XMLmind XML Editor - Configuration and Deployment

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Abstract

This document describes how to customize and deploy **XXE**.

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Chapter 1. Introduction

XMLmind XML Editor (**XXE** for short) is an XML editor designed for production use. Unlike many other XML editors, its user interface does not allow to do simple things such as:

- Open an XML document in the editor and, after this, use a dialog box to associate a DTD and/or a style sheet to the newly opened document.
- Select a DTD or schema using a file chooser and then, use another dialog box to select the root element of a new document (conforming to the chosen DTD or schema).

The above features are useful if you muse with an XML file from time to time. They are almost never needed in production use, for example, writing a book ten hours a day.

Out of the box, **XXE** can be used to author XHTML, DocBook and DITA documents with a good personal productivity.

But if you need to achieve *excellent* productivity for a group of users in your organization or if you need to use a proprietary DTD, W3C XML Schema or RELAX NG schema, then you'll have to customize existing **XXE** configurations or you'll have to write a custom configuration for your proprietary schema from scratch.

In an organization, the task of writing a configuration file for XXE is ideally performed by a single person, who belongs to the group of XML authors, but who is specially motivated by becoming the *local guru*.

- The local guru really needs to understand the job of the group of XML authors which will use **XXE**.
- The local guru really needs to be motivated because she/he will have to read tons of documentation: **XXE** documentation, but also many W3C standards such as XML, CSS, XPath, etc.
- The local guru does *not* need to be a programmer, or even a member of the IT staff.

If you don't have a person with the profile of a local guru, you may consider hiring an external consultant for a few days.

Chapter 2. Writing a configuration file for XXE

1. What is a configuration?

A configuration file is a declarative XML file which teaches **XXE** how to handle documents of a given type. Without an appropriate configuration file, **XXE** is not of much use: the opened document is rendered using a tree view, it cannot be validated, schema-directed editing does not work, the user is limited to the most basic editing commands.

XXE is bundled with configurations for DITA, DocBook and XHTML. More configurations are available but they need the user to download and install the corresponding add-on (i.e. using menu item **Options → Install Add-ons**).

For the impatient, the most basic configuration file looks like this:

```
<configuration name="Example"
  xmlns="http://www.xmlmind.com/xmleditor/schema/configuration">

  <detect>
    <dtdPublicId>-//XMLmind//DTD Example//EN</dtdPublicId>
  </detect>

  <template name="Example 1" location="example1.xml" />

</configuration>
```

2. A configuration for the "Simple Section" document type.

This chapter describes how to write a configuration for the "Simple Section" document type:

- The root element of this kind of document is a `section`. A `section` starts with a `title`. It may contain one or more `paragraphs` or `tables`. It may also contain nested `sections`. A `paragraph` contains text in addition to `bold`, `italic`, `literal`, `break` and `image` elements.
- The namespace used for the "Simple Section" document type is "`http://www.xmlmind.com/ns/sect`".

We'll describe 3 variants of the same configuration, one based on a DTD, one based on a W3C XML schema and one based on a RELAX NG schema.

These sample configurations are found in *`XXE_install_dir`*`/doc/configure/samples/`:

`dtd_section_config/`
: The DTD variant.

`xsd_section_config/`
: The W3C XML Schema variant.

`rng_section_config/`
: The RELAX NG variant.

More sample configurations

You'll also find in *XXE_install_dir*/doc/configure/samples/:

`topic_plus_tag/`

A configuration for a DITA topic *specialization*. This specialization adds a `tag` element to the topic DTD. A tag element has a required `kind` attribute. The values allowed for the `kind` attribute are: `attribute`, `attvalue`, `element`, `emptytag`, `endtag`, `genentity`, `localname`, `namespace`, `numcharref`,`paramentity`, `pi`, `prefix`, `comment`, `starttag`.

This configuration has been created by customizing the stock DITA topic configuration as explained in Chapter 5, *Customizing an existing configuration* [30].

3. Before writing your first configuration

1. Do not forget to temporarily disable the **Quick Start** and **Schema** caches by unchecking the corresponding checkboxes in **Options** → **Preferences**, **Advanced**|**Cached Data** section. More information about these caches in Section 6.11.1, “Cached data options” in *XMLmind XML Editor - Online Help*.

   If you forget to do this, **XXE** will fail to see your configuration and/or may not see the changes you make to the schema referenced by your configuration.

2. Using menu item **Options** → **Install Add-ons**, download and install the add-on called "*XMLmind XML Editor Configuration Pack*". This add-on contains important support files (e.g. `configuration.xsd`) for use when writing a configuration.

3. Start **XXE** with a *console* in order to see low-level error messages possibly reported by **XXE** when you'll test your configuration. On Windows, this means running **XXE** using **java** rather than using **javaw**. In order to do this, simply start **XXE** using *XXE_install_dir*/bin/xxe-c.bat rather than using `xxe.exe`.

4. If you are interested in having a functionality in your configuration which is present in any of the stock XHTML, DocBook or DITA configuration, do not hesitate to take a look at the `.xxe`, `.incl`, `.css`, etc, files found in:
   - *XXE_install_dir*/addon/config/xhtml/,
   - *XXE_install_dir*/addon/config/docbook/,
   - *XXE_install_dir*/addon/config/docbook5/,
   - *XXE_install_dir*/addon/config/dita/,
   - *XXE_install_dir*/addon/config/common/css/.

4. Anatomy of a configuration file

File `dtd_section_config/section.xxe` contains:

```
<configuration name="Simple Section (DTD)"
  xmlns="http://www.xmlmind.com/xmleditor/schema/configuration"
  xmlns:cfg="http://www.xmlmind.com/xmleditor/schema/configuration">
```

```
  <detect>
    <dtdPublicId>-//XMLmind//DTD Simple Section//EN</dtdPublicId>
  </detect>

  <template location="template.xml" name="Empty Section" />

  <include location="common.incl" />

</configuration>
```

- A configuration file must conform to the `configuration.xsd` W3C XML schema.
- A configuration file must have an "`xxe`" extension.
- The `configuration` root element must have a `name` attribute. This name must be chosen in order to uniquely identify the configuration among all the other configurations.
- The `configuration` element must have a `detect` child element (see below [7]).
- Support configuration files (such as `common.incl`; see above) may be included in the `.xxe` main file. However such support configuration files must *not* have "`xxe`" extensions and their `configuration` root elements must *not* have `name` attributes.
- The `.xxe` main configuration file along with *all* support files (`.incl`, `.css`, `.xsd`, `.rng`, `.dtd`, `*catalog.xml`, `.xsl`, icons, etc) must be created in a subdirectory itself contained in one of the two **XXE** `addon/` directories (more information about these `addon/` directories in Section 1, “Dynamic discovery of add-ons” [151]).

  For example, it could be created in the `addon/` subdirectory of **XXE** user preferences directory [7].

The `configuration.xsd` schema is found in the add-on called "*XMLmind XML Editor Configuration Pack*". This means that you can quickly and safely your configuration file using **XXE** (using menu item **File** → **New** and then selecting entry "**XMLmind XML Editor Configuration**|**Empty Template**") or you can create your configuration file using any text editor and from time to time validate your configuration as follows:

```
C:\> XXE_install_dir\bin\xmltool validate¬
    -s xxe_config_pack_install_dir/config/xsd/configuration.xsd¬
    my_config.xxe my_include1.incl my_include2.incl
```

More information about the **xmltool** command line utility in The **xmltool** command-line utility.

Where is XXE user preferences directory?

XXE user preferences directory is:

- *$HOME*`/.xxe10/` on Linux.
- *$HOME*`/Library/Application Support/XMLmind/XMLEditor10/` on the Mac.
- *%APPDATA%*`\XMLmind\XMLEditor10\` on Windows. Example: `C:\Users\john\AppData\Roaming\XMLmind\XMLEditor10\`.

  If you cannot see the "`AppData`" directory using Microsoft Windows File Manager, turn on **Tools**>**Folder Options**>**View**>**File and Folders**>**Show hidden files and folders**.

5. Specifying which configuration to use for a given document type

The `detect` element [73] allows to specify which configuration to use for a given document type.

It works as follows: when **XXE** opens a document, it evaluates in turn the `detect` element found in each configuration. When all the conditions found in a `detect` element are met, **XXE** stops its evaluations and associates the configuration containing the matching `detect` element to the document being opened.

Excerpts from `rng_section_config/section.xxe` (configuration based on RELAX NG):

```
<detect>
  <rootElementNamespace>http://www.xmlmind.com/ns/sect</rootElementNamespace>
</detect>
```

The above `detect` element reads as: if the namespace of the root element of the file being opened is "`http://www.xmlmind.com/ns/sect`", then its configuration is `rng_section_config/section.xxe`.

The above `detect` element could be used as well for the configurations based on the DTD and the W3C XML Schema. However, in order to show you that there are often several ways to detect a document type, we have used a different `detect` condition in the configuration based on DTD:

```
<detect>
  <dtdPublicId>-//XMLmind//DTD Simple Section//EN</dtdPublicId>
</detect>
```

6. Associating a schema to the opened document

In the configuration based on the DTD, a document is assumed to always start with:

```
<!DOCTYPE section PUBLIC "-//XMLmind//DTD Simple Section//EN"
"http://www.xmlmind.com/dtd/section.dtd">
```

therefore the "`-//XMLmind//DTD Simple Section//EN`" DTD is automatically associated to the opened document. This DTD is then used to validate the document and also let **XXE** perform its schema-directed editing.

However there is no facility equivalent to `<!DOCTYPE>` for RELAX NG schemas, therefore this association must be specified in the configuration file. Excerpts from `rng_section_config/section.xxe` (configuration based on RELAX NG):

```
<relaxng location="section.rnc" />
```

The `relaxng` element [115] allows to associate a RELAX NG schema to the opened document. Similarly, the `schema` element [119] allows to associate a W3C XML Schema to the opened document and the `dtd` element [72] allows to associate a DTD to the opened document. Note that the `relaxng`, `schema` and `dtd` elements are completely ignored by XXE when the opened document contains a reference to its schema (i.e. by the means of `<!DOCTYPE>`, `xsi:schemaLocation`, `<?xml-model>`).

For example, let's suppose that, unlike what is shown in the `template.xml` file below [8], in the configuration based on the XML Schema, the `section` root element does *not* have an `xsi:schemaLocation` attribute (which, by the way, is somewhat cleaner), then specifying:

```
<schema>
  <location>http://www.xmlmind.com/ns/sect
            section.xsd</location>
</schema>
```

would have been mandatory.

File `xsd_section_config/template.xml` (configuration based on XML Schema):

```
<section xmlns="http://www.xmlmind.com/ns/sect"
         xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xsi:schemaLocation="http://www.xmlmind.com/ns/sect
                             http://www.xmlmind.com/xsd/section.xsd">
  <title></title>
  <paragraph></paragraph>
</section>
```

7. XML catalogs

In the section above, notice that `dtd_section_config/template.xml` contains a reference to "`http://www.xmlmind.com/dtd/section.dtd`" and `xsd_section_config/template.xml` contains a reference to "`http://www.xmlmind.com/xsd/section.xsd`". Well, these files do not exist! Anyway, as explained in "*XML Entity and URI Resolvers*", even a real reference to a schema file would have ended up posing interchange problems.

Nevertheless, thanks to the XML catalogs found in the configuration directories, **XXE** has no problem loading the local copy of `section.dtd` and the local copy of `section.xsd`.

File `dtd_section_config/catalog.xml` (configuration based on DTD):

```
<catalog xmlns="urn:oasis:names:tc:entity:xmlns:xml:catalog"
         prefer="public">
  <public publicId="-//XMLmind//DTD Simple Section//EN"
          uri="section.dtd"/>
</catalog>
```

The above catalog associates the public DTD ID "`-//XMLmind//DTD Simple Section//EN`" referenced in a document instance to local copy `section.dtd` (local because its URI is relative to `catalog.xml`).

File `xsd_section_config/catalog.xml` (configuration based on XML Schema):

```
<catalog xmlns="urn:oasis:names:tc:entity:xmlns:xml:catalog">
  <uri name="http://www.xmlmind.com/xsd/section.xsd"
       uri="section.xsd"/>
</catalog>
```

The above catalog associates the absolute URI "`http://www.xmlmind.com/xsd/section.xsd`" referenced in a document instance to local copy `section.xsd` (local because its URI is relative to `catalog.xml`).

Note that, in the case of the configuration based on RELAX NG, because a document instance never directly references its schema, there is no need for an XML catalog.

For **XXE** to discover and load an XML catalog, the file containing it must have a name ending with string "`catalog.xml`". Examples: `catalog.xml`, `mycatalog.xml`, `foo_catalog.xml`.

8. Document templates

The `template` element [124] allows to specify the location and name of a document template. It is of course allowed to have several `template` elements in the same configuration. All these document templates are listed in the dialog box displayed by **File** → **New**.

Excerpts from `rng_section_config/section.xxe` (configuration based on RELAX NG):

```
<template location="template.xml" name="Empty Section" />
```

9. CSS stylesheets

The `css` element [72] allows to specify the location and name of a CSS stylesheet. It is of course allowed to have several `css` elements in the same configuration, provided that all `css` elements but one have an `alternate="true"` attribute. All these CSS stylesheets are listed at the end of the **View** menu. The CSS stylesheet which has an `alternate="false"` attribute is the one which, by default, is used to style the document being opened.

Excerpts from `rng_section_config/common.incl` (same file for all variants):

```
<css location="section.css" name="Normal" />
```

9.1. Styling images

The "Simple Section" document type has an `image` element. The source of the image is specified using required attribute `source`, which contains an absolute or relative URI. An `image` element also has optional `width` and `height` attributes, which contain dimensions expressed in pixels.

This `image` element is styled using replaced content. Excerpts from `rng_section_config/section.css` (same file for all variants):

```
image {
    display: inline;
    content: image-viewport(attribute, source,
                            data-type, anyURI,
                            content-width, attr(width),
                            content-height, attr(height));
}
```

This replaced content consists in extension pseudo-function `image-viewport()` in *XMLmind XML Editor - Support of Cascading Style Sheets (W3C CSS)* or extension pseudo-function `image()` in *XMLmind XML Editor - Support of Cascading Style Sheets (W3C CSS)*. Note that `image()` is based on `image-viewport()`, except that it has a simpler syntax. For example, one could have styled the `image` element as follows:

```
image {
    display: inline;
    content: image(attr(source), attr(width), attr(height));
}
```

9.2. Styling tables

The "Simple Section" document type has a rather simple `table` element. A `table` contains an optional `tableHeader` row, followed by one or more `tableRow` rows. A `tableHeader` or `tableRow` element contains one or more `tableCell` cells. A `tableCell` may span several columns, which is specified using attribute `columns`.

The `table` element is styled using standard CSS rules, expect for the number of columns spanned by a cell. Excerpts from `rng_section_config/section.css` (same file for all variants):

```
table {
    display: table;
    border: 1px solid gray;
    margin-top: 1.33ex;
    margin-bottom: 1.33ex;
}

tableHeader,
tableRow {
    display: table-row;
}

tableCell {
    display: table-cell;
    border: 1px solid gray;
    padding: 0.5ex;
}

...

tableCell[columns] {
```

```
    column-span: concatenate(attr(columns));
}
```

Extension property `column-span` in *XMLmind XML Editor - Support of Cascading Style Sheets (W3C CSS)* may be used to specify the number of columns spanned by an element having `display: table-cell`. Similarly, extension property `row-span` in *XMLmind XML Editor - Support of Cascading Style Sheets (W3C CSS)* may be used to specify the number of rows spanned by an element having `display: table-cell`.

The value of property `column-span` (and `row-span`) is a positive integer. In the case of a `tableCell`, this value is obtained by parsing the value of attribute `columns` as a number. Expression `concatenate(attr(columns))` does exactly this:

1. Standard CSS pseudo-function `attr()` is used to return the value of attribute `columns`.
2. Extension pseudo-function `concatenate()` in *XMLmind XML Editor - Support of Cascading Style Sheets (W3C CSS)* concatenates all its string arguments, then parses the result of the concatenation and finally returns the parsed CSS property value.

10. A specific tool bar

The `toolBar` element [125] allows to specify a tool bar which is specific to a given document type.

Figure 2.1. The "Simple Section" tool bar

Excerpts from `rng_section_config/common.incl` (same file for all variants):

```
<toolBar>
  <button toolTip="Toggle bold"
          icon="xxe-config:common/icons/bold.png">
    <class>com.xmlmind.xmleditapp.desktop.toolbar.TextStyleToggle</class>

    <command name="pass"
      parameter="{http://www.xmlmind.com/ns/sect}bold" />
  </button>

  ...
  <separator />
  ...
  <button toolTip="Add table" icon="xxe-config:common/icons/table_menu.png">
    <menu>
      <item label="table" command="add"
        parameter="after[implicitElement] {http://www.xmlmind.com/ns/sect}table" />
      <item label="table(header)" command="add"
        parameter="after[implicitElement]
                   #template({http://www.xmlmind.com/ns/sect}table,header)" />
    </menu>
  </button>
  ...
</toolBar>
```

A `toolBar` element has `button` and `separator` child elements. A `button` can contain a `command` or a `menu` of `items`, each menu `item` itself invoking a command.

A `button` element is required to have an `icon` attribute. Notice in the above `toolBar` that all `icon` attributes have a value starting with "`xxe-config:common/icons/`".

a. "`xxe-config:`" is the only reliable way to refer *`XXE_install_dir`*`/addon/config/`.
b. *`XXE_install_dir`*`/addon/config/common/icons/` contains an number of 16x16 icons commonly used for toolbars and menu items. If you are writing a configuration for **XXE**, you should really take a look at these icons.

So the question is now: what is a *command*? A command in *XMLmind XML Editor - Commands* is an action triggered by a user input (mouse, keyboard, drag, drop, etc) which has an effect on the active view of the document being edited. The behavior of a command is influenced by its string parameter, the current text or node selection and the schema to which the document being edited is conforming.

The parameter of a command is a *plain string*, having vastly different meanings depending on the command. That's why, unless documented otherwise for a given command, namespace prefixes are not supported in a command parameter.

For example, in the above `toolBar`, you'll find qualified name `s:table` expressed as `{http://www.xmlmind.com/ns/sect}table` using Clark's notation. That is:

```
<command name="add"
  parameter="after[implicitElement] {http://www.xmlmind.com/ns/sect}table" />
```

and *not*:

```
<command name="add"
  parameter="after[implicitElement] s:table" />
```

We'll see in this tutorial that there are 3 kinds of commands: native commands (written in the Java™ programming language), *macro-commands* and *process commands* (both specified in XML in the configuration file).

XXE has dozens of native commands in *XMLmind XML Editor - Commands*. The tool bar which is specific to the "Simple Section" document type just uses one of them: `add` in *XMLmind XML Editor - Commands*.

10.1. Text style toggles

A tool bar normally contain plain buttons. For example, the following plain button invokes native command `convert` in *XMLmind XML Editor - Commands* to convert the implicit or explicit selection to the `bold` element:

```
<button toolTip="Convert to bold"
        icon="xxe-config:common/icons/boldText.png">
  <command name="convert"
```

```
    parameter="[implicitElement] {http://www.xmlmind.com/ns/sect}bold" />
</button>
```

However, we have chosen to add to the "Simple Section" tool bar *text style toggles* rather than plain buttons:

```
<button toolTip="Toggle bold"
        icon="xxe-config:common/icons/bold.png">
  <class>com.xmlmind.xmleditapp.desktop.toolbar.TextStyleToggle</class>

  <command name="pass"
    parameter="{http://www.xmlmind.com/ns/sect}bold" />
</button>
```

Text style toggles emulate the behavior of the **Bold**, **Italic**, **Underline**, etc, toggles found in the tool bars of almost all word-processors. Such toggles are declared slightly differently than plain buttons. See Section 31.1.2, “The `TextStyleToggle` custom control” [130].

11. Element templates

You'll find in the command parameters of the above `toolBar`, in some cases, element qualified names such as `{http://www.xmlmind.com/ns/sect}table` and in other cases, references to *elements templates*, such as `#template({http://www.xmlmind.com/ns/sect}table,header)`.

The later notation means:

a. it's an element template;
b. this is a template for element `{http://www.xmlmind.com/ns/sect}table`;
c. the name of the element template is "`header`".

Note that element templates are uniquely identified by the combination element name/template name, and not by the template name alone.

Why specify element templates in your configuration file? By default, **XXE** creates the simplest possible, valid, element. For example, in the case of a table, this simplest possible, valid, `table` has just one `tableRow`, containing just one `tableCell`. In the case of a table, this is too simple to be really useful. On the contrary, we want a table to contain by default 2 rows, each row containing 2 cells. We also want to have a number of predefined table templates easily available, for example, a table having a header row. All this can be specified using the `elementTemplate` configuration [83] element.

Excerpts from `rng_section_config/common.incl` (same file for all variants):

```
<elementTemplate name="rows2" selectable="override">❶
  <table xmlns="http://www.xmlmind.com/ns/sect">
    <tableRow>...ELIDED...</tableRow>
    <tableRow>...ELIDED...</tableRow>
  </table>
</elementTemplate>

<elementTemplate name="header">❷
  <table xmlns="http://www.xmlmind.com/ns/sect">
    <tableHeader>...ELIDED...</tableHeader>
```

```
    <tableRow>...ELIDED...</tableRow>
    <tableRow>...ELIDED...</tableRow>
  </table>
</elementTemplate>

<elementTemplate name="image" selectable="false">❸
  <paragraph xmlns="http://www.xmlmind.com/ns/sect"><image source="???"/></paragraph>
</elementTemplate>
```

❶ Attribute `selectable="override"` means: use this template instead of the 1 row/1cell table generated by default by **XXE**. This also implies that this element template will be listed simply as "`table`", and not as "`table(rows2)`", in the **Edit** tool in *XMLmind XML Editor - Online Help*.

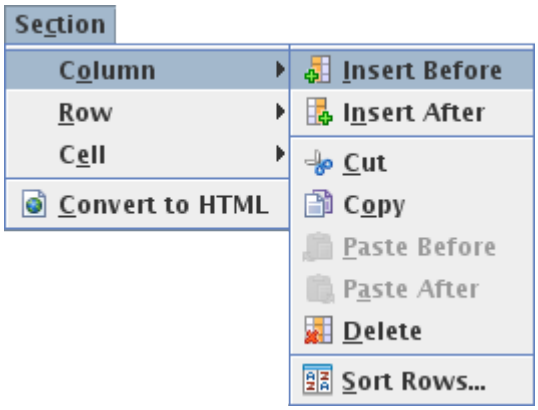
❷ The default value of `attribute` selectable is `true`. This makes the corresponding element template available for the **Edit** tool. In the above case, this element template will be listed as "`table(header)`".

❸ Attribute `selectable="false"` means: do not make this element template available for the **Edit** tool, as it is just needed here in this configuration file (i.e. in a `menu`, `toolBar`, `macro`, etc).

12. A specific menu

The `menu` element [105] allows to specify a menu which is specific to a given document type.

Figure 2.2. The "Simple Section" menu



Excerpts from `rng_section_config/common.incl` (same file for all variants):

```
<menu label="Se_ction">
  <menu label="C_olumn" name="tableColumnMenu">
    <item label="_Insert Before"
          icon="xxe-config:common/icons/insertColumnBefore.png"
          command="sect.tableEdit" parameter="insertColumnBefore"/>
    <item label="I_nsert After"
          icon="xxe-config:common/icons/insertColumnAfter.png"
          command="sect.tableEdit" parameter="insertColumnAfter"/>
  ...
  </menu>
  <separator />
  <item label="_Convert to HTML"
```

```
        icon="xxe-config:common/mime_types/html.png"
        command="sect.convertToHTML" />
</menu>
```

A `menu` element has `item`, `menu` and `separator` child elements, each menu `item` invoking a command. A `menu` element is required to have a `label` attribute. In the value of the `label` attribute, character underscore (`'_'`) may be used to specify the mnemonic of a menu or an item.

12.1. About the table editing command

What if you have reused standard HTML or CALS tables in your own custom schema?

What to do in this case is explained in next chapter Chapter 3, *Using HTML4 tables or CALS tables in your own custom schema* [23].

The above `menu` element contains 3 sub-menus called **Column**, **Row** and **Cell**. All the items of these sub-menus invoke the same `sect.tableEdit` table editing command, albeit with different parameters, each parameter specifying the desired operation (e.g. "`insertColumnBefore`").

XXE has a native, generic, parameterizable, table editing command in *XMLmind XML Editor - Commands* powerful enough to edit all kinds of custom tables. However in order to be able to use this command in your configuration, you must

1. instantiate this command and give a name to your instance by the means of the `command` configuration element [68];
2. parameterize your instance by the means of a `property` configuration element [113].

This is done as follows. Excerpts from `rng_section_config/common.incl` (same file for all variants):

```
<command name="sect.tableEdit">
  <class>com.xmlmind.xmleditapp.cmd.table.GenericTableEdit</class>
</command>

<property name="sect.tableEdit.tableSpecification">
  table={http://www.xmlmind.com/ns/sect}table
  row={http://www.xmlmind.com/ns/sect}tableRow {http://www.xmlmind.com/ns/sect}tableHeader:head
  cell={http://www.xmlmind.com/ns/sect}tableCell
  columnSpan=columns
</property>
```

If the name of your table editing command is *`foo`*, then the name of the corresponding property must be *`foo`*`.tableSpecification`. The content of the property is simply the description of the element and attribute names used by your custom table.

The above `command` element defines a command called `sect.tableEdit`. Why this "`sect.`" prefix? Why not simply "`tableEdit`"?

The commands defined in a configuration are not local to this configuration. *All commands have a global scope*. If you call your command `tableEdit`, then there are chances that you'll

overwrite another command, defined in another configuration, also called `tableEdit` (or the other way round, depending on the order which is used by **XXE** to load the configurations).

Therefore you must always give a prefix which unique to your configuration to the names of the commands defined in this configuration. For example, the stock configurations use these prefixes: "`xhtml.`", "`docb.`", "`db5.`", "`dita.`", "`ditamap.`".

13. Specific keyboard shortcuts

The `binding` element [57] allows to specify a *binding* which is specific to a given document type. A `binding` element binds a user input, for example a sequence of key strokes, to a command.

Excerpts from `rng_section_config/common.incl` (same file for all variants):

```
<property name="$c blockList">
  {http://www.xmlmind.com/ns/sect}paragraph=paragraph
</property>

<binding>
  <keyPressed code="ENTER" />❶
  <command name="insertNewlineOrSplitBlock" />
</binding>

...

<binding>
  <keyPressed code="DELETE" />
  <command name="deleteSelectionOrJoinBlockOrDeleteChar" />
</binding>

<binding>
  <keyPressed code="BACK_SPACE" />
  <command name="deleteSelectionOrJoinBlockOrDeleteChar"
           parameter="backwards" />
</binding>

...

<binding>
  <keyPressed code="ENTER" modifiers="shift" />❷
  <command name="sect.insertBreak" />
</binding>
```

❶ When a user presses the ENTER, DELETE, or BACK_SPACE key while the caret is found inside a `paragraph` element, we want **XXE** to behave like any word-processor. This is precisely what do commands `insertNewlineOrSplitBlock` in *`XMLmind XML Editor - Commands`* and `deleteSelectionOrJoinBlockOrDeleteChar` in *XMLmind XML Editor - Commands*. However for these commands to work, the elements behaving like paragraphs (or list items) must have been specified. For the "Simple Section" configuration, this specification is simply:

```
<property name="$c blockList">
  {http://www.xmlmind.com/ns/sect}paragraph=paragraph
</property>
```

Notice "`$c blockList`", which is a shorthand for "*`configuration_name`* `blockList`".

❷ When the user presses Shift+ENTER, we want **XXE** to add a `break` element at caret location. Moreover, if the newly inserted `break` element is not immediately followed by a text node, we want **XXE** to automatically add a text node and move the caret to this new empty text node.

13.1. About macro commands

In the excerpts from `rng_section_config/common.incl` below, `sect.insertBreak` is a macro-command. A macro-command in *XMLmind XML Editor - Commands* is a command specified in XML as combination of other commands (of any kind: native command, macro-command or process command).

Let's examine `sect.insertBreak`:

```
<command name="sect.insertBreak">
  <macro undoable="true">
    <sequence>❶
      <command name="insert"
        parameter="into {http://www.xmlmind.com/ns/sect}break" />
      <command name="insertNode" parameter="textAfter" />❷
      <command name="cancelSelection" />❸
    </sequence>
  </macro>
</command>
```

❶ The above macro uses the simplest and most common form of combination of other commands: the sequence. It invokes in turn the following native commands: `insert` in *XMLmind XML Editor - Commands*, `insertNode` in *XMLmind XML Editor - Commands* and `cancelSelection` in *XMLmind XML Editor - Commands*.

❷ The newly inserted `break` element is automatically selected at the end of the execution of command `insert`. If there is already a text node after the selected `break` element, then command `insertNode` silently fails and the sequence of commands is stopped at this point. This kind of failure is harmless and we can even say that, as the developers of the above macro, we count on this behavior.

❸ The above macro has two “nice touches”:

a. Command `cancelSelection` is invoked to get rid of the red box around the newly inserted `break` element. Not strictly needed but nice to have.
b. The macro has attribute `undoable="true"`. Without this attribute, after `sect.insertBreak` has been executed in full, the user would have to invoke **Edit** → **Undo** (**Ctrl**+**Z**) twice: one time to remove the text node and a second time to remove the `break` element.

14. Interactively resizing an image

In the above section, we have explained how to bind a keystroke: Shift+ENTER to a command: `sect.insertBreak`. Similarly, interactively resizing an image may be implemented by binding an *application event*: `resize-image [65]` to a command: `resizeImage`.

```
<binding>
  <appEvent name="resize-image" />
  <command name="resizeImage"
           parameter="height=%{height} width=%{width}" />
</binding>
```

`Resize-image` events are emitted when the user first clicks inside an image in order to display handles around it and then drag one of those handles.

Figure 2.3. Resize handles around an image

In the case of the "Simple Section" configuration, dragging a resize handle invokes command `resizeImage` in *XMLmind XML Editor - Commands*. This command resizes an image by modifying its `width` and `height` attributes.

It's important to understand that the resize image command being invoked must correspond to the image element. If the image element had no `width` and `height` attributes or if these attributes contained inches rather than pixels, built-in command `resizeImage` would not be usable here.

For example, it's possible to interactively resize a column of a table by binding application event `resize-table-column` [67] to the proper command. However the `table` element of the "Simple Section" document type has no child element or attribute allowing to specify the width of a column. Therefore, in the case of the "Simple Section" configuration, there is no way to specify how a user can resize a table column by dragging the corresponding column separator.

15. Miscellaneous configuration elements

The `spellCheckOptions` element [121] allows to specify spell-checker options, for example whether the on-the-fly spell-checking should be turned on by default, which elements should not be checked for spelling, etc. Excerpts from `rng_section_config/common.incl` (same file for all variants):

```
<spellCheckOptions useAutomaticSpellChecker="true"
                   languageAttribute="xml:lang"
                   skippedElements="s:literal" />
```

The `documentResources` element [80] allows to specify how to determine the resource files attached to the document being edited. In the case of a "Simple Section" document, the only resource files are the image files pointed to by the `image` elements. Excerpts from `rng_section_config/common.incl` (same file for all variants):

```
<documentResources>
  <resource path="//s:image/@source" />
</documentResources>
```

Knowing which resource files are attached to the document being edited is needed to implement **File → Save As** and also the conversion of the document being edited to other formats (see below [20]).

16. Converting an XML document to other formats

For the purpose of this tutorial, we'll explain how to convert the "Simple Section" document being edited to a single HTML page.

A XSLT stylesheet will be used for this task. Excerpts from `rng_section_config/html.xsl` (same file for all variants):

```
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
                xmlns:s="http://www.xmlmind.com/ns/sect"
                exclude-result-prefixes="s"
                version="1.0">
  <xsl:output method="html"
              encoding="ISO-8859-1"
              indent="no"/>
  ...
  <xsl:template match="s:bold">
    <b>
      <xsl:call-template name="processCommonAttributes"/>
      <xsl:apply-templates/>
    </b>
  </xsl:template>
  ...
</xsl:stylesheet>
```

It should be noted that **XXE** has no high-level construct (e.g. an hypothetical `convertDocument` configuration element) allowing to integrate an XSLT stylesheet. Instead, **XXE** relies on its `menu`, `toolBar`, `binding`, `macro` command, `process` command, etc, to do that.

For example, our "Section" `menu` element ends with:

```
  ...
  <separator />
  <item label="_Convert to HTML"
        icon="xxe-config:common/mime_types/html.png"
        command="sect.convertToHTML" />
</menu>
```

Macro-command `sect.convertToHTML` allows the user to choose a save file for the HTML page which will be the result of the conversion (by the means of native command `selectConvertedFile` in *XMLmind XML Editor - Commands*) and then invokes process command `sect.toHTML` which will perform the conversion. Excerpts from `rng_section_config/common.incl` (same file for all variants):

```
<command name="sect.convertToHTML">
  <macro>
    <sequence>
      <command name="selectConvertedFile"
               parameter="saveFileURLWithExtension=html" />
      <command name="sect.toHTML" parameter='"%_"' />❶
```

```
      <command name="preview" parameter="[lastConverted]" />❷
    </sequence>
  </macro>
</command>
```

In the above macro,

❶ The command parameter contains `"%_"`. `%_` is a *macro-variable* in *XMLmind XML Editor - Commands* and it is quoted using double-quote characters in case it contains whitespace. Variable `%_` contains the result returned by the last executed command. In the above case, the last executed command is `selectConvertedFile` and the result it returns is the URI of the save file selected by the user.

❷ Command `preview` in *XMLmind XML Editor - Commands* allows to invoke a third-party helper application (e.g. a Web browser) in order to preview the result of the conversion.

16.1. About process commands

Like macro-commands, a *process command* in *XMLmind XML Editor - Commands* is a command specified in XML. But a macro-command acts on elements, attributes and on the text or node selection, while a process command *acts on files*.

Moreover the current working directory (that is, directory `"."`) of a process command is always a temporary directory especially created for the execution of the process command. This means that all files and directories created in this temporary directory will go away once the execution of the process command is complete.

Excerpts from `rng_section_config/common.incl` (same file for all variants):

```
<command name="sect.toHTML">
  <process>
    <mkdir dir="images" />❶

    <copyDocument to="__doc.xml">❷
      <resources match="^[a-zA-Z][a-zA-Z0-9.+-]*:/.+" />❸

      <resources match=".+\.(png|jpg|jpeg|gif)" copyTo="images" />❹
    </copyDocument>

    <transform stylesheet="html.xsl" file="__doc.xml" to="__doc.html" />❺

    <upload base="%0">❻❼
      <copyFile file="__doc.html" to="%0" />
      <copyFiles files="images/*" toDir="images" />
    </upload>
  </process>
</command>
```

❶ A `process` element has a number of child elements which are verbs acting on files and directories. Among these verbs, you'll find `mkdir` in *XMLmind XML Editor - Commands*.

Here we use `mkdir` to create an `images/` directory. The `images/` directory will contain a copy of some of the image files referenced in the "Simple Section" document being converted.

❷ Child element `copyDocument` in *XMLmind XML Editor - Commands* is used to copy the document being converted to `__doc.xml`. Note that in the case the document being converted contains inclusions (XInclude, DITA `conref`, etc), these inclusions are fully transcluded in order to ease the job of the XSLT engine.

❸ This `resources` element in *XMLmind XML Editor - Commands* specifies that resource files referenced in the document being converted by the means of absolute URIs (e.g. `<image source="http://www.acm.com/logo.gif"/>`) should be ignored.

❹ This other `resources` element specifies that resource files referenced in the document being converted by the means of relative URIs ending with `".png"`, `".jpg"`, etc, (e.g. `<image source="photos/photo43.jpg"/>`) should be copied to the `images/` directory.

Of course, this implies a fixup of the corresponding reference in `__doc.xml` (e.g. `<image source="photos/photo43.jpg"/>` becomes `<image source="images/photo43.jpg"/>`)

❺ Child element `transform` in *XMLmind XML Editor - Commands* invokes the XSLT engine (Saxon 6.5 or Saxon 9 depending on the version of the XSLT stylesheet) in order to transform `__doc.xml` to `__doc.html` using stylesheet `html.xsl`.

❻ Child element `upload` in *XMLmind XML Editor - Commands* is used to upload file `__doc.html` and directory `images/` to the location specified by `%0`.

By upload, we really mean *upload* and not simply copy these files somewhere else on the local file system. For example, if you install the add-on called "*FTP virtual drive plug-in*", you'll be able to select an "`ftp:`" (or "`ftps:`" or "`sftp:`") URI using `selectConvertedFile` and then upload file `__doc.html` and directory `images/` to the FTP server you have chosen.

❼ What is `%0`?

All commands may be passed a parameter. This parameter may be considered to contain a number of *arguments* separated with whitespace (an argument itself containing whitespace should be quoted using single or double quotes). Variable `%0` specifies the first argument, `%2` the second one, etc, up to `%9`. For example, if a macro or process command is passed parameter "`one 'two three' four`", then `%0` contains "`one`", `%1` contains "`two three`" and `%2` contains "`four`".

Process command `sect.toHTML` is passed a parameter containing the quoted URI of the save file, hence `%0` contains the URI of the save file.

17. Packaging your configuration for XXE add-on manager

Packaging your configuration for **XXE** add-on manager is optional. However, if you deploy **XXE** as a desktop application, this packaging allows your users to easily install, upgrade or uninstall your configuration using menu item **Options** → **Install Add-ons**.

An add-on is simply a Zip archive ("`zip`" file extension) where all the files and directories comprising the add-on are contained in a single topmost directory. Among these files, XXE must find a single file having a "`xxe_addon`" extension. For example, let's suppose the configuration based on the XML schema is found in `xsd_section_config.zip`. Unzipping this file would give:

```
C:\> unzip xsd_section_config.zip
   creating: xsd_section_config/
  inflating: xsd_section_config/common.incl
  inflating: xsd_section_config/section.xsd
  ...
  inflating: xsd_section_config/xsd_section_config.xxe_addon
  ...
  inflating: xsd_section_config/catalog.xml
```

File `xsd_section_config.xxe_addon` contains:

```
<a:addon xmlns="http://www.w3.org/1999/xhtml"
         xmlns:html="http://www.w3.org/1999/xhtml"
         xmlns:a="http://www.xmlmind.com/xmleditor/schema/addon">
  <a:category>
    <a:configuration />
  </a:category>

  <a:name>"Simple Section (XML Schema)" Configuration</a:name>

  <a:version>1.0.0</a:version>

  <a:abstract>Part of the tutorial explaining how to write a configuration for
  XMLmind XML Editor.</a:abstract>
</a:addon>
```

The easiest way to create an `.xxe_addon` file is to use **XXE**:

1. Download and install the add-on called "*XMLmind XML Editor Configuration Pack*" using **Options** → **Install Add-ons**.
2. Restart **XXE** as instructed.
3. Select **File** → **New** and choose **XMLmind XML Editor Add-on**|**Single Add-on**.

Make sure to carefully choose a unique, descriptive, *stable* name for your add-on. Changing the name of an add-on from one release to another is likely to annoy your users. For example, this breaks the upgrade facility offered by **XXE** add-on manager.

More information in "*XMLmind XML Editor - Developer's Guide*", "*Packaging an add-on for XMLmind XML Editor integrated add-on manager*".

Chapter 3. Using HTML4 tables or CALS tables in your own custom schema

If you create a custom schema and need general purpose tables for it, you'll probably choose the well-known HTML4 or CALS[1] tables.

If this is not the case and if you have created your own table model, then you can still use the generic, parameterizable, table editor documented in Section 130, “A generic, parameterizable, table editor command” in *XMLmind XML Editor - Commands*. Note that, for this generic table editor to work with your table model, your table model needs to vaguely resemble the HTML table model (table contains rows, themselves possibly contained in row groups, etc).

Including the definition of table elements in your custom schema will not be described in this chapter. Instead this chapter will explain:

- how to properly render HTML4 or CALS tables on screen by using a CSS style sheet;
- how to include table editing commands in your custom configuration for XXE.

All the CSS style sheets and all the commands described below have been designed to properly work whatever is the namespace you have chosen for your schema and/or for the table elements.

1. HTML4 tables

The corresponding support code is contained in *`XXE_install_dir`*`/addon/config/common/xhtml.jar`.

Procedure 3.1. Procedure

1. Add this snippet at the top of your CSS style sheet:

   ```
   @import url(xxe-config:common/css/xhtml_table.imp);
   ```

   If you use a namespace (e.g. `http://acme.com/ns`) for all the elements defined in your schema, including for table elements, add this snippet instead. This is not strictly needed but this will speed up the rendering of XML elements on screen:

   ```
   @namespace "http://acme.com/ns";
   @import url(xxe-config:common/css/xhtml_table.imp);
   ```

2. Add this snippet in your custom configuration for XXE. In the example below, you have chosen to prefix all the custom commands declared in your configuration using prefix "`my.`".

[1] That is, DocBook tables up to version 4.2. DocBook version 4.3+ supports both HTML4 and CALS tables.

```
<command name="my.tableEdit">
  <class>com.xmlmind.xmleditext.xhtml.table.HTMLTableEdit</class>
</command>
```

After that, you can reference the above table commands in your custom menu, custom tool bar or custom bindings. Example:

```
<menu label="M_yDoc">
  <item label="Insert Column _Before"
        icon="xxe-config:common/icons/insertColumnBefore.png"
        command="my.tableEdit" parameter="insertColumnBefore"/>
  ...
```

3. Add this other snippet to your custom configuration. Doing so will allow you to resize a table column by dragging its column separator [67].

```
<binding>
  <appEvent name="resize-table-column" />
  <command name="my.resizeTableColumn"
           parameter="%{resizedColumn} %{columnCount}
                      %{oldColumnWidths} %{newColumnWidths}" />
</binding>

<command name="my.resizeTableColumn">
  <class>com.xmlmind.xmleditext.xhtml.table.ResizeTableColumn</class>
</command>
```

1.1. HTML4 table editor command

Prerequisite in terms of selection	Parameter	Description
A cell or an element having a cell ancestor must be implicitly or explicitly selected.	`insertColumnBefore`	Insert a column before column containing specified cell.
	`insertColumnAfter`	Insert a column after column containing specified cell.
	`cutColumn`	Cut to the clipboard the column containing specified cell.
	`copyColumn`	Copy to the clipboard the column containing specified cell.
	`pasteColumnBefore`	Paste copied or cut column before column containing specified cell.
	`pasteColumnAfter`	Paste copied or cut column after column containing specified cell.
	`deleteColumn`	Delete the column containing specified cell.
	sortRows	Sort all the rows of the table according to the string values of the cells of the “selected column”. (The “selected column” is the column containing specified cell.)

Prerequisite in terms of selection	Parameter	Description
A row must be explicitly selected. OR a cell or an element having a cell ancestor must be implicitly or explicitly selected.	`insertRowBefore`	Insert a row before row containing specified cell.
	`insertRowAfter`	Insert a row before row containing specified cell.
	`cutRow`	Cut to the clipboard the row containing specified cell.
	`copyRow`	Copy to the clipboard the row containing specified cell.
	`pasteRowBefore`	Paste copied or cut row before row containing specified cell.
	`pasteRowAfter`	Paste copied or cut row after row containing specified cell.
	`deleteRow`	Delete the row containing specified cell.
A cell or an element having a cell ancestor must be implicitly or explicitly selected.	`incrColumnSpan`	Increment the number of columns spanned by specified cell.
	`decrColumnSpan`	Decrement the number of columns spanned by specified cell.
	`incrRowSpan`	Increment the number of rows spanned by specified cell.
	`decrRowSpan`	Decrement the number of rows spanned by specified cell.

2. CALS tables

The corresponding support code is contained in *`XXE_install_dir`*`/addon/config/common/docbook.jar`.

Procedure 3.2. Procedure

1. Add this snippet at the top of your CSS style sheet:

   ```
   @import url(xxe-config:common/css/cals_table.imp);
   ```

   If you use a namespace (e.g. `http://acme.com/ns`) for all the elements defined in your schema, including for table elements, add this snippet instead. This is not strictly needed but this will speed up the rendering of XML elements on screen:

   ```
   @namespace "http://acme.com/ns";
   @import url(xxe-config:common/css/cals_table.imp);
   ```

2. Add this snippet in your custom configuration for XXE. In the example below, you have chosen to prefix all the custom commands declared in your configuration using prefix "`my.`".

   ```
   <command name="my.tableEdit">
     <class>com.xmlmind.xmleditext.docbook.table.CALSTableEdit</class>
   </command>
   ```

After that, you can reference the above table commands in your custom menu, custom tool bar or custom bindings. Example:

```
<menu label="M_yDoc">
  <item label="Insert Column _Before"
        icon="xxe-config:common/icons/insertColumnBefore.png"
        command="my.tableEdit" parameter="insertColumnBefore"/>
  ...
```

3. Add this other snippet to your custom configuration. Doing so will allow you to resize a table column by dragging its column separator [67].

```
<binding>
  <appEvent name="resize-table-column" />
  <command name="my.resizeTableColumn"
           parameter="%{resizedColumn} %{columnCount}
                      %{oldColumnWidths} %{newColumnWidths}" />
</binding>

<command name="my.resizeTableColumn">
  <class>com.xmlmind.xmleditext.docbook.table.ResizeTableColumn</class>
</command>
```

4. File `docbook.jar` also contains a *validation hook* which ensures that the `cols` attribute of elements `tgroup` and `entrytbl` is always set to a correct value before a DocBook document is validated and hence, saved to disk.

   Using commands `tableColumn` and `tableRow` also ensures that the `cols` attribute is up to date. However it is strongly recommended to add this validation hook to your custom configuration. This is done by adding this snippet:

```
<validateHook name="cols_checker">
  <class>com.xmlmind.xmleditext.docbook.table.ValidateHookImpl</class>
</validateHook>
```

2.1. CALS table editor command

The parameters supported by this table editor command are identical to those of the HTML4 table editor command [24].

Chapter 4. Customizing mouse and key bindings used by XXE

1. Bindings specific to a document type

A configuration file such as *XXE_install_dir*/addon/config/docbook/docbook.xxe can contain binding [57] elements. A binding element specifies:

- a keystroke or a sequence of keystrokes which triggers a command,
- OR a mouse input which triggers a command or displays a custom popup menu.

For example, adding the following binding element to docbook.xxe will allow to convert selected text to emphasis (with role attribute set to bold) by pressing on function key **F5**:

```
<binding>
  <keyPressed code="F5" />
  <command name="docb.convertToBold" />
</binding>

<command name="docb.convertToBold">
  <macro>
    <sequence>
      <command name="convert" parameter="[implicitElement] emphasis" />
      <command name="putAttribute" parameter="role bold" />
    </sequence>
  </macro>
</command>
```

It is recommended to add custom bindings into a separate file and to include this file in configurations files bundled with XXE rather than directly modifying the bundled configuration files.

For example, if you want to use the **F5** key for converting text to emphasis in all documents belonging to the DocBook family (DocBook, Simplified DocBook, Slides), add the elements of the previous example to a file called /opt/xxe-custom/extrabindings.incl and include this file in *XXE_install_dir*/addon/config/docbook/docbook.xxe.

```
<include location="file:///opt/xxe-custom/extrabindings.incl" />
```

In next chapter [30], we will learn how to that without modifying the bundled configuration files.

XXE *does not allow bindings defined in document type specific configuration files to override its menu accelerators.*

Example 1: you cannot bind **Ctrl**+**Q** to command docb.convertToBold because **Ctrl**+**Q** is used to quit XXE.

Example 2: you cannot bind **Ctrl**+**I** to command docb.convertToBold because, by default, **Ctrl**+**I** triggers command "insert" with parameter "into" (menu item **Edit** → **Insert**).

2. Generic bindings

What if you want add bindings which are not specific to a document type. Do you really have to include them in all configuration files?

What if you really *hate* some of the default bindings of **XXE**? Do you really have to stop using **XXE**?

The answer is no to both questions. Simply add your generic bindings to a file called `customize.xxe` anywhere **XXE** can find it. For example, create this file in the `addon/` subdirectory of your user preferences directory. **XXE** user preferences directory is:

- *`$HOME`*`/.xxe10/` on Linux.
- *`$HOME`*`/Library/Application Support/XMLmind/XMLEditor10/` on the Mac.
- *`%APPDATA%`*`\XMLmind\XMLEditor10\` on Windows. Example: `C:\Users\john\AppData\Roaming\XMLmind\XMLEditor10\`.

  If you cannot see the "`AppData`" directory using Microsoft Windows File Manager, turn on **Tools**>**Folder Options**>**View**>**File and Folders**>**Show hidden files and folders**.

For more information about how **XXE** finds its configuration files, please read Section 1, “Dynamic discovery of add-ons” [151].

If several configuration files called `customize.xxe` are found, their contents are merged with a higher priority to `customize.xxe` files found in the user preferences directory.

File `customize.xxe` may also be used to specify parameterGroup [113], imageToolkit [90], property [113].

A *very useful*[1] sample `customize.xxe` may be downloaded and installed using XXE add-on manager (**Options** → **Install Add-ons**). Excerpt of this sample `customize.xxe`:

```
                    . . .
<binding>
  <keyPressed code="ESCAPE" />
  <charTyped char="l" />
  <command name="convertCase" parameter="lower" />
</binding>

<binding>
  <keyPressed code="ESCAPE" />
  <charTyped char="u" />
  <command name="convertCase" parameter="upper" />
</binding>

<command name="insertCommandOutput">
  <macro>
    <sequence>
      <command name="run" />
      <command name="insertString" parameter="%_" />
    </sequence>
  </macro>
```

[1] Yours truly cannot use XXE without it.

```
</command>

<binding>
  <keyPressed code="ESCAPE" />
  <charTyped char="!" />
  <command name="insertCommandOutput" />
</binding>
                    . . .
```

Defining a binding in `customize.xxe` prevents XXE from using the same keystroke as a menu accelerator. For example, if you bind a command such as "`recordMacro toggle`" to **Ctrl**+**O**, then menu item **File** → **Open** will loose its customary shortcut.

Chapter 5. Customizing an existing configuration

This chapter is not a tutorial. It will merely give you some recipes. If you want to understand what you are doing, please refer to Writing a configuration file for **XXE** [4].

Let's suppose you want to customize one of the DITA[1], DocBook 5, DocBook 4 or XHTML configurations, here's what to do.

1. Create in *XXE_user_preferences_dir*/addon/[2] a subdirectory which will contain all the files comprising your customization.

   The name of this directory is not important. Let's suppose you have created *XXE_user_preferences_dir*/addon/custom/.

2. Copy one of the following template files depending on which configuration you want to customize:

Configuration Name	Procedure
DITA	Copy 0topic.xxe to custom/.
DITA Map	Copy 0map.xxe to custom/.
DITA BookMap	Copy 0bookmap.xxe to custom/.
DocBook Assembly 5.2	Copy 0assembly52.xxe to custom/.
DocBook 5.2	Copy 0docbook52.xxe to custom/.
DocBook Assembly 5.1	Copy 0assembly51.xxe to custom/.
DocBook 5.1	Copy 0docbook51.xxe to custom/.
DocBook 5.0	Copy 0docbook5.xxe to custom/.
DocBook 4	Copy 0docbook.xxe to custom/.
XHTML Strict	Copy 0xhtml_strict.xxe to custom/.
XHTML Transitional	Copy 0xhtml_loose.xxe to custom/.
XHTML 1.1	Copy 0xhtml11.xxe to custom/.
XHTML 5	Copy 0xhtml5.xxe to custom/.

   For example, 0docbook5.xxe[3] looks like this:

```
<configuration [69] name="DocBook 5.0"
  xmlns="http://www.xmlmind.com/xmleditor/schema/configuration"
  xmlns:cfg="http://www.xmlmind.com/xmleditor/schema/configuration"
  xmlns:db="http://docbook.org/ns/docbook"
  xmlns:svg="http://www.w3.org/2000/svg"
  xmlns:xi="http://www.w3.org/2001/XInclude"
  xmlns:xlink="http://www.w3.org/1999/xlink"
```

[1] The configuration associated to DITA topics is called DITA. The configuration associated to DITA maps is called DITA Map. The configuration associated to DITA bookmaps is called DITA BookMap.
[2] *XXE_user_preferences_dir* is documented in Where is **XXE** user preferences directory? [7].
[3] The “funny” name, starting with a "0", has its utility if you happen to create your customization in *XXE_install_dir*/addon/ rather than in *XXE_user_preferences_dir*/addon/.

```
  xmlns:html="http://www.w3.org/1999/xhtml">

  <include [94] location="docbook5-config:docbook5.xxe" />

</configuration>
```

3. This step involves adding one or more configuration elements after the `include` element. This is done using any XML or text editor. Each of the following sections describes a common customization step.

4. Restart **XXE**.

1. Adding a custom document template

If you want to add a new document template which would be listed in the dialog box displayed by **File** → **New**:

1. Create this document template, preferably using XMLmind XML Editor. At least, make sure that the created file is valid by opening it in **XXE**.

2. Copy this file to `custom/`.

3. Let's suppose this file is called `template1.xml` and that you want your document template to be listed in the dialog box as "`Template #1`".

   Add the following template [124] configuration element to your custom `.xxe` file (e.g. `0docbook5.xxe`):

   ```
   <template [124] name="Template #1"
             location="template1.xml" />
   ```

2. Replacing an existing document template

Add the following template [124] configuration element to your custom `.xxe` file:

```
<template [124] name="Name of the template to be replaced"
          location="template1.xml" />
```

Specify the *English* name [32] of the template as listed by the **File** → **New** dialog box. XHTML example: "`Page`" (not "`Seite`").

How to see the English names of configuration elements?

When you want to remove or replace an existing configuration element, you need to refer to it by its English name. You cannot refer to it by its localized name.

Now, how to learn what is the English name of a given configuration element? The obvious solution is to look in the bundled configuration files:

Configuration Name	Bundled Configuration Files
DITA DITA Map DITA BookMap	`XXE_install_dir/addon/config/dita/*.xxe`, `*.incl`.
DocBook Assembly 5.1 or 5.2 DocBook 5.1 or 5.2	`XXE_install_dir/addon/config/docbook51/*.xxe`, `*.incl`.
DocBook 5.0	`XXE_install_dir/addon/config/docbook5/*.xxe`, `*.incl`.
DocBook 4	`XXE_install_dir/addon/config/docbook/*.xxe`, `*.incl`.
XHTML Strict XHTML Transitional XHTML 1.1 XHTML 5	`XXE_install_dir/addon/config/xhtml/*.xxe`, `*.incl`.

Given the fact that the names of configuration elements are often displayed by the GUI of **XXE** (the name of document templates are listed in the **File** → **New** dialog box, the names of CSS style sheets are listed in the **View** menu, etc), a simpler solution consists in temporarily switching to the English locale. In order to do this, use **Options** → **Preferences**, **General** section, **Locale** combobox. More information in **Locale** in *XMLmind XML Editor - Online Help*.

3. Removing an existing document template

Add the following template [124] configuration element to your custom `.xxe` file:

```
<template [124] name="Name of the template to be removed" />
```

Specify the *English* name [32] of the template as listed by the **File** → **New** dialog box. XHTML example: "`Page`" (not "`Seite`").

4. Adding a custom CSS style sheet

Procedure:

1. Copy one of the following files depending on which configuration you want to customize:

Configuration Name	Procedure
DITA	Copy topic.css to `custom/`.
DITA Map	Copy map.css to `custom/`.
DITA BookMap	Copy bookmap.css to `custom/`.
DocBook Assembly 5.1 and 5.2[a]	Copy assembly.css to `custom/`.
DocBook 5.0, 5.1 and 5.2[b]	Copy docbook5.css to `custom/`.
DocBook 4	Copy docbook.css to `custom/`.
XHTML Strict, Transitional and 1.1	Copy xhtml1.css to `custom/`.
XHTML 5	Copy xhtml5.css to `custom/`.

[a]DocBook Assembly 5.1 and 5.2 documents are styled using the same `assembly.css` CSS style sheet.
[b]DocBook 5.0, 5.1 and 5.2 documents are all styled using the same `docbook5.css` CSS style sheet.

For example, `xhtml5.css` looks like this:

```
@import url(xhtml-config:css/xhtml5.css);
```

2. Edit this file using a text editor and add one or more CSS rules after the `@import` directive.

   XHTML example:

   ```
   p {
       color: red;
   }
   ```

   DocBook 4 or 5 example:

   ```
   para {
       color: red;
   }
   ```

3. Let's suppose this file is called `stylesheet1.css` and that you want your style sheet to be listed in the **View** menu as "`Style sheet #1`".

   Add the following css [72] configuration element to your custom `.xxe` file:

   ```
   <css name="Style sheet #1"
        location="stylesheet1.css"
        alternate="true" />
   ```

4. If you want to make your custom CSS style sheet the default one, add the following viewSettings [143] configuration element:

```
<viewSettings>
  <center css="Style sheet #1" />
</viewSettings>
```

5. Replacing an existing CSS style sheet

Add the following css [72] configuration element to your custom `.xxe` file:

```
<css [72] name="Name of the CSS style sheet to be replaced"
     location="stylesheet1.css"
     alternate="true or false: copy the original value" />
```

Specify the *English* name [32] of the CSS style sheet as listed in the **View** menu.

6. Removing an existing CSS style sheet

Add the following css [72] configuration element to your custom `.xxe` file:

```
<css [72] name="Name of the CSS style sheet to be removed" />
```

Specify the *English* name [32] of the CSS style sheet as listed in the **View** menu.

7. Adding buttons to the tool bar

1. Add the following toolBar [125] configuration element to your custom `.xxe` file:

   ```
   <toolBar [125]>
     <insert />
   </toolBar>
   ```

2. After the `insert` element, add one or more `separator` and/or `button` elements. Example:

   ```
   <toolBar>
     <insert />
     <separator />
     <button toolTip="TEST" icon="xxe-config:common/icons2/help.gif">
       <command name="alert" parameter="TEST"/>
     </button>
   </toolBar>
   ```

8. Adding items to the menu

1. Add the following menu [105] configuration element to your custom `.xxe` file:

```
<menu [105] label="-">
  <insert />
</menu>
```

Attribute `label` is required. The value `-` simply means that you do not want to change the original label of the menu.

2. After the `insert` element, add one or more `separator` and/or `item` and/or `menu` elements. Example:

```
<menu label="_DocBook">
  <insert />
  <separator />
  <item label="TEST #_1" icon="xxe-config:common/icons2/help.gif"
        command="alert" parameter="TEST #1" />
  <separator />
  <menu label="SUBMENU">
    <item label="TEST #_2"
          command="alert" parameter="TEST #2" />
  </menu>
</menu>
```

- The `icon` attribute is optional for `item` elements.
- The "_" character in the `label` attribute is optional. It is used to specify the position of the menu mnemonic, if any.

9. Parametrizing the XSLT style sheets used in the Convert Document submenu

Add one or more parameterGroup [113] configuration elements to your custom `.xxe` file:

```
<parameterGroup [113] name="Name of the parameter group">
  <parameter name="Name of parameter #1">Value or parameter #1</parameter>
  <parameter name="Name of parameter #2">Value or parameter #2</parameter>
  <parameter name="Name of parameter #3">Value or parameter #3</parameter>
</parameterGroup>
```

Which parameters to specify is found by reading the documentation of the XSLT style sheets. For example, the reference manual of the DocBook XSLT style sheets is: DocBook XSL Stylesheet Documentation.

Configuration Name	Convert to	Name of the `parameterGroup`
DITA DITA Map DITA BookMap	XHTML multi-page	`dita.toXHTML.transformParameters`
	XHTML single page	`dita.toXHTML1.transformParameters`
	HTML Help	`dita.toHTMLHelp.transformParameters`
	Eclipse Help	`dita.toEclipseHelp.transformParameters`
	Web Help	`dita.toWebHelp.transformParameters`

Configuration Name	Convert to	Name of the `parameterGroup`
	EPUB	`dita.toEPUB.transformParameters`
	RTF, WordprocessingML, OpenDocument, OOXML	`dita.toRTF.transformParameters`
	PDF, PostScript	`dita.toPS.transformParameters`
DocBook Assembly 5.1, 5.2	HTML multi-page	`asm.toHTML.transformParameters`
	HTML single page	`asm.toHTML1.transformParameters`
	HTML Help	`asm.toHTMLHelp.transformParameters`
	Eclipse Help	`asm.toEclipseHelp.transformParameters`
	Web Help	`asm.toWebHelp.transformParameters`
	EPUB	`asm.toEpub.transformParameters`
	RTF, WordprocessingML, OpenDocument, OOXML	`asm.toRTF.transformParameters`
	PDF, PostScript	`asm.toPS.transformParameters`
DocBook 5.1, 5.2	HTML multi-page	`db51.toHTML.transformParameters`
	HTML single page	`db51.toHTML1.transformParameters`
	HTML Help	`db51.toHTMLHelp.transformParameters`
	Eclipse Help	`db51.toEclipseHelp.transformParameters`
	Web Help	`db51.toWebHelp.transformParameters`
	EPUB	`db51.toEpub.transformParameters`
	RTF, WordprocessingML, OpenDocument, OOXML	`db51.toRTF.transformParameters`
	PDF, PostScript	`db51.toPS.transformParameters`
DocBook 5.0	HTML multi-page	`db5.toHTML.transformParameters`
	HTML single page	`db5.toHTML1.transformParameters`
	HTML Help	`db5.toHTMLHelp.transformParameters`
	Eclipse Help	`db5.toEclipseHelp.transformParameters`
	Web Help	`db5.toWebHelp.transformParameters`
	EPUB	`db5.toEpub.transformParameters`
	RTF, WordprocessingML, Open-	`db5.toRTF.transformParameters`

Configuration Name	Convert to	Name of the `parameterGroup`
	Document, OOXML	
	PDF, PostScript	`db5.toPS.transformParameters`
DocBook 4	HTML multi-page	`docb.toHTML.transformParameters`
	HTML single page	`docb.toHTML1.transformParameters`
	HTML Help	`docb.toHTMLHelp.transformParameters`
	Eclipse Help	`docb.toEclipseHelp.transformParameters`
	Web Help	`docb.toWebHelp.transformParameters`
	EPUB	`docb.toEpub.transformParameters`
	RTF, WordprocessingML, OpenDocument, OOXML	`docb.toRTF.transformParameters`
	PDF, PostScript	`docb.toPS.transformParameters`
XHTML Strict XHTML Transitional XHTML 1.1 XHTML 5	RTF, WordprocessingML, OpenDocument, OOXML	`xhtml.toRTF.transformParameters`
	PDF, PostScript	`xhtml.toPS.transformParameters`

Example: Use UTF-8 encoding when convert DocBook documents to multi-page HTML:

```
<parameterGroup name="docb.toHTML.transformParameters">
  <parameter name="chunker.output.encoding">UTF-8</parameter>
  <parameter name="saxon.character.representation">native;decimal</parameter>
</parameterGroup>
```

Example: When converting DocBook 5.0 document to RTF, WordprocessingML, OpenDocument, OOXML or to PDF, PostScript, style `variablelist` like XXE does it on screen. That is, do not put the term and its definition side by side.

```
<parameterGroup name="db5.toRTF.transformParameters">
  <parameter name="variablelist.as.blocks">1</parameter>
</parameterGroup>

<parameterGroup name="db5.toPS.transformParameters">
  <parameter name="variablelist.as.blocks">1</parameter>
</parameterGroup>
```

10. Customizing the XSLT style sheets used in the Convert Document submenu

In order to do this, you need to use a custom XSLT style sheet instead of the stock one. Of course, the custom XSLT style sheet includes the stock one, so you can concentrate on your customizations.

Once you have created your custom XSLT style sheet, you have to specify to XXE that it must use it instead on the stock one. This is done by the means of a system property having the proper name and value.

1. Copy one of the following template files depending on which configuration you want to customize and on which format you want to generate:

Configuration Name	Convert to	Procedure
DITA DITA Map DITA BookMap	XHTML multi-page	Copy xhtml.xsl to `custom/`.
	XHTML single page	Copy xhtml.xsl to `custom/`.
	HTML Help	Copy htmlhelp.xsl to `custom/`.
	Java Help	Copy javahelp.xsl to `custom/`.
	Eclipse Help	Copy eclipsehelp.xsl to `custom/`.
	Web Help	Copy webhelp.xsl to `custom/`.
	EPUB	Copy epub.xsl to `custom/`.
	RTF, WordprocessingML, OpenDocument, OOXML	Copy fo.xsl to `custom/`.
	PDF, PostScript	Copy fo.xsl to `custom/`.
DocBook 5.0, 5.1, 5.2[a] DocBook Assembly 5.1, 5.2[a]	HTML multi-page	Copy chunk.xsl to `custom/`.
	HTML single page	Copy html.xsl to `custom/`.
	HTML Help	Copy htmlhelp.xsl to `custom/`.
	Java Help	Copy javahelp.xsl to `custom/`.
	Eclipse Help	Copy eclipse.xsl to `custom/`.
	Web Help	Copy webhelp.xsl to `custom/`.
	EPUB	Copy epub.xsl to `custom/`.
	RTF, WordprocessingML, OpenDocument, OOXML	Copy fo.xsl to `custom/`.
	PDF, PostScript	Copy fo.xsl to `custom/`.

Configuration Name	Convert to	Procedure
DocBook 4	HTML multi-page	Copy chunk.xsl to `custom/`.
	HTML single page	Copy html.xsl to `custom/`.
	HTML Help	Copy htmlhelp.xsl to `custom/`.
	Java Help	Copy javahelp.xsl to `custom/`.
	Eclipse Help	Copy eclipse.xsl to `custom/`.
	Web Help	Copy webhelp.xsl to `custom/`.
	EPUB	Copy epub.xsl to `custom/`.
	RTF, WordprocessingML, OpenDocument, OOXML	Copy fo.xsl to `custom/`.
	PDF, PostScript	Copy fo.xsl to `custom/`.
XHTML Strict XHTML Transitional XHTML 1.1 XHTML 5	RTF, WordprocessingML, OpenDocument, OOXML	Copy fo.xsl to `custom/`.
	PDF, PostScript	Copy fo.xsl to `custom/`.

[a] DocBook 5.0, 5.1, 5.2 and DocBook Assembly 5.1, 5.2 documents are converted using the same set of XSL style sheets.

For example, DocBook 5 `chunk.xsl` looks like this:

```
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
                xmlns:d="http://docbook.org/ns/docbook"
                version="1.0"
                exclude-result-prefixes="d">

  <xsl:import href="docbook5-config:xsl/html/chunk.xsl"/>

</xsl:stylesheet>
```

2. Edit this file using an XML or text editor and add one or more XSLT elements after the `xsl:import` element.

   DocBook 4 `html.xsl` example: Use the UTF-8 encoding instead of default ISO-8859-1 when converting a DocBook 4 document to *single page* HTML[4]:

```
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
                version="1.0">
```

[4] XSLT style sheet parameter `chunker.output.encoding` does not work in this case.

```
  <xsl:import href="docbook-config:xsl/html/docbook.xsl"/>

  <xsl:output method="html"
              encoding="UTF-8"
              indent="no"
              saxon:character-representation="native;decimal"/>
</xsl:stylesheet>
```

DocBook 4 `fo.xsl` example: add more information to the title page of book:

```
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
                xmlns:fo="http://www.w3.org/1999/XSL/Format"
                version="1.0">

<xsl:import href="docbook-config:xsl/fo/docbook.xsl"/>

<xsl:template match="bookinfo/author|info/author" mode="titlepage.mode">
  <fo:block>
    <xsl:call-template name="anchor"/>
    <xsl:call-template name="person.name"/>
    <xsl:if test="affiliation/orgname">
      <fo:block>
        <xsl:apply-templates select="affiliation/orgname"
                             mode="titlepage.mode"/>
      </fo:block>
    </xsl:if>
    <xsl:if test="email|affiliation/address/email">
      <fo:block>
        <xsl:apply-templates select="(email|affiliation/address/email)[1]"/>
      </fo:block>
    </xsl:if>
  </fo:block>
</xsl:template>

</xsl:stylesheet>
```

3. Add one of the following property [113] configuration element to your custom `.xxe` file:

Configuration Name	Convert to	Property Configuration Element
DITA DITA Map DITA BookMap	XHTML multi-page	`<property name="dita.toXHTML.transform" url="true">xhtml.xsl</property>`
	XHTML single page	`<property name="dita.toXHTML1.transform" url="true">xhtml.xsl</property>`
	HTML Help	`<property name="dita.toHTMLHelp.transform" url="true">htmlhelp.xsl</property>`

Configuration Name	Convert to	Property Configuration Element
	Eclipse Help	`<property name="dita.toEclipseHelp.transform" url="true">eclipsehelp.xsl</property>`
	Web Help	`<property name="dita.toWebHelp.transform" url="true">webhelp.xsl</property>`
	EPUB	`<property name="dita.toEPUB.transform" url="true">epub.xsl</property>`
	RTF, WordprocessingML, OpenDocument, OOXML	`<property name="dita.toRTF.transform" url="true">fo.xsl</property>`
	PDF, PostScript	`<property name="dita.toPS.transform" url="true">fo.xsl</property>`
DocBook Assembly 5.1 and 5.2	HTML multi-page	`<property name="asm.toHTML.transform" url="true">chunk.xsl</property>`
	HTML single page	`<property name="asm.toHTML1.transform" url="true">html.xsl</property>`
	HTML Help	`<property name="asm.toHTMLHelp.transform" url="true">htmlhelp.xsl</property>`
	Eclipse Help	`<property name="asm.toEclipseHelp.transform" url="true">eclipse.xsl</property>`
	Web Help	`<property name="asm.toWebHelp.transform" url="true">webhelp.xsl</property>`
	EPUB	`<property name="asm.toEpub.transform" url="true">epub.xsl</property>`
	RTF, WordprocessingML, OpenDocument, OOXML	`<property name="asm.toRTF.transform" url="true">fo.xsl</property>`
	PDF, PostScript	`<property name="asm.toPS.transform" url="true">fo.xsl</property>`

Configuration Name	Convert to	Property Configuration Element
DocBook 5.1 and 5.2	HTML multi-page	`<property name="db51.toHTML.transform" url="true">chunk.xsl</property>`
	HTML single page	`<property name="db51.toHTML1.transform" url="true">html.xsl</property>`
	HTML Help	`<property name="db51.toHTMLHelp.transform" url="true">htmlhelp.xsl</property>`
	Eclipse Help	`<property name="db51.toEclipseHelp.transform" url="true">eclipse.xsl</property>`
	Web Help	`<property name="db51.toWebHelp.transform" url="true">webhelp.xsl</property>`
	EPUB	`<property name="db51.toEpub.transform" url="true">epub.xsl</property>`
	RTF, WordprocessingML, OpenDocument, OOXML	`<property name="db51.toRTF.transform" url="true">fo.xsl</property>`
	PDF, PostScript	`<property name="db51.toPS.transform" url="true">fo.xsl</property>`
DocBook 5.0	HTML multi-page	`<property name="db5.toHTML.transform" url="true">chunk.xsl</property>`
	HTML single page	`<property name="db5.toHTML1.transform" url="true">html.xsl</property>`
	HTML Help	`<property name="db5.toHTMLHelp.transform" url="true">htmlhelp.xsl</property>`
	Eclipse Help	`<property name="db5.toEclipseHelp.transform" url="true">eclipse.xsl</property>`
	Web Help	`<property name="db5.toWebHelp.transform" url="true">webhelp.xsl</property>`

Configuration Name	Convert to	Property Configuration Element
	EPUB	`<property name="db5.toEpub.transform" url="true">epub.xsl</property>`
	RTF, WordprocessingML, OpenDocument, OOXML	`<property name="db5.toRTF.transform" url="true">fo.xsl</property>`
	PDF, PostScript	`<property name="db5.toPS.transform" url="true">fo.xsl</property>`
DocBook 4	HTML multi-page	`<property name="docb.toHTML.transform" url="true">chunk.xsl</property>`
	HTML single page	`<property name="docb.toHTML1.transform" url="true">html.xsl</property>`
	HTML Help	`<property name="docb.toHTMLHelp.transform" url="true">htmlhelp.xsl</property>`
	Eclipse Help	`<property name="docb.toEclipseHelp.transform" url="true">eclipse.xsl</property>`
	Web Help	`<property name="docb.toWebHelp.transform" url="true">webhelp.xsl</property>`
	EPUB	`<property name="docb.toEpub.transform" url="true">epub.xsl</property>`
	RTF, WordprocessingML, OpenDocument, OOXML	`<property name="docb.toRTF.transform" url="true">fo.xsl</property>`
	PDF, PostScript	`<property name="docb.toPS.transform" url="true">fo.xsl</property>`
XHTML Strict XHTML Transitional XHTML 1.1 XHTML 5	RTF, WordprocessingML, OpenDocument, OOXML	`<property name="xhtml.toRTF.transform" url="true">fo.xsl</property>`
	PDF, PostScript	`<property name="xhtml.toPS.transform" url="true">fo.xsl</property>`

11. Using a custom CSS style sheet to style the HTML files generated by the Convert Document submenu

Procedure:

1. Copy your custom CSS style sheet to the `custom/` directory.

   Let's suppose the name of the custom CSS style sheet is `fancy.css`.

2. Add one or more of the following property [113] configuration element to your custom `.xxe` file, depending on the kind of HTML files you want to style (HTML Help, Java Help, Eclipse Help and Epub are all HTML-based formats):

Configuration Name	Convert to	Property Configuration Element
DITA DITA Map DITA BookMap	XHTML multi-page	`<property name="dita.toXHTML.resource.css" url="true">fancy.css</property>`
	XHTML single page	`<property name="dita.toXHTML1.resource.css" url="true">fancy.css</property>`
	HTML Help	`<property name="dita.toHTMLHelp.resource.css" url="true">fancy.css</property>`
	Web Help	`<property name="dita.toWebHelp.resource.css" url="true">fancy.css</property>`
	Eclipse Help	`<property name="dita.toEclipseHelp.resource.css" url="true">fancy.css</property>`
	EPUB	`<property name="dita.toEPUB.resource.css" url="true">fancy.css</property>`
DocBook Assembly 5.1 and 5.2	HTML multi-page	`<property name="asm.toHTML.resource.css" url="true">fancy.css</property>`
	HTML single page	`<property name="asm.toHTML1.resource.css" url="true">fancy.css</property>`
	HTML Help	`<property name="asm.toHTMLHelp.resource.css" url="true">fancy.css</property>`
	Web Help	`<property name="asm.toWebHelp.resource.css" url="true">fancy.css</property>`

Configuration Name	Convert to	Property Configuration Element
	Eclipse Help	`<property name="asm.toEclipseHelp.resource.css" url="true">fancy.css</property>`
	EPUB	`<property name="asm.toEpub.resource.css" url="true">fancy.css</property>`
DocBook 5.1 and 5.2	HTML multi-page	`<property name="db51.toHTML.resource.css" url="true">fancy.css</property>`
	HTML single page	`<property name="db51.toHTML1.resource.css" url="true">fancy.css</property>`
	HTML Help	`<property name="db51.toHTMLHelp.resource.css" url="true">fancy.css</property>`
	Web Help	`<property name="db51.toWebHelp.resource.css" url="true">fancy.css</property>`
	Eclipse Help	`<property name="db51.toEclipseHelp.resource.css" url="true">fancy.css</property>`
	EPUB	`<property name="db51.toEpub.resource.css" url="true">fancy.css</property>`
DocBook 5.0	HTML multi-page	`<property name="db5.toHTML.resource.css" url="true">fancy.css</property>`
	HTML single page	`<property name="db5.toHTML1.resource.css" url="true">fancy.css</property>`
	HTML Help	`<property name="db5.toHTMLHelp.resource.css" url="true">fancy.css</property>`
	Web Help	`<property name="db5.toWebHelp.resource.css" url="true">fancy.css</property>`
	Eclipse Help	`<property name="db5.toEclipseHelp.resource.css" url="true">fancy.css</property>`

Configuration Name	Convert to	Property Configuration Element
	EPUB	`<property name="db5.toEpub.resource.css" url="true">fancy.css</property>`
DocBook 4	HTML multi-page	`<property name="docb.toHTML.resource.css" url="true">fancy.css</property>`
	HTML single page	`<property name="docb.toHTML1.resource.css" url="true">fancy.css</property>`
	HTML Help	`<property name="docb.toHTMLHelp.resource.css" url="true">fancy.css</property>`
	Web Help	`<property name="docb.toWebHelp.resource.css" url="true">fancy.css</property>`
	Eclipse Help	`<property name="docb.toEclipseHelp.resource.css" url="true">fancy.css</property>`
	EPUB	`<property name="docb.toEpub.resource.css" url="true">fancy.css</property>`

Part II. Configuration reference

Table of Contents

Chapter 6. Configuration elements

1. attributeEditor

```
<attributeEditor
  attribute = Name
  elementMatches = XPath pattern
>
  Content: [ class [ property ]* ]? |
           [ list ]?
</attributeEditor>

<class>
  Content: Java class name
</class>

<property
  name = NMTOKEN matching [_a-zA-Z][_a-zA-Z0-9]*
  type = (boolean|byte|char|short|int|long|float|double|
          String|URL)
  value = string
/>

<list
  allowAnyValue = boolean : false
  allowWhitespace = boolean : dynamic
  allowMultipleValues = boolean : false
  valueSeparator = string containing a single character : " "
  selectItems = XPath expression
  itemValue = XPath expression
  itemDescription = XPath expression
>
  Content: [ item ]*
</list>

<item
  description = Non empty token
>
  Content: Non empty string
</item>
```

The `attributeEditor` configuration element allows to extend the **Attributes** tool. There are two kinds of such extensions:

1. An extension which returns the list of all possible values for a given attribute. Example:

```
<attributeEditor attribute="f:remove" elementMatches="f:filter"
  xmlns:f="urn:namespace:filter">
  <list>
    <item>red</item>
    <item>green</item>
```

```
    <item>blue</item>
  </list>
</attributeEditor>
```

2. An extension which creates a modal dialog box allowing to edit the value of a given attribute. This dialog box is passed the initial attribute value (or the empty string if the attribute has not yet been specified). The dialog box is then expected to return a possibly modified value for this attribute. XHTML example:

```
<attributeEditor attribute="bgcolor"
  elementMatches="html:table|html:tr|html:th|html:td|html:body"
  xmlns:html="http://www.w3.org/1999/xhtml">
  <class>HexColorChooser</class>
</attributeEditor>
```

These extensions are used by the **Attributes** tool as follows:

1. The **Value** field which supports auto-completion will display the items of the list.

2. When you click the **Edit** button or right-click on an attribute, this displays a popup menu. The first entry of this menu is also called **Edit** and displays a dialog box allowing to edit the attribute more comfortably than with the **Value** field. The dialog box displayed in this case comes from the `attributeEditor` configuration element.

Note that when an extension returns a list, a specialized dialog box may be automatically wrapped around this list. That is, when an extension returns a list, not only the **Value** field will provide auto-completion for the attributes values, but also the **Edit** popup menu item will display a specialized dialog box.

The attributes of the `attributeEditor` configuration element are used to detect attributes for which a custom editor is to be created:

`attribute`
: The XML qualified name of the attribute.

`elementMatches`
: An XPath pattern matching the elements possibly having the attribute whose name is specified by above attribute `attribute`.

Note that an `attributeEditor` is uniquely identified by its `attribute` and `elementMatches` attributes and also by the name of the configuration containing it. For example, the following `attributeEditors` do not conflict provided that they are defined in different configurations:

```
<attributeEditor attribute="ref" elementMatches="*">
  <list selectItems="//part/@number" />
</attributeEditor>
```

```
<attributeEditor attribute="ref" elementMatches="*">
  <list>
    <item>internal</item>
    <item>external</item>
```

```
  </list>
</attributeEditor>
```

The child elements the `attributeEditor` configuration element are used to specify how the custom editor is to be implemented by the **Attributes** tool:

`class`

This element contains the fully qualified name of a class which implements one or both of the following interfaces: `com.xmlmind.xmledit.cmd.attribute.SetAttribute.ChoicesFactory`, `com.xmlmind.xmledit.cmd.attribute.SetAttribute.EditorFactory`.

The `property` child elements of the class element allow to parameterize the newly created instance of this class. See bean properties [82].

DocBook example:

```
<attributeEditor attribute="linkend" elementMatches="xref|link">
  <class>com.xmlmind.xmleditapp.linktype.RefChoicesFactory</class>
  <property name="listIfMemberOfDocSet" type="boolean" value="true" />
</attributeEditor>
```

`list`

This element specifies all possible values for a given attribute. The items of this list may be statically described by the means of the `item` child element or dynamically computed by the means of the `selectItems`, `itemValue` and `itemDescription` XPath expressions.

Static lists

A static list comprises only the items specified by its `item` child elements. The string contained in the `item` element specifies the value of the item. The optional `description` attribute provides a description of this value.

Items are automatically sorted by their values. Duplicate items are automatically removed.

DITA example:

```
<attributeEditor attribute="audience" elementMatches="*">
  <list allowMultipleValues="true">
    <item description="A user of the product">user</item>
    <item description="A product purchaser">purchaser</item>
    <item description="A product administrator">administrator</item>
    <item description="A programmer">programmer</item>
    <item description="An executive">executive</item>
    <item description="Someone who provides services
                       related to the product">services</item>
  </list>
</attributeEditor>
```

DocBook example:

```
<attributeEditor attribute="userlevel" elementMatches="*">
  <list allowMultipleValues="true" valueSeparator=";">
```

```
    <item>beginner</item>
    <item>intermediate</item>
    <item>advanced</item>
    <item>expert</item>
  </list>
</attributeEditor>
```

Dynamic lists

Unless a list has `item` child elements, specifying at least attribute `selectItems` is mandatory.

`selectItems`
: Returns a node set enumerating all list items. This XPath expression is evaluated in the context of the element having the attribute being edited by the **Attributes** tool.

`itemValue`
: This XPath expression is evaluated in the context of each node returned by `selectItems`. It returns a string which is the value of the item. Items having an empty value are discarded.

  When this attribute is missing, the value of an item is the string value of the node selected by `selectItems`.

`itemDescription`
: This XPath expression is evaluated in the context of each node returned by `selectItems`. It returns a string which is the description of the item. Empty descriptions are ignored.

  When this attribute is missing, an item has no description.

Items are automatically sorted by their values. Duplicate items are automatically removed.

XHTML example:

```
<attributeEditor attribute="for" elementMatches="html:label">
  <list selectItems="//html:input|//html:select" itemValue="@id"
        itemDescription="concat(local-name(.), ' ', @type)"
        allowWhitespace="false" />
</attributeEditor>
```

A convenient way to describe an element is to use XPath extension function `sa:getElementDescription(`*`nodeset_returning_an_element`*`)`, where prefix "`sa`" is bound to namespace "`java:com.xmlmind.xmledit.cmd.attribute.SetAttribute`".

For example, the above XHTML example could be rewritten as:

```
<attributeEditor attribute="for" elementMatches="html:label">
  <list selectItems="//html:input|//html:select" itemValue="@id"
        itemDescription="sa:getElementDescription(.)"
        xmlns:sa="java:com.xmlmind.xmledit.cmd.attribute.SetAttribute"
        allowWhitespace="false" />
</attributeEditor>
```

Other `list` attributes

`allowAnyValue`

Allow the user to specify values other than the ones coming from the list.

`allowWhitespace`

List items may have values containing whitespace. When the list is static, the default value of this attribute is determined by examining all the items of the list. When the list is dynamic, the default value of this attribute is `true`.

`allowMultipleValues`

The value of the attribute may contain one or more tokens (coming from the values of the list items) separated by `valueSeparator`.

`valueSeparator`

Character used to separate tokens. Default to the whitespace character (U+0020), which means: *any* whitespace character. Ignored unless `allowMultipleValues` is `true`.

Remember that a custom attribute editor specified using `attributeEditor` is just here to help the user specify an attribute value. It's not really designed to *validate* what the user specifies. It's up to the underlying DTD or schema to perform this validation task.

An `attributeEditor` element without any child element may be used to remove from a configuration a previously defined `attributeEditor` having the same `attribute` and `elementMatches` attributes.

2. attributeVisibility

```
<attributeVisibility>
  Content: [ category ]*
</attributeVisibility>

<category
  name = Non-empty token
  attributes = Non-empty list of QNames,
               (a QName may optionnaly be followed
                by a list of exceptions [55])
  visible = boolean : true
  merge = replace|add|remove : replace
/>
```

The `attributeVisibility` configuration element specifies the checkbox entries of the menu displayed by clicking the down arrow button found at the right of the header of the attribute table (part of the **Attributes** tool in *XMLmind XML Editor - Online Help*). This menu lets the user toggle the visibility of attributes belonging to certain categories. Simply uncheck a menu entry to “hide” in the attribute table all the attributes belonging to the corresponding category.

A menu entry is created for each `category` child. The attributes of element `category` are:

`name`

Specifies the name of the category hence, once localized, the label of the corresponding menu entry.

`attributes`

Specifies the names of the attributes belonging to the category. These attributes are to be hidden by the attribute table when the corresponding menu entry is unchecked.

Exceptions

It's possible to append a list of exceptions after the name of an attribute to be hidden. This list of exception uses the following syntax:

```
'!' element_QName [ '|' element_QName ]*
```

DocBook 5 example: `linkend!db:link|db:xref`, which means attribute `linkend` is to be hidden, except when its parent element is `db:link` or `db:xref`.

`visible`

Default value: `true`. Specifies the initial visibility of the category, hence whether he corresponding menu entry is initially checked or unchecked.

`merge`

Default value: `replace`. Specifies how the current definition of a category is merged with the previous definition of the same category. See example #2 below.

Examples:

```
<attributeVisibility>
  <category name="Conditional Processing"
            attributes="product platform audience deliveryTarget
                        rev otherprops props
                        status" />
  <category name="Other" attributes="xtrc xtrf"
                  visible="false" />
</attributeVisibility>

<attributeVisibility/>
```

An `attributeVisibility` element without any `category` child element may be used to remove from a configuration the previously defined `attributeVisibility`.

Otherwise, an `attributeVisibility` element is *merged* with the `attributeVisibility` element previously defined in the configuration. This is done as follows:

1. All `category` elements not found in current definition but found in the previous definition are copied from previous definition.
2. All `category` elements having no `attributes` child element are discarded from current definition. This trick allows to skip some `category` elements which otherwise would have been copied from the previous definition.
3. Otherwise, how the current definition of a category is merged with the previous definition of the same category is specified by the `merge` attribute:

`replace`
: Default value. Current definition of a category replaces the previous definition of the same category.

`add`
: Attributes found in current definition of a category are added to the attributes found in the previous definition of the same category.

`remove`
: Attributes found in current definition of a category are removed from the attributes found in the previous definition of the same category.

Example #1:

```
<attributeVisibility>
  <category name="Profiling" attributes="revision revisionflag"/>
  <category name="Scripting" attributes="onkeydown onkeypress onkeyup"
            visible="false"/>
  <category name="Other" attributes="remap" visible="false"/>
</attributeVisibility>

<attributeVisibility>
  <category name="Profiling" attributes="revision revisionflag audience os"
            visible="false"/>
  <category name="Other"/>
  <category name="RDF" visible="false"
            attributes="vocab typeof property resource prefix"/>
</attributeVisibility>
```

is equivalent to:

```
<attributeVisibility>
  <category name="Profiling" attributes="revision revisionflag audience os"
            visible="false"/>
  <category name="RDF" visible="false"
            attributes="vocab typeof property resource prefix"/>
  <category name="Scripting" attributes="onkeydown onkeypress onkeyup"
            visible="false"/>
</attributeVisibility>
```

Example #2:

```
<attributeVisibility>
  <category name="Profiling" attributes="revision revisionflag"/>
  <category name="RDF" visible="false"
            attributes="vocab typeof property resource prefix"/>
  <category name="Scripting" attributes="onkeydown onkeypress onkeyup"
            visible="false"/>
</attributeVisibility>

<attributeVisibility>
  <category name="Profiling" attributes="audience os"
```

```
            visible="false" merge="add"/>
  <category name="RDF" attributes="about"
            visible="false" merge="replace"/>
  <category name="Scripting" attributes="onkeypress"
            visible="true" merge="remove"/>
</attributeVisibility>
```

is equivalent to:

```
<attributeVisibility>
  <category name="Profiling" attributes="revision revisionflag audience os"
            visible="false"/>
  <category name="RDF" attributes="about"
            visible="false"/>
  <category name="Scripting" attributes="onkeydown onkeyup"
            visible="true"/>
</attributeVisibility>
```

3. binding

```
<binding>
  Content: [ mousePressed | mouseDragged | mouseReleased |
             mouseClicked | mouseClicked2 | mouseClicked3 |
             [ keyPressed | charTyped ]{1,3} |
             appEvent ]
           [ command | menu ]?
</binding>

<mousePressed
  button = (1|2|3|popupTrigger❶) : 1
  modifiers = possibly empty list of (ctrl|shift|alt|meta|altGr|mod❷)
/>

<mouseDragged
  button = (1|2|3|popupTrigger) : 1
  modifiers = possibly empty list of (ctrl|shift|alt|meta|altGr|mod)
/>

<mouseReleased
  button = (1|2|3|popupTrigger) : 1
  modifiers = possibly empty list of (ctrl|shift|alt|meta|altGr|mod)
/>

<mouseClicked
  button = (1|2|3|popupTrigger) : 1
  modifiers = possibly empty list of (ctrl|shift|alt|meta|altGr|mod)
/>

<mouseClicked2❸
  button = (1|2|3|popupTrigger) : 1
  modifiers = possibly empty list of (ctrl|shift|alt|meta|altGr|mod)
```

```
/>

<mouseClicked3❹
  button = (1|2|3|popupTrigger) : 1
  modifiers = possibly empty list of (ctrl|shift|alt|meta|altGr|mod)
/>
```

Note that:

❶ `popupTrigger` is a shorthand for mouse-pressed-3, no matter the modifiers or the number of clicks. On the Mac, it is additionally a shorthand for **Ctrl**+mouse-pressed-1.

❷ `mod` is the Command key on Mac and the Control key on other platforms.

❸❹ `mouseClicked2` is a double click. `mouseClicked3` is a triple click.

```
<keyPressed
  code = key code
  modifiers = possibly empty list of (ctrl|shift|alt|meta|altGr|mod)
/>

<charTyped
  char = single character
/>

<appEvent
  name = name of application event
/>

<command
  name = NMTOKEN (optionally preceded by a command namespace [69])
  parameter = string
/>

<menu
  label = non empty token
>
  Content: [ menu | separator | item ]+
</menu>

<separator
/>

<item
  label = non empty token
  icon = anyURI
  command = NMTOKEN (optionally preceded by a command namespace [69])
  parameter = string
/>

key code = (0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
```

```
            9 | A | ACCEPT | ADD | AGAIN |
            ALL_CANDIDATES | ALPHANUMERIC | AMPERSAND |
            ASTERISK | AT | B | BACK_QUOTE | BACK_SLASH |
            BACK_SPACE | BEGIN | BRACELEFT | BRACERIGHT | C |
            CANCEL | CAPS_LOCK | CIRCUMFLEX | CLEAR |
            CLOSE_BRACKET | CODE_INPUT | COLON | COMMA | COMPOSE |
            CONTEXT_MENU | CONVERT | COPY | CUT | D | DEAD_ABOVEDOT |
            DEAD_ABOVERING | DEAD_ACUTE | DEAD_BREVE |
            DEAD_CARON | DEAD_CEDILLA | DEAD_CIRCUMFLEX |
            DEAD_DIAERESIS | DEAD_DOUBLEACUTE | DEAD_GRAVE |
            DEAD_IOTA | DEAD_MACRON | DEAD_OGONEK |
            DEAD_SEMIVOICED_SOUND | DEAD_TILDE |
            DEAD_VOICED_SOUND | DECIMAL | DELETE |
            DIVIDE | DOLLAR | DOWN | E | END | ENTER |
            EQUALS | ESCAPE | EURO_SIGN | EXCLAMATION_MARK |
            F | F1 | F10 | F11 | F12 | F13 | F14 | F15 | F16 | F17 |
            F18 | F19 | F2 | F20 | F21 | F22 | F23 | F24 | F3 | F4 |
            F5 | F6 | F7 | F8 | F9 | FINAL | FIND | FULL_WIDTH |
            G | GREATER | H | HALF_WIDTH | HELP | HIRAGANA |
            HOME | I | INPUT_METHOD_ON_OFF | INSERT |
            INVERTED_EXCLAMATION_MARK | J | JAPANESE_HIRAGANA |
            JAPANESE_KATAKANA | JAPANESE_ROMAN | K | KANA |
            KANA_LOCK | KANJI | KATAKANA | KP_DOWN | KP_LEFT |
            KP_RIGHT | KP_UP | L | LEFT | LEFT_PARENTHESIS |
            LESS | M | MINUS | MODECHANGE | MULTIPLY | N |
            NONCONVERT | NUMBER_SIGN | NUMPAD0 | NUMPAD1 |
            NUMPAD2 | NUMPAD3 | NUMPAD4 | NUMPAD5 | NUMPAD6 |
            NUMPAD7 | NUMPAD8 | NUMPAD9 | NUM_LOCK | O |
            OPEN_BRACKET | P | PAGE_DOWN | PAGE_UP | PASTE |
            PAUSE | PERIOD | PLUS | PREVIOUS_CANDIDATE |
            PRINTSCREEN | PROPS | Q | QUOTE | QUOTEDBL | R |
            RIGHT | RIGHT_PARENTHESIS | ROMAN_CHARACTERS |
            S | SCROLL_LOCK | SEMICOLON | SEPARATOR | SLASH |
            SPACE | STOP | SUBTRACT | T | TAB | U | UNDERSCORE |
            UNDO | UP | V | W | WINDOWS | X | Y | Z)
```

Bind a key stroke to a command or bind a mouse click to a command or a popup menu or bind an application event [61] to a command.

Note that a key stroke or an application event cannot be used to display a popup menu.

A `binding` element not containing a `command` or `menu` child element may be used to remove the corresponding keyboard shortcut or mouse click.

XXE does not allow to replace any of its default bindings, just to add more bindings, unless these bindings are specified in a special purpose configuration file called `customize.xxe`. For more information about `customize.xxe`, see Generic bindings [28].

Examples: bind **F4** to command "`insert into tt`":

```
<binding>
  <keyPressed code="F4" />
```

```
  <command name="insert" parameter="into tt" />
</binding>
```

Bind **Esc @** to command "`insert into a`":

```
<binding>
  <keyPressed code="ESCAPE" />
  <charTyped char="@" />
  <command name="insert" parameter="into a" />
</binding>
```

Unbind the command bound to **Ctrl**+**A** (Command+**A** on the Mac):

```
<binding>
  <keyPressed code="A" modifiers="mod" />
</binding>
```

Bind **Ctrl**+Shift+mouse-pressed-3 to a “convert case” popup menu:

```
<binding>
  <mousePressed button="3" modifiers="shift ctrl" />
  <menu>
    <item label="Lower-case" command="convertCase" parameter="lower"/>
    <item label="Upper-case" command="convertCase" parameter="upper"/>
    <item label="Capital-case" command="convertCase" parameter="capital"/>
  </menu>
</binding>
```

About application events

An *application event*, like a mouse click or a keystroke, is used to trigger an action. But unlike user inputs, application events are not generated by the graphics system (i.e. Java™ AWT). Application events are directly created and dispatched to the document view by XXE.

Application events have been created to be able to use the very useful binding mechanism for events other than mouse clicks or keystrokes. For example: drag and drop, changes of the editing context, document events, etc.

Currently XXE generates the following application events:

drag

Generated when the user drags something other than an `drag-source` (see Section 15, “drag-source” in *XMLmind XML Editor - Support of Cascading Style Sheets (W3C CSS)*) in the document view.

Dragging an object in the document view means: dragging the mouse over the object while keeping the left button *and the **Alt** key* pressed.

The command bound to this application event must return a *string*. This string will be passed as is to the drop target.

By default, XXE uses the following binding:

```
<binding>
  <appEvent name="drag" />
  <command name="drag" />
</binding>
```

DITA example: a example of a contextual drag command:

```
<binding>
  <appEvent name="drag" />
  <command name="dita.drag" />
</binding>

<command name="dita.drag">
  <macro>
    <sequence>
      <!-- Either drag the selection or
           select+drag the element clicked upon. -->
      <command name="ensureSelectionAt" parameter="selectElement" />

      <choice>
        <sequence>
          <match context="$selectedElement"
                 pattern="xref[@href]|xref[@href]//*|
                          link[@href]|link[@href]//*|
                          longdescref[@href]|
                          longquoteref[@href]|
                          image[@href]" />
          <set variable="selectedElement" context="$selectedElement"
               expression="(ancestor-or-self::*[@href])[last()]" />
```

```
          <get context="$selectedElement" expression="resolve-uri(@href)" />
        </sequence>

        <!-- Default drag action. -->
        <command name="drag" />
      </choice>
    </sequence>
  </macro>
</command>
```

drop

Generated when the user drops a string in the document view.

If the object dropped from an external application is not a string, this object will be automatically converted to a string. For example, a file is converted to a string by using its absolute filename.

In addition to `%{value}`, which is substituted with the dropped string, the following convenience variables are also supported:

%{url}

If `%{value}` contains an URL or the absolute filename of a file or a directory, this variable contains the corresponding URL.

%{file}

If `%{value}` contains a "`file:`" URL or the absolute filename of a file or a directory, this variable contains the corresponding filename.

By default, **XXE** uses the following binding: (notice how the string is passed to the `drop` command):

```
<binding>
  <appEvent name="drop" />
  <command name="drop" parameter="%{value}" />
</binding>
```

DocBook example: a contextual drop command:

```
<binding>
  <appEvent name="drop" />
  <command name="docb.drop" parameter="%{value}" />
</binding>

<command name="docb.drop">
  <macro>
    <choice>
      <sequence>
        <pass>
          <match context="$clickedElement" pattern="ulink|ulink//*" />
          <test expression="uri-or-file-name('%*') != ''" />
        </pass>

        <set variable="selectedElement" context="$clickedElement"
             expression="(ancestor-or-self::ulink)[last()]" />

        <set variable="relativeURI" context="$selectedElement"
             expression="relativize-uri(uri-or-file-name('%*'))" />
        <get expression="$relativeURI" />
        <command name="putAttribute" parameter="url '%_'" />

        <get expression="$relativeURI" />
        <command name="status" parameter="url='%_'" />
      </sequence>

      <!-- Default drop action. -->
      <command name="drop" parameter="%*" />
    </choice>
```

```
  </macro>
</command>
```

Drop a file onto an image view

Application event `drop-image` is generated when the user drops a file onto an image view. When no command is bound to this application, which is the case by default, a dialog box is displayed allowing the user to specify what she/he wants to do with the image file: copy it or simply reference it.

The variables substituted in the parameter of the bound command are `%{url}`, `%{attribute}`, `%{dataType}`, `%{gzip}`. Please refer to the documentation of command `setObject` in *XMLmind XML Editor - Commands* to learn about the values of these variables.

Simple example which works for XHTML, DITA Topic, DocBook or any document type in which the source of an image is specified using an attribute:

```
<binding>
  <appEvent name="drop-image" />
  <command name="putAttribute" parameter="%{attribute} %{url}" />
</binding>
```

Interactively resize an image by dragging one of the “handles” displayed around it

The following application events are generated by an image-viewport() in *XMLmind XML Editor - Support of Cascading Style Sheets (W3C CSS)* when the user drags one of the handles displayed around the image:

`rescale-image`

Resize the image, but always preserve its aspect ratio.

`resize-image`

This application event is generated when the user drags a handle while pressing Ctrl (Cmd on the Mac). This allows to distort the image.

Binding one of the above application events to a command allows to have one or more of the following variables substituted in the parameter of the bound command:

`%{width}`

The new width of the image expressed in pixels.

`%{height}`

The new height of the image expressed in pixels.

`%{preserveAspect}`

`true` if the aspect ratio has been preserved while the user dragged the resize handle; `false` otherwise.

XHTML example:

```
<binding>
  <appEvent name="resize-image" />
  <command name="resizeImage"
           parameter="height=%{height} width=%{width}" />
</binding>

<binding>
  <appEvent name="rescale-image" />
  <command name="resizeImage" parameter="height width=%{width}" />
</binding>
```

DocBook example:

```
<binding>
  <appEvent name="resize-image" />
  <command name="resizeImage"
           parameter="contentdepth=%{height} contentwidth=%{width}
                      scale scalefit" />
</binding>

<binding>
  <appEvent name="rescale-image" />
  <command name="resizeImage"
           parameter="contentdepth contentwidth=%{width}
                      scale scalefit"/>
</binding>
```

Notice that both the above examples use the same, generic, command resizeImage in *XMLmind XML Editor - Commands*.

Interactively resize a table column by dragging its column separator

The name of the corresponding application event is `resize-table-column`. Binding this application event to a command allows to have one or more of the following variables substituted in the parameter of the bound command:

`%{resizedColumn}`

The index of the leftmost resized column. The index of the first column of a table is 0.

`%{columnCount}`

The number of columns of the table containing the column being resized.

`%{oldColumnWidths}`

The widths of the columns of the table before the column has been resized. A column width is expressed in pixels. Column widths are separated by space characters.

`%{newColumnWidths}`

The widths of the columns of the table after the column has been resized.

XHTML example:

```
<binding>
  <appEvent name="resize-table-column" />
  <command name="xhtml.resizeTableColumn"
           parameter="%{resizedColumn} %{columnCount}
                      %{oldColumnWidths} %{newColumnWidths}" />
</binding>

<command name="xhtml.resizeTableColumn">
  <class>com.xmlmind.xmleditext.xhtml.table.ResizeTableColumn</class>
</command>
```

DocBook 5 example:

```
<binding>
  <appEvent name="resize-table-column" />
  <command name="db5.resizeTableColumn"
           parameter="%{resizedColumn} %{columnCount}
                      %{oldColumnWidths} %{newColumnWidths}" />
</binding>

<command name="db5.resizeTableColumn">
  <macro>
    <choice>
      <!-- tgroup is selected -->
      <command name="db5.resizeCALSTableColumn" parameter="%*" />

      <!-- table or informaltable is selected -->
      <command name="db5.resizeHTMLTableColumn" parameter="%*" />
    </choice>
  </macro>
</command>

<command name="db5.resizeCALSTableColumn">
  <class>com.xmlmind.xmleditext.docbook.table.ResizeTableColumn</class>
```

```
</command>

<command name="db5.resizeHTMLTableColumn">
  <class>com.xmlmind.xmleditext.xhtml.table.ResizeTableColumn</class>
</command>
```

There is no generic command which, after a proper parameterization, would allow to resize the columns of all kinds of tables. However, as shown in the above examples, you can apply `com.xmlmind.xmleditext.xhtml.table.ResizeTableColumn` to HTML tables and `com.xmlmind.xmleditext.docbook.table.ResizeTableColumn` to DocBook (CALS) tables.

4. command

```
<command
  name = NMTOKEN (optionally preceded by a command namespace [69])
>
  Content: class | menu | macro | process
</command>

<class>
  Content: Java class name
</class>
```

Register command specified by *`class`*, *`macro`* or *`process`* with XXE. The newly registered command can be referenced in binding [57] `command` or `menu`, menu [105] `item`, toolBar [125] `item` and command [68] `macro` using name *`name`*.

Example:

```
<command name="xhtml.preview">
  <class>com.xmlmind.xmleditext.xhtml.Preview</class>
</command>
```

In the above example, custom command `com.xmlmind.xmleditext.xhtml.Preview` written in Java™ is registered by XXE under the name `xhtml.preview`.

Child elements of `command`:

class

Register command implemented in the Java™ language by class *`class`* (implements interface `com.xmlmind.xmledit.control.Command` -- See Chapter 2, *Commands* in *XMLmind XML Editor - Developer's Guide*).

menu

Define a popup menu of commands. This special type of command, typically invoked from contextual macro-commands, is intended to be used to specify contextual popup menus, redefining or extending the standard right-click popup menu. See Chapter 3, *Menu commands* in *XMLmind XML Editor - Commands*.

macro

Define a macro-command which is, to make it simple, a sequence of native commands, menu commands, process commands or other macro-commands. See Chapter 4, *Macro commands* in *XMLmind XML Editor - Commands*.

process

Define a process command, which is an arbitrarily complex transformation of part or all of the document being edited. See Chapter 5, *Process commands* in *XMLmind XML Editor - Commands*.

4.1. About command names

The name of a command is basically an `NMTOKEN`. To make it simple, this means that a command name may contain letters, digits, a few punctuation characters such as `'_'`, `'-'` and `'.'`, but no space characters.

All the commands are registered by their names in the same global registry. In practice, this means that if configuration *`A`* defines a command called `doIt`, then configuration *`B`* has access to this command. This also means that if configuration *`C`* also defines a command called `doIt`, then this command may overwrite the one defined in configuration *`A`*[1].

A simple way to prevent this kind of name conflict is to use a *prefix* (not related to XML namespace prefixes) for the name of your commands. Example of commands written by XMLmind: `docb.promote`, `docb.demote`, `xhtml.preview`. (We always use *`short_lower_case_prefix`*`.`*`camelCaseCommandName`*.)

However, in some cases, the commands you are writing are really private to your configuration. Example: a helper macro-command invoked by another macro-command. In such cases, you'll not want anyone to be able to access these commands. In particular, you don't want the end-user to execute these ancillary commands by using **Tools** → **Execute Command** or **Options** → **Customize configuration** → **Add Keyboard Shortcut**.

When you'll want your command to be really hidden from the end-users, you may consider giving it a name having a namespace (not related to XML namespaces). Example: in "`{My Config}doit`", the namespace is "`My Config`" and the local name is "`doIt`".

A command namespace may contain any character except `'}'`. A command local name is an `NMTOKEN`. The command namespace is of course optional.

In many cases, you'll want your command namespace to contain the name of your configuration. When this is the case, you may reference the "`$c`" pseudo-variable anywhere in your command namespace. Examples: "`{$c}doIt`", "`{$c helper}selectItFirst`"

Command namespaces also play a fundamental role in defining or extending the right-click, contextual, menu in *XMLmind XML Editor - Commands*.

5. configuration

```
<configuration
  name = non empty token
  mimeType = non empty token
  icon = anyURI
```

[1]Or the opposite way around: `doIt` defined in configuration *`A`* overwrites `doIt` defined in configuration *`C`*. This depends on the order of configuration loading by **XXE**.

```
  extensions = a non empty list of filename extensions
  alternate = boolean : false
>
  Content: [ attributeEditor|binding|command|css|detect|documentResources|
             dtd|elementTemplate|help|imageToolkit|include|inclusionScheme|
             documentSetFactory|linkType|menu|newElementContent|parameterGroup|
             preserveSpace|profiling|property|relaxng|saveOptions|schema|
             schematron|spellCheckOptions|template|toolBar|translation|
             validate|validateHook|windowLayout ]*
</configuration>
```

This root element of a XXE configuration is just a container for all the other configuration elements. See Writing a configuration file for XXE [4].

Attributes:

`name`
: This attribute uniquely identifies the configuration. This attribute is required in top-level configurations (e.g. `docbook.xxe`). On the other hand, it must not be specified in configuration modules (e.g. `common.incl`).

`mimeType`
: The value of this attribute is used to specify the content type of XML documents saved on WebDAV servers. When this attribute is not specified, the content type passed to the WebDAV server is always `application/xml`. This attribute allows to be more specific: `application/xhtml+xml`, `application/docbook+xml`, etc.

`icon`
: Specifies an icon which may be used to differentiate this kind of document. The format of this icon is expected to be GIF, PNG or JPEG and its size is expected to be 16x16.

`extensions`
: Specifies one or more filename extensions commonly used for this kind of document. Multiple filename extensions must be separated by whitespace. It is not useful to include "`xml`" in this list.

  A filename extension must match the "`[_a-zA-Z0-9]+`" regular expression pattern. Notice that a filename extension cannot have a leading dot. That is, specify "`foo`" and not "`.foo`".

`alternate`
: Set to `true` if the configuration corresponds to a rarely used document type (e.g. MathML) or to an old document type (e.g. XHTML Transitional). In practice, this has an effect only on the **File** → **New** dialog. This collapses the category (e.g. **XHTML** > **1.0**) of the document templates found in this configuration.

Example:

```
<configuration name="Example1"
  xmlns="http://www.xmlmind.com/xmleditor/schema/configuration">

  <detect>
    <dtdPublicId>-//XMLmind//DTD Example1//EN</dtdPublicId>
  </detect>
```

```
  <css name="Style sheet" location="example1.css" />

  <template name="Template" location="example1.xml" />

</configuration>
```

The structure of the configuration element is loose: you can add any number of any of its child elements in any order.

This loose structure is very convenient when you need to create a new configuration which just adds or replaces a few elements to an existing configuration.

Example: The following configuration called `DocBook 4` overrides bundled configuration also called `DocBook`.

```
<configuration name="DocBook 4" mimeType="application/docbook+xml"
  icon="../common/mime_types/docbook.png" extensions="dbk"
  xmlns="http://www.xmlmind.com/xmleditor/schema/configuration">

  <include location="docbook-config:docbook.xxe" />

  <css name="DocBook" location="MyDocBook.css" />
  <css name="Big Fonts" location="MyDocBook_BigFonts.css" />

  <template name="Chapter" />
  <template name="Section" />

  <binding>
    <keyPressed code="F5" modifiers="mod shift" />
    <command name="insert" parameter="into literal" />
  </binding>

</configuration>
```

The configuration in previous example can be described as follows:

- It includes the stock DocBook 4 configuration from `docbook-config:docbook.xxe` to reuse its `detect`, `elementTemplate`, `toolBar`, etc, elements. ("`docbook-config:`" resolves to the directory containing the "`DocBook 4`" configuration, by default it's *`XXE_install_dir`*`/addon/config/docbook/`.)
- It replaces bundled style sheet named `DocBook` by another one contained in `MyDocBook.css`. It adds another style sheet called `Big Fonts`.
- It discards document templates named "`Chapter`" and "`Section`" (template [124] with no `location` attribute).
- Its binds key stroke **Shift**+**Ctrl**+**F5** command "`insert into literal`". (`mod` is the Command key on Mac and the Control key on other platforms).

6. css

```
<css
  name = non empty token
  location = anyURI
  alternate = boolean : false
/>
```

Add CSS style sheet named *name*, contained in file *location*, to the **Style** menu.

Any style sheet with `alternate="false"` is used preferably to a style sheet with `alternate="true"` to render a newly opened document.

Note that if a document contains `<?xml-stylesheet type="text/css"?>` processing instructions, by default (there is an XXE option to specify this) the style sheets specified this way are used and the style sheets specified in the configuration file are ignored.

Specifying a `css` element without a location may be used to remove `css` element with the same name from the configuration.

Example:

```
<css name="XHTML" location="css/xhtml-form.css" />
<css name="XHTML (form elements not styled)"
     location="css/xhtml.css" alternate="true" />
```

Special attribute value `name="-"` may be used to instruct XXE to initially display the opened document as a tree view. Example of the configuration allowing to edit W3C XML Schemas in XXE:

```
<css location="" name="-" />
<css location="wxs.css" name="W3C XML Schema"
     alternate="true" />
```

Notice that, when `name="-"`, the value of the `location` attribute is ignored, therefore suffice to specify `location=""`.

7. DTD

```
<dtd
  systemId = anyURI
  publicId = non empty token
/>
```

Use the DTD specified by this element to constrain the document.

Note that

- if a document contains a document type declaration (<!DOCTYPE>) which defines elements,
- or if the root element of a document has `xsi:schemaLocation`/`xsi:noNamespaceSchemaLocation` attributes,
- of if a document contains a `<?xml-model href="..."?>`,

the grammar specified this way is used and the DTD specified in the configuration file is ignored.

Example:

```
  <dtd publicId="-//W3C//DTD XHTML 1.0 Strict//EN"
       systemId="dtd/xhtml1-strict.dtd" />
```


When using this configuration, also specify `<saveOptions [116] saveCharsAsEntityRefs="false">`. Otherwise, if the added DTD specifies character entities as it is often the case, you may end up creating documents which cannot be interchanged with other applications. The other applications would see such DTD-less documents containing references to named character entities as being non-well formed.

8. detect

```
<detect>
  Content: and|dtdPublicId|dtdSystemId|fileNameExtension|mimeType|
           not|or|rootElementLocalName|rootElementNamespace|
           rootElementAttribute|schemaType
</detect>

<and>
  Content: [ and|dtdPublicId|dtdSystemId|fileNameExtension|mimeType|
             not|or|rootElementLocalName|rootElementNamespace|
             rootElementAttribute|schemaType ]+
</and>

<dtdPublicId
  substring = boolean : false
>
  Content: non empty token
</dtdPublicId>

<dtdSystemId>
  Content: anyURI
</dtdSystemId>

<fileNameExtension>
  Content: file name extension
</fileNameExtension>

<mimeType>
  Content: non empty token
</mimeType>

<not>
  Content: and|dtdPublicId|dtdSystemId|fileNameExtension|mimeType|
           not|or|rootElementLocalName|rootElementNamespace|
           rootElementAttribute|schemaType
</not>
```

```
<or>
  Content: [ and|dtdPublicId|dtdSystemId|fileNameExtension|mimeType|
             not|or|rootElementLocalName|rootElementNamespace|
             rootElementAttribute|schemaType ]+
</or>

<rootElementLocalName>
  Content: Name
</rootElementLocalName>

<rootElementNamespace>
  Content: anyURI
</rootElementNamespace>

<rootElementAttribute
  localName = Name
  namespace = anyURI
  value = string
  substring = boolean : false
/>

<schemaType>
  Content: 'dtd' | 'schema' | 'relaxng'
</schemaType>
```

Register with XXE a condition which can be used to detect the type of a document.

During its start-up, XXE loads all the configuration files it can find, because it needs to keep a list of all `detect` elements.

The order of a `detect` element in this list depend on the location of its configuration file: configurations loaded from the `config` subdirectory of user preferences directory precede configurations loaded from the value of environment variable `XXE_ADDON_PATH` which in turn precede configurations loaded from the `addon` subdirectory of XXE distribution directory.

When a document is opened, XXE tries each `detect` element in turn. If the condition expressed in the `detect` element evaluates to true, the detection phase stops and the configuration containing the `detect` element is associated to the newly opened document.

Child elements of `detect`:

and
: Evaluates to true if all its children evaluate to true.

dtdPublicId
: Evaluates to true if the document has a document type declaration (`<!DOCTYPE>`) with a public ID equals to the content of this element.

  If `substring="true"`, evaluates to true if public ID contains the specified string.

dtdSystemId
: Evaluates to true if the document has a document type declaration (`<!DOCTYPE>`) with a system ID equals to the content of this element.

fileNameExtension

Evaluates to true if the file containing the document has a name which ends with `'.'` followed by the content of this element.

mimeType

Evaluates to true if the file containing the document has a MIME type equals to the content of this element.

not

Evaluates to true if its child evaluates to false.

or

Evaluates to true if any of its children evaluates to true.

rootElementLocalName

Evaluates to true if the document has a root element with a local name (name without the namespace part) equals to the content of this element.

rootElementNamespace

Evaluates to true if the document has a root element with a name which belongs to the namespace equals to the content of this element.

Use "`<rootElementNamespace xsi:nil='true' />`" to specify that the name of root element has no namespace.

rootElementAttribute

Evaluates to true if the document has a root element which has at least one attribute where *all* of the following is true:

- The local part of the name of the attribute is equal to the value of `localName`. When `localName` is not specified, any local part will do.
- The namespace URI of the name of the attribute is equal to the value of `namespace`. When `namespace` is not specified, any namespace URI or no namespace URI at all will do.

  Use the empty string (e.g. `namespace=""`) to specify that the name of the attribute should have no namespace at all.
- The value of the attribute must be equal to the value of `value`. When `value` is not specified, any `value` will do.

  If `substring` is specified with value `true`, suffice for the value of the attribute to contain the value of `value`.

DocBook 5.0 example: use a specific configuration for documents conforming to version 1.0 of Acme Corporation's extension of DocBook 5.0. As explained in the DocBook 5 documentation, the root element of such document should have a `version` attribute with value `5.0-extension acme-1.0`.

```
<rootElementAttribute localName="version" value="acme" substring="true" />
```

What follows is even more precise, though not strictly needed:

```
<rootElementAttribute localName="version" namespace="" value="acme" substring="true" />
```

schemaType

Evaluates to true

- if the document is explicitly constrained by a DTD (that is, has a `<!DOCTYPE>`) and the content of this element is `DTD`,
- OR if he document is explicitly constrained by an W3C XML Schema (that is, has a `xsi:schemaLocation` or a `xsi:noNamespaceSchemaLocation` attribute on its root element) and the content of this element is `schema`.
- OR if he document is explicitly constrained by RELAX NG schema (that is, contains a `<?xml-model href="..."?>` pointing to a RELAX NG schema) and the content of this element is `relaxng`.

Use "`<schemaType xsi:nil='true' />`" to specify that document is not explicitly constrained by a DTD, a W3C XML Schema or a RELAX NG schema.

Example:

```
<detect>
  <and>
    <or>
      <rootElementLocalName>book</rootElementLocalName>
      <rootElementLocalName>article</rootElementLocalName>
      <rootElementLocalName>chapter</rootElementLocalName>
      <rootElementLocalName>section</rootElementLocalName>
      <rootElementLocalName>sect1</rootElementLocalName>
      <rootElementLocalName>sect2</rootElementLocalName>
      <rootElementLocalName>sect3</rootElementLocalName>
      <dtdPublicId substring="true">DTD DocBook XML</dtdPublicId>
    </or>
    <rootElementNamespace xsi:nil="true" />
    <not>
      <dtdPublicId substring="true">Simplified</dtdPublicId>
    </not>
  </and>
</detect>
```

The `detect` element in this example can be described as follows: opened document is a DocBook 4 document if

- The local name of the root element is one of `book`, `article`, `chapter`, `section`, `sect1`, sect2, `sect3`.

  OR the public ID of its DTD contains string "`DTD DocBook XML`".
- AND the name of its root element does not belong to any namespace.
- AND the public ID of its DTD does not contain string "`Simplified`".

9. directionalityFinder

```
<directionalityFinder>
  Content: [ class [ property ]* ]?
</directionalityFinder>

<class>
  Content: Java class name
</class>

<property
  name = NMTOKEN matching [_a-zA-Z][_a-zA-Z0-9]*
  type = (boolean|byte|char|short|int|long|float|double|
          String|URL)
  value = string
/>
```

Register `directionalityFinder` specified by *`class`* with **XXE**. A `directionalityFinder` is some code used by the "**Bidi Support**" add-on to determine the *directionality* —left-to-right or right-to-left— of any XML element.

Child elements of `directionalityFinder`:

`class`
: Register `directionalityFinder` implemented in the Java™ language by class *`class`* (which itself implements interface `com.xmlmind.xmledit.edit.DirectionalityFinder`).

`property`
: `Property` child elements may be used to parametrize a newly created `directionalityFinder`. See bean properties [82].

A `directionalityFinder` element having no `class` child element may be used to discard registered `directionalityFinder`.

XHTML configuration: the directionality of an XML element is determined by following a complex set of rules involving the `dir` attribute and the `bdi` and `bdo` specialized elements. These rules are specified in the HTML specification.

```
<directionalityFinder>
  <class>com.xmlmind.xmledit.edit.HTMLDirectionalityFinder</class>
</directionalityFinder>
```

DITA and DocBook configurations: the directionality of an XML element is determined by examining the value of its (possibly inherited) `dir` attribute.

```
<directionalityFinder>
  <class>com.xmlmind.xmledit.edit.HTMLDirectionalityFinder</class>
  <property name="options" type="String" value="dir ltr rtl lro rlo" />
</directionalityFinder>
```

TEI Lite configuration: the only way to determine the directionality of an XML element is determined by examining the value of its (possibly inherited) `xml:lang` attribute. For example, attribute `xml:lang="ar-EG"` —Arabic, Egypt— implies that the directionality of an element is right-to-left.

```
<directionalityFinder>
  <class>com.xmlmind.xmledit.edit.HTMLDirectionalityFinder</class>
  <property name="options" type="String" value="xml:lang" />
</directionalityFinder>
```

Which languages unambiguously imply a right-to-left text directionality?

XXE uses the following specification to determine whether a language imply a right-to-left text directionality:

```
ar ar- ara ara- -arab
arc arc
dv dv- div div
fa fa- fas fas
ha ha- hau hau
he he- heb heb- -hebr
khw khw
ks ks- kas kas
ku ku- kur kur
ps ps- pus pus
ur ur- urd urd
yi yi- yid yid
```

The above specification reads: Arabic, Aramaic, Divehi, Persian, Hausa, Hebrew, Khowar, Kashmir, Kurdish, Pashto, Urdu, Yiddish and also all their country variants (e.g. "`ar-EG`" starting with prefix "`ar-`" specified above is Arabic, Egypt).

Any other language which use the Arabic (having the "`-arab`" suffix specified above) or the Hebrew (having the "`-hebr`" suffix specified above) scripts also imply a right-to-left text directionality. For example: "`tr-TR-arab`", Turkish, Turkey, but written using the Arabic alphabet.

This specification may be customized by specifying Java™ system property XXE_RTL_LANG, either using a **java** command-line option (e.g. `-DXXE_RTL_LANG=...`) or by adding a `property` [113] configuration element to a `customize.xxe` file.

9.1. `HTMLDirectionalityFinder`, a configurable implementation of `DirectionalityFinder`

Class `com.xmlmind.xmledit.edit.HTMLDirectionalityFinder` is a ready-to-use, configurable, implementation of interface `com.xmlmind.xmledit.edit.DirectionalityFinder`. As you can see it in the above configuration excerpts, this class is used by *all* **XXE** stock configurations, and not only by the stock XHTML configurations.

`HTMLDirectionalityFinder` determines the directionality of an XML element by following a complex set of rules involving the `dir` attribute and the `bdi` and `bdo` specialized elements. These rules are specified in the HTML specification.

However `HTMLDirectionalityFinder` may be configured to be used for documents other than XHTML documents. A string property [113] called *`options`* may be used to parametrize this class.

Parameter *`options`* has the following default value:

```
dir ltr rtl auto bdi bdo
```

Parameter *`options`* has the following syntax:

```
options -> [ role ]*

role -> attribute_role [ '=' actual_attribute_name ]?
         | dir_value_role [ '=' actual_dir_value ]?
         | element_role [ '=' actual_element_name ]?

attribute_role -> 'dir' | 'style' | 'lang' | 'xml:lang'
dir_value_role -> 'ltr' | 'rtl' | 'auto' | 'lro' | 'rlo'
element_role -> 'bdi' | 'bdo'
```

Roles:

dir
: The HTML `dir` attribute.

ltr
: Value `ltr` of the HTML `dir` attribute.

rtl
: Value `rtl` of the HTML `dir` attribute.

auto
: Value `auto` of the HTML `dir` attribute.

lro
: Left-to-right override value of the DITA and DocBook `dir` attribute. Processed by **XXE** just like ltr.

rlo
: Right-to-left override value of the DITA and DocBook `dir` attribute. Processed by **XXE** just like rtl.

bdi
: The HTML `bdi` element.

bdo
: The HTML `bdo` element.

style
: The HTML `style` attribute. The CSS property of interest here is direction. Companion CSS property unicode-bidi is ignored.

lang
: The common `lang` attribute.

xml:lang
: The standard `xml:lang` attribute.

In order to determine the directionality of an XML node, `HTMLDirectionalityFinder` examines each of its ancestor elements in turn and for each ancestor element[2], it examines the attributes and elements specified in parameter *`options`* in the following order: `dir`, `bdi`, `bdo`, `style`, `xml:lang`, `lang`.

What about a custom schema using directionality attributes, attribute values, elements different from those used by HTML?

A custom schema may have an equivalent of the HTML `dir`, `style`, `bdo`, `ltr`, `rtl`, etc, attributes, elements or attributes values, but with a different name or in a different namespace. In such case, the actual attribute name, element name or attribute value must be specified using the following syntax: *`role=actual_name_or_value`*.

Example: the MyCustomSchema equivalent of the HTML `dir` attribute is `my:direction` (where "`my`" is the prefix for namespace "`http://acme.corp/namespace`") and its values are `left-to-right` and `right-to-left`. The corresponding options are thus:

```
dir={http://acme.corp/namespace}direction ltr=left-to-right rtl=right-to-left
```

10. documentResources

```
<documentResources>
  Content: [ resource|selector ]+
</documentResources>

<resource>
  path = Absolute XPath (subset [81])
  kind = NMTOKEN
/>

<selector>
  <class>Content: Java class name</class>
</selector>
```

Specifies which resources are logically part of the document being edited. Generally these resources are external image files.

Attributes of child element `resource`:

`path`

XPath expression used to find the URIs of the resources within the document content. These URIs are generally attribute values but could also be element values.

`kind`

Specifies the kind of resources (`image`, `video`, `audio`, etc) selected by the XPath expression.

The value of this attribute may be referenced in the `include` or `exclude` attributes of element `process/copyDocument/resources` in *XMLmind XML Editor - Commands*. This allows to specify whether a document resource should be ignored, copied or converted, depending on the kind of this resource.

[2]This lookup is needed because attributes `dir`, `lang` and `xml:lang` are “inherited” and CSS property direction is inherited.

In complex cases, specifying document resources using simple XPath expressions (see XPath subset [81] below) is not sufficient. In such case, use `selector` child elements instead of `resources`. The `class` element contains the name of a Java™ class which implements `com.xmlmind.xml.save.ResourceSelector`.

DITA example:

```
<cfg:documentResources xmlns="">
  <cfg:resource path="//image/@href"/>
  <cfg:resource path="//coderef/@href"/>
</cfg:documentResources>
```

DocBook example:

```
<cfg:documentResources xmlns="">
  <cfg:resource kind="image" path="//imagedata/@fileref"/>
  <cfg:resource kind="image" path="//graphic/@fileref"/>
  <cfg:resource kind="image" path="//inlinegraphic/@fileref"/>
  <cfg:resource kind="text" path="//textdata/@fileref"/>
  <cfg:resource kind="audio" path="//audiodata/@fileref"/>
  <cfg:resource kind="video" path="//videodata/@fileref"/>
</cfg:documentResources>
```

XPath 1.0 subset supported by configuration elements

The XPath 1.0 subset supported by configuration elements is the one defined in "XML Schema Part 1: Structures, Identity-constraint Definitions", except that absolute XPaths (/foo/bar, //bar, etc) are also supported.

```
XPath      ::=    Path ( '|' Path )*
Path       ::=    ('/'|'//')? ( Step ('/'|'//') )* ( Step | '@' NameTest )
Step       ::=    '.' | NameTest
NameTest   ::=    QName | '*' | NCName ':' '*'
```

Both abbreviated syntax and non-abbreviated syntax are supported.

11. documentSetFactory

```
<documentSetFactory
  autoCreate = boolean : false
>
  Content: [ class [ property ]* ]?
</documentSetFactory>

<class>
  Content: Java class name
</class>

<property
  name = NMTOKEN matching [_a-zA-Z][_a-zA-Z0-9]*
```

```
  type = (boolean|byte|char|short|int|long|float|double|
          String|URL)
  value = string
/>
```

Creates a *document set* factory and registers it with XMLmind XML Editor. Checking **Tools** → **Use as Master Document** in *XMLmind XML Editor - Online Help* automatically creates and maintains a document set.

When attribute `autoCreate` is specified as `true`, there is no need to explicitly check **Tools** → **Use as Master Document**. Such documents are automatically made *master documents*. This is the case of DITA maps, DocBook 5.1+ assemblies, Ebooks, that is, all kinds of maps.

Child elements of `documentSetFactory`:

class
: The fully qualified name of a Java™ class implementing interface `com.xmlmind.xmleditapp.docset.DocumentSetFactory`.

property
: `Property` child elements may be used to parametrize the newly created factory See bean properties [82].

An empty `documentSetFactory` element may be used to unregister currently registers a document set factory.

DITA map example:

```
<documentSetFactory autoCreate="true">
  <class>com.xmlmind.xmleditext.dita.TopicSetFactory</class>
</documentSetFactory>
```

DocBook 5 example:

```
<documentSetFactory>
  <class>com.xmlmind.xmleditapp.docset.modulardoc.ModularDocumentFactory</class>
</documentSetFactory>
```

Note that class `com.xmlmind.xmleditapp.docset.modulardoc.ModularDocumentFactory` is not specific to DocBook 5. It may be used for any kind of modular document which makes use of inclusion schemes [95] supported by XMLmind XML Editor.

11.1. Bean properties

Some of the class instances created by the means of the `class` element may be parameterized using `property` child elements. A property child element specifies a *Bean* (that is, a Java™ Object) property.

Example:

```
<property name="columns" type="int" value="40" />
```

implies that the bean to be parametrized has a public method which resembles:

```
setColumns(int number)
```

Such properties are completely specific to the bean they parametrize and therefore, cannot be described in this section.

type	Corresponding Java™ type	Syntax of value	Example
boolean	boolean	true, false	true
byte	byte	integer: -128 to 127 inclusive	100
char	char	a single character	a
short	short	integer: -32768 to 32767 inclusive	1000
int	int	integer: -2147483648 to 2147483647 inclusive	-1
long	long	integer: -9223372036854775808 to 9223372036854775807, inclusive	255
float	float	single-precision 32-bit format IEEE 754	-0.5
double	double	double-precision 64-bit format IEEE 754	1.0
String	java.lang.String	A string	Hello, world!
URL	java.net.URL	An absolute or relative URI. A relative URI is relative to the URI of the file containing the configuration element.	css/toc.css

Example actually used in the XHTML configuration:

```
<validateHook name="checkLinks">
  <class>com.xmlmind.xmleditapp.linktype.LinkChecker</class>
  <property name="checkAnchors" type="boolean" value="false" />
  <property name="checkRefs" type="boolean" value="false" />
</validateHook>
```

12. elementTemplate

```
<elementTemplate
  name = NMTOKEN
  parent = XPath (subset [81])
```

```
  selectable = (false|true|override) : true
  dynamic = boolean : false
>
  Content: [ any element ]?
</elementTemplate>
```

Register with XXE the element template specified in this element.

An element template can include another element template. This is specified by <*included_element_name* `cfg:template="`*included_template_name*`"/>` inside the body of the template. See DocBook example below.

Note that the validity of the element contained in the `elementTemplate` is not checked by **XXE** when the configuration file is parsed.

Specifying a `elementTemplate` containing no element may be used to remove all `elementTemplates` with the same name from the configuration.

`name`

"Title" of the element template.

Different element templates may have the same name provided that they contain different elements.

`parent`

With grammars such as W3C XML Schema and RELAX NG, different element types may have save the same element name.

Examples:

1. Element `title` with enumerated values `Doctor` and `Professor` can be inserted inside element `author`.
2. Element `title` containing plain text, `strong` or `emphasis` children can be used as the title of a `figure` or a `table`.

In such situation, the XPath attribute `parent` must be used to specify to XXE in which context (that is, for which parent element) the element template can be used.

Examples:

1. Specify `parent="author"`.
2. Specify `parent="figure|table"`.

`selectable`

Value `true` specifies that this element template is to be listed as *`element_name`*(*`element_template_name`*) in the **Edit** tool.

Value `false` or `override` prevents **XXE** to list the element template in the **Edit** tool.

Value `false` is useful for an element template which is just referenced in a macro-command or in another template and which is not for general use.

Value `override` specifies that this element template is to be used everywhere the automatically generated element would otherwise have been used. See DocBook 4 example below.

`dynamic`

Value `true` specifies that this element template embeds one or more XPath 1.0 expressions which are to be evaluated before the element template is used. See Example 6.2, “Dynamic element template” [85] below.

- XPath 1.0 expressions delimited by curly braces ("`{ }`").
- The enclosed XPath expressions are evaluated as *strings*. This means that these enclosed expressions must be found inside attribute values, text, comment or processing-instruction nodes.
- If you want attribute values, text, comment or processing-instruction nodes to actually contain curly braces, then you must escape these curly braces by doubling them (that is, "`{`" becomes "`{{`" and "`}`" becomes "`}}`").
- The context node (that is, "`.`") used during the evaluation is a copy of the element template itself (before its processing by **XXE**). This copy is *detached* from the document being edited at the XPath expression evaluation time (that is, empty "`. .`").
- It's possible to access the document being edited at the XPath expression evaluation time by referencing variable `$parentElement`. After the element template is processed by **XXE**, the resulting element is inserted in the document being edited and the parent of the newly inserted element is `$parentElement`.

Example 6.1. DocBook 4 example

By default, **XXE** creates a `listitem` containing a `para`. The following template forces **XXE** to create a `listitem` containing a `simpara`.

```
<cfg:elementTemplate xmlns="" name="simpara" selectable="override">
  <listitem>
    <simpara></simpara>
  </listitem>
</cfg:elementTemplate>
```

The `listitem` specified above will also be automatically used inside newly created `itemizedlist`, `orderedlist` and `variablelist`.

By default, **XXE** creates an `itemizedlist` containing a single `listitem`. The following template forces **XXE** to create an `itemizedlist` with two `listitem`s.

Note that this template includes the `listitem` template specified above by using attribute `cfg:template`.

```
<cfg:elementTemplate xmlns="" name="simpara" selectable="override">
  <itemizedlist>
    <listitem cfg:template="simpara" />
    <listitem cfg:template="simpara" />
  </itemizedlist>
</cfg:elementTemplate>
```

Example 6.2. Dynamic element template

```
<cfg:elementTemplate name="now" dynamic="true" selectable="override"
                     xmlns="http://docbook.org/ns/docbook"
```

```
                    xmlns:date="java:java.util.Date">
  <date>{date:toLocaleString(date:new())}</date>
</cfg:elementTemplate>
```

With the above element template, a newly inserted DocBook 5 `date` element automatically contains the current date.

In order to compute the current date, some standard Java™ methods are used as XPath extension functions in *XMLmind XML Editor - Support of XPath 1.0*.

12.1. Adding empty text nodes to your element templates

In some cases, you want the element template to contain an empty text node because, when a new element corresponding to this template is inserted in the document, the empty text node acts as a placeholder.

XHTML example:

```
<cfg:elementTemplate name="name_field">
  <p xmlns="http://www.w3.org/1999/xhtml"
     class="name_field"><b>Name: </b>   </p>
</cfg:elementTemplate>
```

The above element template should work fine. However all the whitespace following the `b` element will be automatically trimmed and no empty text node will inserted after it.

If you rewrite the above template as:

```
<cfg:elementTemplate name="name_field">
  <p xmlns="http://www.w3.org/1999/xhtml"
     class="name_field"><b>Name: </b><?text?></p>
</cfg:elementTemplate>
```

the element template will work as expected.

Note that the `<?text?>` processing instruction must be completely empty, otherwise it is inserted in the document as is. Also note that the `<?text?>` processing instruction must not follow or precede a text node (empty or not), otherwise it is simply discarded.

12.2. Specificities of `selectable="override"`

- The validity of the contents of an element template having `selectable="override"` is checked before the editing operation is performed. If this contents is found to be *structurally* invalid, then the element template is ignored and an automatically generated element is used instead.

  Example of a structurally invalid element template (the `linkend` attribute of DocBook 4 element `xref` is missing):

  ```
  <elementTemplate name="simple" selectable="override">
    <xref xmlns="" role="LINK" />
  </elementTemplate>
  ```

  Note that the above element can be made usable by slightly modifying it:

```
<elementTemplate name="simple" selectable="override">
  <xref xmlns="" linkend="???" role="LINK" />
</elementTemplate>
```

The above element template is data-type invalid ("???" is not a valid ID), but structurally valid.

- Unlike W3C XML Schema, with RELAX NG, different element types may have save the same element name *regardless of the element type of the parent*. DocBook 5 example: there are 3 different `indexterm` element types that may be inserted into almost any parent element.

  In the case of the above example, XXE lists these 3 different `indexterm` element types in its **Edit** tool as: `indexterm`, `indexterm-2`, `indexterm-3`. These automatically generated names are hard to understand. Here comes `selectable="override"`. This facility may also be used to give user-friendly names to the competing element types listed by XXE.

  DocBook 5 example:

```
<elementTemplate name="singular" selectable="override">
  <indexterm
    xmlns="http://docbook.org/ns/docbook"><primary></primary></indexterm>
</elementTemplate>

<elementTemplate name="startofrange" selectable="override">
  <indexterm xmlns="http://docbook.org/ns/docbook" xml:id="???"
             class="startofrange"><primary></primary></indexterm>
</elementTemplate>

<elementTemplate name="endofrange" selectable="override">
  <indexterm xmlns="http://docbook.org/ns/docbook"
             class="endofrange" startref="???" />
</elementTemplate>
```

  In the case of the above example, the **Edit** tool will not list `indexterm`, `indexterm-2`, `indexterm-3`. Instead it will list `indexterm(singular)`, `indexterm(startofrange)`, `indexterm(endofrange)`.

13. elementVisibility

```
<elementVisibility>
  Content: [ category ]*
</elementVisibility>

<category
  name = Non-empty token
  elements = Non-empty list of QNames,
             (a QName may optionnaly be followed
              by a list of exceptions [88])
  visible = boolean : true
  merge = replace|add|remove : replace
/>
```

The `elementVisibility` configuration element specifies the checkbox entries of the menu displayed by clicking the down arrow button found at the right of the tool bar of the **Edit** tool in *XMLmind XML*

Editor - Online Help. This menu lets the user toggle the visibility of elements belonging to certain categories. Simply uncheck a menu entry to “hide” in the **Edit** tool all the elements belonging to the corresponding category.

A menu entry is created for each `category` child. The elements of element `category` are:

`name`
: Specifies the name of the category hence, once localized, the label of the corresponding menu entry.

`elements`
: Specifies the names of the elements belonging to the category. These elements are to be hidden by the **Edit** tool when the corresponding menu entry is unchecked.

Exceptions

It's possible to append a list of exceptions after the name of an element to be hidden. This list of exception uses the following syntax:

```
'!' element_QName [ '|' element_QName ]*
```

XHTML5 example: `html:script!html:head`, which means element `script` is to be hidden, except when its *ancestor* element is `html:head`.

`visible`
: Default value: `true`. Specifies the initial visibility of the category, hence whether he corresponding menu entry is initially checked or unchecked.

`merge`
: Default value: `replace`. Specifies how the current definition of a category is merged with the previous definition of the same category. See example #2 below.

Examples:

```
<elementVisibility>
  <category name="Scripting" visible="false"
            elements="html:script!html:head
                      html:noscript
                      html:template
                      html:slot" />
</elementVisibility>

<elementVisibility/>
```

An `elementVisibility` element without any `category` child element may be used to remove from a configuration the previously defined `elementVisibility`.

Otherwise, an `elementVisibility` element is *merged* with the `elementVisibility` element previously defined in the configuration. This is done as follows:

1. All `category` elements not found in current definition but found in the previous definition are copied from previous definition.

2. All `category` elements having no `elements` child element are discarded from current definition. This trick allows to skip some `category` elements which otherwise would have been copied from the previous definition.
3. Otherwise, how the current definition of a category is merged with the previous definition of the same category is specified by the `merge` attribute:

   `replace`

   Default value. Current definition of a category replaces the previous definition of the same category.

   `add`

   Elements found in current definition of a category are added to the elements found in the previous definition of the same category.

   `remove`

   Elements found in current definition of a category are removed from the elements found in the previous definition of the same category.

Example #2:

```
<elementVisibility xmlns:db="http://docbook.org/ns/docbook">
  <category name="Production" elements="db:productionset db:production"/>
  <category name="Message Set" visible="false"
            elements="db:msgset
                      db:classsynopsis!db:refentry
                      db:cmdsynopsis!db:refentry" />
</elementVisibility>

<elementVisibility xmlns:db="http://docbook.org/ns/docbook">
  <category name="Production" merge="add" visible="false"
            elements="db:lhs db:rhs db:constraint db:productionrecap" />
  <category name="Message Set" merge="remove" visible="true"
            elements="db:classsynopsis db:cmdsynopsis" />
</elementVisibility>
```

is equivalent to:

```
<elementVisibility xmlns:db="http://docbook.org/ns/docbook">
  <category name="Production" visible="false"
            elements="db:productionset db:production
                      db:lhs db:rhs db:constraint db:productionrecap" />
  <category name="Message Set" visible="true"
            elements="db:msgset" />
</elementVisibility>
```

14. help

```
<help
  location = anyURI
/>
```

Registers a help document having specified location with the context sensitive online help system of **XXE**. This help document is always a set of HTML files, typically a Web Help.

Example:

```
<help location="cshelp.xml" />
```

In fact, the file pointed to by attribute `location` is not the help document itself, but *a map of some of the IDs* contained in the help document.

This ID map is an XML file conforming to the samples/idMap/idMap.rnc (commented) RELAX NG schema. Example, excerpts from samples/idMap/cshelp.xml:

```
<idMap href="docbook/index.html"❶
       title="XMLmind XML Editor - DocBook Support">❷

  <page href="index.html"❸
        ids="docbook"❹ />

  <page href="docbook_menu.html"
        ids="docbook_menu link_callouts_in_image_map
             docbook_convert_menu creating_olink
             docbook_indexterm_editor"/>

  <page href="docbook_toolbar.html"
        ids="docbook_toolbar table_editor"/>
  ...
</idMap>
```

❶ The location of the help document. This location may be an absolute or relative URI. If it is relative, then it is relative to a base URI specified by the Java™ application hosting the context sensitive online help system. In the case of **XXE**, the base URI could be something like http://www.xmlmind.com/xmleditor/_distrib/doc/index.html.

❷ The title of the help document.

❸ Location of an HTML page which is part of the help document. This location is almost always relative to the location of the help document.

❹ List of `id` attribute values contained in this HTML page.

No need to list all IDs here. It's often sufficient to list the IDs of elements having a title (`section`, `figure`, `table`) or being a title (`h1-h6`, `caption`, `figcaption`) because such elements are potentially the targets of the context sensitive help.

15. imageToolkit

```
<imageToolkit
  name = non empty token
>
  Content: [ description ]? [ converter ]+
</imageToolkit>
```

```
<description>
  Content: string
</description>

<converter>
  Content: input output [ shell ]+
</converter>

<input
  extensions = non empty list of file name extensions
  magicStrings = non empty list of strings
  magicNumbers = non empty list of hexBinaries
  rootNames = non empty list of QNames
/>

<output
  extensions = non empty list of file name extensions
/>

<shell
  command = Shell command
  platform = (Unix | Windows | Mac | GenericUnix)
/>
```

The `imageToolkit` configuration element allows to turn any command line tool generating GIF, JPEG or PNG images (example: ImageMagick's **convert**) to a fully functional image toolkit plug-in for **XXE**. Without this mechanism, image toolkit plug-ins such as the Batik plug-in need to be written in the Java™ programming language.

Simple example:

```
<imageToolkit name="netpbm">
  <description>Converts PBM, PGM, PPM images to PNG.</description>

  <converter>
    <input extensions="pnm pbm pgm ppm" magicStrings="P4 P5 P6 P1 P2 P3"/>
    <output extensions="png"/>

    <shell command='pnmtopng %A "%I" &gt; "%O"' />
  </converter>
</imageToolkit>
```

An `imageToolkit` has a required `name` attribute which is used to register the plug-in and an optional `description` child element which is displayed in the **Help** → **About** dialog box.

An `imageToolkit` contains one or more `converter` child elements. A converter mainly contains a command template (`shell` child element) which can be used to convert from one or more input formats (`input` child element) to one or more output formats (`output` child element).

In the `input` and `output` elements, attribute `extensions` is required and specifies the file name extensions of the supported image formats. For the `output` elements, extensions other than `png`, `gif`, `jpg` and `jpeg` (case-insensitive) are currently ignored.

The `input` elements have means other than file name extensions to detect the format of images *embedded* in the XML document:

Binary images

Attribute `magicNumbers` contains a list of numbers in hexadecimal format. These numbers are possible values for the first bytes found in the image file.

These first bytes are often ASCII characters (even for binary images such as PNG or TIFF), that's why it is often more convenient to use attribute `magicStrings` rather than attribute `magicNumbers`.

Example: `magicNumbers`="5034 5035" is equivalent to `magicStrings`="P4 P5".

XML images (typically SVG images)

The format of an XML image embedded in an XML document can be detected by examining the name of its root element. Attribute `rootNames` contains a list of such `QNames` (qualified names: data type which is part of the W3C XML Schema standard).

The following example is not useful because Batik is available as a plug-in written in Java™. However, this example shows how to declare an `imageToolkit` which converts XML images.

```
<imageToolkit name="Batik as an external SVG toolkit">
  <description>Converts SVG to PNG.</description>

  <converter>
    <input extensions="svg svgz"
           magicStrings="&lt;?xml"
           rootNames="svg:svg"
           rootQNames="svg:svg" xmlns:svg="http://www.w3.org/2000/svg" />
    <output extensions="png"/>

    <shell
      command='java -jar /opt/batik/batik-rasterizer.jar %A "%I" -d "%O"' />
  </converter>
</imageToolkit>
```

A `converter` element contains one or more `shell` elements. Each `shell` element contains a command template usable on a given platform. That is, a *single* shell command is executed when the `imageToolkit` is used to convert between image formats.

After substituting the variables contained in the template (see below), the command is executed the using the native shell of the machine running **XXE**: **cmd.exe** on Windows and **/bin/sh** on Unix (Mac OS X is considered to be a Unix platform).

If the `platform` attribute is not specified, the shell command is executed whatever is the platform running **XXE**.

If the `platform` attribute is specified, the shell command is executed only if the platform running **XXE** matches the value of this attribute:

`Windows`

Any version of Windows.

`Mac`
: macOSX.

`GenericUnix`
: A Unix which is not macOSX, typically Linux.

`Unix`
: GenericUnix or Mac.

The `command` template must contain at least the `%I` and `%O` variables but may also contain the following variables:

Variable	Description
`%I`	Input image file to be converted by the imageToolkit.  The file names contained in `%I` and `%O` often contain whitespaces. Do not forget to properly quote these variables in the command template.
`%O`	Output image file.
`%A`	Extra command line arguments taken from the `convertImage`/`parameter` elements of a `process` command (see Chapter 5, *Process commands* in *XMLmind XML Editor - Commands*). See example below [94].
`%S`	`%S` is the native path component separator of the platform. Example: `'\'` on Windows.
`%C`, `%c`	`%C` is the name of the directory containing the XXE configuration file from which the `imageToolkit` element has been loaded. Example: `C:\Documents and Settings\john\Application Data\XMLmind\XMLEditor10\addon`. `%c` is the URL of the above directory. Example: `file:///C:/Documents%20and%20Settings/john/Application%20 Data/XMLmind/XMLEditor10/addon`. Note that this URL does not end with a '`/`'.

The add-on called "*A sample customize.xxe* " (download and install it using **Options** → **Install Add-ons**) contains a number of useful `imageToolkits` from which the examples below are taken.

Example 6.3. Convert EPS and PDF to PNG using Ghostscript

```
<imageToolkit name="Ghostscript">
  <description>Converts EPS and PDF graphics to PNG.
Important: requires Ghostscript 8+.</description>

  <converter>
    <input extensions="eps epsf ps pdf" magicStrings="%!PS %PDF"/>
    <output extensions="png"/>

    <shell command='gs -q -dBATCH -dNOPAUSE -sDEVICE=png16m
```

```
                    -r96 -dTextAlphaBits=4 -dGraphicsAlphaBits=4 -dEPSCrop
                    %A "-sOutputFile=%O" "%I"'
            platform="Unix"/>

    <shell command='gswin32c -q -dBATCH -dNOPAUSE -sDEVICE=png16m
                    -r96 -dTextAlphaBits=4 -dGraphicsAlphaBits=4 -dEPSCrop
                    %A "-sOutputFile=%O" "%I"'
            platform="Windows"/>
  </converter>
</imageToolkit>
```

About the `%A` variable. Let's suppose a `process` command contains the following `convertImage` element:

```
<convertImage from="raw/*.eps" to="resources" format="png">
  <parameter name="-r">120</parameter>
  <parameter name="-dDOINTERPOLATE" />
</convertImage>
```

When the above `convertImage` is executed, the command template is equivalent to:

```
gs -q -dBATCH -dNOPAUSE -sDEVICE=png16m \
    -r96 -dTextAlphaBits=4 -dGraphicsAlphaBits=4 -dEPSCrop \
    -r "120" -dDOINTERPOLATE "-sOutputFile=%O" "%I"
```

Example 6.4. Convert WMF and EMF pictures to SVG or PNG using Inkscape

```
<imageToolkit name="Inkscape WMF">
  <description>Converts WMF and EMF pictures to SVG or PNG.
Important: requires Inkscape.</description>

  <converter>
    <input extensions="wmf emf" magicNumbers="D7CDC69A 01000000" />
    <output extensions="svg" />

    <shell command='inkscape --export-type=svg -l -o "%O" "%I"' />
  </converter>

  <converter>
    <input extensions="wmf emf"  magicNumbers="D7CDC69A 01000000" />
    <output extensions="png" />

    <shell command='inkscape --export-type=png -d 96 -o "%O" "%I"' />
  </converter>
</imageToolkit>
```

16. include

```
<include
  location = anyURI
/>
```

Include all elements contained in specified configuration file in current configuration file.

The URI found in the `location` attribute may be resolved using XML catalogs.

Example 1:

```
<include location="toolBar.incl" />
```

If the file containing the above snippet is `/home/john/.xxe10/addon/mydocbook.xxe`, the included file is then `/home/john/.xxe10/addon/toolBar.incl`.

Example 2:

```
<include location="docbook-config:toolBar.incl"/>
```

If XXE has been installed in `/opt/xxe/`, the included file is by default `/opt/xxe/addon/config/docbook/toolBar.incl`, because the XML catalog found in the "`DocBook`" configuration contains this rule:

```
<rewriteURI uriStartString="docbook-config:" rewritePrefix="." />
```

The "`---`" prefix before an URL instructs XXE to silently skip the inclusion when the URL cannot be successfully resolved. Example:

```
<include location="---mathml-config:docbook5/mathml_support.incl" />
```

17. inclusionScheme

```
<inclusionScheme
  name = non empty token
>
  Content: [ class [ property ]* ]?
</inclusionScheme>

<class>
  Content: Java class name
</class>

<property
  name = NMTOKEN matching [_a-zA-Z][_a-zA-Z0-9]*
  type = (boolean|byte|char|short|int|long|float|double|
          String|URL)
  value = string
/>
```

Register `inclusionScheme` specified by *`class`* with **XXE**.

An `inclusionScheme` is associated to a type of document.

To make it simple:

- Each time a document for which an inclusion scheme has been declared is opened, XXE invokes this scheme in order to ``evaluate" the inclusion directives it contains. Evaluating the inclusion directives means replacing these directives by up-to-date included nodes.
- Each time a document for which an inclusion scheme has been declared is saved, XXE invokes this scheme in order to convert included nodes back to inclusion directives.

`Xi:include` (XInclude) elements are inclusion directives handled by the "`XInclude`" inclusion scheme. DITA elements having a `conref` attribute are inclusion directives handled by the "`Conref`" inclusion scheme.

By default, no inclusion schemes at all, not even XInclude, are associated to a document type.

Several `inclusionSchemes` can be associated to the same document type. In such case, they are invoked in the order of their registration.

Child elements of `inclusionScheme`:

class
: Register `inclusionScheme` implemented in the Java™ language by class *`class`* (implements interface `com.xmlmind.xml.load.InclusionScheme`).

Attributes of `inclusionScheme`:

name
: This name is useful to remove or replace a previously registered `inclusionScheme`. Anonymous `inclusionSchemes` cannot be removed or replaced.

  When a `inclusionScheme` element is used to remove a registered `inclusionScheme`, a `name` attribute must be specified and there must be no `class` child element.

DITA example:

```
<inclusionScheme name="Conref">
  <class>com.xmlmind.xmleditext.dita.ConrefScheme</class>
</inclusionScheme>
```

DocBook 5.1, which uses XInclude 1.1, example:

```
<inclusionScheme name="XInclude">
  <class>com.xmlmind.xml.xinclude.XIncludeScheme</class>
  <property name="copiedAttributesWhenMultipleInstances"
            type="String" value="set-xml-id='" />
</inclusionScheme>
```

Table 6.1. Properties of the XInclude scheme

Name	Type	Value	Description
copiedAttributes	String	One or more attributes separated by whitespace. Attribute names must be specified using the Clark's notation in *XML-*	Attributes added to an `xi:include` element created by commands such as **Edit** → **Reference** → **Copy As Reference** when this `xi:include` element is *not* expected to be found

Name	Type	Value	Description
		mind XML Editor - Commands.	several times, at different places, in the including document. These attributes are used by an XInclude 1.1 feature called *Attribute Copying*. See also command `copyAsInclusion` in *XMLmind XML Editor - Commands*.

copiedAttributesWhenMultipleInstances	String	One or more attributes separated by whitespace. Attribute names must be specified using the Clark's notation in *XMLmind XML Editor - Commands*.
		
		Example 1:
		
		`set-xml-id=''`
		
		Example 2:
		
		`{http://docbook.org/ns/transclusion}idfixup='auto' {http://docbook.org/ns/transclusion}linkscope='local'`
			Attributes added to an `xi:include` element created by tools such as the **Include** tool when this `xi:include` element is expected to be found several times, at different places, in the including document.
			
			These attributes are used by an XInclude 1.1 feature called *Attribute Copying*.
			
			See also command `include` in *XMLmind XML Editor - Commands*.

18. linkType

```
<linkType
  name = NMTOKEN : "default"
>
  Content: [ class ]? |
           [ link | anchor ]*
</linkType>

<class>
  Content: Java class name
</class>

<link
    match = XPath pattern
    ref = XPath expression
    refs = XPath expression
    href = XPath expression
    hrefs = XPath expression
    excludePath = Regular expression
```

```
    includePath = Regular expression
/>

<anchor
    match = XPath pattern
    name = XPath expression
/>
```

A `linkType` configuration element allows to define a generalization of the `ID`/`IDREF`/`IDREFS` mechanism for use in modular documents. Some modular documents examples are:

- A DocBook `book` including (by the means of XInclude) `chapter` documents, each `chapter` element being found in its own file.
- A DITA map referencing a number of topic files.
- A set of XHTML pages (e.g. `.html` and `.shtml` files) found in the same directory.

Defining a linkType allows to follow a link even when this link points inside another file. See Section 18.1, “Using `linkType` to implement link navigation” [101].

Defining a linkType allows to check links even when some of the links point outside the file containing these links. See Section 18.2, “Using `linkType` to implement link validation” [102].

A `linkType` configuration element has a single optional attribute: `name`. The default value of attribute name is `default`. Giving a meaningful name to a linkType is useful in 3 cases:

1. When your configuration file contains several `linkType` elements. This is rarely needed, but it may happen. See example below [99].
2. The name of the `linkType` is `xml:id`. This special name means that the anchors defined by this link type are true XML IDs and thus, there is no need to create proprietary XPointers to implement link navigation. These proprietary XPointers are described in Section 18.1, “Using `linkType` to implement link navigation” [101].
3. When you want to allow removing this `linkType` from the configuration. This is possible because a `linkType` configuration element without any child element may be used to remove from a configuration a previously defined `linkType` having the same `name`.

A `linkType` configuration element contains either a single `class` child element or an number of `anchor` and `link` child elements:

`class`

This element contains the fully qualified name of a class which implements interface `com.xmlmind.xmleditapp.linktype.LinkType`.

An example of such class is `com.xmlmind.xmleditapp.IDLinkType`, which leverages the standard `ID`/`IDREF`/`IDREFS` mechanism to implement a link type. When no `linkType` element is found in a configuration file, XXE will behave as if the following one was defined:

```
<linkType>
  <class>com.xmlmind.xmleditapp.linktype.IDLinkType</class>
</linkType>
```

`anchor`

The `anchor` element is used to detect in a document all the elements which may be used as link targets. This kind of elements is called *link target*, or more simply *anchor*. XHTML 1.0 example:

```
<anchor match="*[@id]" name="@id" />
<anchor match="html:a[@name]" name="@name" />
```

For a given link type and in a given document, an anchor is uniquely identified by its name. That is, for a given link type and in a given document, it is an error to find several anchors having the same name.

`link`

The `link` element is used to detect in a document all elements acting as links pointing to targets. This kind of elements is called *link source*, or more simply *link*. XHTML example:

```
<link match="html:a[@href]" href="@href" />
```

A link must reference the name of an existing anchor and optionally, depending on the link type, the file containing this existing anchor. That is, it is an error to find a link pointing to an unknown anchor and/or pointing to a non-existent file.

For a given link type, the same element may be at the same time an anchor and also one or more links.

It is also possible to define several link types in the same configuration. Fictitious example:

```
<linkType>❶
  <link match="*[@ref]" ref="@ref" />
  <anchor match="*[@id]" name="@id" />
</linkType>

<linkType name="bug">❷
  <link match="supportTicket[@bug]" href="@bug" />
  <anchor match="bugReport[@number]" name="@number" />
</linkType>
```

❶ The first `linkType` corresponds to general purpose ID/IDREF cross-references.

❷ The second `linkType` corresponds to specialized cross-references.

Attributes of the `anchor` child element:

`match`

Specifies an XPath pattern which is used to detect an element which may be used as a link target.

`name`

The XPath expression is evaluated in the context of the element matched by attribute `match`. It returns a string which is the name of the detected anchor.

The name of a anchor is any non-empty string which does not contain whitespace. Special value `"-"` may be used to ignore the element matched by attribute `match`.

Attributes of the `link` child element:

`match`

Specifies an XPath pattern which is used to detect an element which acts as a link source.

`ref`, `refs`, `href`, `hrefs`

One of the `ref`, `refs`, `href`, `hrefs` attributes must be specified. The XPath expression is evaluated in the context of the element matched by attribute `match`. It returns a string which specifies the target of the link. This string cannot be empty. Special value "`-`" may be used to ignore the element matched by attribute `match`.

- The string returned by the `ref` XPath expression is expected to be an anchor name.
- The string returned by the `refs` XPath expression is expected to be one or more anchor names separated by whitespace.
- The string returned by the `href` XPath expression is expected to be an URI. A relative URI is relative to the base URI of the element matched by attribute `match`. An URI may end with (or may consist in just) a fragment specifying an anchor name. In other words, an URI may end with '`#`' *`anchor_name`*.
- The string returned by the `hrefs` XPath expression is expected to a list of one or more URIs.

`excludePath`, `includePath`

These attributes are ignored unless the `href` attribute has been specified. They allow to make a difference between a link to an external resource and a link to some content found in a peer XML document. Of course, a `linkType` is about links pointing inside the local document or inside peer XML documents, and not about links to external resources.

The value of these attributes is a regular expression which must match the *`absolute_or_relative_URI`* part of the string returned by the `href` XPath expression.

An `href` returning an *`absolute_or_relative_URI`* which matches the `excludePath` regular expression is considered to be a link to an external resource and as such, is ignored. Example: ignore all absolute URIs:

```
excludePath="^[a-zA-Z][a-zA-Z0-9.+-]*:"
```

An `href` returning an *`absolute_or_relative_URI`* which does not match the `includePath` regular expression is considered to be a link to an external resource and as such, is ignored. Example: ignore URIs not ending with the `.xml`, `.dbk` and `.db5` suffixes.

```
includePath="\.(xml|dbk|db5)$"
```

The `excludePath` and `includePath` attributes are rarely used because they are implicitly defined by XXE as:

- Ignore absolute URIs which cannot be made relative to the URI of the document containing the element matched by `match`. For example, an "`http://`" URI cannot be made relative to a "`file:/`" URI, so ignore it.
- Ignore URIs which do not have the same file extension as the document containing the element matched by `match`. For example, a link contained in `packaging.dita` and pointing to `samples/manifest.xml` is ignored.

An actual, commented, `linkType` for DocBook 5:

```
<linkType>
  <!-- link, xref, biblioref -->
  <link match="*[@linkend]" ref="@linkend" />
```

```
  <link match="*[@endterm]" ref="@endterm" />

  <!-- area, co -->
  <link match="*[@linkends]" refs="@linkends" />

  <!-- callout -->
  <link match="*[@areafefs]" refs="@areafefs" />

  <!-- glosssee, glossseealso -->
  <link match="*[@otherterm]" ref="@otherterm" />

  <!-- indexterm -->
  <link match="*[@startref]" ref="@startref" />
  <link match="*[@zone]" refs="@zone" />

  <!-- th, td -->
  <link match="*[@headers]" refs="@headers" />

  <!-- We'll assume that "*[@xlink:href]" is a replacement for
       ulink and not an alternative to link and xref. -->

  <!-- Allows to use xi:include as a link when the transclusion
       has been turned off. -->
  <link match="xi:include" href="xincl:toHref(.)"
        xmlns:xincl="java:com.xmlmind.xml.xinclude.XInclude" />

  <anchor match="*[@xml:id]" name="@xml:id" />
</linkType>
```

TEI example:

```
<linkType>
  ...
  <link match="*[@target]" hrefs="@target"/>
  ...
  <link match="*[@spanTo]" href="@spanTo"/>
  ...
  <anchor match="*[@xml:id]" name="@xml:id"/>
</linkType>
```

18.1. Using `linkType` to implement link navigation

The user can navigate from a link source to the link target and the other way round by using the items of menu **Select** → **Link** and also the equivalent toolbar buttons.

These menu items and these toolbar buttons are always operative whether a `linkType` confirguration element has been defined or not. The reason is, when no `linkType` element is found in a configuration file, XXE will behave as if the following one was defined:

```
<linkType>
  <class>com.xmlmind.xmleditapp.linktype.IDLinkType</class>
</linkType>
```

Note that during the link navigation, XXE may have to open the document containing the destination. When this is the case, the user is prompted to confirm that she/he really wants to open this document and whether she/he wants to open it in read-only mode or in normal, read-write, mode.

This works because command `XXE.edit` in *XMLmind XML Editor - Commands* also allows to select a link target or a link source. In order to do that, `XXE.edit` is passed an URL ending with a proprietary XPointer leveraging the link type of the destination. Examples of such proprietary XPointers:

- Open file `book.xml` and select the element having "`introduction`" as its anchor name. The searched anchor "`introduction`" belongs to the link type called "`default`".

  ```
  book.xml#xmlns(l=urn:xxe:link)l:anchor(introduction)
  ```

- Same but the searched anchor "`978-3-16-148410-0`" belongs to the link type called "`ISBN`".

  ```
  book.xml#xmlns(l=urn:xxe:link)l:anchor(978-3-16-148410-0%20ISBN)
  ```

- Open file `introduction.dita` and select the element acting as a link pointing to "`concepts.dita#concepts/collection`". The searched anchor "`concepts/collection`" belongs to the link type called "`default`".

  ```
  introduction.dita#xmlns(l=urn:xxe:link)l:link(concepts.dita%20concepts/collection)
  ```

- Open file `chapter2.xml` and select the element acting as a link pointing to "`reference`". The searched anchor "`reference`" belongs to the link type called "`default`".

  ```
  chapter2.xml#xmlns(l=urn:xxe:link)l:link(%20reference)
  ```

18.2. Using `linkType` to implement link validation

In order to use one or more `linkType` elements defined in a configuration file to perform link validation in addition to link navigation, you'll have to declare the following validateHook [141]:

```
<validateHook>
  <class>com.xmlmind.xmleditapp.linktype.LinkChecker</class>
</validateHook>
```

By default, this `validateHook` checks all anchors and all links, and this for all the link types defined the configuration file. By default, the diagnostics reported by this `validateHook` are *added* to those reported by the validation performed by the DTD or schema. All these default behaviors may be changed by using the bean properties [82] described below:

Name	Type	Default	Description
excludedLinkTypes	String (zero or more link type names separated by whitespace)	"" (empty string)	Do not check the anchor and links belonging to specified link types.
checkRefs	boolean	true	If true, check links which are direct references to anchors (that is, the equivalent of IDREF and IDREFS).
checkHrefs	boolean	true	If true, check links which are hrefs (that is, *URI#anchor_name*).
checkAnchors	boolean	true	If true, check anchors (that is, the equivalent of ID).
replaceDiagnostics	boolean	false	If true, replace some of the diagnostics issued by the DTD or schema. For example, if checkAnchors is true, replace the duplicate ID error messages reported by the DTD or schema by the errors detected by this link checker.
checkIfMemberOfDocSet	boolean	false	If true, check anchors and links, but only when the document being checked is part of a document set. This implies that when the document being checked is *not* part of the document set, the job done by the DTD or schema is sufficient.

An actual, commented, validateHook for DocBook 5:

```
<validateHook name="checkLinks">
  <class>com.xmlmind.xmleditapp.linktype.LinkChecker</class>

  <!-- Let the schema check IDs. We'll only check refs. -->
  <property name="checkAnchors" type="boolean" value="false" />

  <property name="replaceDiagnostics" type="boolean" value="true" />

  <!-- When the document is not a member of a set, the DTD is just fine
       to check IDREFs. -->
  <property name="checkIfMemberOfDocSet" type="boolean" value="true" />

  <property name="excludedLinkTypes" type="String" value="xml:id" />
</validateHook>
```

18.3. Using linkType to define custom, specialized, attribute editors

The attributeEditor configuration element [50] allows to extend the **Attributes** tools by implementing custom, specialized, attribute editors. The link type feature comes with two implementations of interface com.xmlmind.xmledit.cmd.attribute.SetAttribute.ChoicesFactory. These two classes allow

to quickly and easily specify the value of attributes which are anchor names and/or the value of attributes which are pointers to anchors:

`com.xmlmind.xmleditapp.linktype.RefChoicesFactory`

This class lists all the anchor names found in the document being edited. Each anchor name is followed by a short description of the element acting as an anchor.

If the document being edited is part of a document set, this class also lists all the anchor names found in the peer documents.

DocBook example:

```
<attributeEditor attribute="linkend" elementMatches="xref|link">
  <class>com.xmlmind.xmleditapp.linktype.RefChoicesFactory</class>
  <property name="listIfMemberOfDocSet" type="boolean" value="true" />
</attributeEditor>

<attributeEditor attribute="id" elementMatches="*">
  <class>com.xmlmind.xmleditapp.linktype.RefChoicesFactory</class>
  <property name="listIfMemberOfDocSet" type="boolean" value="true" />
</attributeEditor>
```

`com.xmlmind.xmleditapp.linktype.HrefChoicesFactory`

This class lists all the anchor names found in the document being edited. An anchor name is prefixed with '`#`'. Each anchor name is followed by a short description of the element acting as an anchor.

If the document being edited is part of a document set, this class also lists the relative URIs of all peer documents. If the user types *`relative_URI#`* in the **Value** field of the **Attribute** tool or in the specialized dialog box displayed by the **Edit** button, this class will auto-complete *`relative_URI#`* by all the anchor names found in peer document *`relative_URI`*.

XHTML example:

```
<attributeEditor attribute="href" elementMatches="html:a">
  <class>com.xmlmind.xmleditapp.linktype.HrefChoicesFactory</class>
</attributeEditor>
```

DITA topic example:

```
<attributeEditor attribute="href" elementMatches="xref|link">
  <class>com.xmlmind.xmleditapp.linktype.HrefChoicesFactory</class>
</attributeEditor>
```

`com.xmlmind.xmleditapp.linktype.HrefsChoicesFactory`

Similar to `com.xmlmind.xmleditapp.linktype.HrefChoicesFactory`, for use to edit attributes which may contain one or more URIs and not just a single URI.

TEI example:

```
<attributeEditor attribute="target" elementMatches="*">
  <class>com.xmlmind.xmleditapp.linktype.HrefsChoicesFactory</class>
</attributeEditor>
```

19. menu

```
<menu
  label = non empty token
  name = NMTOKEN
  insert = non empty token
  replace = non empty token
  replaceEnd = non empty token
>
  Content: [ menu | separator | item | insert ]*
</menu>

<separator />

<insert />

<item
  label = non empty token
  name = NMTOKEN
  icon = anyURI
  command = NMTOKEN (optionally preceded by a command namespace [69])
  parameter = string
>
  Content: [ accelerator ]?
</item>

<accelerator
  code = key code
  modifiers = possibly empty list of (ctrl|shift|alt|meta|altGr|mod)
/>
```

Specifies the label and content of the **XML** (placeholder) menu.

Note that the mnemonic of a menu or of a menu item is specified by adding an underscore ('_') before the character used as a mnemonic. Currently, only `a-zA-Z0-1` characters can be used as mnemonics. Moreover, Java™ does not make a difference between an uppercase letter and a lowercase letter.

Example:

```
<menu label="_XHTML">
  <menu name="pasteAsMenu" label="Paste _As">
    <item name="pasteAsPItem" label="_p"
          command="pasteAs"
          parameter="toOrAdd
                     #template({http://www.w3.org/1999/xhtml}p,PAA.p)"/>
    ...
  </menu>
  <separator />
  <item name="moveUpItem" label="Move _Up"
        icon="xxe-config:common/icons/up.png"
        command="moveElement" parameter="up" />
  <item label="Move _Down"
```

```
        icon="xxe-config:common/icons/down.png"
        command="moveElement" parameter="down" />
</menu>
```

19.1. Customizing a `menu` or a `toolBar` without redefining it from scratch

The `insert` child element, the `insert`, `replace`, `replaceEnd` attributes may be used to customize to the previous definition of a menu [105] or a toolBar [125]. In this section, we'll use menus in the examples, but it works exactly the same with tool bars.

Extending a menu

There are two ways to extend previously defined menu:

1. by using the `insert` child element;
2. by using the `insert` attribute.

Only one method for customizing a `menu` or a `toolBar`: `insert` child element OR `insert` attribute OR `replace` and `replaceEnd` attributes (see below [108]) may be used at a time.

1. Using the `insert` child element. Example:

```
<!-- ===============================================
Let's suppose this menu is initially defined as follows:

<menu label="Insert">
  <item label="Insert..." command="insert" parameter="into" />
</menu>
================================================ -->

<menu label="Insert">
  <item label="Insert Before..." command="insert"
     parameter="before[implicitElement]" />
  <insert />
  <item label="Insert After..." command="insert"
    parameter="after[implicitElement]" />
</menu>
```

   The `insert` child element is a directive which means: insert all the items of the previous definition of the same menu here.

About the `label` attribute

When you extend a previously defined menu, the `label` attribute specifies the title of the extended menu. This means that you can *change* the title of a menu at the same time you extend it.

If you don't want to do that, which is often the case, simply specify `label="-"` in the menu extension. This is simpler and safer than repeating the original label of the menu. In such case, the above example becomes:

```
<menu label="-">
  <item label="Insert Before..." command="insert"
     parameter="before[implicitElement]" />
  <insert />
  <item label="Insert After..." command="insert"
    parameter="after[implicitElement]" />
</menu>
```

2. Using the `insert` attribute. Example:

```
<!-- ============================================
Let's suppose this menu is initially defined as follows:

<menu label="Insert">
  <item name="insertBeforeItem" label="Insert Before..."
    command="insert" parameter="before[implicitElement]" />
  <item name="insertAfterItem" label="Insert After..."
    command="insert" parameter="after[implicitElement]" />
</menu>
============================================= -->

<menu label="-" insert="insertAfterItem">
  <item label="Insert..." command="insert" parameter="into" />
</menu>
```

The `insert` attribute is a directive which means: insert all the items found in this menu into the previous definition of the same menu, and this, at specified position.

The value of the `insert` attribute is the `name` of an `item` found in the previous definition of the same menu. This name may be preceded by modifier "`before `", modifier "`after `" or modifier "`into `". Modifier "`before `" is the implicit one.

In the above example, extending menu "`Insert`" could have also been achieved by using:

```
<menu label="-" insert="before insertAfterItem">
  <item label="Insert..." command="insert" parameter="into" />
</menu>
```

or by using:

```
<menu label="-" insert="after insertBeforeItem">
  <item label="Insert..." command="insert" parameter="into" />
</menu>
```

About modifier "`into `"

Modifier "`into `" means: append to container having specified name. In the case of a `menu`, this container is necessarily a sub-menu. Example:

```
<!-- ============================================
Let's suppose this menu is initially defined as follows:

<menu label="XHTML">
  <menu name="pasteAsMenu" label="Paste _As">
    <item label="_p" command="pasteAs"
      parameter="toOrAdd #template(...)"/>
    ...
  </menu>
  <separator />
  ...
</menu>
============================================= -->

<menu label="-" insert="into pasteAsMenu">
  <separator />
  <item label="Paste from _Word"
    command="pasteFromWord" parameter="..." />
</menu>
```

Alternatively, the value of the `insert` attribute may be `##first` or `##last`. Value `##first` specifies the first item of the previous definition of the same menu. Value `##last` specifies the last item of the previous definition of the same menu. Example:

```
<menu label="-" insert="before ##last">
  <item label="Insert..." command="insert" parameter="into" />
</menu>
```

Removing or replacing items inside a menu

Removing or replacing some items inside a menu is done by the means of the `replace` attribute and, optionally, also the `replaceEnd` attribute. The `replaceEnd` attribute is needed to specify a range of sibling items.

Only one method for customizing a `menu` or a `toolBar`: `insert` child element OR `insert` attribute (see above [106]) OR `replace` and `replaceEnd` attributes may be used at a time.

Remove items example:

```
<!-- ============================================
Let's suppose this menu is initially defined as follows:

<menu label="XHTML">
  <item name="moveUpItem" label="Move _Up"
        command="moveElement" parameter="up" />
  <item name="moveDownItem" label="Move _Down"
        command="moveElement" parameter="down" />
</menu>
============================================= -->

<menu label="-" replace="moveUpItem" />
```

results in the following menu:

```
<menu label="XHTML">
  <item name="moveDownItem" label="Move _Down"
        command="moveElement" parameter="down" />
</menu>
```

This could have been specified as follows:

```
<menu label="-" replace="before moveDownItem" />
```

or as follows:

```
<menu label="-" replace="##first" />
```

In fact, the replace and replaceEnd attributes support the same values as the insert attribute (except modifier "into "). See above [106]. However, there is a pitfall. While attributes insert="before moveDownItem" and insert="moveDownItem" are equivalent, attributes replace="before moveDown-Item" and replace="moveDownItem" are *not* equivalent.

Example of replacing items:

```
<!-- ================================================
Let's suppose this menu is initially defined as follows:

<menu label="XHTML">
  <item label="Move _Up"
        command="moveElement" parameter="up" />
  <separator />
  <item name="previewItem" label="Pre_view"
        command="xhtml.preview" />
</menu>
================================================ -->

<menu label="-" replace="before previewItem" replaceEnd="previewItem">
  <item label="Move _Down"
        command="moveElement" parameter="down" />
</menu>
```

results in the following menu:

```
<menu label="XHTML">
  <item label="Move _Up"
        command="moveElement" parameter="up" />
  <item label="Move _Down"
        command="moveElement" parameter="down" />
</menu>
```

19.2. Multiple menus

Specifying a name attribute for the menu element lets you create an **XXE** GUI having several menus which are specific to the type of the document being edited.

Example:

1. In *XXE_user_preferences_dir*/addon/xhtml.xxe, add something like this:

```
<menu name="menu2" label="My XHTML Menu">
  ...
</menu>
```

2. In *XXE_user_preferences_dir*/addon/docbook.xxe, add something like this:

```
<menu name="menu2" label="My DocBook Menu">
  ...
</menu>
```

   Notice that the *same* name menu2 is used in all XML application specific configuration files.

3. In *XXE_user_preferences_dir*/addon/customize.xxe_gui (see XMLmind XML Editor - Customizing the User Interface), add something like this:

```
<menuItems name="configSpecificMenuItems2">
  <class>com.xmlmind.xmleditapp.desktop.part.ConfigSpecificMenuItems</class>
  <property name="specificationName" type="String" value="menu2" />
</menuItems>

<menu name="configSpecificMenu2" label="_My Menu">
  <menuItems name="configSpecificMenuItems2" />
</menu>

<menu name="fileMenu">
  <menu name="configSpecificMenu2" />
  <insert />
</menu>
```

20. newElementContent

```
<newElementContent
  addRequiredAttributes = boolean : true
  emptyAttributes = boolean : false
  generateIds = boolean : false
  addChildElements = (noChoice|
                      firstChoice|
                      simplestChoice|
                      elementOnlyContentNotEmpty) : simplestChoice
/>
```

Parametrizes the content of a newly inserted element automatically generated by **XXE** (has no effect on element templates):

addRequiredAttributes, emptyAttributes, generateIds

Example:

```
<!ELEMENT anchor EMPTY>
<!ATTLIST anchor id ID #REQUIRED>
```

`addRequiredAttributes="false"` creates `<anchor/>` (`emptyAttributes` and `generateIds` are ignored in such case) .

`addRequiredAttributes="true"`, `emptyAttributes="false"`, `generateIds="false"` creates `<anchor id="???"/>`.

`addRequiredAttributes="true"`, `emptyAttributes="true"`, `generateIds="false"` creates `<anchor id=""/>`.

`addRequiredAttributes="true"`, `generateIds="true"`, creates `<anchor id="__f34a62b09.b"/>` (whatever is the value of `emptyAttributes`).

addChildElements

Example:

```
<!ELEMENT section (title,(table|para)+)>
<!ELEMENT para #PCDATA>
<!ELEMENT table (header?,row*)>
```

`addChildElements="noChoice"` creates `<section><title></title></section>` (which is invalid) because it will not choose between a `para` and a `table`.

`addChildElements="firstChoice"` creates `<section><title></title><table></table></section>`. This option is useful for authors who write small schema for use in XXE and don't want to worry about elementTemplates [83].

`addChildElements="simplestChoice"` creates `<section><title></title><para></para></section>` because the content of a `para` is simpler than the content of a `table`.

`addChildElements="elementOnlyContentNotEmpty"` is a variant of `simplestChoice` for elements having an element-only content. In the case of this kind of elements, this variant will not create empty elements, even if this is allowed by the schema. For example, using this option creates this table: `<table><row><cell></cell></row></table>`, where using `simplestChoice` would have created an empty table: `<table></table>`.

Example:

```
  <newElementContent generateIds="true" addChildElements="firstChoice" />
```

21. nodePathAttributes

```
<nodePathAttributes>
  Content: [ attribute ]*
</nodePathAttributes>

<attribute
  name = QName
  element = XPath (subset [81])
  separator = string containing a single character
```

```
  splitValue = boolean : false
  show = boolean : true
/>
```

This element is used to configure the node path bar in *XMLmind XML Editor - Online Help* . It specifies which attribute values should be displayed after an element name.

XHTML example, the node path bar may be configured to show you something like this: **html** > **body** > **pre#example.fancy.line-numbers** > **code**. This may be achieved using the following specification:

```
<nodePathAttributes>
  <attribute name="id" separator="#" />
  <attribute name="class" separator="." splitValue="true" />
</nodePathAttributes>
```

This specification instructs the node path bar to display the values of attributes `id` and `class` after the name of any element having one or both these attributes. Character "`#`" is used to prefix the value of attribute `id`. Character "`.`" is used to prefix the tokens comprising the value of attribute `class`.

Child element `attribute` specifies an attribute to be displayed by the node path bar. The node path bar considers each `attribute` element in the order specified in the configuration file.

The attributes of element `attribute` are:

`name`
: The name of the attribute to be displayed. Required.

`element`
: An XPath pattern matching the parent element of the attribute to be displayed. Optional. Defaults to: any parent element.

`separator`
: Specifies the character to be prepended to the attribute value. Required.

`splitValue`
: If `true`, consider that the attribute value contains a list of tokens. Split this list and display each token preceded by the character specified by attribute `separator`. Optional. Defaults to `false`.

`show`
: If `false`, do not display the value of the attribute[3]. Optional. Defaults to `true`.

An empty `nodePathAttributes` configuration element may be used to discard the previously specified `nodePathAttributes`.

DocBook 5 example:

```
<nodePathAttributes xmlns:db="http://docbook.org/ns/docbook">
  <attribute name="xml:id" separator="#" />
  <attribute name="linkends" element="db:co" separator="&#xBB;"
```

[3]The contextual menu of the “document icon” of the node path bar contains checkboxes letting the user quickly switch attribute `show` from `false` to `true` and the other way round.

```
            splitValue="true" show="false" />
  <attribute name="arearefs" element="db:callout" separator="&#xBB;"
            splitValue="true" show="false" />
</nodePathAttributes>
```

22. property

```
<property
  name = non empty token
  url = boolean : false
  xml:space = preserve
>text</property>
```

Define Java™ system property (that is, java.lang.System.setProperty()) called *name*. The value of this property is specified by *text*.

If the `url` attribute is specified and its value is `true`, `text` must be a relative or absolute URL (properly escaped like all URLs). In such case, the value of the system property is the fully resolved URL.

This element is mainly intended to be used to configure some custom commands.

Examples:

```
<property name="color">red</property>

<property name="icon.3" url="true">resources/icon.gif</property>
```

The "$c" pseudo-variable may be referenced in the name of the property. This pseudo-variable is substituted with the name of the configuration being loaded. Example: the following property is used to parameterize the behavior of commands `insertNewlineOrSplitBlock` in *XMLmind XML Editor* - *Commands*, `insertSameBlock` in *XMLmind XML Editor* - *Commands* and `deleteSelectionOrJoinBlockOrDeleteChar` in *XMLmind XML Editor* - *Commands* when invoked from a DITA topic.

```
<property name="$c blockList">
  p
  dt
  li
  dlentry
  step
  substep
  choice
</property>
```

23. parameterGroup

```
<parameterGroup
  name = non empty token
>
  Content: [ parameter | parameterGroup ]*
</parameterGroup>
```

```
<parameter
  name = Non empty token
  url = boolean
>
  Content: Parameter value
</parameter>
```

Define a named group of XSLT style sheet parameters for use inside element `transform` of a process command [68].

If the `url` attribute of a `parameter` element is specified and its value is `true`, the parameter value must be a relative or absolute URL (properly escaped like all URLs). In such case, the value of the parameter is the fully resolved URL.

Parameter groups make it easier to customize the XSLT style sheet used to convert a document to other formats such as HTML or PDF.

For example, instead of redefining the whole process command `docb.toPS`, suffice to redefine in *`%APPDATA%`*`\XMLmind\XMLEditor10\addon\customize.xxe` (*`$HOME`*`/.xxe10/addon/customize.xxe` on Linux) its *placeholder parameterGroup* named "`docb.toPS.transformParameters`".

Examples:

```
<parameterGroup name="docb.toPS.transformParameters">
  <parameter name="variablelist.as.blocks">1</parameter>
</parameterGroup>

<parameterGroup name="docb.toRTF.transformParameters">
  <parameterGroup name="docb.toPS.transformParameters"/>
</parameterGroup>

<parameterGroup name="docb.toPS.FOPParameters">
  <parameter name="configuration" url="true">fop.xconf</parameter>
</parameterGroup>
```

24. preserveSpace

```
<preserveSpace
  elements = list of XPath (subset [81])
/>
```

Specifies which elements are whitespace-preserving.

Using standard attribute `xml:space` with default value `preserve` is still the preferred way of specifying this. However, this is not always possible, for example in the case of DTDs/ W3C XML schema that you don't control or in the case of RELAX NG schema which do not really support the concept of attribute default value.

DocBook example:

```
<cfg:preserveSpace xmlns=""
    elements="address funcsynopsisinfo classsynopsisinfo
              literallayout programlisting screen synopsis" />
```

25. relaxng

```
<relaxng
  location = anyURI
  compactSyntax = boolean
  encoding = any encoding supported by Java™
/>
```

Use the RELAX NG schema specified by this element to constrain the document.

location
: Required. Specifies the URL of the RELAX NG schema.

compactSyntax
: Specifies that the RELAX NG schema is written using the compact syntax. Without this attribute, if `location` has a "`rnc`" extension, the schema is assumed to use the compact syntax, otherwise it is assumed to use the XML syntax.

encoding
: Specifies the character encoding used for a RELAX NG schema written using the compact syntax. Ignored if the XML syntax is used. Without this attribute, the schema is assumed to use the native encoding of the platform.

Note that

- if a document contains a document type declaration (<!DOCTYPE>) which defines elements,
- or if the root element of a document has `xsi:schemaLocation`/`xsi:noNamespaceSchemaLocation` attributes,
- of if a document contains a `<?xml-model href="..."?>`,

the grammar specified this way is used and the RELAX NG schema specified in the configuration file is ignored.

Example:

```
<relaxng location="rng/xhtml-strict.rng" />
```

Compact syntax example:

```
<relaxng compactSyntax="true" encoding="ISO-8859-1"
         location="example3.rnc" />
```

26. saveOptions

```
<saveOptions
  encoding = NMTOKEN
  indent = none | (int >= 0)
  maxLineLength = unbounded | (int > 0)
  addOpenLines = boolean
  cdataSectionElements = list of XPath (subset [81])
  saveCharsAsEntityRefs = boolean
  charsSavedAsEntityRefs = list of character ranges
  favorInteroperability = boolean
  omitXMLDeclaration = false | true | auto : false
/>
```

Force XXE to use the specified save options for this type of document, unless **Options** → **Preferences**, **Save** tab, **Override settings specified in config. files** checkbox has been checked by the user, in which case, it is the save options specified in the dialog box which are used.

`encoding`

Specifies the encoding used for XML files saved by XXE.

`indent`

If this value is different from `none`, XML files saved by XXE are indented .

Note that XXE cannot indent XML files not constrained by a grammar.

`indentation`

Specifies the number of space characters used to indent a child element relatively to its parent element.

`maxLineLength`

Specifies the maximum line length for elements containing text interspersed with child elements.

This value is only used as a hint: XML files created by XXE may contain lines much longer than the specified length.

`addOpenLines`

If value is `true`, an open line is added between the child elements of a parent element (if the content model of the parent only allows child elements).

`cdataSectionElements`

List of XPaths specifying elements. These elements are expected to only contain text and to have an `xml:space="preserve"` attribute.

Text contained in elements matching any of the XPaths specified by this attribute is saved as a `CDATA` section. Text inside a `CDATA` section is not escaped which makes it more readable using a text editor. Example:

```
<script type="text/javascript"><![CDATA[function min(x, y) {
    return (x < y)? x : y;
}]]></script>
```

If an element matching any of the XPaths specified by this attribute contains anything other than text (even a comment), it is saved normally.

Note that, in most configuration elements, XXE only supports the XPath subset [81] needed to implement XML-Schemas (but not only relative paths, also absolute paths). Moreover, for efficiency reasons, an XPath whose last step does not test an element name is ignored. For example, "`foo//*`" is ignored.

`saveCharsAsEntityRefs`

Specifies whether characters not supported by the encoding are saved as entity references (example: "`&euro;`") or as numeric character references (example: "`&#8364;`").

Of course, for a character to be saved as an entity reference, the corresponding entity must have been defined in the DTD.

`charsSavedAsEntityRefs`

Specifies which characters, even if they are supported by the encoding, are always saved as entity references.

For example, the Copyright sign is supported by the ISO-8859-1 encoding but you may prefer to see it saved as "`&copy;`". In such case, specify `charsSavedAsEntityRefs="169"`.

Ignored if `saveCharsAsEntityRefs` is false.

This attribute contains a list of character ranges. A character range is either a single character or an actual range *`char1`*`:`*`char2`*.

A character may be specified using its Unicode character number, in decimal (example: `233` for e acute), in hexadecimal (example: `0xE9`) or in octal (example: `0351`).

Because names are easier to remember than numbers, a character may also be specified using its entity name as defined in the DocBook 4.2 DTD (example: `eacute`). Note that is possible whatever is the DTD or Schema targeted by the configuration file.

`favorInteroperability`

If value is `true`, favor interoperability with HTML.

- Empty elements having a non empty content are saved as "`<tag></tag>`".
- Empty elements having an empty content are saved as "`<tag />`" (with a space after the tag).
- The `CDATA` sections optionally inserted (see above [116]) in `html:script` and `html:style` elements are commented out like in the following example:

```
<script>/*<![CDATA[*/function sayHello() {
    alert("Hello <world>!");
}/*]]>*/</script>
```

`omitXMLDeclaration`

Specifies whether the XML declaration (that is, `<?xml version="1.`*`x`*`"...?>`) is to be omitted from the save file.

Omitting the XML declaration is useful when an XHTML document is delivered by the Web server to the Web browser as if it were an HTML document. That is, for the

Web browser, the media type of the document is `text/html` and not `application/xhtml+xml`.

This is useful because both the XML declaration and the `<!DOCTYPE>` declaration have an effect on the behavior of Web browsers. See *Activating Browser Modes with Doctype*.

`false`
: Default value. Do not omit the XML declaration from the save file.

`true`
: Omit the XML declaration and force the encoding of the save file to be UTF-8.

`auto`
: Determine whether the XML declaration is to be omitted by examining the content of the document to be saved.

  If the document is an XHTML document and contains `<meta http-equiv="Content-Type" content="`*`MEDIA`*`;charset=`*`CHARSET`*`"/>`, then:
  - If the media type is "`text/html`" and the charset is "`UTF-8`", then the XML declaration is omitted and the encoding of the save file is forced to be UTF-8.
  - Otherwise the XML declaration is *not* omitted but, if a valid charset has been successfully parsed, the encoding of the save file is forced to be this charset.

  If the document is not an XHTML document or does not contain `<meta http-equiv="Content-Type"...>`, then the XML declaration is *not* omitted.

  Element `<meta charset="`*`CHARSET`*`"/>` is considered to be equivalent to `<meta http-equiv="Content-Type" content="text/html;charset=`*`CHARSET`*`"/>`.

  The values of all the aforementioned attributes are parsed in a case-insensitive manner.

Examples:

```
<saveOptions addOpenLines="false" />

<saveOptions xmlns:htm="http://www.w3.org/1999/xhtml"
  cdataSectionElements="htm:head/htm:script"
  omitXMLDeclaration="auto" />

<saveOptions saveCharsAsEntityRefs="true"
             charsSavedAsEntityRefs="copy reg 023400:024000"/>
```

Note that a `saveOptions` element does not replace the `saveOptions` element previously found in a configuration file. When a configuration file contains several `saveOptions` elements, these `saveOptions` elements are merged.

Example:

```
<cfg:saveOptions xmlns="" cdataSectionElements="script pre"
                 addOpenLines="false"/>
        .
        .
```

```
        .
<cfg:saveOptions addOpenLines="true" encoding="ISO-8859-1"/>
```

is equivalent to:

```
<cfg:saveOptions xmlns="" cdataSectionElements="script pre"
                 addOpenLines="true" encoding="ISO-8859-1" />
```

27. schema

```
<schema>
  Content: location | noNamespaceLocation | (location noNamespaceLocation)
</schema>

<location>
  Content: list of anyURI pairs
</location>

<noNamespaceLocation>
  Content: anyURI
</noNamespaceLocation>
```

Use the W3C XML Schema specified by this element to constrain the document.

The content of child element `location` is identical to the one of standard attribute `xsi:schemaLocation`. The content of child element `noNamespaceLocation` is identical to the one of standard attribute `xsi:noNamespaceSchemaLocation`.

Note that

- if a document contains a document type declaration (<!DOCTYPE>) which defines elements,
- or if the root element of a document has `xsi:schemaLocation`/`xsi:noNamespaceSchemaLocation` attributes,
- of if a document contains a `<?xml-model href="..."?>`,

the grammar specified this way is used and the W3C XML Schema specified in the configuration file is ignored.

Example:

```
<schema>
  <location>http://www.w3.org/1999/xhtml
            xsd/5.2/xhtml5.xsd</location>
</schema>
```

28. schematron

```
<schematron
  location = anyURI
```

```
  phase = non empty token
  evaluatePhase = boolean : false
>
```

Specifies which Schematron schema to use to validate the document being edited.

Note that a Schematron schema is by no mean a replacement for *grammars*: DTD, W3C XML Schema or RELAX NG schema. A Schematron schema is mainly useful to enforce *business rules*. Example: the authors in your organization must write articles conforming to the DocBook grammar but they also need to follow this business rule: first section must have a title called "`Introduction`" and last section must have a title called "`Conclusion`".

XXE built-in Schematron implementation supports both ISO Schematron or Schematron 1.5 schema. The only supported query language binding is XSLT 1 (`queryBinding="xslt"`).

Attributes:

location
: URL of the Schematron schema.

  Note that `location` may point to a schema other than a schematron, but where some Schematron elements have been embedded (typically RELAX NG, but not with the compact syntax).

phase
: The ID of the phase to use for validation. By default, `#DEFAULT` if a default phase has been declared in the schematron, `#ALL` otherwise.

  The value of this attribute may also be an XPath expression which is used to compute the ID of the phase based on the contents of the document being edited. See `evaluatePhase` below.

evaluatePhase
: If this attribute is specified with value `true`, then attribute `phase` is understood as being an XPath expression rather than a literal phase ID. Each time a Schematron validation is to be performed, this XPath expression is evaluated in the context of the document and is expected to return the ID of the phase which is to be used for the validation.

DocBook 5 (RELAX NG) example:

```
<schematron location="docbook.sch" />
```

DocBook 4.4 (DTD) example:

```
<schematron location="docbook.sch"
            phase="if(/*/@status='draft','empty','#ALL')"
            evaluatePhase="true" />
```

The meaning of the `phase` attribute is: if we are working on a draft document, no real schematron validation (phase ID = `empty`) should be performed. (The schematron `docbook.sch` actually contains an empty phase having `empty` as its ID, that is, `<sch:phase id="empty"/>`.)

28.1. Relationship between `schematron` and `validateHook`

This `schematron` configuration element is a validateHook [141] configuration element in disguise. A `schematron` element is equivalent to:

```
<validateHook name="Schematron">
  <class>com.xmlmind.xmleditapp.config.SchematronHook</class>
</validateHook>
```

However the above syntax cannot be used for `SchematronHook` which requires a number of arguments (e.g. the URL of the schematron).

This information is worth mentioning for two reasons:

1. Document hooks are *ordered*. They are invoked in the order of their declarations. This is also true for `schematron`. In the example below, schematron validation is guaranteed to be invoked *after* the DocBook document hook:

   ```
   <!-- Fixes the cols attribute of tgroup and entrytbl if needed to. -->
   <validateHook>
     <class>com.xmlmind.xmleditext.docbook.table.ValidateHookImpl</class>
   </validateHook>

   <schematron location="docbook.sch" />
   ```

2. The snippet below may be used to *remove* previously declared `schematron`.

   ```
   <validateHook name="Schematron" />
   ```

29. spellCheckOptions

```
<spellCheckOptions
  useAutomaticSpellChecker = boolean
  languageAttribute = list of QNames
  defaultLanguage = language
  checkComments = boolean
  checkedProcessingInstructions = list of Names
  checkedAttributes = list of XPath (subset [81])
  skippedElements = list of XPath (subset [81])
/>
```

Specifies, on a per document type basis, options for the spell checker. Used by both the automatic (AKA on-the-fly) and the ``traditional'' spell checkers.

useAutomaticSpellChecker

If `true`, the automatic spell checker must be automatically activated each time a document of that type is opened.

Default: `false`; see language lookup [122].

This setting may be overridden by the user with **Options** → **Preferences**, **Tools**/**Spell** section, **Automatic Spell Checker** radio buttons.

languageAttribute

Specifies which attributes specify the language of an element and all its descendants. This is typically `xml:lang` or `lang` (or both in the case of XHTML).

Default: there is no such attribute; see language lookup [122].

defaultLanguage

Specifies the default language of a document of that type. (This option is rarely used.)

Default: no default language; see language lookup [122].

XMLmind XML Editor determines the language of an element by examining, in that order:

1. The value of any of the attributes specified by option `languageAttribute`.

   Attribute `xml:lang` is used by default when the document being spell-checked is not associated to any configuration file or when its configuration file does not contain a `spellCheckOptions` element having a `languageAttribute` attribute.

   Note that the attribute lookup starts at current element and ends at the root element of the document.

2. The value of option `defaultLanguage` if any.

3. The value selected in the **Default language** combobox of the **Spell** tool.

checkComments

Specifies whether comments must be checked for spelling.

Default: do not check comments.

checkedProcessingInstructions

Specifies the targets of processing instructions which must be checked for spelling. May be an empty list, which means: do not check processing instructions.

Default: do not check processing instructions.

checkedAttributes

Specifies the XPaths (subset [81]) of attributes which must be checked for spelling. May be an empty list, which means: do not check attributes.

For efficiency reasons, an XPath whose last step does not test an attribute name is ignored. For example, "`foo/@*`" is ignored.

Default: do not check attributes.

skippedElements

Specifies the XPaths (subset [81]) of elements which must be automatically skipped by the spell checker. May be an empty list, which means: do not skip any element.

For efficiency reasons, an XPath whose last step does not test an element name is ignored. For example, "`foo//*`" is ignored.

Default: do not skip any element.

Examples (DocBook 4, XHTML):

```
cfg:spellCheckOptions xmlns=""
  useAutomaticSpellChecker="true"
  languageAttribute="lang"
  skippedElements="address funcsynopsisinfo classsynopsisinfo
                   literallayout programlisting screen synopsis" />

<cfg:spellCheckOptions xmlns:html="http://www.w3.org/1999/xhtml"
  useAutomaticSpellChecker="true"
  languageAttribute="xml:lang lang"
  skippedElements="html:pre html:style html:script" />
```

Note that a `spellCheckOptions` element does not replace the `spellCheckOptions` element previously found in a configuration file. When a configuration file contains several `spellCheckOptions` elements, these `spellCheckOptions` elements are merged.

Example:

```
<cfg:spellCheckOptions xmlns=""
    useAutomaticSpellChecker="true"
    languageAttribute="xml:lang lang"
    skippedElements="html:pre html:script" />
        .
        .
        .
<cfg:spellCheckOptions xmlns=""
    languageAttribute="xml:lang"
    defaultLanguage="en-US"
    checkComments="true"
    checkedProcessingInstructions="annotation remark"
    checkedAttributes="@alt html:table/@summary html:table/@title" />
```

is equivalent to:

```
<cfg:spellCheckOptions xmlns=""
    useAutomaticSpellChecker="true"
    languageAttribute="xml:lang"
    defaultLanguage="en-US"
    checkComments="true"
    checkedProcessingInstructions="annotation remark"
    checkedAttributes="@alt html:table/@summary html:table/@title"
    skippedElements="html:pre html:script">
```

30. template

```
<template
  name = non empty token
  location = anyURI
  category = one or more category segments separated by '/' : configuration name
  order = int : 100
/>
```

Add document template named `name`, contained in file `location`, to the dialog box displayed by the **File** → **New** dialog box.

Specifying a `template` element without a location may be used to remove `template` element having the same name and the same category from this category.

Optional attributes `category` and `order` allow to better organize the content of the **File** → **New** dialog box.

category
: Specifies the category of the document template. A category consists in one or more segments separated by character `'/'`. By default, the category of a document template is the name of the configuration in which this template has been specified.

order
: Specifies the relative order of the document template within its category. Default value is 100.

Example 1:

```
<template name="Slides"
          location="template/slides.xml" />
```

The above template is specified in the configuration named "`Slides`", hence its category is by default "`Slides`" and its order is by default 100.

Example 2:

```
<template name="Map" location="template/v1.1/dtd/map.ditamap"
          category="DITA/1.1" order="100" />

<template location="template/v1.1/dtd/template.ditaval" name="DITAVAL"
          category="DITA/1.1" order="1000" />
```

The first above template is specified in the configuration named "`DITA Map`" and the second one in the configuration named "`DITAVAL`". Despite the fact that the two above templates are specified in different configurations, the **File** → **New** dialog box will display them in the same category "`DITA/1.1`" and template "`DITAVAL`" will follow template "`Map`".

Example 3:

```
<template name="DITAVAL" category="DITA/1.1"/>
```

Remove template "`DITAVAL`" from category "`DITA/1.1`".

Specifying composite document templates

Composite document templates, that is, modular document templates and/or document templates referencing graphics files, must be packaged in a `.zip` archive. Example: `modular_book.zip`:

```
$ unzip -v modular_book.zip
modular_book.xml
chapter1.xml
chapter2.xml
chapter3.xml
appendix.xml
images/
images/xmlmind.gif
```

The master document, `modular_book.xml` in the above example:

1. Must be directly contained in the archive (that is, not in a subdirectory like `images/`),
2. Must have the same basename, extension not included, as the archive. The basename, less the extension, is "`modular_book`" in the above example.

31. toolBar

```
<toolBar
  name = NMTOKEN
  insert = non empty token
  replace = non empty token
  replaceEnd = non empty token
>
  Content: [ insert|
             separator | spacer | button |
             div | span ]*
</toolBar>

<insert />

<separator
  line = boolean : true
/>

<spacer />

<button
  icon = anyURI
  largeIcon = anyURI
  label = non empty token
  toolTip = non empty token
  group = NMTOKEN
  name = NMTOKEN
>
  Content: [ class [ property ]* ]? command | menu
</button>
```

```
<class>
  Content: Java class name
</class>

<property
  name = NMTOKEN matching [_a-zA-Z][_a-zA-Z0-9]*
  type = (boolean|byte|char|short|int|long|float|double|
          String|URL)
  value = string
/>

<command
  name = NMTOKEN (optionally preceded by a command namespace [69])
  parameter = string
/>

<menu
  name = NMTOKEN
>
  Content: [ item | separator ]+
</menu>

<item
  label = non empty token
  icon = anyURI
  command = NMTOKEN (optionally preceded by a command namespace [69])
  parameter = string
/>

<div
  label = non empty token
  name = NMTOKEN
>
  Content: [ separator | spacer | button |
             span ]+
</div>

<span
  name = NMTOKEN
>
  Content: [ separator | spacer | button ]+
</span>
```

Add buttons specified in this element to one of the tool bars of XMLmind XML editor.

- Elements `button`, `menu`, `item` and `separator` are best explained by reading the example below.

  Attribute `group` of element `button` may be given a value in order to give a common border to a group of buttons. The buttons belonging to the same group must be all adjacent and must all have the same value of attribute `group`.

- Child elements `class` and `property` of element `button` are explained in Section 31.1, “Custom controls” [127].

- The `insert` child element, the `insert`, `replace`, `replaceEnd` attributes may be used to customize to the previous definition of a `toolBar`. More information in Section 19.1, “Customizing a `menu` or a `toolBar` without redefining it from scratch” [106].
- The `div` and `span` child elements are explained in Section 31.3, “Adding configuration specific tool bar buttons to the **XXE GUI**” [138].

Example:

```
<toolBar>
  <button toolTip="Convert to emphasis"
          icon="icons/emphasis.png">
    <menu>
      <item label="emphasis" command="convert"
            parameter="[implicitElement] emphasis" />
      <separator />
      <item label="literal" command="convert"
            parameter="[implicitElement] literal" />
    </menu>
  </button>

  <button toolTip="Convert to plain text" icon="icons/plainText.png">
    <command name="convert" parameter="[implicitElement] #text" />
  </button>

  <separator />

  <button name="addParaButton"❶
          toolTip="Add para" icon="icons/para.png"
          label="Add para" largeIcon="icons/32/para.png"❷>
    <command name="add" parameter="after[implicitElement] para" />
  </button>
</toolBar>
```

❶ The `name` attribute is only useful to customize the previous definition of a `toolBar`. More information in Section 19.1, “Customizing a `menu` or a `toolBar` without redefining it from scratch” [106].

❷ The `label` and `largeIcon` attributes are considered when the button is copied to a `ribbon` GUI part in *XMLmind XML Editor - Customizing the User Interface*. In such case, the `largeIcon` attribute supersedes the `icon` attribute. More information in Section 31.3, “Adding configuration specific tool bar buttons to the **XXE GUI**” [138].

Attributes `label` and `largeIcon` are ignored when the button is copied to in a `toolBar` GUI part in *XMLmind XML Editor - Customizing the User Interface*.

31.1. Custom controls

Normally the above specification is used to create a normal button, either directly invoking a command or displaying a menu where each item invokes a different command. However, if the first child element of a `button` element is a `class` element, a custom control is created rather than a normal button.

Note that a custom control created this way interprets the attributes (`icon`, `toolTip`, etc) and the other child elements of its `button` parent (`command`, `menu`) in a specific way. These specificities must be documented separately for each type of custom control.

class

Must be a class which extends `java.awt.Component` and which implements the `com.xmlmind.xmleditapp.desktop.toolbar.ToolBarTool` interface.

property

One or more `property` elements may be used to parametrize the newly created custom component. See bean properties [82].

DocBook 4 examples:

```
<button toolTip="emphasis"
        icon="xxe-config:common/icons/italic.png">
  <class>com.xmlmind.xmleditapp.desktop.toolbar.TextStyleToggle</class>

  <command name="pass" parameter="emphasis[not(@role)]" />
</button>

<button toolTip="link"
        icon="xxe-config:common/icons/hyperText_menu.png">
  <class>com.xmlmind.xmleditapp.desktop.toolbar.TextStyleToggle</class>
  <property name="toggleShowsActiveTextStyle" type="boolean" value="true" />

  <menu>
    <item label="link" icon="xxe-config:common/icons/hyperText.png"
          command="pass" parameter="link[@linkend]" />
    <item label="ulink" icon="xxe-config:common/icons/link.png"
          command="pass" parameter="ulink[@url]" />
  </menu>
</button>
```

31.1.1. The `TextStyleMenu` custom control

This custom control consists in a button which displays a menu containing checkboxes. Each checkbox toggles a different *text style*. More information about text style toggles in About “text style” toggles in *XMLmind XML Editor - Online Help*.

Class name: `com.xmlmind.xmleditapp.desktop.toolbar.TextStyleMenu`

Table 6.2. `TextStyleMenu` properties

Property	Type	Default value	Description
customizationId	String	-	If set, a **Customize** item is added at the end of the menu. The **Customize** item displays a dialog box allowing to quickly customize the entries of the menu. More information in Section 15, “Dialog box allowing to edit “text style” menu items” in *XMLmind XML Editor - Online Help*.

Property	Type	Default value	Description
			The value of this property is a string which must be chosen in order to be unique within all the customizationId values of all the `toolBar` custom controls of all **XXE** configurations.

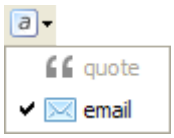
This custom control is specified similarly to a normal `toolBar` `button` element containing a `menu` child element (see Section 31, “toolBar” [125]), except that:

1. The first child of the `button` element must be a `class` element containing `com.xmlmind.xmleditapp.desktop.toolbar.TextStyleMenu`.
2. The `item`/@`command` attributes are completely ignored. For example, you may specify **pass** or **alert**.
3. The `item`/@`parameter` attributes must contain a specification of a text style. DocBook 4 examples: `emphasis`, `link[@linkend]`, `sgmltag[@class="element"]`. Text style specification is documented in Section 110, “toggleTextStyle” in *XMLmind XML Editor - Commands*.

In the following DocBook 5 examples, the caret is found inside an `email` element. That's why the **email** checkbox is checked.

Example 6.5. Simplest `TextStyleMenu` custom control

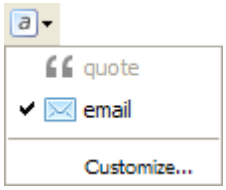
```
<button toolTip="Miscellaneous text styles"
        icon="xxe-config:common/icons/emphasisText_menu.png">
  <class>com.xmlmind.xmleditapp.desktop.toolbar.TextStyleMenu</class>

  <menu>
    <item label="quote"
          icon="xxe-config:common/icons/quote.png"
          command="pass"
          parameter="{http://docbook.org/ns/docbook}quote" />
    <item label="email"
          icon="xxe-config:common/icons/email.png"
          command="pass"
          parameter="{http://docbook.org/ns/docbook}email" />
  </menu>
</button>
```



Example 6.6. Customizable `TextStyleMenu` custom control

```
<button toolTip="Miscellaneous text styles"
        icon="xxe-config:common/icons/emphasisText_menu.png">
  <class>com.xmlmind.xmleditapp.desktop.toolbar.TextStyleMenu</class>
  <property name="customizationId" type="String"
            value="db5.miscTextStyles" />

  <menu>
```

```
    <item label="quote"
          icon="xxe-config:common/icons/quote.png"
          command="pass"
          parameter="{http://docbook.org/ns/docbook}quote" />
    <item label="email"
          icon="xxe-config:common/icons/email.png"
          command="pass"
          parameter="{http://docbook.org/ns/docbook}email" />
  </menu>
</button>
```



31.1.2. The `TextStyleToggle` custom control

This custom control is a variant of the `TextStyleMenu` custom control [128]. This custom control combines a toggle button and a plain button having an arrow icon. The arrow button displays a menu containing checkboxes. Each checkbox toggles a different *text style*. More information about text style toggles in About “text style” toggles in *XMLmind XML Editor - Online Help*. By default, the toggle button toggles the first text style of the menu. Therefore, this toggle button may be considered to be a “quick access” to the first entry of the menu. Note that when the menu contains a single entry, the arrow button —which is not useful in this case— is automatically suppressed.

Class name: `com.xmlmind.xmleditapp.desktop.toolbar.TextStyleToggle`

Table 6.3. `TextStyleToggle` properties

Property	Type	Default value	Description
customizationId	String	-	If set, an arrow button displaying a menu is always created and a **Customize** item is added at the end of the menu. The **Customize** item displays a dialog box allowing to quickly customize the entries of the menu. More information in Section 15, “Dialog box allowing to edit “text style” menu items” in *XMLmind XML Editor - Online Help*. The value of this property is a string which must be chosen in order to be unique within all the customizationId values of all the `toolBar` custom controls of all **XXE** configurations.
toggleShowsLabel	boolean	false	If set to true, the toggle button shows a label, possibly in addition to an icon.
toggleShowsActive-TextStyle	boolean	false	By default, the toggle button is simply a “quick access” to the first entry of the menu. When this property is set to true, the toggle button becomes a quick access to the

Property	Type	Default value	Description
			entry of the menu which is checked. If there is no checked checkbox in the menu, then the toggle button is a quick access to the first entry of the menu.  Do not set this property to true unless each menu item has a different icon and/or you also set toggleShowsLabel to true. If you don't follow this recommendation, the user of **XXE** will probably not understand the behavior of `TextStyleToggle`.

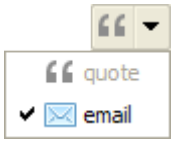
This custom control is specified similarly to a normal `toolBar button` element containing a `command` or a `menu` child element (see Section 31, “toolBar” [125]), except that:

1. The first child of the `button` element must be a `class` element containing `com.xmlmind.xmleditapp.desktop.toolbar.TextStyleToggle`.
2. The `command`/@`name` and `item`/@`command` attributes are completely ignored. For example, you may specify **pass** or **alert**.
3. The `command`/@`parameter` and `item`/@`parameter` attributes must contain a specification of a text style. DocBook 4 examples: `emphasis`, `link[@linkend]`, `sgmltag[@class="element"]`. Text style specification is documented in Section 110, “toggleTextStyle” in *XMLmind XML Editor - Commands*.

In the following DocBook 5 examples, the caret is found inside an `email` element. That's why the **email** checkbox is checked and, for some examples, the toggle button is selected and shows an envelope icon.

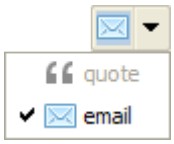
Example 6.7. Simplest `TextStyleToggle` custom control

```
<button toolTip="Miscellaneous text styles"
        icon="xxe-config:common/icons/emphasisText_menu.png">
  <class>com.xmlmind.xmleditapp.desktop.toolbar.TextStyleToggle</class>

  <menu>
    <item label="quote"
          icon="xxe-config:common/icons/quote.png"
          command="pass"
          parameter="{http://docbook.org/ns/docbook}quote" />
    <item label="email"
          icon="xxe-config:common/icons/email.png"
          command="pass"
          parameter="{http://docbook.org/ns/docbook}email" />
  </menu>
</button>
```



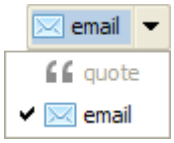
Example 6.8. "Active" `TextStyleToggle` custom control

```
<button toolTip="Miscellaneous text styles"
        icon="xxe-config:common/icons/emphasisText_menu.png">
  <class>com.xmlmind.xmleditapp.desktop.toolbar.TextStyleToggle</class>
  <property name="toggleShowsActiveTextStyle" type="boolean" value="true" />

  <menu>
    <item label="quote"
          icon="xxe-config:common/icons/quote.png"
          command="pass"
          parameter="{http://docbook.org/ns/docbook}quote" />
    <item label="email"
          icon="xxe-config:common/icons/email.png"
          command="pass"
          parameter="{http://docbook.org/ns/docbook}email" />
  </menu>
</button>
```



Example 6.9. "Active" `TextStyleToggle` custom control showing a label in addition to an icon

```
<button toolTip="Miscellaneous text styles"
        icon="xxe-config:common/icons/emphasisText_menu.png">
  <class>com.xmlmind.xmleditapp.desktop.toolbar.TextStyleToggle</class>
  <property name="toggleShowsActiveTextStyle" type="boolean" value="true" />
  <property name="toggleShowsLabel" type="boolean" value="true" />

  <menu>
    <item label="quote"
          icon="xxe-config:common/icons/quote.png"
          command="pass"
          parameter="{http://docbook.org/ns/docbook}quote" />
    <item label="email"
          icon="xxe-config:common/icons/email.png"
          command="pass"
          parameter="{http://docbook.org/ns/docbook}email" />
  </menu>
</button>
```



31.1.3. The `ListTypeMenu` custom control

This custom control consists in a button which displays a menu containing radiobuttons. If the explicitly or implicitly selected element is found anywhere inside a list, then the corresponding radiobutton is selected. Otherwise, there is no selected radiobutton and all the radiobuttons are disabled (grayed).

Selecting a radiobutton other than the currently selected one allows to change the type of the list. Example: convert an itemized list to an ordered list having its items numbered "`a.`", "`b.`", "`c.`", etc.

Class name: `com.xmlmind.xmleditapp.desktop.toolbar.ListTypeMenu`

This custom control is specified similarly to a normal `toolBar` `button` element containing a `menu` child element (see Section 31, “toolBar” [125]), except that:

1. The first child of the `button` element must be a `class` element containing `com.xmlmind.xmleditapp.desktop.toolbar.ListTypeMenu`.
2. The `item`/@`command` attributes are completely ignored. For example, you may specify **pass** or **alert**.
3. The `item`/@`parameter` attributes must contain a specification of a list type.

A list type comprises 1 or 5 parts. A part is a string which may be quoted using single or double quotes.

The first part is always the name of the list element. This name must be specified using the Clark's notation in *XMLmind XML Editor - Commands*. DocBook 4 (no namespace) example: `itemizedlist`. DocBook 5 example: `{http://docbook.org/ns/docbook}itemizedlist`.

The element name is optionally followed by the specification of an attribute value. This specification comprises 4 supplemental parts:

- Part #2 is the name of the attribute which participates in specifying the type of the list. This name must be specified using the Clark's notation in *XMLmind XML Editor - Commands*.

  If, for a given list type, this attribute may be absent, do not forget to add "`?`" at the end of the attribute name. DocBook example: “decimal” list type: `numeration?`.

  If an attribute does not specify the type of the list *per se* but specifies some of the properties of a given list type, then the attribute name must be prefixed by a "`+`". DocBook examples: `+continuation`, `+inheritnum`. See full example [134] below.

- Part #3 is a regular expression specifying how to detect the type of the list. The value of the attribute must contain a substring matching this regular expression.

  The empty string is a shorthand for "`.*`" (matches any substring).

  Note that this regular expression is very often as simple as a string literal. DocBook example: `loweralpha`.

  In a few cases, you'll have to specify an *anti-pattern*. In other words, The value of the attribute must *not* contain a substring matching the specified regular expression. When this is the case, put the regular

expression between "`!{`" and "`}`". XHTML Strict example: `!{list-style-type:\s*(lower-alpha|lower-latin|upper-alpha|upper-latin|lower-roman|upper-roman)}`.

- Changing the value of the attribute in order to change the type of the list is a 2-step operation. First step: remove some substrings from the value of the attribute. Second step: prepend a string literal to the value of the attribute.

  Part #4 is a regular expression specifying which substrings are to be removed from the value of the attribute. XHTML Strict example: `list-style-type:\s*[^;]*;?`.

  The empty string is a shorthand for "`^.*$`" (remove all characters).

- Part #5 is a string literal which is to be prepended to the value of the attribute. XHTML Strict example: `list-style-type:lower-alpha;`.

  This string literal may be empty, in which case, nothing is prepended to the value of the attribute.

In the following examples, the caret is found inside an ordered list. That's why the **ol** or **orderedlist** radiobutton is checked.

Example 6.10. Simplest `ListTypeMenu`; may be used in the DITA Topic configuration

```
<button group="listGroup" toolTip="Change list type"
        icon="xxe-config:common/icons/menu.png">
  <class>com.xmlmind.xmleditapp.desktop.toolbar.ListTypeMenu</class>

  <menu>
    <item label="ul" command="pass" parameter="ul" />
    <separator />
    <item label="ol" command="pass" parameter="ol" />
  </menu>
</button>
```

Example 6.11. DocBook 5 `ListTypeMenu`

```
<button group="listGroup" toolTip="Change list type"
        icon="xxe-config:common/icons/menu.png">
  <class>com.xmlmind.xmleditapp.desktop.toolbar.ListTypeMenu</class>

  <menu>
    <item label="itemizedlist" command="pass"
      parameter="{http://docbook.org/ns/docbook}itemizedlist❶" />
    <separator />
    <item label="orderedlist" command="pass"
      parameter="{http://docbook.org/ns/docbook}orderedlist numeration?❷
                 arabic❸ ''❹ arabic" />
    <item label="orderedlist[loweralpha]" command="pass"
      parameter="{http://docbook.org/ns/docbook}orderedlist numeration
```

```
                loweralpha '' loweralpha" />
    <item label="orderedlist[upperalpha]" command="pass"
      parameter="{http://docbook.org/ns/docbook}orderedlist numeration
                upperalpha '' upperalpha" />
    <item label="orderedlist[lowerroman]" command="pass"
      parameter="{http://docbook.org/ns/docbook}orderedlist numeration
                lowerroman '' lowerroman" />
    <item label="orderedlist[upperroman]" command="pass"
      parameter="{http://docbook.org/ns/docbook}orderedlist numeration
                upperroman '' upperroman" />
    <separator />
    <item label="Continue Numbering" command="pass"❺
          parameter="{http://docbook.org/ns/docbook}orderedlist
                     +continuation continues '' continues" />
    <item label="Inherit Numbering" command="pass"❻
          parameter="{http://docbook.org/ns/docbook}orderedlist
                     +inheritnum inherit '' inherit" />
  </menu>
</button>
```

❶ Notice how the name of this element is specified using the Clark's notation in *XMLmind XML Editor - Commands*.

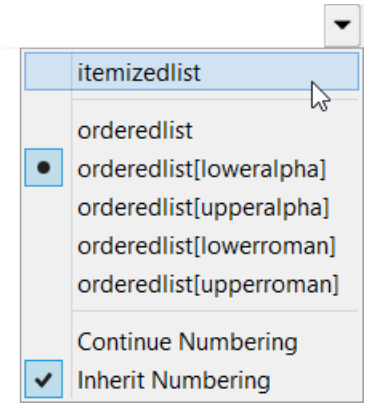
❷ This specification reads as follows: the “decimal” `orderedlist` element has an optional `numeration` attribute.

❸ If it has a `numeration` attribute, then its value must contain string `arabic`.

❹ In order to change to “decimal” the type of an `orderedlist` having a `numeration` attribute, first remove the all characters found in the `numeration` attribute (remember that `''` is a shorthand for regular expression `'^.*$'`), then prepend string `arabic` to the value of the `numeration` attribute.

❺ Menu entry "**Continue Numbering**", which is rendered as a checkbox, sets the `continuation` attribute of an `orderedlist` to `continues` when this attribute is absent and removes this attribute otherwise.

❻ Menu entry "**Inherit Numbering**", which is rendered as a checkbox, sets the `inheritnum` attribute of an `orderedlist` to `inherit`when this attribute is absent and removes this attribute otherwise



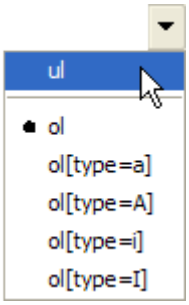
Example 6.12. XHTML 1.0 Strict `ListTypeMenu`; most complex specification because the type of the list must be specified using a CSS style

```
<button group="listGroup" toolTip="Change list type"
        icon="xxe-config:common/icons/menu.png">
  <class>com.xmlmind.xmleditapp.desktop.toolbar.ListTypeMenu</class>

  <menu>
    <item label="ul" command="pass"
      parameter="{http://www.w3.org/1999/xhtml}ul style?
                 '' list-style-type:\s*[^;]*;? ''" />
    <separator />
    <item label="ol" command="pass"
      parameter="{http://www.w3.org/1999/xhtml}ol style?❶
        !{list-style-type:\s*(lower-alpha|lower-latin|upper-alpha|upper-latin|¬
lower-roman|upper-roman)}❷
        list-style-type:\s*[^;]*;?❸
        '" />
    <item label="ol[type=a]" command="pass"
          parameter="{http://www.w3.org/1999/xhtml}ol style
                     list-style-type:\s*(lower-alpha|lower-latin)
                     list-style-type:\s*[^;]*;?
                     list-style-type:lower-alpha;" />
    <item label="ol[type=A]" command="pass"
          parameter="{http://www.w3.org/1999/xhtml}ol style
                     list-style-type:\s*(upper-alpha|upper-latin)
                     list-style-type:\s*[^;]*;?
                     list-style-type:upper-alpha;" />
    <item label="ol[type=i]" command="pass"
          parameter="{http://www.w3.org/1999/xhtml}ol style
                     list-style-type:\s*lower-roman
                     list-style-type:\s*[^;]*;?
                     list-style-type:lower-roman;" />
    <item label="ol[type=I]" command="pass"
          parameter="{http://www.w3.org/1999/xhtml}ol style
                     list-style-type:\s*upper-roman
                     list-style-type:\s*[^;]*;?
                     list-style-type:upper-roman;" />
  </menu>
</button>
```

❶ This specification reads as follows: the “decimal” `ol` element has an optional `style` attribute.

❷ If it has a `style` attribute, then its value must *not* contain a substring matching regular expression `list-style-type:\s*(lower-alpha|lower-latin|upper-alpha|upper-latin|lower-roman|upper-roman)`.

❸ In order to change to “decimal” the type of an `ol` having a `style` attribute, remove all the substrings matching regular expression `list-style-type:\s*[^;]*;?` from the value of the `style` attribute. After that, there is no special string to be prepended to the value of the `style` attribute



31.2. Multiple tool bars

Specifying a `name` attribute for the `toolBar` element lets you create an **XXE** GUI having several tool bars which are specific to the type of the document being edited.

Example:

1. In *`XXE_user_preferences_dir`*`/addon/xhtml.xxe`, add something like this:

```
<toolBar name="toolBar2">
  ...
</toolBar>
```

2. In *`XXE_user_preferences_dir`*`/addon/docbook.xxe`, add something like this:

```
<toolBar name="toolBar2">
  ...
</toolBar>
```

   Notice that the *same* name `toolBar2` is used in all XML application specific configuration files.

3. In *`XXE_user_preferences_dir`*`/addon/customize.xxe_gui` (see XMLmind XML Editor - Customizing the User Interface), add something like this:

```
<toolBarItems name="configSpecificToolBarItems2">
  <class>com.xmlmind.xmleditapp.desktop.part.ConfigSpecificToolBarItems</class>
  <property name="specificationName" type="String" value="toolBar2" />
</toolBarItems>

<toolBar name="configSpecificToolBar2">
  <toolBarItems name="configSpecificToolBarItems2" />
</toolBar>

<layout>
  <topToolBars>
    <insert />
    <toolBar name="configSpecificToolBar2" />
  </topToolBars>
</layout>
```

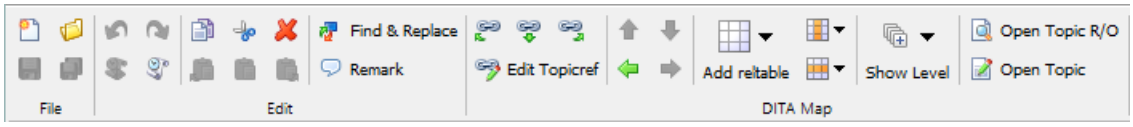
31.3. Adding configuration specific tool bar buttons to the XXE GUI

31.3.1. How does it work?

Configuration specific tool bar buttons defined in a `toolBar` configuration element may be added either to a *ribbon* or to a tool bar of the **XXE GUI**. A *ribbon* is a kind of "structured" tool bar, generally having more than one row of buttons.

*Figure 6.1. Ribbon of the **XXE** desktop application when no document is being edited*

*Figure 6.2. Ribbon of the **XXE** desktop application when a DITA map is being edited*



This feature is implemented by the means of **GUI** specification elements. Excerpts from `Desktop-App.xxe_gui`, the specification of the **XXE** desktop application:

```
<ribbonItems name="configSpecificRibbonItems">
  <class>com.xmlmind.xmleditapp.desktop.part.ConfigSpecificRibbonItems</class>
</ribbonItems>

<ribbon rows="2" name="ribbon" helpId="ribbon">
  <div name="file" label="File">
    <action name="newAction" />
    <action name="saveAction" />
    ...
  </div>
  ...
  <ribbonItems name="configSpecificRibbonItems" />
</ribbon>
```

GUI specification element `ribbon` in *XMLmind XML Editor - Customizing the User Interface* defines the ribbon of the **XXE** desktop application and `ribbonItems` in *XMLmind XML Editor - Customizing the User Interface* copies the buttons found in the `toolBar` configuration element to this ribbon.

Excerpts from `SingleDocApp.xxe_gui`, an alternate, simpler, GUI specification:

```
<toolBarItems name="configSpecificToolBarItems">
  <class>com.xmlmind.xmleditapp.desktop.part.ConfigSpecificToolBarItems</class>
</toolBarItems>

<toolBar name="configSpecificToolBar" helpId="configSpecificMenu">
  <action name="configSpecificAction" />
  <toolBarItems name="configSpecificToolBarItems" />
</toolBar>
```

GUI specification element `toolBar` in *XMLmind XML Editor - Customizing the User Interface* defines a tool bar of the **XXE GUI** and `toolBarItems` in *XMLmind XML Editor - Customizing the User Interface* copies the buttons found in the `toolBar` configuration element to this tool bar.

31.3.2. Why specify `div` and `span` elements in a `toolBar` configuration element?

Configuration elements `div` and `span` are used only when the configuration specific tool bar buttons are copied to the *ribbon* of the **XXE GUI**. More precisely, aside `button` and `separator`, the following elements are used to compose the ribbon:

`div`

A group of buttons generally having a label. More information in *XMLmind XML Editor - Customizing the User Interface*.

`span`

A horizontal group of buttons. More information in *XMLmind XML Editor - Customizing the User Interface*.

Adjacent buttons having the same value for attribute `group` must be wrapped into a `span`.

```
<span>
  <button group="listGroup"
    icon="xxe-config:common/icons/promoteListItem.png"
    toolTip="Decrease nesting level">
    <command name="promoteListItem"/>
  </button>
  <button group="listGroup"
    icon="xxe-config:common/icons/demoteListItem.png"
    toolTip="Increase nesting level">
    <command name="demoteListItem"/>
  </button>
</span>
```

`spacer`

Occupies the same space as a `button` having a 16x16 icon and no label. More information in *XMLmind XML Editor - Customizing the User Interface*.

`separator line="false"`

Inside a `span`, a `separator` having attribute `line="false"` is rendered as a small space. Inside a `div`, a `separator` having attribute `line="false"` may be used as a “column break”. More information in *XMLmind XML Editor - Customizing the User Interface*.

Configuration elements `div` and `span` are ignored when the configuration specific tool bar buttons are copied to a tool bar of the **XXE GUI**. More precisely

- elements `span` and `div` are transparent, except that a separator is automatically added before each `div`;
- element `spacer` and element `separator` having attribute `line="false"` are ignored.

32. translation

```
<translation
  location = anyURI matching [path/]resourcename_lang.properties
/>
```

Specifies how to translate messages found in menu [105] `item label`, toolBar [125] `button toolTip`, template [124] `name`, elementTemplate [83] `name`, css [72] `name`, binding [57] `menu item label`, etc.

Localizing configuration files works as follows:

1. The `location` attribute points to a Java™ property file. XHTML example:

   ```
   <translation location="xhtml_en.properties" />
       ...
     <item label="Pre_view" icon="../common/icons/Refresh16.gif"
           command="xhtml.preview">
       <accelerator code="F5" />
     </item>
   </menu>
       ...
   ```

   Where `xhtml_en.properties` contains:

   ```
        ...
   preview=Pre_view
   convertToI=Convert to i
   convertToB=Convert to b
        ...
   ```

   The location URL specifies:

   - The reference language of the configuration file: a two-letter lower-case ISO code. In the above example: `en`.
   - A unique resource name used to find translations to other languages. In the above example: `xhtml`. More on this below.

   The reference property file is only used to map messages to message IDs. Example: message "`Convert to i`" has ID "`convertToI`".

2. If, for example, XXE is started using a French locale, a property file called `xhtml_fr.properties`:

   - is searched in the same directory as the reference property file;
   - OR, if this file is not found there, this property file is searched as a resource using the `CLASSPATH`. That is, `xhtml_fr.properties` is supposed to be contained[4] in a `jar` file found in the `CLASSPATH`.

   For performance reasons, language variants such `CA` in `fr-CA` are not supported.

[4] *Directly* contained, and not contained in a ``folder". That is, "`jar tvf foo.jar`" must display `xhtml_fr.properties` and not `foo/bar/xhtml_fr.properties`.

3. For the localization to work, the translated property file must refer to the same IDs as those found in reference property file.

   For example, `xhtml_fr.properties` contains:

```
     ...
preview=Prévisualiser
convertToI=Convertir en i
convertToB=Convertir en b
     ...
```

33. validate

```
<validate
  namespace = non empty anyURI
>
  Content: dtd|schema|relaxng
</validate>
```

Dynamically compose the auxiliary schema specified in this element with the main schema specified in the document itself (e.g. `<!DOCTYPE>`) or, in absence of such specification, with the main schema specified using the DTD [72], schema [119] or relaxng [115] configuration element.

More precisely, this element means: whenever you find an XML subtree having a root element belonging to the namespace specified using the `namespace` attribute, use specified schema rather than the content model specified in the main schema.

This facility is meant to be used to validate ``alien subtrees'', for example SVG or MathML subtrees found in XHTML, DocBook or DITA documents. A well-designed main schema generally specifies a very loose content model for such alien elements. Example: `<!ELEMENT mml:math ANY>`.

It is possible to compose schema of different kinds. For example, it is possible to compose the main DITA DTD with a RELAX NG auxiliary schema.

It is possible to specify several `validate` configuration elements, each element having of course a different `namespace` attribute.

Example: Validate XML subtree having a root element belonging to the "`http://www.w3.org/1998/Math/MathML`" namespace using the "`rng/mathml2.rng`" RELAX NG schema.

```
  <validate namespace="http://www.w3.org/1998/Math/MathML">
    <relaxng location="rng/mathml2.rng" />
  </validate>
```

34. validateHook

```
<validateHook
  name = non empty token
>
  Content: [ class [ property ]* ]?
```

```
</validateHook>

<class>
  Content: Java class name
</class>

<property
  name = NMTOKEN matching [_a-zA-Z][_a-zA-Z0-9]*
  type = (boolean|byte|char|short|int|long|float|double|
          String|URL)
  value = string
/>
```

Register `validateHook` specified by *`class`* with **XXE**.

A `validateHook` is some code notified by **XXE** before and after a document is checked for validity.

This is a very general mechanism which has been created to perform semantic validation beyond what can be done using a DTD or a schema alone.

Child elements of `validateHook`:

`class`

Register `validateHook` implemented in the Java™ language by class *`class`* (which itself implements interface `com.xmlmind.xmleditapp.validatehook.ValidateHook` -- SeeChapter 5, *Custom validation hook* in *XMLmind XML Editor - Developer's Guide*).

`property`

`Property` child elements may be used to parametrize a newly created `validateHook`. See bean properties [82].

Attributes of `validateHook`:

`name`

This name is useful to remove or replace a previously registered `validateHook`. Anonymous `validateHooks` cannot be removed or replaced.

When a `validateHook` element is used to discard a registered `validateHook`, a `name` attribute must be specified and there must be no `class` child element.

Example: In this example, a Java™ class named `com.xmlmind.xmleditext.docbook.table.ValidateHookImpl` is contained in `docbook.jar` (among other DocBook commands and extensions).

```
<validateHook>
  <class>com.xmlmind.xmleditext.docbook.table.ValidateHookImpl</class>
</validateHook>
```

A `validateHook` is always specific to a document type.

For example, the DocBook `validateHook` is used to fix the `cols` attribute of `tgroups` and `entrytbls` (if needed to) just before a DocBook document is checked for validity.

These `validateHook`s are specified in the **XXE** configuration file associated to the document type. For example, the DocBook `validateHook` is specified in `docbook.xxe`.

Several `validateHook`s can be associated to the same document type. In such case, they are notified in the order of their registration.

35. viewSettings

```
<viewSettings>
  Content (in any order): center [ top ]? [ bottom ]?
                          [ left ]? [ right ]?
</viewSettings>

<center
  css = non empty token; "-" for a tree view
  textSize = int beween 8 and 24 inclusive
  displayImages = (image|thumbnail|box)
  showTags = (no|yes|all)
  treeViewDetails = possibly empty list of
                    (attribute|text|comment|pi)
/>

<top|bottom|left|right
  css = non empty token; "-" for a tree view
  size = double between 0 and 1 exclusive : 0.25
  textSize = int beween 8 and 24 inclusive
  displayImages = (image|thumbnail|box)
  showTags = (no|yes|all)
  treeViewDetails = possibly empty list of
                    (attribute|text|comment|pi)
/>
```

By default, **XXE** creates a single view when a document is opened. This view is the tree view if no CSS style sheets are available for the opened document. This view is a styled view using first non-alternate CSS style sheet if one or more style sheets are available for the opened document.

The `viewSettings` element may be used to add up to four views at the top, bottom, left or right sides of the central, main view. Hence center child element is required and child elements `top`, `bottom`, `left`, `right` specify which view to is to be added and where it is added.

Moreover the `center`, `top`, `bottom`, `left`, `right` child elements all have attributes which may be used to specify how a document view is to be rendered on screen:

`css`
: Required. Specifies which CSS style sheet to use. Use `-` to specify a tree view.

`size`
: Optional. Default: 0.25. Specifies the proportional size of the four “border views”: `top`, `bottom`, `left`, `right`.

  Example: `<top css="-" size="0.25"/>` means that a tree view will occupy one fourth of the available height and that this tree view will be found above the central, main view.

`textSize`

Optional. Applies to both tree views and styled views. Default: `10` for a tree view and `11` for a styled view. Specifies the base font size of the view, expressed in *CSS points* (a unit which is independent of the platform, screen, display scaling, etc).

`displayImages`

Optional. Applies only to styled views. Default: `image`. Specifies how images are to be displayed in the styled view.

`image`

Display the image normally.

`thumbnail`

Show the bounding box of the image and, if there is enough room in this rectangle, also show a thumbnail.

`box`

Show the bounding box of the image.

`showTags`

Optional. Applies only to styled views. Default: `no`. Specifies whether element tags are to be displayed in the styled view.

`no`

Hide element tags.

`yes`

Show most element tags.

`all`

Show all element tags, including those related to tables, that is, row group, row and cell tags.

`treeViewDetails`

Optional. Applies only to tree views. Default: "`attribute text comment pi`", that is, full details. Specifies whether attributes, text node characters, comment characters, processing-instruction characters, are to be displayed in their entirety in the tree view.

Two DocBook examples:

```
<viewSettings>
  <top css="Table of contents" size="0.15" />
  <center css="DocBook" />
</viewSettings>

<viewSettings>
  <left css="-" textSize="9" treeViewDetails="" />
  <center css="DocBook" />
  <bottom css="XML source" /> <!--Declared by the "Edit source" add-on-->
</viewSettings>

<css name="DocBook" location="css/docbook.css" />
```

```
<css name="Table of contents" alternate="true"
     location="css/toc.css" />
```

36. Custom configuration elements

In addition to the above standard configuration elements, a third-party Java™ programmer may define its own custom configuration elements. Such elements are declared as follows:

```
<com.acme.MyConfigElement
  xmlns="http://www.xmlmind.com/xmleditor/schema/configuration/extension"
  ... Any attributes here ...
>
  ... Any child nodes here ...
</com.acme.MyConfigElement>
```

- The namespace of a custom configuration element is "`http://www.xmlmind.com/xmleditor/schema/configuration/extension`".
- The local name of a custom configuration element is the fully qualified name of a Java™ class extending abstract class `com.xmlmind.xmleditapp.config.Info`.

Appendix A. A simple preprocessor for `.xxe` configuration files and `.xxe_gui` GUI specification files

In some cases, you want to include, or on the contrary exclude, some configuration elements from a configuration file depending on the working environment of the user.

For example, unless the "XMLmind FO Converter XSL-FO processor plug-in" add-on has been installed, do *not* add the following menu items to the **DITA** → **Convert Document** submenu (excerpts from *XXE_install_dir*`/addon/config/dita/xslMenu.incl`):

```
<item label="Convert to _RTF (Word 2000+)..."
      command="dita.convertToRTF"
      parameter="rtf Cp1252" />
...
<item label="Convert to Open_Document (OpenOffice.org 2+ ODT)..."
      command="dita.convertToRTF"
      parameter="odt UTF-8" />
```

This can be achieved as follows:

```
<menu label="-" insert="after ##last">
  <separator />
  <menu label="_Convert Document">
    <item label="Convert to X_HTML..."
          command="dita.convertToXHTML" />
    ...
    <?if XSL_FO_PROCESSORS*=XFC?>
    <item label="Convert to _RTF (Word 2000+)..."
          command="dita.convertToRTF"
          parameter="rtf Cp1252" />
    ...
    <item label="Convert to Open_Document (OpenOffice.org 2+ ODT)..."
          command="dita.convertToRTF"
          parameter="odt UTF-8" />
    <separator />
    <?endif?>
    ...
    <item name="convertToPDF" label="Convert to _PDF..."
          command="dita.convertToPS"
          parameter="pdf pdf" />
  </menu>
</menu>
```

A simple preprocessor is automatically invoked by the `.xxe`/`.incl` (**XXE** configuration files) and `.xxe_gui` (**XXE** GUI specification files) loaders prior to using the loaded configuration/GUI specification elements.

This preprocessor supports 3 directives specified using 3 processing-instructions:

```
<?if TEST?>
...configuration/GUI specification elements...
<?else?>
...configuration/GUI specification elements...
<?endif?>
```

- The else directive is optional.
- If/else/endif blocks may be nested.

Testing a condition

TEST is generally the name of a system property. If the system property is defined, the test evaluates to true, otherwise, it evaluates to false. Example (excerpts from DesktopApp.xxe_gui):

```
<menu name="fileMenu" label="_File" helpId="fileMenu">
  <?if XXE.Feature.NewWindow?>
  <action name="newWindowAction" />
  <separator />
  <?endif?>
  <action name="newAction" />
  <separator />
  ...
```

However, this test is not limited to testing the existence of a system property. It is also possible to specify:

system_property_name=value
: The test evaluates to true when specified system property exists and is equal to specified value.

system_property_name^=value
: The test evaluates to true when specified system property exists and starts with specified value.

system_property_name$=value
: The test evaluates to true when specified system property exists and ends with specified value.

system_property_name=value*
: The test evaluates to true when specified system property exists and contains specified value.

It is also possible to reverse the result of a test by preceding it by "!". Example:

```
<?if ! os.name*=Linux>
<toolBar name="mainToolBar" insert="after importRTFAction">
  <action name="importDOCXAction" />
</toolBar>
<?endif?>
```

Part III. Deploying XXE

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Chapter 7. The XXE desktop application

There are not much to say about the deployment of the desktop application. Suffice to remember that installing a add-on “by hand” (as opposed to using **Options** → **Install Add-ons** in *XMLmind XML Editor - Online Help*) is done as follows:

1. Copy the directory containing the add-on to any of the two `addon/` directory scanned by the desktop application during its startup. This scanning process is detailed in Section 1, “Dynamic discovery of add-ons” [151].

   These two `addon/` directories are *`XXE_install_dir`*`/addon/` and *`XXE_user_preferences_dir`*`/addon/`. More information in What are the two `addon/` directories of XMLmind XML Editor? [150].

2. Clear the **Quick Start Cache**.

   This is normally done by using the **Clear** button found in **Options** → **Preferences**, **Advanced**|**Cached data** in *XMLmind XML Editor - Online Help*. However it's often quicker to simply delete the *`XXE_user_preferences_dir`*`/cache/` directory.

3. Restart **XXE**.

What are the two `addon/` directories of XMLmind XML Editor?

The two `addon/` directories by the XMLmind XML Editor desktop application during its startup are:

`XXE_install_dir``/addon/`

On Windows, *`XXE_install_dir`*, **XXE** installation directory, is something like `C:\Program Files\XMLmind_XML_Editor\`.

Installation directory on the Mac

On the Mac, if you have installed **XXE** using the `.dmg` distribution, the actual installation directory is found inside the `XMLmind.app` application bundle (that is, the “**XMLEditor** icon”). This actual installation directory is `XMLmind.app/Contents/Resources/xxe/`.

If you want to see the contents of `XMLmind.app` —a special folder called an application bundle— please open a Finder window, right-click (or **Ctrl**+click) on the XMLmind.app icon and select "**Show Package Contents**" from the popup menu.

`XXE_user_preferences_dir``/addon/`

Where **XXE** user preferences directory is:

- *`$HOME`*`/.xxe10/` on Linux.
- *`$HOME`*`/Library/Application Support/XMLmind/XMLEditor10/` on the Mac.
- *`%APPDATA%`*`\XMLmind\XMLEditor10\` on Windows. Example: `C:\Users\john\AppData\Roaming\XMLmind\XMLEditor10\`.

  If you cannot see the "`AppData`" directory using Microsoft Windows File Manager, turn on **Tools**>**Folder Options**>**View**>**File and Folders**>**Show hidden files and folders**.

1. Dynamic discovery of add-ons

During its startup, the XMLmind XML Editor desktop application recursively scans the contents of its two `addon/` directories looking for add-ons.

These two `addon/` directories are *`XXE_install_dir`*`/addon/` and *`XXE_user_preferences_dir`*`/addon/`. More information in What are the two `addon/` directories of XMLmind XML Editor? [150].

The "Quick Start Cache" prevents the dynamic discovery of add-ons

Once the XMLmind XML Editor desktop application has recursively scanned the contents of its two `addon/` directories, the results are cached in the "**Quick Start Cache**".

Therefore the dynamic discovery of add-ons is performed only when the "**Quick Start Cache**" is empty (or disabled once for all).

The "**Quick Start Cache**" is automatically cleared when:

- Menu item **Options** → **Install Add-ons** in *XMLmind XML Editor - Online Help* is used to install add-ons.
- **XXE** is upgraded.

Manually clearing the "**Quick Start Cache**" is normally done by using the **Clear** button found in **Options** → **Preferences**, **Advanced|Cached data** in *XMLmind XML Editor - Online Help*. However it's often quicker to simply delete the *`XXE_user_preferences_dir`*`/cache/` directory.

An add-on may comprise many different kinds of files. These files must follow the conventions below in order to be dynamically discovered by **XXE**.

JAR file

A `.jar` file contains compiled Java™ code.

About JAR files containing native libraries

Some JAR files may contain native libraries. For example: `hunspell.dll` for Windows 32-bit and `libhunspell64.so` for Linux Intel™ 64-bit.

When this is the case, it is recommended to create one JAR file per OS/architecture and to give these JAR files filenames following the convention explained below. For example, `hunspell.dll` should be contained in `hunspell--Windows-x86.jar` and `libhunspell64.so` should be contained in `hunspell--Linux-amd64.jar`.

By doing this, you'll instruct **XXE**, for example, to ignore `hunspell--Linux-amd64.jar` and just consider `hunspell--Windows-x86.jar` when it is started on Windows.

Filename syntax:

jar_basename -> *`jar_name`* '--' *`os_name`* ['-' *`os_arch`*]? '.jar'

- *`os_name`* must match the value of Java™ system property `os.name` (though for Windows, you may skip the "`7`", "`8`", etc, suffix and keep just the "`Windows`" prefix).
- *`os_arch`* must match the value of Java system property `os.arch`.

Examples:

os_name	*os_arch*
Windows	Intel 32-bit: x86
	Intel 64-bit: amd64
Mac OS X	Intel 32-bit: i386
	Intel 64-bit: x86_64
Linux	Intel 32-bit: i386
	Intel 64-bit: amd64

Configuration file

XXE configuration files are XML files:

- with a file name ending with ".xxe",
- validated by XML schema with http://www.xmlmind.com/xmleditor/schema/configuration as its target namespace,
- with a root element named configuration,
- this root element having a name attribute,
- containing a detect element.

Several configurations may have the same name. For example, a user may have defined its own configuration named "DocBook" including bundled configuration also named "DocBook" but adding element templates and keyboard shortcuts (see include [94], elementTemplate [83], binding [57]). In such case, only one configuration named "DocBook" is kept by **XXE**: the configuration with highest priority.

Configurations loaded from the addon/ subdirectory of user preferences directory have priority over configurations loaded from the value of environment variable XXE_ADDON_PATH (see below [154]) which in turn have priority over configurations loaded from the addon/ subdirectory of **XXE** installation directory.

Configurations having the same priority are sorted using their file *basenames*. Example: file:///opt/xxe/foo/0docbook.xxe is tested before file:///opt/xxe/bar/docbook.xxe when trying to detect the class of a document because 0docbook.xxe lexicographically precedes docbook.xxe.

XML catalogs

XML catalogs are XML files:

- with a file name ending with "atalog.xml",
- which conform to the OASIS catalog DTD.

Example:

```
<?xml version="1.0" ?>
<!DOCTYPE catalog PUBLIC "-//OASIS//DTD XML Catalogs V1.0//EN"
  "http://www.oasis-open.org/committees/entity/release/1.0/catalog.dtd">

<catalog xmlns="urn:oasis:names:tc:entity:xmlns:xml:catalog"
         prefer="public">
```

```
  <public publicId="-//W3C//DTD SVG 1.1//EN"
          uri="common/dtd/svg11/svg11.dtd"/>

</catalog>
```

Note that specifying the above `<!DOCTYPE>` will *not* cause the XML catalog parser to download XML Catalog DTD, `catalog.dtd`, from the Web.

XXE uses XML Catalogs not only to resolve the locations of the DTD and other external entities, but also to resolve URLs found in the following places:

- Schema locations in `xsi:schemaLocation` and in `xsi:noNamespaceSchemaLocation`.
- Schema locations in `xs:include`, `xs:redefine`, `xs:import`.
- Schema locations in `<?xml-model href="..."?>`.
- Document locations passed to the `document()` XPath function.
- All XXE configuration elements referencing an URL. Example: `<include location="..."/>`.
- CSS style sheet locations in `@import`.
- CSS style sheet locations in `<?xml-stylesheet href="..."?>`.
- XSLT style sheets in the `transform` child element of a `process` command.
- Resources in the `copyProcessResource` child element of a `process` command.
- XSLT style sheets included or imported by other XSLT style sheets (that is, the XML Catalogs used by XXE are passed to Saxon, the XSLT engine bundled with XXE).
- The `href` attribute of `xi:include` elements (XInclude).

Spell-checker plug-ins

Spell-checker plug-ins are contained in Java™ JAR files:

- with a file name ending with "`_spellchecker.jar`",
- implementing service `com.xmlmind.xmleditapp.spellchecker.SpellCheckerFactory`.

The exact structure of a plug-in jar (manifest, service providers, etc) is described in Chapter 13, *Spell checker plug-in* in *XMLmind XML Editor - Developer's Guide*.

XMLmind spell-checker dictionaries

XMLmind spell-checker dictionaries are themselves add-ons which are contained in Java™ JAR files:

- with a file name ending with "`.dar`",
- having a basename which is the ISO code of a language (e.g. `fr`, `fr-CH`, `en`, `en-US`, etc).

XSL-FO processor plug-ins

XSL-FO processor plug-ins are contained in Java™ JAR files:

- with a file name ending with "`_foprocessor.jar`",
- implementing service `com.xmlmind.foprocessor.FOProcessor`.

Image toolkit plug-ins

Image toolkit plug-ins are contained in Java™ JAR files:

- with a file name ending with "`_imagetoolkit.jar`",
- implementing service `com.xmlmind.xmledit.imagetoolkit.ImageToolkit`.

Virtual drive plug-ins

Virtual drive plug-ins are contained in Java™ JAR files:

- with a file name ending with "`_vdrive.jar`",
- implementing service `com.xmlmind.xmleditapp.vdrive.DriveFactory`.

Document format plug-ins

Document format (that is, document formats other than XML, like Markdown or JSON) plug-ins are contained in Java™ JAR files:

- with a file name ending with "`_docformat.jar`",
- implementing service `com.xmlmind.xmleditapp.docformat.DocumentFormat`.

Customizations of the **GUI** of **XXE**

Such customizations are contained in XML files called `customize.xxe_gui` and conforming to the "`http://www.xmlmind.com/xmleditor/schema/gui`" W3C XML Schema.

Such **GUI** specification files are described in XMLmind XML Editor - Customizing the User Interface.

If during its start-up, **XXE** finds several `customize.xxe_gui` files, it will merge their contents with the *base* **GUI** specification (by default, `xxe-gui:DesktopApp.xxe_gui`, which is a resource contained in `xxe.jar`).

1.1. Additional or alternative `addon/` directories

Additional or alternative `addon/` directories may be specified by the means of the `XXE_ADDON_PATH` environment variable.

If the `XXE_ADDON_PATH` environment variable is set to a non empty string, the content of this variable must be a list of *directory* names separated by character "`;`" (even on Unix). All the *directories* referenced in this list are recursively scanned by the **XXE** desktop application during its startup.

- File names and "`file://`" URLs are both supported. Windows example:

```
C> set XXE_ADDON_PATH=C:\xxe\doc\configure\samples\example1;\
file:///C:/xxe/doc/configure/samples/example2
```

- If this path ends with "`;+`", *`XXE_install_dir`*`/addon/` is also scanned at startup time. Otherwise, this system directory, containing a large number of add-ons (DITA configuration, DocBook configuration, spell-checker, etc), is *completely ignored*.

- Form `@`*`absolute URL`* is also supported.

  `Absolute URL` specifies the location of a text file containing a list of (generally relative) URLs to be scanned by **XXE**. The URLs in this list are separated by white space.

  Example, `sample_configs.list`:

```
example1
example1/example1.css
example1/example1.dtd
example1/example1.xml
example1/example1.xxe
example1/example1_catalog.xml
example2
example2/example2.css
example2/example2.xml
example2/example2.xsd
```

```
example2/example2.xxe
example2/example2_catalog.xml
```

Unix example:

```
$ export XXE_ADDON_PATH="@http://www.foo.com/xxe/sample_configs.list;+"
```

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