a package and press F8 to open the report dialog.
- In the Generate RTF Documentation window select tab Options

You can create filtering settings here for the current document set to be run.

Selections are non-persistent, and are reset when you select a different template.

Default Settings for a Document

- Select a package and press F8 to open the report dialog.
- In the Generate RTF Documentation window select Edit Template.

In the reports menu, select File | Document Options – this will return a similar dialogue box. Settings made here will be saved with the template as the default settings for any run on this report.

Below is the window presented with both the current and default settings of the document.
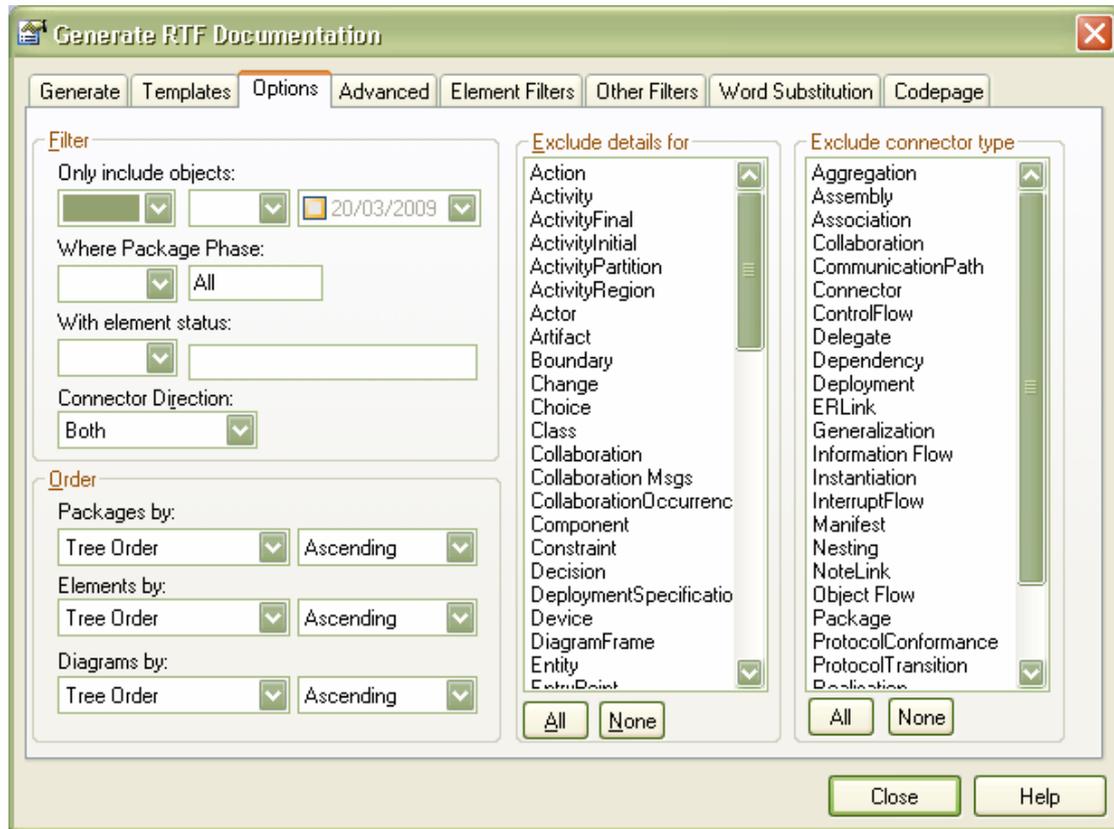
Options tab

The Document Options window gives a number of options for filtering Packages, Elements and Connectors, as well as, defining the ordering in the document, and defining element types to be excluded, as well as a set of advanced settings. The following gives some details on using these settings.

Filter covers the filtering of:
   ➢ Objects by date (created or modified)
   ➢ Package Phase
   ➢ Element status

The order covers the sorting of Packages, Elements and Diagrams by Name, Tree Order, and Date.

> **Note:** The default for this is *Order by Tree* which replicates the tree order in the Project View. To set any other default ordering, see *Default Settings for a Document* above).

The Exclude Details area allows the user to define any Element type to be excluded from the documentation.

The Exclude Connectors area allows the user to define any Connector type to be excluded from the: Element::Connectors - section of the documentation.

The Advanced Settings tab

The Advanced tab covers the following

- ➢ **Hide 'note-less' elements**
  This hides any elements that do not contain notes in the element definition.

- ➢ **Skip Root Package**
  This sets the report to exclude the details of this root package, but detail all the elements and packages under the root package selected.

- ➢ **Overwrite Document fields**
  When this option is unchecked, fields defined in a document section are generated with the appropriate values populated in these fields. Turning on this option will replace the fields with actual text. For more details on this, see *Overwriting Document Fields* in the appendix.

- ➢ **No Bookmarks**
  This stops bookmarks surrounding Packages, Elements and Diagrams being created. This does reduce the time taken to generate the report.

- ➢ **Hide <Anonymous> elements**
  This option suppresses details on elements that do not have an Element::Name set, as is commonly the case with decision elements, parts, etc.

- ➢ **Diagram Format**
  This allows the user to select the file format for the graphics – this can be set to Metafile or Bitmap.

- ➢ **Adjust Heading Levels**
  Setting this option will allow the RTF Generator to automatically adjust template heading fonts based on the model depth. Setting this to "None" will suppress heading fonts being incremented based on the package depth.

Filtering

In addition to filters available from the Options tab, RTF templates also support custom filters, which apply to both element and sub-element data (such as tagged values, test cases etc.).

The Element Filters tab enables you to restrict which elements are included in your report, based on both Element and sub-Element properties.

The Other Filters tab allows sub-Element information to be selectively reported against the filtered Elements.

One example where this filtering might be useful is when reporting Elements which contain Test Cases. Each Test Case is sub-Element information that has a status of 'Pass' or 'Fail'. We could therefore report on:

- a. Elements that have Failed Test Cases, without including the Element.TestCases or;
- b. Elements containing a Failed Test Case and including details of all Test Cases or;
- c. Elements with a Failed Test Case and only showing the Failed Test Cases

In the first two cases; the filter is simply set in the Element Filter tab. With the last case; this includes filtering in both the Element Filter tab and the Other Filter tab.

> **Note:** To save these filters permanently with the template - define the filters in the RTF Editor: File | Document Options

Where different filtering is required for different packages, then the best approach is to create a Virtual Document containing sub-documents with alternate filters set for the respective package(s) being reported. See Virtual Documents below.

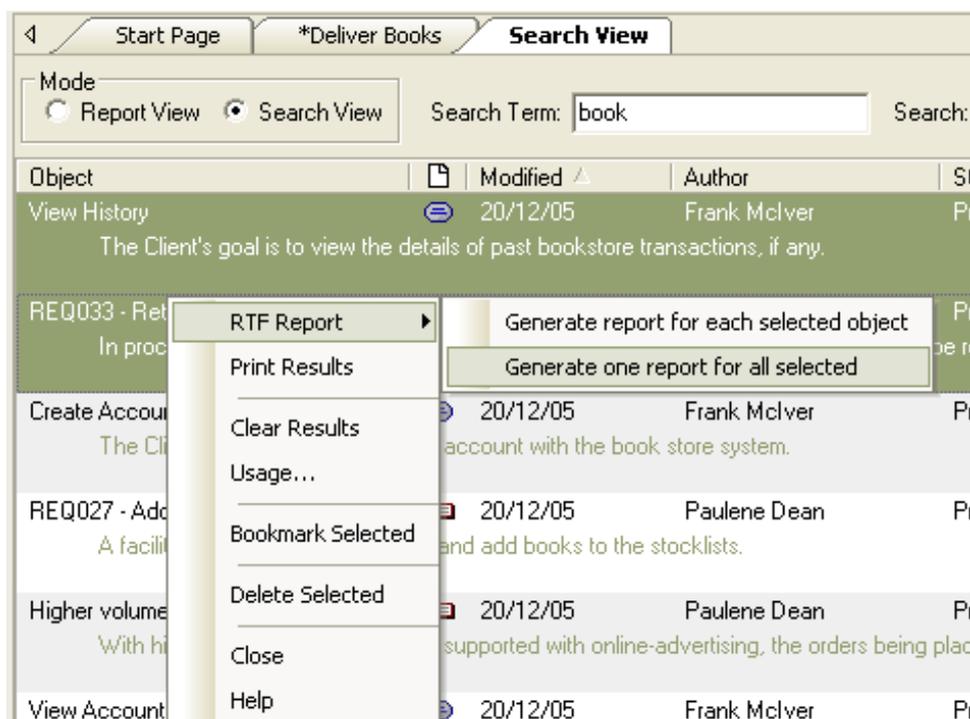# Using the Search View to Create RTF Documents

The Find facility in Enterprise Architect gives the user the option to locate and list a distinct set of Elements. The results of a Find operation, listed in the Search View, can be used to generate a report using any of the RTF report templates.

To create a report using the search facility, complete the following:
1) Start a search using the menu option Edit | Find or Ctrl-F

2) Set the options to define your search

3) Execute the search (Select Run Search)

A set of Elements/Packages are displayed in the Search View

4) Use the mouse to select a specific set of these (or all of these using Ctrl-A)

5) To generate a report on this selection

o Right-Click on any of the selected items

o From the context menu, select RTF Report | Generate One Report for All Selected, as shown below.

This will open the Generate RTF Documentation window, allowing the user to select a template to report on the search results data.

Virtual Documents

Virtual Documents provide a way of structuring and filtering RTF reports independently of the model hierarchy. They also provide a way of combining multiple reports and formats into a single generated document.

There are two types of Virtual Documents in Enterprise Architect:
1. Model Document: An Element that contains an RTF template and optionally user-selected packages or search criteria to filter the generated content.
2. Master Document: A package that contains one or more Model Documents, allowing multiple custom reports to be combined into single a document (see Figure 11).

A Virtual Document may be useful for example, when you need a combined report that includes Formal Requirements, Use Cases, Design and Implementation details, each in different formats.
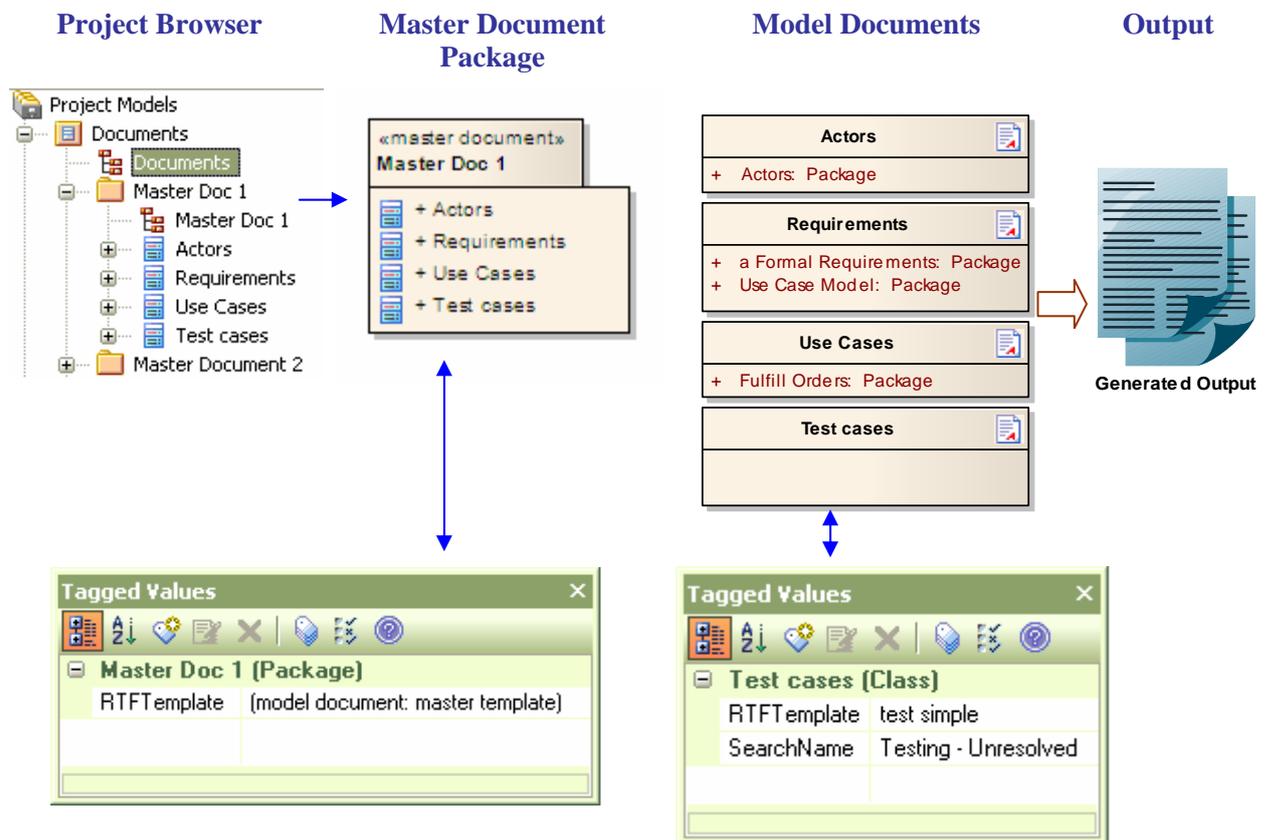

Figure 11 Defining Virtual Documents using a Master Document

Creating a Master Document:

The Master Document defines the general template for the Table of Contents and Headers and Footers etc. For more information on setting up a Master Document using a Company Template see: Importing a Company Template

1) Open the Tagged Values view (Ctrl-Shift+6)

2) Create a Master Document Package using either:
   ➢ Under a Package create a new diagram of type: Model Document
   ➢ From the toolbar select: Documentation

   Or

   ➢ On an existing Diagram:
   ➢ From the Toolbar select: Toolbar | More tools | Extended | Documentation

3) Drag a Master Document Package onto the diagram. This will prompt for a package name and will create a Package and a Diagram.

> **Note:** The Tagged Value "RTFTemplate" defines the Master Document's template, which can be user-defined.

4) Open the created Diagram (the Toolbar will now display Documentation).
5) From the Toolbar Documentation - drag on a Model Document Element. Give it an appropriate name (e.g. the sub-document section name: "Requirements").
6) Select the Model Document Element:
   ➢ In the Tagged Values window, select a template using the RTFTemplate value
   ➢ To define the report content either:
     • Drag selected packages from the Project Browser onto the Model Document OR;
     • To set a filter, in the Tagged Values window select a search in the SearchName tag. (Searches are pre-defined via Ctrl-F | Manage Searches)
     • If the Search requires a search term, set it using the SearchValue tag

Repeat steps 5- 6 for each new sub-document required.

> **Note:** *The order of the output is defined by the order of the Model Document elements in the Project View.*

For more information on setting up and using the Master Document see the help section: Enterprise Architect Reports | RTF Documents | Virtual Documents

Summary

This paper has covered specific features of the RTF document generator. In particular, how to set up a template from scratch, along with a number of the key features that can be used for formatting your document. It has also highlighted some of the tips and tricks in using the document generator to its fullest potential.

For more information on these features, search EA's User Guide under the section Creating Documents | RTF documents or simply select the help option from the main menu of the RTF editor. You can also learn from other users, via the Sparx Systems forum: http://www.sparxsystems.com.au/cgi-bin/yabb/YaBB.cgi

Appendix

Advanced Factors to Consider when Generating Documents

1. Creating Word Master Documents

The new RTF reports now support the creation of bookmarks for Packages, Elements and Diagrams. These bookmarks are GUID based numbers.

Bookmarks are markers that are automatically placed into your rich-text document when it is generated. You can create a master document in Word, and link to sections of an Enterprise Architect report based on bookmarks. For example, a Word document may have a section for a small part of your component model – using bookmarks you can generate a full component model, and then link into just one section of the report.

This way you can maintain a complex Word document from parts of EA reports. If you link into EA reports, then you can regenerate the report and refresh Word links to update the master document, without having manually changed anything.

For more information on this see EA's help: Creating Documents | Virtual Documents | Using MS Word | Bookmarks

2. Setting the Default Viewer

The report generator supports using the internal RTF Viewer or the default Word processor as the Viewer of documents once they are generated. By default it uses the External Viewer.

To set it to use the internal viewer:
  o Select F8
  o Under options, tick the Use Internal Viewer option.

3. Overwriting Document Fields (Open Office)

Enterprise Architect's RTF editor offers you the choice to render field values in the fields themselves or replace the fields with text.

 Below is an example of using a document generated in EA with this option set to default and opened in Word.
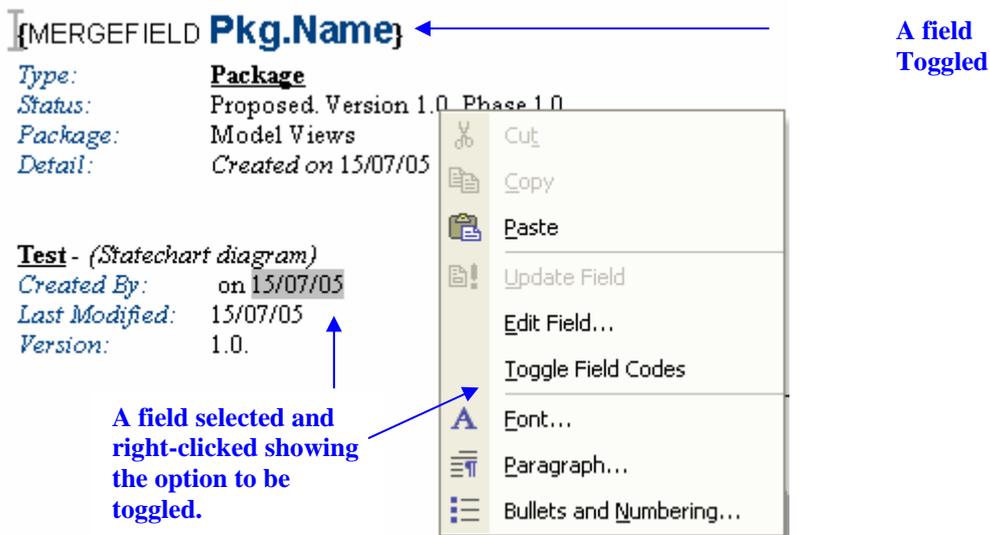
To turn this option on and remove these field codes:

o   From the RTF main menu, select File | Document Options
o   Tick the field [] Overwrite Document Field

Note: If you are using **Open Office rather than Word** as your word processor, you will need to set the default to not show field names. Open Office displays these by default.

5. Adding Specific Tagged Values Views to Sections

A number of Sections support a field called ValueOf. This field is used to define, in the template, the output of the value of a specific 'Tagged Value'.

The sections that support ValueOf are:
*   Package
*   Element
*   Connector
*   Attribute
*   Operation

The following is a list of fields for Connectors, which shows ValueOf as the last entry.

On selecting ValueOf as a field, the following dialog box asks for the Name of a Tagged Value. If a Tagged Value of this name is found in this section it will be output.

In the Name textbox, type in a name of an existing Tagged Value (expected in this section) that you want to output (i.e. ConnectorAltName). This will be placed in the template as a field specifying the Tagged Value Name.

{Connector.valueOf(ConnectorAltName)}

A common scenario is to type in the Tag Name of the Tagged Value alongside the predefined Tagged Value field output. For example:

Alternate Name: {Connector.valueOf(ConnectorAltName)}

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