



Document generation tutorial

Creation date	20/11/2014
Contact	https://www.eclipse.org/gendoc/community/community.php

:

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1 Installation procedure

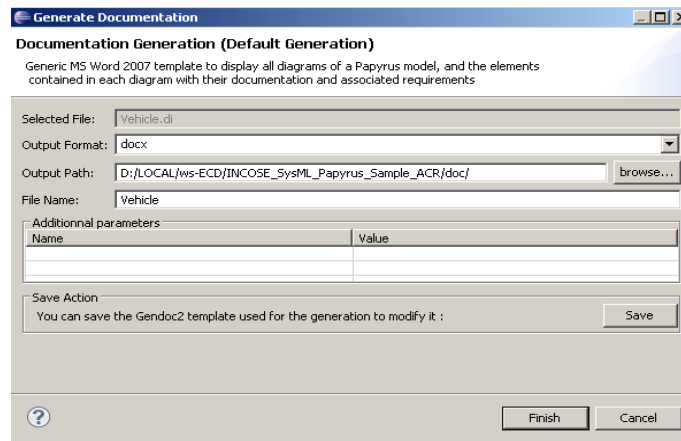
Get last Gendoc update site from [Gendoc downloads page](#).

Adding a software update site : see Eclipse.org [online help](#)

2 Default generation from a Papyrus model

A default simple template is available for any model

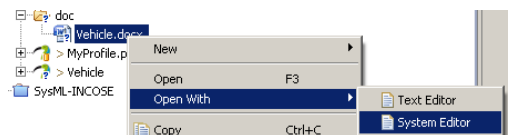
From the Papyrus model, right click > Generate documentation with Gendoc, adjust generation output and OK



Recommendation: use a dedicated “doc” directory

Refresh project (F5)

Open output doc with System editor



All diagrams are available with associated documentation. Each element of diagram that has associated documentation is listed in a paragraph with its documentation.

Notes : You have to manually update table of contents

3 Creation of a document generator

- **Create a new document** in MS Office 2007+ (.docx) or OpenOffice Writer (.odt) format
Or get an existing document (with the company charter for example) in one of these formats
- Define **static parts** that can be : paragraphs with styles, images, document agenda

- **Identify dynamic parts** with <gendoc> tags
- Just adapt configuration parameters in template header :
 - Model path
 - Output file path
- Generate with a right click menu
- As it is an iterative process, you can do it whenever you want

Note : Generation can also be launched in batch mode

4 Configure the generation : <config> tag

The tag <config> must be defined only once, on top of the template document.

This tag defines the path of the output document, and a list of global parameters for the template.

4.1 Define generation output

<output> tag is optional. If not present, the document is generated at template location, with suffix '_generated'

If defined, the syntax is the following :

```
<config>
  <output path=«Absolute path of the document to be generated»>
/>
...
</config>
```

Global parameters can be used to define a relative path.

Example : The generated document will be located in D:/generatedFile.docx

```
<config>
  <output path='D:/generatedFile.docx' />
...
</config>
```

4.2 Define global parameters for the template

Global parameters for the template can be defined, for example to define model path, folders to use or any other static value to be used in template.

Parameters are defined in <config> tag with the following syntax :

```
<config>
...
  <param key=«Parameter1_key» value=«Parameter1_value» />
  <param key=«Parameter2_key» value=«Parameter2_value» />
  <param ... />
</config>
```

How to access parameters ?

- `${paramKey}` inside `<context>` or other `<param>`,
- `gGet(paramKey)` inside a `<gendoc>` tag

Example : creation of global parameters for model folder, model path, and path of a specific package inside model and example of usage in `<context>` tag.

```
<config>
  <param key='model_path' value='D:/Models/Model_v1/My_model.uml' />
  <param key='UC_package_path' value='/MyUMLModel/UseCases' />
</config>
<context model='${model_path}' element='${UC_package_path}' />
```

4.3 Pre-defined parameters

Some `<param>` are pre-defined in Gendoc and can be used directly in the template

- `#{input}` is the name of the input template document

Example :

```
<param key='generation_folder' value='D:/Generated' />
<output path='${generation_folder}/${input}-generated.docx' />
```

If the input document is named `template1.docx`, the result file is named `template1-generated.docx`

- `#{date}` is the date of the generation. The format of the date is 'yyyy-MM-dd-HHmms'

Example :

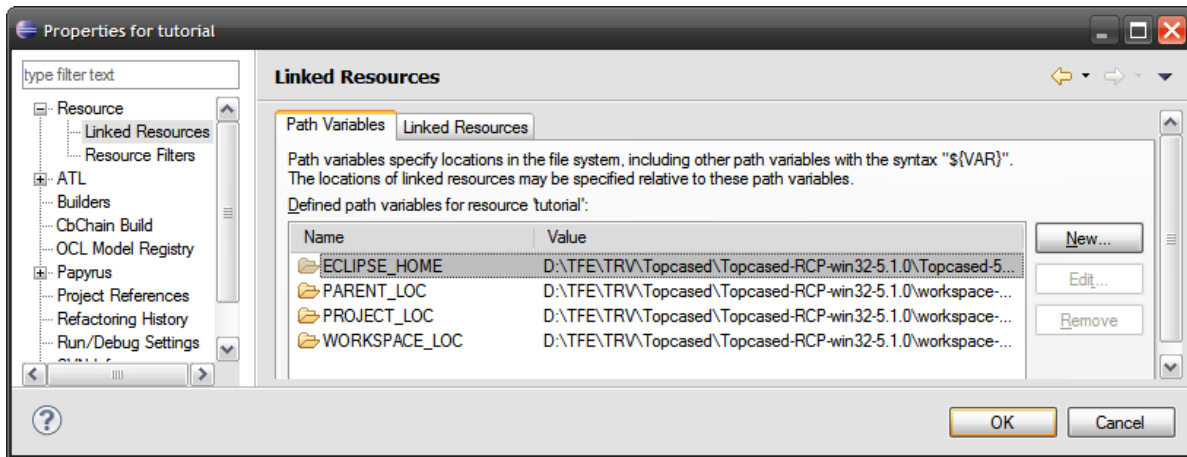
```
<output path='${project_loc}/${input}-generated-#{date}.docx' />
```

Result file for example : `template-generated-2014-08-02-093707.docx`

4.4 Use of variables inside parameters

It is also possible to use variables defined in project of the document

From the project on ProjectExplorer view, right click > Properties > Resource > Linked Resources > Path Variables



Predefined variables or user variables can be used in the template. They are NOT case-sensitive.

Example :

```
<output path='${project_loc}/${input}-generated.docx' />
```

5 Define script execution context : <context> tag

Before a <gendoc> tag , a <context> must have been defined to determine the model and the element to use as starting context.

<context> tag can contain the following attributes :

- **model** : Model absolute path ([global parameters](#) can be used)
- **element** : Path to the model element to use as script context (path from model root)
- **importedBundles** : List of external bundles names (separated by ';' character)
- **searchMetamodels** : false(default)/true.

Set to "true" when your model uses element from external metamodels, for example with SysML, when both UML and SysML metamodels are used.

```
<context
  model='${model_folder}/model_1.uml'
  element='model/package1/subpackage1'
  importedBundles='gmf;papyrus'
  searchMetamodels='true'
/>
```

The context tag **must be defined at least once** in the document.

When executing a script, the **last defined** context is used.

Values of the attributes that are not updated are **kept from previous context**.

For example, "importedBundles" attribute can be defined only once in the document and will be kept until a new value is indicated.

5.1 Dealing with specific models

5.1.1 Using multiple metamodels

If the model selected references another rmetamodel, set the following attribute to “true” in order for gendoc to analyse metamodels used as references.

```
searchMetamodels='true'
```

5.1.2 Metamodels where elements have no ‘name’ feature

With specific metamodels where elements have no ‘name’ property, context elements are defined :

- Using another property for all the elements in path
 - Ex : <context ... element='id1/id2/id3' labelFeature='id'/>
Property ‘id’ is used for all elements in path
 - Note : standard case is equivalent to <context ...
element='modelRoot/package1/subPackage1' labelFeature='name'/>
- Using another property only for some elements in path
 - Ex : <context ... element='modelRoot/id="id2"/subPackage1'/>
Property ‘id’ is used only for the package part of the element path
Property ‘name’ is used for others
- Using indexes of the position inside model tree (starting at 0 and not 1)
 - Ex: <context ... element='modelRoot/{1}/subPackage1'/>
If package2 is at the second place inside the model.

6 Define script parts : <gendoc> tag :

Each dynamic part corresponds to a <gendoc> tag

A <context> tag must be present before, in order to set the execution context

<gendoc> tag can contain :

- Acceleo script (see details on this language on <http://eclipse.org/acceleo/>)
- Static text
- Styles (colors / bullets / ...)
- [Tables](#)

- [Images and diagrams](#)
- [Rich text content](#)

6.1 Script language

The content of a gendoc tag corresponds to a script written in [Acceleo](#) language.

Example : display names of all packages

Acceleo syntax to display names of all packages

```
[for (p:Package | Package.allInstances())]
[p.name/]
[/for]
```

Gendoc syntax to display names of all packages

```
<context model='D:/.../myModel.uml' />
<gendoc>
[for (p:Package | Package.allInstances())]
[p.name/]
[/for]
</gendoc>
```

6.2 Text generation

Writing scripts inside a Text editor have a lot of inconvenients but the great advantage is to benefit from all text edition functionalities, mainly styles and formatting, from the Text editor.

6.2.1 Applying styles to generation output

The style applied to the script inside template document is kept in the generation output (color, font, size, alignment, ...)

Template content	Generation output
<pre><context model='...' /> <gendoc> [for (p:Package self.ownedElement- >filter(Package))] [p.name/] [/for] </gendoc></pre>	<p>Actors Use case view Logical view Deployment view</p>

6.2.2 Using bullets and numbering

With the same example as in the previous paragraph, other style information such as bullets or numbering can be used for generation.

Template content	Generation output
<pre><context model='...' /> <gendoc> [for (p:Package self.ownedElement- >filter(Package))] ❖ [p.name/] [/for]</pre>	<p>❖ Actors ❖ Use case view ❖ Logical view ❖ Deployment view</p>


```
</gendoc>
```

Template content	Generation output
<pre><context model='...' /> <gendoc> [for (p:Package self.ownedElement- >filter(Package))] 1. [p.name/] [for (p2:Package p.ownedElement- >filter(Package))] 1.1. [p2.name/] [/for] [/for] </gendoc></pre>	<pre>1. Actors 2. Use case view 2.1. Data import 2.2. Data export 3. Logical view 4. Deployment view 4.1. Server side 4.2. Client side</pre>

All other styles from document templates are kept during generation.

6.3 Images generation

`<image>` tag must be defined under a `<gendoc>` tag.

It shall define one of the following attributes :

- **object** for diagram generation, filled with an ID of the diagram. [See Diagram generation section.](#)
- **filePath** for static image generation, filled with the image absolute path. [See static image generation section.](#)

An empty drawing area inside start and end of tag :



6.3.1 Customize image size

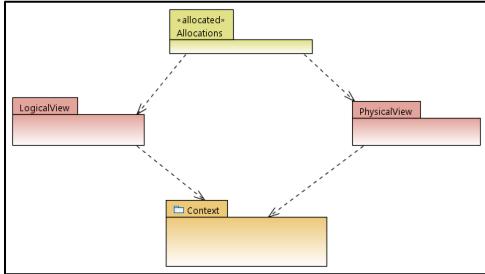
`<image>` tag provides the following attributes to handle image size customization : **keepW**, **keepH**, **maxW**, **maxH**. They are used in association with the dimensions of the drawing area inside `<image>` tag :

- **keepW** : output image width will be the same as drawing area width
- **keepH** : output image height will be the same as drawing area height

- **maxW** : output image width will not oversize drawing area width
- **maxH** : output image height will not oversize drawing area height

Possible values for these attributes : **false**(default), **true**.

For the following initial image :



- Fix image width, height is computed proportionally

Template content	Output
<pre><image object='...' keepW='true' keepH='false' ></pre> <pre></image></pre>	


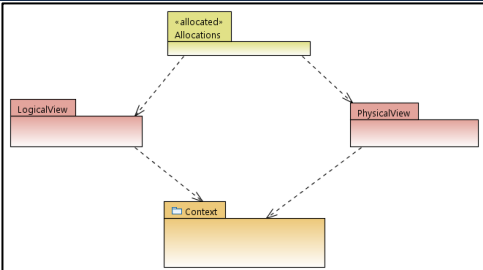
- Fix image height, width is computed proportionally

Template content	Output
<pre><image object='...' keepW='false' keepH='true' ></pre> <pre></image></pre>	


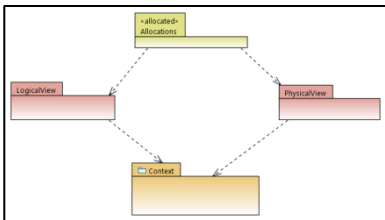
- **TO BE AVOIDED** : Fix image height and width

Template content	Output
<pre><image object='...' keepW='true' keepH='true' ></pre> <pre></image></pre>	


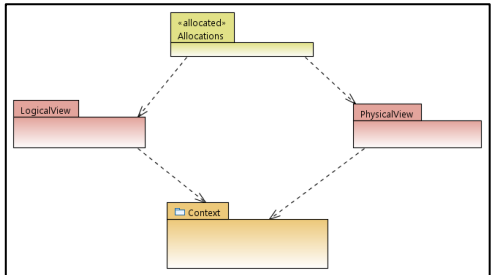
- Ensure the image will not oversize a specified width
 - Case 1 : Image is smaller than the drawing area
Output corresponds to origin image dimensions

Template content	Output
<pre><image object='...' maxW='true' ></pre>  <pre></image></pre>	

- Case 2 : Image is larger than the drawing area
Output corresponds to drawing area dimension:

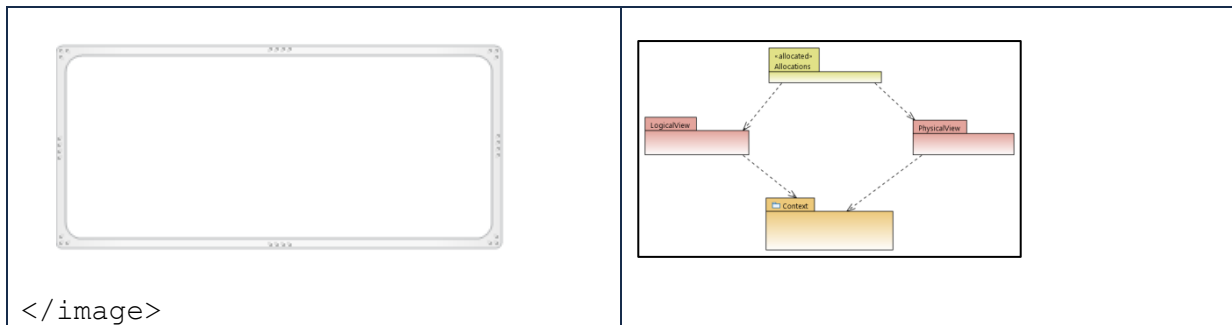
Template content	Output
<pre><image object='...' maxW='true' ></pre>  <pre></image></pre>	

- Ensure the image will not oversize a specified height
 - Case 1 : Image is smaller than the drawing area
Output corresponds to origin image dimensions

Template content	Output
<pre><image object='...' maxH='true' ></pre>  <pre></image></pre>	

- Case 2 : Image is larger than the drawing area
Output corresponds to drawing area dimension:


Template content	Output
<pre><image object='...' maxH='true' ></pre>	



6.3.2 Displaying diagrams

Attribute `object` shall be filled by an ID of the diagram. Diagram ID can be generated by [service `getDiagram` from bundle `gmf`](#), called on the diagram :

```

<context model='${model}' importedBundles='gmf;papyrus' />
<gendoc>
  [for (diag : Diagram| self.getPapyrusDiagrams())
    <image object=' [diag.getDiagram() /]' maxW='true' keepH='false'>
      
    </image>
  ]
</gendoc>



```

6.3.3 Displaying static images

`<image>` tag can also be used for static image generation, with the following content :

- attribute `filePath` shall contain the absolute path of the static image.
The following image formats are supported : GIF, JPG, JPEG, BMP, PNG, SVG, EMF
- `<image>` tag shall contain an empty drawing area (alignment, text adaptation, ...)
- size attributes can be used : `keepW`, `keepH`, `maxW`, `maxH`

The following example shows the display of a static image:

Template content	Generation output
<pre> <context model='\${model_path}' /> <gendoc> Project logo is displayed below : <image filePath='D:/gendoc_logo.jpg' maxW='true'>  </image> </pre>	<p>Project logo is displayed below :</p> 

```
</gendoc>
```

6.4 Table generation

`<table>` tag must be defined under a `<gendoc>` tag

The purpose of this tag is to merge all tables found inside tag content into one global table

Template content	<pre><context model='\${project_loc}/Models/TrafficLightManager.uml' element='TrafficLightManager/LogicalView' importedBundles='gmf;papyrus' /> The following elements are described in the Logical view : <gendoc> <table> <thead> <tr> <th>Name</th> <th>Attributes</th> </tr> </thead> <tbody> <tr> <td>[c.name/]</td> <td>[for (p:Property c.ownedAttribute)]<drop/> • [p.name/] : [p.type.name/] </td> </tr> </tbody> </table> </gendoc></pre>										
Output	<p>The following elements are described in the Logical view :</p> <table border="1"><thead><tr><th>Name</th><th>Attributes</th></tr></thead><tbody><tr><td>SystemLauncher</td><td><ul style="list-style-type: none">• x roads ctrl : XRoadsControler• tl group : TrafficLightGroup• tl : TrafficLight• red fire : RedFire• orange fire : OrangeFire• green fire : GreenFire</td></tr><tr><td>TrafficLight</td><td><ul style="list-style-type: none">• traffic light id : Integer• operator maintenance : Operator maintenance• xroadscontroler : XRoadsControler• road : Road</td></tr><tr><td>TrafficLightGroup</td><td><ul style="list-style-type: none">• tl group id : Integer• nb tl : Integer• traffic light : TrafficLight</td></tr><tr><td>XRoadsControler</td><td><ul style="list-style-type: none">• nb tl group : Integer• crossroads domain : Crossroads Domain• operator maintenance : Operator maintenance• trafficlight : TrafficLight</td></tr></tbody></table>	Name	Attributes	SystemLauncher	<ul style="list-style-type: none">• x roads ctrl : XRoadsControler• tl group : TrafficLightGroup• tl : TrafficLight• red fire : RedFire• orange fire : OrangeFire• green fire : GreenFire	TrafficLight	<ul style="list-style-type: none">• traffic light id : Integer• operator maintenance : Operator maintenance• xroadscontroler : XRoadsControler• road : Road	TrafficLightGroup	<ul style="list-style-type: none">• tl group id : Integer• nb tl : Integer• traffic light : TrafficLight	XRoadsControler	<ul style="list-style-type: none">• nb tl group : Integer• crossroads domain : Crossroads Domain• operator maintenance : Operator maintenance• trafficlight : TrafficLight
Name	Attributes										
SystemLauncher	<ul style="list-style-type: none">• x roads ctrl : XRoadsControler• tl group : TrafficLightGroup• tl : TrafficLight• red fire : RedFire• orange fire : OrangeFire• green fire : GreenFire										
TrafficLight	<ul style="list-style-type: none">• traffic light id : Integer• operator maintenance : Operator maintenance• xroadscontroler : XRoadsControler• road : Road										
TrafficLightGroup	<ul style="list-style-type: none">• tl group id : Integer• nb tl : Integer• traffic light : TrafficLight										
XRoadsControler	<ul style="list-style-type: none">• nb tl group : Integer• crossroads domain : Crossroads Domain• operator maintenance : Operator maintenance• trafficlight : TrafficLight										




If table styles are used in the template document inside a `<table>` tag, the style of the output table will be the style of the first table inside `<table>` tag.

6.5 Bookmarks and hyperlinks generation

The complexity of generating bookmarks and hyperlinks in an output document is the dynamicity of both bookmarks and hyperlinks.

The idea is to find a generated or not unique ID that will link source (hyperlink) and target (bookmark) location in the document.

The following example shows how to create dynamic bookmarks and hyperlinks in templates for a UML model containing classes, with references to other classes inside attributes.

	Template content	Output details
Step 1	<p>Display classes and their attributes and types :</p> <pre><context model='\${project_loc}/Models/TrafficLightManager.uml' element='TrafficLightManager/LogicalView' /> <gendoc><drop/> [for (c:Class self.ownedElement->filter(Class)->sortedBy(name))] [c.name/] [for (a:Property c.ownedAttribute->filter(NamedElement)- >sortedBy(name))] -[a.name/]: [a.type.name/] [/for] [/for] </gendoc></pre>	<p>TrafficLight</p> <ul style="list-style-type: none"> -green fire: GreenFire -orange fire: OrangeFire -red fire: RedFire <p>GreenFire</p> <p>OrangeFire</p> <p>RedFire</p>
Step 2	<p>Add a (static) bookmark on the class name :</p> <pre><context model='\${project_loc}/Models/TrafficLightManager.uml' element='TrafficLightManager/LogicalView' /> <gendoc><drop/> [for (c:Class self.ownedElement->filter(Class)->sortedBy(name))] [c.name/] Add a bookmark :</pre> <div style="background-color: #e0e0e0; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">- On MS Word :  Insert > Links > Bookmark</p> <p style="text-align: center;">- On OpenOffice / LibreOffice Writer :  / </p> <p style="text-align: center;">Insert > Bookmark</p> <p style="text-align: center;">Name of the bookmark (must be unique in document) :</p> <p style="text-align: center;">c_name_bookmark</p> </div> <pre> [for (a:Property c.ownedAttribute->filter(NamedElement)- >sortedBy(name))] -[a.name/]: [a.type.name/] [/for] [/for] </gendoc></pre>	<p>TrafficLight</p> <p>bookmark c_name_bookmark</p> <ul style="list-style-type: none"> -green fire: GreenFire -orange fire: OrangeFire -red fire: RedFire <p>GreenFire</p> <p>bookmark c_name_bookmark</p> <p>OrangeFire</p> <p>bookmark c_name_bookmark</p> <p>RedFire</p> <p>bookmark c_name_bookmark</p>

Step 3	<p>Add dynamicity on the bookmark :</p> <p>Indicate in a dedicated tag on top of document how to generate a dynamic ID at bookmark location to make bookmark become dynamic.</p> <p>What will the bookmark point to : class c</p> <p>How to generate a unique Id for class c : use service getId() from bundle commons.</p> <pre><context model='\${project_loc}/Models/TrafficLightManager.uml' element='TrafficLightManager/LogicalView'/> <bookmarks> <alias source='c_name_bookmark' target='[c.getId()]/' /> </bookmarks> <gendoc><drop/> [for (c:Class self.ownedElement->filter(Class)->sortedBy(name))] [c.name/] Bookmark named : c_name_bookmark [for (a:Property c.ownedAttribute->filter(NamedElement)->sortedBy(name))] -[a.name/]: [a.type.name/] [/for] [/for] </gendoc></pre>	<pre>TrafficLight bookmark : TrafficLight class ID -green fire: GreenFire -orange fire: OrangeFire -red fire: RedFire GreenFire bookmark : GreenFire class ID OrangeFire bookmark : OrangeFire class ID RedFire bookmark : RedFire class ID</pre>
Step 4	<p>Add hyperlinks to the (future) bookmark location :</p> <p>The hyperlink must also be dynamic and point to the future bookmark location, here the generated unique ID for the class.</p> <p>So the hyperlink must no point on c_name_bookmark (it would be replaced by c.getId() and point to current class), but to the id of the property type class : a.type.getId().</p> <pre><context model='\${project_loc}/Models/TrafficLightManager.uml' element='TrafficLightManager/LogicalView'/> <bookmarks> <alias source='c_name_bookmark' target='[c.getId()]/' /> </bookmarks> <gendoc><drop/> [for (c:Class self.ownedElement->filter(Class)->sortedBy(name))] [c.name/] Bookmark named : c_name_bookmark [for (a:Property c.ownedAttribute->filter(NamedElement)->sortedBy(name))] -[a.name/]: [a.type.name/] Add an hyperlink (Insert > Hyperlink ...) to the ID of the property type : #[a.type.getId()]/ [/for] [/for] </gendoc></pre>	<pre>TrafficLight bookmark : TrafficLight class ID -green fire: GreenFire hyperlink to GreenFire class ID -orange fire: OrangeFire hyperlink to OrangeFire class ID -red fire: RedFire hyperlink to RedFire class ID GreenFire bookmark : GreenFire class ID OrangeFire bookmark : OrangeFire class ID RedFire bookmark : RedFire class ID</pre>
Final output	<pre>GreenFire OrangeFire RedFire TrafficLight -green fire: GreenFire -orange fire: OrangeFire -red fire: RedFire</pre>	

6.6 Rich text generation

<richText> tag must be defined under a **<gendoc>** tag and allows to display rich text content (HTML or RTF) content inside the generated document.

It can contain the following attributes:

- **format** (optional) : describes file format (RTF, HTML).
Default value : HTML.
- **filePath** (optional) : full path of the rich text file to import

Rich text content can come:

- from an external file
 - in HTML format :

```
<richText filePath='D:/file.html' />
```

equivalent to :

```
<richText filePath='D:/file.html' format='HTML' />
```

- in RTF format :

```
<richText filePath='D:/file.rtf' format='RTF' />
```

- from model content



<richText> tag must contain only the script to access the rich text content :
no additional spaces or line breaks .

For example for UML comment contents in HTML format in the model :

```
<richText format='HTML'>[comment._body/]</richText>
```

It is equivalent to :

```
<richText>[comment._body/]</richText>
```

6.7 Inclusion of external document

Gendoc offers the possibility of importing the content of an external document inside output, **for Microsoft Word templates only**, through tag **<include>**.

<include> tag must be contained in a **<gendoc>** tag.

The absolute path of the file to be imported is defined in **filePath** attribute. The following file formats are supported : docx, txt, html

```
<gendoc>  
  <include filePath='C:/myFolder/anotherFile.docx' />  
</gendoc>
```


6.8 Formatting

6.8.1 Removing extra lines

All characters inside scripts are used for generation output, including spaces, line breaks, or carriage return characters.

Template content	Actual output	Expected output
<pre><gendoc>¶ ··[for (p:Package self.ownedElement- >filter (Package) ->sortedBy(name))]·¶ [p.name/]·¶ ··[/for]·¶ </gendoc>¶</pre>	<pre>¶ ···¶ Allocations·¶ ···¶ Context·¶ ···¶ LogicalView·¶ ···¶ PhysicalView·¶ ···¶ UseCases·¶ ···¶ ¶</pre>	<pre>Allocations·¶ Context·¶ LogicalView·¶ PhysicalView·¶ UseCases·¶</pre>

<drop/> tag allows to remove extra lines.

Document generation is internally performed in two steps and **<drop/>** tag removes the **WHOLE** paragraph in which it is contained so it must be handled with care.

First step is to analyze the lines to get as output to understand where the extra lines come from in the template and where the **<drop/>** tags should be located.

Template content	Output	
<pre><gendoc>¶ ··[for (p:Package self.ownedElement- >filter (Package) ->sortedBy(name))]·¶ [p.name/]·¶ ··[/for]·¶ </gendoc>¶</pre>	<pre>¶ ···¶ Allocations·¶ ···¶ Context·¶ ···¶ LogicalView·¶ ···¶ PhysicalView·¶ ···¶ UseCases·¶ ···¶ ¶</pre>	
<pre><gendoc><drop/>¶ ··[for (p:Package self.ownedElement- >filter (Package) ->sortedBy(name))]·¶ ·<drop/>¶ [p.name/]¶ ··[/for] ·<drop/>¶ </gendoc><drop/>¶</pre>	<p>before <drop/> handling</p> <pre><drop/>¶ ···<drop/>¶ Allocations·¶ ···<drop/>¶ Context·¶ ···<drop/>¶ LogicalView·¶ ···<drop/>¶ PhysicalView·¶ ···<drop/>¶ UseCases·¶ ···<drop/>¶</pre>	<p>Final output</p> <pre>Allocations·¶ Context·¶ LogicalView·¶ PhysicalView·¶ UseCases·¶</pre>

6.8.2 Removing lines with empty content

Tag `<dropEmpty/>` drop a paragraph if the tag content is empty.

The two following examples are equivalent:

```
<context model='${model_path}' />
<gendoc>
All comments on packages:

  [for (p:Package|Package.allInstances()->sortedBy(name))] <drop/>
  [for (c:Comment| p.ownedComment)] <drop/>
- Comment for package [p.name/]: <dropEmpty>[c._body/]</dropEmpty>
  [/for] <drop/>
  [/for] <drop/>
</gendoc>
```

```
<context model='${model_path}' />
<gendoc>
All comments on packages:

  [for (p:Package|Package.allInstances()->sortedBy(name))] <drop/>
  [for (c:Comment| p.ownedComment)] <drop/>
  [if (not(c._body.oclIsUndefined()))] <drop/>
- Comment for package [p.name/]: [c._body/]
  [/if] <drop/>
  [/for] <drop/>
  [/for] <drop/>
</gendoc>
```

6.8.3 Removing line breaks

Using tag `<nobr/>` allows to make template scripts easier to maintain, because code can be written on several paragraphs without displaying line breaks in output document, such as in the following example.

Template content	Output
<pre><gendoc> [for (p:Package ...)]<drop/>¶ Name: <nobr/>¶ [if (...)]<drop/>¶ [p.name/]¶ [else]<drop/>¶ Not found¶ [/if]<drop/> ¶ <<Other info on package>>¶ ¶</pre>	<pre>Name: Actors Name: DeploymentView Name: Actors¶ <<Other info on package>>¶ ¶ Name: LogicalView¶ <<Other info on package>>¶ ¶ Name: UseCaseView¶ <<Other info on package>>¶ ¶ Name: Not found¶</pre>

<pre>[/for]<drop/>¶ </gendoc>¶</pre>	<pre><<Other info on package>>¶ ¶</pre>
--	---

7 Reusing gendoc scripts inside the same document : <fragment> tag

If a script section is used several times in a same document template, tag <fragment> can be used to define the script section and its attributes.

It can then be called from <gendoc> tags inside the same template document

<fragment> tag can contain the following attributes :

- **name** (Mandatory) : the name to call to use the fragment
- **importedBundles** (Optional) : the [external bundles](#) needed in the fragment code (separated by ;)
- **importedFragments** (Optional) : the fragments needed in that fragment code (separated by ;)

A fragment needs at least one argument. Each argument is declared in subtag <arg> with the following attributes :

- **name** (Mandatory) : the name of the attribute. It must be unique inside the fragment, and it can be used directly in the fragment script.
- **type** (Mandatory) : the type of the attribute . It must correspond to a metamodel element type.

An example of fragment declaration and usage to display the diagrams associated to a given model element **element** :

```
<gendoc>
[for (p: Package | Package.allInstances ()) ]
1. [p.name.clean()/]

    This package contains the following diagrams:

    [p.displayDiagram()/]
[/for]
</gendoc>

<fragment name='displayDiagram' importedBundles=' commons ;gmf ;papyrus' >
  <arg name=' element' type='uml::Element' />
  [for (d:Diagram|element.getPapyrusDiagrams ())]<drop/>
Diagram [d.name.clean()/] :

  <image object=' [d.getDiagram()/]' maxW=' true' ><drop/>
```



```
</image>
[/for]<drop/>
</fragment>
```



Bug [452290](#) : External bundle “commons” is not imported by default inside <fragment> tags and must be added explicitly to the list of external bundles to use :

```
<fragment ... importedBundles=' commons;...' ...>
...
</fragment>
```

8 Gendoc bundles

A set of additional services is provided to Gendoc, to be used inside scripts defined in <gendoc> tags :

- **commons** : provides some facilities (for special characters, splitting lines, ID generation...)
- **gmf** : provides some services for GMF diagrams generation
- **papyrus**: provide services dedicated to MDT Papyrus models (diagram export, ...)

8.1 Commons

Name : **commons**

This bundle is installed by default and provides the following services, available from <gendoc> tags:

- **clean(stringWithSpecialCharacters : String) : String**
Cleaning of special characters inside the given String. This method needs to be used if a string to be displayed can contain special characters such as: <, >, &, \, " .
- **cleanAndFormat(stringWithFormattingCharacters : String) : String**
Formatting of the parameter string to display line break or carriage return characters as line breaks, and tabulation characters as tabulations in output document.
- **splitNewLine(stringWithMultipleLines : String) : Sequence(String)**
Split the specified String on the line separator and return a Set of each line to manage manually new lines in a text.
- **gPut (paramKey : OclAny, paramValue : OclAny) : String**

Link a value to a specific key. This variable can be used all over the document (including other gendoc parts) using gGet .

- **gGet (paramKey : OclAny) : OclAny**

Get a value already stored in Gendoc (by gPut or defined in param tags).

- **getText (modelElement : OclAny) : String**

Returns a generic String for the given model element.

- **getId (modelElement : OclAny) : String**

Get a unique id associated to the given model element (to be used for bookmarks for example).

- **getPluginImage(pluginId : String, path : String) : String**

Load an image located in another plugin in order to generate it in the output document.

This method should be used inside <image> tag with the following syntax:

```
<image object=' [getPluginImage ('org.mycompany.myplugin.id',  
'/resources/images/myimage.png') /]' ...>  
  
...  
  
</image>
```

8.1.1 Advanced services from bundle “commons”

Several services allow to load other models in order to be able to use their elements inside scripts.

- **load(modelElement : OclAny, extensionReplacement : String) : String**

Load a model located next to the model where the modelElement comes from.

For example, for a Package p contained in the file located at file://c:/test/file.uml, the call : p.load('notation') will load the file located at file://c:/test/file.notation

- **loadRelative(modelElement : OclAny, relativePath : String) : String**

Load a model located with a relative path to the model where the modelElement comes from. For example, for a Package p contained in the file located at file://c:/test/file.uml, the call : p.load('../file2.notation') will load the file located at file://c:/file2.notation .

- **loadURI(uri : String) : String**

Load a model from its URI. For example, the call : p.load('file://c:/test/file.notation') will load the file located at file://c:/test/file.notation.

Loading another model in order to be able to use its elements in script

8.2 Gmf

This bundle provides a set of services available with all GMF models. This bundle is **NOT** configured by default.

It must be referenced inside attribute [importedBundles](#) from `<context>` tag:

```
<context ... importedBundles='gmf' />
```

- **getDiagram(diag : Diagram) : String**

Get diagram ID for a given diagram : element to use inside `<image>` tag with the following syntax :

```
<image object=' [diag.getDiagram() /] ' ...>  
...  
</image>
```

- **getDiagram(diagram : Diagram, modelElementsToDisplay : Sequence(OclAny)) : String**

Get diagram ID for a diagram : element to use inside `<image>` tag. User can provide a list of elements in the diagram to display

- **getElementsInDiagram(diagram : Diagram) : Sequence(EObject)**

Get all elements containing in the diagram

- **isDiagramEmpty(diagram : Diagram) : boolean**

Indicates if the diagram passed as a parameter is empty or not.

8.2.1 Advanced services concerning gmf diagrams

Customize image generation format

By default, images are generated in PNG format. On Unix OS, they are generated in JPG format.

The following services allow customizing the generation format among the following: PNG, JPEG, GIF, BMP, JPG.

- **getDiagramExt(diagram : Diagram, imageExtension : String) : String**

Get diagram ID for a diagram : element to use inside `<image>` tag. The second parameters allows to choose the extension of the exported image.

- **getDiagramExt(diagram : Diagram, imageExtension : String, modelElementsToDisplay : Sequence(OclAny)) : String**

Get diagram ID for a diagram: element to use inside <image> tag. The second parameter allows choosing the extension of the exported image. User can provide a filtered list of elements in the diagram to display.

Getting diagrams from models

- **getDiagramsInModel(modelElement : OclAny) : Sequence(Diagram)**

Get all diagrams found in the model file resource the modelElement belongs to.

8.3 Papyrus

- **getPapyrusDiagrams(EObject) : Sequence(Diagram)**

Get all the diagrams directly contained by an element

- **getDocumentation(EObject) : String**

Get the documentation attached to an element (available in former Papyrus versions from editor inside « Documentation » view).

It corresponds to comments with the following Stereotype :

Papyrus::Documentation::Documentation

- **getDocumentationResources(EObject) : String**

Get the documents attached to an element (available in former Papyrus versions from editor inside « Documentation » view, resources tab)

APPENDIX: Overview of all Gendoc tags and attributes

```
[0..1] <config>
  [0..1] <output
    [1..1] path='absolutePath'>
  [0..*] <param
    [1..1] key='uniqueParamKey'
    [1..1] value='paramValue'>
</config>

[0..1] <bookmarks>
  [0..*] <alias
    [1..1] source='uniqueAliasKey'
    [1..1] target='replacementValue' /> ...
</bookmarks>

[1..*] <context
  [1..1] model='full_model_file_path'
  [0..1] element='package_name/element_name'
  [0..1] importedBundles='bundle1;bundle2;bundle3'
  [0..1] searchMetamodels='true' (default='false') />

[1..*] <gendoc>
  ..
  [0..*] <image
    [0..1] object='image_id'
    [0..1] filePath='absolute_path'
    [0..1] keepW='true' (default='false')
    [0..1] keepH='true' (default='false')
    [0..1] maxW='true' (default='false')
    [0..1] maxH='true' (default='false')>
    Drawing area
  </image>
  [0..*] <table>
    Rows or tables
  </table>
  [0..*] <include filePath='absolute_path' />
  [0..*] <richText
    [0..1] format='RTF' (default:'HTML')
    [0..1] filePath='absolute_path'>
  </richText>
  [0..*] <drop />
  [0..*] <dropEmpty>..</dropEmpty>
  [0..*] <nobr />
</gendoc>

[0..*] <fragment
  [1..1] name='unique_fragment_name'
  [0..1] importedBundles='bundle1;bundle2'
  [0..1] importedFragments='fragment1;fragment2'>
  [0..*] <arg
    [1..1] name='argument1'
    [0..1] type='full_metamodel_element_name' />
  ..
</fragment>
```