

XMLmind XML Editor - Customizing the User Interface

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Abstract

This document describes how to customize the user interface of XMLmind XML Editor by writing a GUI specification (.xxe_gui XML files) and by deploying it.

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Chapter 1. Introduction

 This feature is available only in XMLmind XML Editor Professional Edition.

The user interface (GUI) of XMLmind XML Editor is made of *parts*. Parts are high level building blocks such as menus, menu bars, tool bars, status bars, actions (for use in menus, tool bars and status bars), etc.

These parts are declared in a special GUI specification file having a `.xxe_gui` suffix. Such GUI specification files also contain a `layout` element which specifies which *assembly of parts* to use to create the user interface of XMLmind XML Editor.

Example (excerpts of `common.xxe_gui`):

```
<?xml version='1.0' encoding='UTF-8'?>
<gui xmlns="http://www.xmlmind.com/xmleditor/schema/gui"
    xmlns:gui="http://www.xmlmind.com/xmleditor/schema/gui"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="http://www.xmlmind.com/xmleditor/schema/gui
        ../../../../xxe_addon/xxe_gui_config/xsd/gui.xsd"
    ...
    <action name="newAction" label="_New..."❶
        icon="icons/newAction.gif"
        accelerator="mod N">
        <class>com.xmlmind.xmleditapp.kit.part.NewAction</class>
    </action>
    ...
    <menu name="fileMenu" label="_File"❷
        helpId="fileMenu">
        <action name="newAction" />
        <action name="openAsTemplateAction" />
        ...
        <menuItems name="recentFilesMenuItems" />
    </menu>
    ...
    <menuBar name="menuBar" helpId="menuBar">❸
        <menu name="fileMenu" />
        <menu name="selectMenu" />
        ...
    </menuBar>
    ...
    <layout width="850" height="650">❹
        <menuBar name="menuBar" />❺
        ...
    </layout>
</gui>
```

- ^❶ Declares action "newAction".
- ^❷ Declares menu "fileMenu".
- ^❸ Declares menu bar "menuBar".
- ^❹ Element `layout` actually specifies which GUI to create.
- ^❺ It is menu bar "menuBar" which will be used in the GUI of XXE because it is referenced in the `layout` element.

Important

Declaring a part does not mean that this part will be created and then, displayed in the GUI of XXE. For this to happen, a part must be referenced directly or indirectly¹ by the `layout` element of the GUI specification file.

`xxe_app.jar`, the archive file containing the code of XMLmind XML Editor (XXE for short), also contains 3 GUI specifications:

¹Example: `layout` references a `statusBar` which references an action.

Resource `/gui/app/common.xxe_gui`

Specifies the user interface parts which are common to all XMLmind XML Editor Editions.

Resource `/gui/app/Restricted.xxe_gui`

Specifies the default user interface of XMLmind XML Editor Editions other than the Professional Edition.

`Restricted.xxe_gui` includes `common.xxe_gui`.

Resource `/gui/app/Professional.xxe_gui`

Specifies the default user interface of XMLmind XML Editor Professional Edition. `Professional.xxe_gui` includes `common.xxe_gui`.

A copy of these files is found in `XXE_install_dir/doc/gui/gui/app/`. This, because using `common.xxe_gui` as a reference when creating custom GUIs for XXE is *absolutely required*.

If you want to see by yourself the effect of using `Restricted.xxe_gui` (instead of default `Professional.xxe_gui`), please proceed as follows:

Windows

1. Open a command prompt.
2. Change working directory to the directory where XXE has been installed (typically `C:\Program Files\XMLmind_XML_Editor\`).
3. Change to subdirectory `bin\` where `xxe.exe` (and `xxe.bat`) are found.
4. Set environment variable `XXE_GUI` as follows:

```
C:\Program Files\XMLmind_XML_Editor\bin> set XXE_GUI=xxe-gui:app/Restricted.xxe_gui
```

5. Start XXE as follows:

```
C:\Program Files\XMLmind_XML_Editor\bin> xxe.exe
```

Linux, Mac (with bash)

1. Open a terminal.
2. Change working directory to the directory where XXE has been installed (example: `/opt/xxe/`).
3. Change to subdirectory `bin\` where the `xxe` shell script is found.
4. Set environment variable `XXE_GUI` as follows²:

```
/opt/xxe/bin$ XXE_GUI=xxe-gui:app/Restricted.xxe_gui; export XXE_GUI
```

5. Start XXE as follows:

```
/opt/xxe/bin$ ./xxe &
```

Don't worry, all this will be detailed in the deployment [8] chapter of this document.

²Quicker, directly execute this:

```
/opt/xxe/bin$ XXE_GUI=xxe-gui:app/Restricted.xxe_gui ./xxe &
```

Chapter 2. Tutorial

What follows is a description of the customization we want to do:

1. Change the (desktop) title and icon of XMLmind XML Editor.
2. Change the dialog box displayed by Help → About.
3. Add to the status bar a small tool which allows to count the words of a document.
4. Extend the dialog box displayed by Options → Preferences by adding a custom "preferences sheet". This preferences sheet is needed to parametrize the above word count tool.
5. Move iconic buttons which are specific to a given document type (i.e. DocBook buttons, XHTML buttons, etc) from their normal place, the standard tool bar, to a tool bar of their own. This new tool bar will be vertical and will be found at the left of the document views.
6. Replace by a *contextual action* the action taken when File → Print is selected. If the document being edited is a DocBook or XHTML one, the contextual action will convert the document to PDF using a method which is specific to its document type. Otherwise, the document will be printed normally.
7. Add a custom Characters menu after standard Edit menu. This Characters menu will allow to quickly insert special characters (Greek letters, arrows) in the document being edited.

To do this, we need not only to change the specification of the GUI of XXE, but also to develop custom parts in the Java™ language. These custom parts are:

- an action displaying the custom About dialog box;
- a word count tool;
- a preferences sheet for the above word count tool.

All this is explained in Chapter 11, *Extending the GUI of XMLmind XML Editor* in *XMLmind XML Editor - Developer's Guide* and the custom parts are found in `xxe_install_dir/doc/gui/tutorial/custom_parts.jar` with the other files of this tutorial. This being said, we can now focus on the specification of the user interface of XMLmind XML Editor.

1. Changing the title and icon

tutorial/tutorial1.xxe_gui:

```
<?xml version='1.0' encoding='UTF-8'?>
<gui xmlns="http://www.xmlmind.com/xmleditor/schema/gui"❶
    xmlns:gui="http://www.xmlmind.com/xmleditor/schema/gui">

    <translation location="custom_gui_en.properties" />❷

    <layout label="Document Editor" icon="docedit.png">❸
        <insert />❹
    </layout>
</gui>
```

- ❶ The namespace of GUI specification elements is "http://www.xmlmind.com/xmleditor/schema/gui".

After downloading and installing the add-on called "A configuration for specifying XMLmind XML Editor GUIs" using Options → Install Add-ons, the corresponding schema is found in `xxe_user_preferences_dir/addon/xxe_gui_config/xsd/gui.xsd`.

- ❷ GUI specification files can be localized by using translation [34] elements. For more information please consult the reference [34] part of this document.

- 3 The layout [16] element has `label` and `icon` attributes specifying the title and desktop icon of the XML editor.
- 4 Without the use of `insert` [21], the above `layout` would have been understood as a redefinition from scratch of the standard layout of the XML editor. Such XML editor would have had a blank main window.

2. Changing the About dialog box

tutorial/tutorial2.xxe_gui:

```
<action name="aboutAction" label="_About This Document Editor">
  <class>AboutAction</class>
</action>
```

It is a custom action [10] implemented by Java™ class `AboutAction` (code contained in `XXE_install_dir/doc/gui/tutorial/custom_parts.jar`) which displays our custom About dialog box.

Naming our action "aboutAction", just like the standard action "aboutAction" found in `common.xxe_gui`, suffice to do the job.

3. Adding a word count tool

tutorial/tutorial3.xxe_gui:

```
<tool name="countWordsTool">
  <class>CountWordsTool</class>
</tool>

<statusBar name="statusBar">
  <tool name="countWordsTool" />
  <insert />
</statusBar>
```

The custom tool implemented by Java™ class `CountWordsTool` (code contained in `XXE_install_dir/doc/gui/tutorial/custom_parts.jar`) is declared using a `tool` [32] element.

Then this tool is inserted in the standard status bar (`statusBar` [31] element called "statusBar" found in `common.xxe_gui`), before all the other components of this status bar, by the means of the `<insert/>` facility.

4. Adding a preferences sheet for the word count tool

tutorial/tutorial4.xxe_gui:

```
<preferencesSheet name="countWordsOptions">
  <class>CountWordsOptions</class>
</preferencesSheet>

<preferencesSheets name="preferencesSheets">
  <insert />
  <preferencesSheet name="countWordsOptions" />
</preferencesSheets>
```

The custom preferences sheet implemented by Java™ class `CountWordsOptions` (code contained in `XXE_install_dir/doc/gui/tutorial/custom_parts.jar`) is declared using a `preferencesSheet` [30] element.

Then this sheet is inserted in the standard set of `preferencesSheets` (`preferencesSheets` [30] element called "preferencesSheets" found in `common.xxe_gui`), after all the other sheets, by the means of the `<insert/>` facility.

5. Adding a vertical tool bar

tutorial/tutorial5.xxe_gui:

```

<toolBar name="toolBar" helpId="toolBar">❶
  <action name="newAction" />
  <action name="openAction" />
  <action name="saveAction" />
  <action name="saveAllAction" />
  <action name="toggleUseURLChooserAction" />
  <separator />
  <action name="undoAction" />
  <action name="redoAction" />
  <action name="repeatAction" />
  <action name="commandHistoryAction" />
  <separator />
  <action name="cutAction" />
  <action name="copyAction" />
  <action name="pasteBeforeAction" />
  <action name="pasteAction" />
  <action name="pasteAfterAction" />
  <action name="deleteAction" />
  <separator />
  <action name="splitAction" />
  <action name="joinAction" />
</toolBar>

<toolBar name="configSpecificToolBar">❷
  <toolBarItems name="configSpecificToolBarItems" />❸
</toolBar>

<layout label="Document Editor" icon="docedit.png">
  <insert />

  <leftToolBars>❹
    <toolBar name="configSpecificToolBar" />
  </leftToolBars>
</layout>

```

- ❶ There is no facility similar to the `<insert />` which would allow us to *remove* the set of configuration specific buttons from the standard tool bar. Therefore we have to redefine the standard tool bar (element `toolBar` called "toolBar" found in `common.xxe_gui`) from scratch.
- ❷ Declare a new tool bar called "configSpecificToolBar" by using a `toolBar` [33] element.
- ❸ This new `toolBar` only contains the set of configuration specific buttons. This set is declared in `common.xxe_gui` as the `toolBarItems` [34] element called "configSpecificToolBarItems". Therefore, we just need to reference this stock part in our new tool bar.
- ❹ Add a `leftToolBars` [19] child to the layout [16] element. This child element can contain one or more vertical `toolBars`.

6. Making File Print dependant on the type of the document to be printed

tutorial/tutorial6.xxe_gui:

```

<action name="printAction" label="_Print..."
  icon="xxe-gui:app/icons/printAction.gif"❶
  accelerator="mod P">
  <context editingContextSensitive="false">
    <configuration name="XHTML Strict">
      <command name="xhtml.convertToPS" parameter='pdf |pdf' />
    </configuration>

    <configuration name="XHTML Transitional">
      <command name="xhtml.convertToPS" parameter='pdf |pdf' />
    </configuration>

    <configuration name="DocBook v5+">
      <command name="db5.convertToPS"
        parameter='pdf |pdf "/book toc /article toc" 1' />
    </configuration>
  </context>
</action>

```



```
</configuration>

<configuration name="DocBook">
  <command name="docb.convertToPS"
    parameter='pdf |pdf "/book toc /article toc" 1' />
</configuration>

<default>
  <class>com.xmlmind.xmleditapp.kit.part.PrintAction</class>
</default>
</context>
</action>
```

- 1** URLs starting with "xxe-gui:" work because XXE dynamically adds to its XML catalog a rule similar to this one:

```
<rewriteURI uriStartString="xxe-gui:"
  rewritePrefix="jar:file:/opt/xxe/bin/xxe-app.jar!/gui/" />
```

The standard print action (i.e. the action referenced by the standard File menu) is defined as follows in `com.xmlmind.xmleditapp.kit`:

```
<action name="printAction" label="_Print..."
  icon="icons/printAction.gif"
  accelerator="mod P">
  <class>com.xmlmind.xmleditapp.kit.part.PrintAction</class>
</action>
```

Therefore if we define a contextual action having the same name, "printAction", this suffices to install our custom action. Note how the `icon` attribute is specified in our redefinition of the print action.

The above contextual action [10] can be described as follows:

- If the document to be printed is associated with a configuration named "XHTML Strict", invoke command `xhtml.convertToPS` with parameter "pdf |pdf" to print it.
- Same with documents associated to configurations named "XHTML Transitional", "DocBook" and "DocBook v5+".
- If the document to be printed has no associated configuration or is associated with a configuration other than the above ones, print it using action implemented by Java™ class `com.xmlmind.xmleditapp.kit.part.PrintAction` (same as stock print action).

Elements `configuration` and `default` can contain actions implemented in Java™ or can contain commands (see Chapter 6, *Commands written in the Java™ programming language in XMLmind XML Editor - Commands*). Referencing an action is easy to understand, but what is this command `xhtml.convertToPS` used to print XHTML documents?

The configuration file for XHTML documents is `XXE_install_dir/addon/config/xhtml/xhtml.xxe`. The name attribute of the root element of this configuration file is `XHTML` (see Section 3, "configuration" in *XMLmind XML Editor - Configuration and Deployment*).

This configuration file includes another configuration file `XXE_install_dir/addon/config/xhtml/xslMenu.incl`. A process command called `xhtml.convertToPS` is defined in `xslMenu.incl`. This process command, with parameter "pdf |pdf", converts the document being edited to PDF¹.

7. Adding a Characters menu

tutorial/tutorial7.xxe_gui:

¹In the future, a process command will be able to directly send the result of the conversion to a printer — typically a PostScript™ printer — chosen by the user.

```

<action name="insertLeftAction" label="_L - &#x2190;">1
  <command name="insertString" parameter="&#x2190;" />
</action>
<action name="insertRightAction" label="_R - &#x2192;">
  <command name="insertString" parameter="&#x2192;" />
</action>

<action name="insertAlphaAction" label="_A - &#x03B1;">
  <command name="insertString" parameter="&#x03B1;" />
</action>
<action name="insertBetaAction" label="_B - &#x03B2;">
  <command name="insertString" parameter="&#x03B2;" />
</action>
<action name="insertGammaAction" label="_C - &#x03B3;">
  <command name="insertString" parameter="&#x03B3;" />
</action>

<menu name="arrowsMenu" label="_Arrows">
  <action name="insertLeftAction" />
  <action name="insertRightAction" />
</menu>

<menu name="greekMenu" label="_Greek">
  <action name="insertAlphaAction" />
  <action name="insertBetaAction" />
  <action name="insertGammaAction" />
</menu>

<menu name="charactersMenu" label="_Characters">2
  <menu name="arrowsMenu" />
  <menu name="greekMenu" />
</menu>

<menuBar name="customMenuBar">
  <menu name="fileMenu" />
  <menu name="selectMenu" />
  <menu name="editMenu" />
  <menu name="charactersMenu" />3
  <menu name="searchMenu" />
  <menu name="viewMenu" />
  <menu name="toolsMenu" />
  <menu name="configSpecificMenu" />
  <menu name="windowMenu" />
  <menu name="optionsMenu" />
  <menu name="helpMenu" />
</menuBar>

<layout label="Document Editor" icon="docedit.png">
  <insert />

  <menuBar name="customMenuBar" />4

  <leftToolBars>
    <toolBar name="configSpecificToolBar" />
  </leftToolBars>
</layout>

```

- ¹ Define actions which insert the chosen special characters by wrapping an action [10] around standard command "insertString" (see Section 43, "insertString" in *XMLmind XML Editor - Commands*).
- ² Define the Characters menu [22] and its two submenus: the Arrows menu and the Greek menu.
- ³ There is no way to insert charactersMenu after editMenu using the <insert/> facility. Therefore we define a new menuBar [25] called "customMenuBar" from scratch.
- ⁴ Without this reference, the menu bar used by XXE would have been the standard menu bar (called "menuBar" — see common.xxe_gui).

Chapter 3. Deployment

1. Validation of `.xxe_gui` files

GUI specification files may be written using XMLmind XML Editor¹ or using a text editor.

If you use a text editor, do not forget to validate your GUI specification against its schema. After downloading and installing the add-on called "XMLmind XML Editor Configuration Pack" using Options → Install Add-ons, this schema is found in `XXE_user_preferences_dir/addon/xxe_config_pack/gui/xsd/gui.xsd`. Linux example:

```
~/xxe4/addon$ /opt/xxe/bin/xmltool validate \  
-s ~/xxe4/addon/xxe_config_pack/gui/xsd/gui.xsd tutorial7.xxe_gui
```

2. Deployment of a customization

The GUI customization created during this tutorial `tutorial7.xxe_gui` is used here as an example:

1. Rename `tutorial7.xxe_gui` to `customize.xxe_gui`.

Using this name is mandatory if you want XXE to dynamically discover your GUI customization during its start-up.

2. Copy directory `XXE_install_dir/doc/gui/tutorial/` and all its content (which now includes `customize.xxe_gui`) to directory `XXE_user_preferences_dir/addon/`.

XXE user preferences directory is:

- `$HOME/.xxe4/` on Linux.
- `$HOME/Library/Application Support/XMLmind/XMLEditor4/` on the Mac.
- `%APPDATA%\XMLmind\XMLEditor4\` on Windows 2000, XP, Vista.

Example: `C:\Documents and Settings\john\Application Data\XMLmind\XMLEditor4\` on Windows 2000 and XP. `C:\Users\john\AppData\Roaming\XMLmind\XMLEditor4\` on Windows Vista.

3. Restart XXE as you usually do it.

Here what happens when XXE is started:

- a. The editor collects *all* files called `customize.xxe_gui` found in either of its two `addon/` directories.
- b. It merges their contents with its *base* GUI specification. The base GUI specification is by default² `xxe-gui:app/Professional.xxe_gui`, which is a resource contained in `xxe_app.jar`
- c. It creates its GUI according to this combined specification.

3. Specifying a base GUI specification other than `xxe-gui:app/Professional.xxe_gui`

`gui:app/Professional.xxe_gui`

Such alternate base GUI specification should start by including [15] "`xxe-gui:app/common.xxe_gui`" (or "`xxe-gui:app/Professional.xxe_gui`" if you intend to customize `Professional.xxe_gui`) because `common.xxe_gui` contains the declarations of all stock parts. Example:

¹You'll need to download and install the add-on called "XMLmind XML Editor Configuration Pack" in order to do that.

²See below [8] how this default can be changed.

```
<?xml version='1.0' encoding='UTF-8'?>
<gui xmlns="http://www.xmlmind.com/xmleditor/schema/gui"
     xmlns:gui="http://www.xmlmind.com/xmleditor/schema/gui">

  <include location="xxe-gui:app/common.xxe_gui"❶ />

  ...
</gui>
```

- ❶ URLs starting with "xxe-gui:" work because XXE dynamically adds to its XML catalog a rule similar to this one:

```
<rewriteURI uriStartString="xxe-gui:"
            rewritePrefix="jar:file:/opt/xxe/bin/xxe-app.jar!/gui/" />
```

The base GUI specification is specified by the `XXE_GUI` system property (i.e. `java -DXXE_GUI=xxx`). For a greater convenience, all XXE launchers define this system property as being the value of *environment variable* `XXE_GUI`.

Windows example (assuming that XXE has been installed in `C:\Program Files\XMLmind_XML_Editor\`)

1. Open a command prompt.
2. Set environment variable `XXE_GUI` as follows:

```
C:\...\tutorial> set XXE_GUI=file:///C:/Doc...Settings/john/.../addon/my_custom_xxe.xxe_gui
```

3. Start XXE as follows:

```
C:\...\tutorial> C:\Program Files\XMLmind_XML_Editor\bin\xxe.exe
```

Linux, Mac example (with bash; assuming that XXE has been installed in `/opt/xxe/`)

1. Open a terminal.
2. Start XXE as follows:

```
/opt/xxe/doc/gui/tutorial$ XXE_GUI=file:///home/john/.xxe4/addon/my_custom_xxe.xxe_gui \
/opt/xxe/bin/xxe &
```

Chapter 4. Reference

GUI specifications file must have a `.xxe_gui` suffix. Customization files automatically detected by XXE during its startup must be called `customize.xxe_gui`.

All the elements described in this chapter belong to the `"http://www.xmlmind.com/xmleditor/schema/gui"` namespace. The local name of the root element of a GUI specification must be `gui`:

```
<?xml version='1.0' encoding='UTF-8'?>
<gui xmlns="http://www.xmlmind.com/xmleditor/schema/gui"
      xmlns:gui="http://www.xmlmind.com/xmleditor/schema/gui">
  ...
</gui>
```

A `gui` root element may contain any number of the following elements, and that, in any order.

1. action

```
<action
  name = NMTOKEN
  label = non empty token
  icon = anyURI
  selectedIcon = anyURI
  tooltip = non empty token
  accelerator = non empty token
  acceleratorOnMac = token
>
  Content: class | command | context
</action>

<class
  implementsCommand = NMTOKEN
>
  Content: Java class name
</class>

<command
  name = NMTOKEN
  parameter = string
  editingContextSensitive = boolean : true
/>

<context
  editingContextSensitive = boolean : false
>
  Content: [ configuration ]+ default
</context>

<configuration
  name = non empty token
>
  Content: class | command
</configuration>

<default>
  Content: class | command
</default>
```

Specifies an action, that is, an instance of class `com.xmlmind.xmleditapp.kit.AppAction`.

The class derived from `com.xmlmind.xmleditapp.kit.AppAction` is specified by the `class` child element. In a few cases, this class also implements interface `com.xmlmind.xmledit.gadget.Command`. In such case, attribute `implementsCommand` specifies the name of the command.

The `action` element also allows to specify different kinds of AppActions without having to write Java™ code for that:

Child element `command`

Specifies an action which delegates its job to a command (see Chapter 6, *Commands written in the Java™ programming language in XMLmind XML Editor - Commands*). See example [6] in the tutorial part of this document. Explanations below [13].

Child element `context`

Specifies an action which is contextual, that is, the action actually taken (delegated to a command or to an actual, non-contextual, action) depends of the configuration associated to the active document. See example [5] in the tutorial part of this document. Explanations below [13].

Attributes:

`name`

Required. Unique name identifying the action in this GUI specification.

`label`

One of `label` and `icon` is required. Label of the action (an action is used to create buttons, menu items and tool bar items).

`icon`

One of `label` and `icon` is required. Icon of the action (an action is used to create buttons, menu items and tool bar items).

This URI may be resolved using XML catalogs.

`selectedIcon`

Only used for classes derived from `com.xmlmind.xmleditapp.kit.AppToggleAction` or from `com.xmlmind.xmleditapp.kit.EditToggleAction`. These classes are used to implement ``toggles''. The icon specified by attribute `selectedIcon` is used when the toggle is turned *on*. The icon specified by attribute `icon` is used when the toggle is turned *off*.

This URI may be resolved using XML catalogs.

`toolTip`

The tool tip of the action (an action is used to create buttons, menu items and tool bar items).

If this attribute is not specified, and if a tool tip is absolutely needed by the representation of the action (button, menu item and tool bar item), the value of attribute `label` will be used.

`accelerator`

The hot key used to trigger the action.

Hot keys are specified using the following syntax:

```
[ ctrl|shift|alt|meta|mod ]* key_code
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 | BRACELEFT | BRACERIGHT | C |
             CANCEL | CAPS_LOCK | CIRCUMFLEX | CLEAR |
             CLOSE_BRACKET | CODE_INPUT | COLON | COMMA |
             COMPOSE | CONVERT | COPY | CUT | D | DEAD_ABOVEDOT |
             DEAD_ABOVEING | 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 | X | Y | Z)

```

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

Important

Such hot key cannot override a binding (factory binding or a binding defined in `customize.xxe` — see Chapter 3, *Customizing mouse and key bindings used by XXE in XMLmind XML Editor - Configuration and Deployment*).

acceleratorOnMac

The hot key used to trigger the action on the Mac. This is needed because on the Mac, so many hot keys are reserved for the desktop.

If this attribute is not specified, and if attribute `accelerator` is specified, the hot key specified by `accelerator` will also be used on Macs.

If this attribute is specified as the empty string, the hot key normally specified by `accelerator` is suppressed on the Mac.

Example: a simple action:

```

<action name="addViewAction" label="_Add...">
  <class>com.xmlmind.xmleditapp.app.part.AddViewAction</class>
</action>

```

Example: an action which implements a command:

```

<action name="openAction" label="_Open..."
  icon="icons/openAction.gif"
  accelerator="mod O">
  <class
    implementsCommand="XXE.open"
    >com.xmlmind.xmleditapp.kit.part.OpenAction</class>
</action>

```

Example: a toggle action:

```

<action name="toggleUseURLChooserAction"
  tooltip="Use URL chooser rather than file chooser"
  icon="icons/toggleUseURLChooserAction.gif"
  selectedIcon="icons/toggleUseURLChooserAction_selected.gif">
  <class>com.xmlmind.xmleditapp.kit.part.ToggleUseURLChooserAction</class>
</action>

```

1.1. Action which is a wrapper around a command

Action which delegates its job to a command (see Chapter 6, *Commands written in the Java™ programming language in XMLmind XML Editor - Commands*). This command delegate is specified using the `command` child element.

Attributes of the `command` child element:

`name`

Specifies the name under which the command has been registered.

This cannot be a configuration specific command. For example, this cannot be `xhtml.convertToPS`, which converts XHTML documents to PostScript™ and PDF.

If the command delegate is not a built-in command, but instead, is a custom generic command specially written to be wrapped in an action, this command:

- must be declared in this GUI specification using a `command` [14] element;
- must be referenced in the hidden [20] child element of the layout [16] element.

`parameter`

Specifies the parameter of the command delegate, if any.

`editingContextSensitive`

Specifies whether the command delegate is editing context sensitive, that is, is enabled or disabled depending on the editing context (Which node is selected? Is some text selected? Etc).

The majority of commands are editing context sensitive. That's why the default value of this attribute is `true`.

Example:

```
<action name="insertAfterAction" label="Insert _After..."
        icon="icons/insertAfterAction.gif">
  <command name="insert" parameter="after[implicitElement]" />
</action>
```

1.2. Contextual action

Action which is contextual, that is, the action actually taken (delegated to a command or to an actual, non-contextual, action) depends of the configuration associated to the active document. This kind of action is specified using the `context` child element.

In a `context` child element:

`Element configuration`

Specifies what to do for a document associated to a configuration having a name equal to the value of attribute `name`.

Example: this `configuration` element

```
<configuration name="Simplified DocBook">
  <command name="docb.convertToPS"
    parameter='pdf |pdf "/book toc /article toc" 1' />
</configuration>
```

specifies what to do for a document associated to a configuration called "Simplified DocBook" (see Section 3, "configuration" in *XMLmind XML Editor - Configuration and Deployment*).

`Element default`

Specifies what to do for a document

- which has no associated configuration;

- or which has a configuration, but this configuration is not referenced in one of its configuration siblings.

Example: this default element:

```
<default>
  <class>com.xmlmind.xmleditapp.kit.part.PrintAction</class>
</default>
```

specifies what to do for a document not having a configuration or having a configuration different from "XHTML Strict", "XHTML Transitional", "DocBook" or "DocBook v5+".

The configuration element and the default element have the same content model. Their child element, `class` or `command`, specifies the action actually taken:

Element `class`

Specifies a Java™ class derived from `com.xmlmind.xmleditapp.kit.AppAction`.

Element `command`

Specifies a command which can be a generic one (e.g. `command convert`) or a configuration specific one (e.g. `command xhtml.preview`).

The `editingContextSensitive` attribute of the context child element specifies whether the contextual action is editing context sensitive, that is, is enabled or disabled depending on the editing context (Which node is selected? Is some text selected? Etc). The majority of contextual actions are expected to be editing context *insensitive*. That's why the default value of this attribute is `false`.

Example:

```
<action name="printAction" label="_Print..."
  icon="xe-gui:app/icons/printAction.gif"
  accelerator="mod P">
  <context editingContextSensitive="false">
    <configuration name="XHTML Strict">
      <command name="xhtml.convertToPS" parameter='pdf |pdf' />
    </configuration>

    <configuration name="XHTML Transitional">
      <command name="xhtml.convertToPS" parameter='pdf |pdf' />
    </configuration>

    <configuration name="DocBook v5+ ">
      <command name="db5.convertToPS"
        parameter='pdf |pdf "/book toc /article toc" 1' />
    </configuration>

    <configuration name="DocBook">
      <command name="docb.convertToPS"
        parameter='pdf |pdf "/book toc /article toc" 1' />
    </configuration>

    <default>
      <class>com.xmlmind.xmleditapp.kit.part.PrintAction</class>
    </default>
  </context>
</action>
```

2. command

```
<command
  name = NMTOKEN
>
  Content: class
</command>

<class>
```

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

Specifies a command, that is, a Java™ Object implementing interface `com.xmlmind.xmledit.gadget.Command`.

The class implementing interface `com.xmlmind.xmledit.gadget.Command` is specified by the `class` child element.

Attributes:

`name`

Required. Unique name identifying the command in this GUI specification.

Example:

```
<command name="showStatistics">
  <class>com.acme.custom_xxe.ShowStatistics</class>
</command>
```

3. editorListener

```
<editorListener
  name = NMTOKEN
>
Content: class
</editorListener>

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

Specifies an Editor listener, that is, a Java™ Object implementing interface `com.xmlmind.xmleditapp.kit.EditorListener`.

The class implementing interface `com.xmlmind.xmleditapp.kit.EditorListener` is specified by the `class` child element.

Attributes:

`name`

Required. Unique name identifying the listener in this GUI specification.

Example:

```
<editorListener name="editorListener">
  <class>com.acme.custom_xxe.EditorListenerImpl</class>
</editorListener>
```

4. include

```
<include
  location = anyURI
/>
```

Include all elements contained in specified user interface specification file in current file.

The URI found in the `location` attribute may be resolved using XML catalogs.

Example 1:

```
<include location="common_parts.xxe_gui" />
```

If the file containing the above snippet is `/home/john/.xxe4/addon/gui/customize.xxe_gui`, the included file is then `/home/john/.xxe4/addon/gui/common_parts.xxe_gui`.

Example 2:

```
<include location="xxe-gui:app/Professional.xxe_gui" />
```

If the code of the XML editor is found in `/opt/xxe/bin/xxe_app.jar`, the included file is `jar:file:/opt/xxe/bin/xxe-app.jar!/gui/app/Professional.xxe_gui` because XXE dynamically adds the following rule to its XML catalog:

```
<rewriteURI uriStartString="xxe-gui:"
  rewritePrefix="jar:file:/opt/xxe/bin/xxe-app.jar!/gui/" />
```

5. layout

```
<layout
  label = non empty token
  icon = anyURI
  width = positive int
  height = positive int
>
  Content (in any order): [ insert ]?
                           [ menuBar ]?
                           [ topToolBars ]? [ bottomToolBars ]?
                           [ leftToolBars ]? [ rightToolBars ]?
                           [ leftPanels ]? [ rightPanels ]?
                           [ preferencesSheets ]?
                           [ hidden ]?
</layout>
```

Specifies the layout of visible parts: action [10]s, tool [32]s, pane [27]s, toolBar [33]s, statusBar [31]s. Also specifies which hidden parts (given the visible parts which have been chosen) are needed to get a functioning XML Editor.

Important

A GUI specification file may contain declarations for dozens of parts, but only the parts which are referenced directly or indirectly¹ by the `layout` element are created and activated during the startup of the XML editor.

Declaring a large number of parts in a GUI specification file, even if most of these parts are *not* actually used by the GUI specified by `layout`, makes it quick and easy to build *alternate* GUIs. Simply include the file containing all these predeclared parts and define a custom `layout` making use of some of them.

Example (this is the default layout):

```
<layout width="850" height="650">
  <menuBar name="menuBar" />

  <topToolBars>
    <toolBar name="toolBar" />
    <group>
      <toolBar name="documentReferenceToolBar" />
      <tool name="nodePathTool" stretch="1" />
      <toolBar name="selectToolBar" />
    </group>
  </topToolBars>

  <bottomToolBars>
    <statusBar name="statusBar" />
  </bottomToolBars>

  <rightPanels width="0.33" topHeight="0.33">
    <pane name="editPane" selected="true" />
    <pane name="editAttributePane" position="bottom" selected="true" />
  </rightPanels>
</layout>
```

¹Example: `layout` references a `statusBar` which references an action.

```

<pane name="textSearchReplacePane" position="bottom" />
<pane name="checkSpellingPane" position="bottom" />
<pane name="insertCharacterPane" position="bottom" />
<pane name="checkValidityPane" position="bottom" />
</rightPanes>

<preferencesSheets name="preferencesSheets" />

<hidden>
  <!-- These are required to be able to use editPane -->
  <command name="replace" />
  <command name="insert" />
  <command name="convert" />
  <command name="wrap" />

  <part name="editOptionsPart" />
  <part name="spellOptionsPart" />
  <part name="spreadsheetOptionsPart" />
  <part name="webDAVOptionsPart" />

  <part name="autoSavePart" />

  <!-- Required by setStyleSheetMenuItems -->
  <action name="setStyleSheetAction" />
</hidden>
</layout>

```

5.1. The attributes of `layout`

label

Specifies a (desktop) name for the XML editor application.

icon

Specifies an (desktop) icon for the XML editor application. This URI may be resolved using XML catalogs.

width, height

Specify the *initial* size in pixels of the XML editor application. The position and size of the main window of XMLmind XML Editor are saved in `XXE_user_preferences_dir/preferences.properties`. Therefore, these attributes are only used the very first time XXE is started.

Example:

```

<layout label="Document Editor" icon="docedit.png">
  <insert />
</layout>

```

5.2. The `menuBar` child element of `layout`

```

<menuBar
  name = NMTOKEN
/>

```

Specifies which `menuBar` to use for this XML editor. The referenced `menuBar` [25] must have been declared in this GUI specification.

Example:

```

<menuBar name="menuBar" />

```

5.3. The `topToolBars` and `bottomToolBars` child elements of `layout`

```

<topToolBars
  insert = non empty token
>
  Content: [ insert | toolBar | statusBar | tool | group ]+
</topToolBars>

```

```

<insert />

<toolBar
  name = NMTOKEN
/>

<statusBar
  name = NMTOKEN
/>

<tool
  name = NMTOKEN
/>

<group>
  Content: [ toolBar | statusBar | tool ]{2,}
</group>

Inside group:

<toolBar
  name = NMTOKEN
  stretch = non negative double : 0
/>

<statusBar
  name = NMTOKEN
  stretch = non negative double : 0
/>

<tool
  name = NMTOKEN
  stretch = non negative double : 0
/>

```

Element `topToolBars` specifies the list of tools, toolBars and statusBars which will be found *above* the document views. Element `bottomToolBars` specifies the list of tools, toolBars and statusBars which will be found *below* the document views. The tool [32]s, toolBar [33]s and statusBar [31]s referenced in these lists must have been declared in this GUI specification.

Each tool, toolBar or statusBar referenced in `topToolBars` or in `bottomToolBars` elements will have its own row. If you want to group several tools, toolBars and statusBars per row, you need to use group elements.

In a group element, an item can be "stretched", that is, it can be enlarged to fill all the available horizontal space. If several items are to be stretched, the numeric value of the `stretch` attribute specifies the amount of space given to each of them. An item with a large `stretch` attribute is given more space than an item with a small `stretch` attribute.

Examples:

```

<topToolBars>
  <toolBar name="toolBar" />
  <group>
    <toolBar name="documentReferenceToolBar" />
    <tool name="nodePathTool" stretch="1" />
    <toolBar name="selectToolBar" />
  </group>
</topToolBars>

<bottomToolBars>
  <statusBar name="statusBar" />
</bottomToolBars>

```

5.4. The `leftToolBars` and `rightToolBars` child elements of `layout`

```
<leftToolBars
  insert = non empty token
>
  Content: [ insert | toolBar | group ]+
</leftToolBars>

<insert />

<toolBar
  name = NMTOKEN
/>

<group>
  Content: [ toolBar ]{2,}
</group>

Inside group:

<toolBar
  name = NMTOKEN
  stretch = non negative double : 0
/>
```

Element `leftToolBars` specifies the list of (vertical) `toolBars` which will be found at the *left* of the document views. Element `rightToolBars` specifies the list of (vertical) `toolBars` which will be found at the *right* the document views. The `toolBar` [33]s referenced in these lists must have been declared in this GUI specification.

Each `toolBar` referenced in `leftToolBars` or in `leftToolBars` elements will have its own column. If you want to group several `toolBars` per column, you need to use `group` elements.

In a `group` element, an item can be "stretched", that is, it can be enlarged to fill all the available vertical space. If several items are to be stretched, the numeric value of the `stretch` attribute specifies the amount of space given to each of them. An item with a large `stretch` attribute is given more space than an item with a small `stretch` attribute.

Example:

```
<leftToolBars>
  <toolBar name="configSpecificToolBar" />
</leftToolBars>
```

5.5. The `leftPanes` and `rightPanes` child elements of `layout`

```
<leftPanes
  width = double between 0 and 1 inclusive : 0.25
  topHeight = double between 0 and 1 inclusive : 0.5
  insert = non empty token
>
  Content: [ insert | pane ]+
</leftPanes>

<insert />

<pane
  name = NMTOKEN
  position = top|bottom : top
  selected = boolean : false
/>
```

Element `leftPanes` specifies the list of `panes` which will be found at the *left* of the document views. Element `rightPanes` specifies the list of `panes` which will be found at the *right* the document views. The `pane` [27]s referenced in these lists must have been declared in this GUI specification.

If the pane area contains several panes, these panes will be contained in a special, splittable, tabbed, container. In such case:

Attribute `topHeight`

Specifies the size of the top area relatively to the bottom area, when the container is split in two parts.

Attribute `position` of the reference to the pane

Specifies the position, top or bottom, of the pane when the container is split in two parts. (Specifying `top` for one or more panes and `bottom` for all the other panes will cause the container to be split in two parts.)

Attribute `selected` of the reference to the pane

Specifies whether the tab showing the pane should be selected or not.

Otherwise, the above attributes are ignored.

In all cases, attribute `width` specifies the size of the pane area. 0 means that the pane area should be minimized (it will be hidden). 1 means that the pane area should be maximized (it will entirely fill the main window).

Examples:

```
<leftPanes>
  <pane name="editPane" />
</leftPanes>

<rightPanes>
  <pane name="editAttributePane" />
  <pane name="textSearchReplacePane" />
  <pane name="checkSpellingPane" />
  <pane name="insertCharacterPane" />
  <pane name="checkValidityPane" />
</rightPanes>
```

Example: right pane area is split in two parts with `editPane` at top and all the other panes at bottom:

```
<rightPanes topHeight="0.33">
  <pane name="editPane" selected="true" />
  <pane name="editAttributePane" position="bottom" selected="true" />
  <pane name="textSearchReplacePane" position="bottom" />
  <pane name="checkSpellingPane" position="bottom" />
  <pane name="insertCharacterPane" position="bottom" />
  <pane name="checkValidityPane" position="bottom" />
</rightPanes>
```

5.6. The `preferencesSheets` child element of `layout`

```
<preferencesSheets
  name = NMTOKEN
/>
```

Specifies which preferencesSheets [30] (set of preferencesSheet [30]s) to use for this XML editor.

If, for example, your XML editor makes use of action [10] `editOptionsAction`, you need to declare at least one preferencesSheets [30] in the GUI specification and you need to reference one of these declared preferencesSheets [30] in the `layout` by the means of this `preferencesSheets` child element.

Example:

```
<preferencesSheets name="preferencesSheets" />
```

5.7. The `hidden` child element of `layout`

```
<hidden
  insert = non empty token
>
Content: [ command | property | openedDocumentHook | editorListener |
```

```

        part|action|accelerator|insert ]*
</hidden>

<insert />

<command
  name = NMTOKEN
/>

<property
  name = NMTOKEN
/>

<openedDocumentHook
  name = NMTOKEN
/>

<editorListener
  name = NMTOKEN
/>

<part
  name = NMTOKEN
/>

<action
  name = NMTOKEN
/>

<accelerator
  name = NMTOKEN
/>

```

Specifies which parts are needed, even if they are not visible, to make a functioning XML editor, given the visible parts which are referenced in preferencesSheets [20], topToolBars [17], rightPanels [19], etc.

All the child elements of `hidden` are references to parts declared elsewhere in this GUI specification.

Example:

```

<hidden>
  <!-- These are required to be able to use editPane -->
  <command name="replace" />
  <command name="insert" />
  <command name="convert" />
  <command name="wrap" />

  <part name="editOptionsPart" />
  <part name="spellOptionsPart" />
  <part name="spreadsheetOptionsPart" />
  <part name="webDAVOptionsPart" />

  <part name="autoSavePart" />

  <!-- Required by setStyleSheetMenuItems -->
  <action name="setStyleSheetAction" />
</hidden>

```

The `accelerator` child element is a variant of the `action` child element. *When the application has no menu bar*, the `accelerator` (e.g. **Ctrl+O**) of an action referenced using the `action` child element is disabled, while the `accelerator` of an action referenced using the `accelerator` child element is enabled.

5.8. The `insert` descendant element of `layout`

```

<insert />

```


Adding an `insert` element to the `layout` element, or to any of the child elements of `layout` which allows this (`topToolBars` [17], `bottomToolBars` [17], `leftToolBars` [19], `rightToolBars` [19], `leftPanels` [19], `rightPanels` [19], `hidden` [20]), means that the `layout` is being extended rather than being redefined.

Inside the `layout` element, an `insert` child element simply means that the `layout` is being extended. Its rank as a child is not significant.

Inside the `hidden` [20] element, an `insert` child element means that the `hidden` is being extended by adding references to those found in the previous definition of this element. The rank of `insert` as a child of `hidden` is not significant.

Inside `topToolBars` [17], `bottomToolBars` [17], `leftToolBars` [19], `rightToolBars` [19], `leftPanels` [19], `rightPanels` [19], `hidden` [20] elements, the `insert` child element or the `insert` *attribute* may be used to extend the previous definition of these elements. More information in About the `insert` child element and the `insert` attribute [24].

Example: change label and icon:

```
<layout label="Document Editor" icon="docedit.png">
  <insert />
</layout>
```

Example: replace menu bar and add a tool bar at the left of the `leftPanels`:

```
<layout>
  <insert />

  <menuBar name="customMenuBar" />

  <leftToolBars>
    <toolBar name="configSpecificToolBar" />
  </leftToolBars>
</layout>
```

Example: insert extra tool bar `toolBar2` above the standard status bar:

```
<layout>
  <bottomToolBars>
    <toolBar name="toolBar2" />
    <insert />
  </bottomToolBars>
</layout>
```

6. menu

```
<menu
  name = NMTOKEN
  label = non empty token
  helpId = NMTOKEN
  insert = non empty token
>
  Content: [ insert | action | menu | separator | menuItems ]+
</menu>

<insert />

<action
  name = NMTOKEN
/>

<menu
  name = NMTOKEN
/>

<separator />
```

```
<menuItems
  name = NMTOKEN
/>
```

Specifies a menu. A menu contains references to action [10], menu [22] and menuItems [26] elements declared elsewhere in the GUI specification.

Unless the referenced menuItems element has a count attribute, the reference to the menuItems element, if any, must be the last reference contained in the menu element.

The insert child element or the insert attribute may be used to extend the previous definition of a menu. More information in About the insert child element and the insert attribute [24].

Attributes:

name

Required. Unique name identifying the menu in this GUI specification.

label

Required unless this declaration is an extension of the previous one (that is, <insert/> is used). Label of the menu.

helpId

Online help ID of the menu.

Example: an ordinary menu:

```
<menu name="helpMenu" label="_Help"
      helpId="helpMenu">
  <action name="helpAction" />
  <action name="contextualHelpAction" />
  <separator />
  <action name="showContentModelAction" />
  <separator />
  <action name="listBindingsAction" />
  <action name="listPluginsAction" />
  <separator />
  <action name="aboutAction" />
</menu>
```

Example: a menu where all items are dynamic:

```
<menu name="configSpecificMenu" label="XML"
      helpId="configSpecificMenu">
  <menuItems name="configSpecificMenuItems" />
</menu>
```

Example: a menu which has two static items followed by dynamic items:

```
<menu name="viewMenu" label="_View"
      helpId="viewMenu">
  <action name="addViewAction" />
  <action name="closeViewAction" />
  <menuItems name="setStyleSheetMenuItems" />
</menu>
```

About the `insert` child element and the `insert` attribute

There are two ways to extend a composite part such as menu [22], menuBar [25], statusBar [31], toolBar [33], preferencesSheets [30], or a layout group such as topToolBars [17], bottomToolBars [17], leftToolBars [19], rightToolBars [19], leftPanels [19], rightPanels [19], hidden [20]:

1. By using an `insert` child element.
2. By using an `insert` attribute.

Both methods cannot be used in the same element. Method 1 is faster and simpler to use than method 2.

1. Using the `insert` child element. Example:

```
<include location="common.xxe_gui" />
<!-- =====
Let's suppose this tool bar is defined in common.xxe_gui:

<toolBar>
  <action name="openAction" />
</toolBar>
===== -->

<toolBar>
  <action name="newAction" />
  <insert />
  <action name="saveAction" />
</toolBar>
```

The `insert` child element is a directive which means: insert all the buttons of the previous definition of the same tool bar here.

2. Using the `insert` attribute. Example:

```
<include location="common.xxe_gui" />
<!-- =====
Let's suppose this tool bar is defined in common.xxe_gui:

<toolBar>
  <action name="newAction" />
  <action name="saveAction" />
</toolBar>
===== -->

<toolBar insert="saveAction">
  <action name="openAction" />
</toolBar>
```

The `insert` attribute is a directive which means: insert all the buttons found in this tool bar into the previous definition of the same tool bar, and this, at specified position.

The value of the `insert` attribute the name of a part found in the previous definition of the same composite part. In the case of the above example, `saveAction` is the value of the `name` attribute of an `action` contained in the previous definition of the tool bar.

This name may be preceded by modifier `"before "` or by modifier `"after "`. Modifier `"before "` is the implicit one.

In the above example, extending the tool bar could have also been achieved by using:

```
<toolBar insert="before saveAction">
  <action name="openAction" />
</toolBar>
```

or by using:

```
<toolBar insert="after newAction">
  <action name="openAction" />
</toolBar>
```

Instead of using the name of a part, it is also possible to use `##first` or `##last`. `##first` specifies the first part referenced in the previous definition of the part container. `##last` specifies the last part referenced in the previous definition of the part container.

Example:

```
<toolBar insert="after ##last">
  <action name="printAction" />
</toolBar>
```

The value of the `insert` attribute may start with `ifDefined(system_property_name)`. In such case, the previously defined tool bar is extended if and only if a system property called `system_property_name` has been defined (no matter its value). Example:

```
<toolBar insert="ifDefined(XXE.Feature.Spreadsheet) after newAction">
  <action name="openAction" />
</toolBar>
```

7. menuBar

```
<menuBar
  name = NMTOKEN
  helpId = NMTOKEN
  insert = non empty token
>
  Content: [ insert | menu ]+
</menuBar>

<insert />

<menu
  name = NMTOKEN
/>
```

Specifies a menu bar. A menu bar contains references to menu [22] elements declared elsewhere in the GUI specification.

The `insert` child element or the `insert` attribute may be used to extend the previous definition of a menu bar. More information in About the `insert` child element and the `insert` attribute [24].

Attributes:

name

Required. Unique name identifying the menu bar in this GUI specification.

helpId

Online help ID of the menu bar.

Example: standard menu bar:

```
<menuBar name="menuBar" helpId="menuBar">
  <menu name="fileMenu" />
  <menu name="selectMenu" />
  <menu name="editMenu" />
  <menu name="searchMenu" />
  <menu name="viewMenu" />
  <menu name="toolsMenu" />
  <menu name="configSpecificMenu" />
</menuBar>
```

```
<menu name="windowMenu" />
<menu name="optionsMenu" />
<menu name="helpMenu" />
</menuBar>
```

Example: add extra menu `charactersMenu` at the end of the standard menu bar:

```
<menuBar name="menuBar">
  <insert />
  <menu name="charactersMenu" />
</menuBar>
```

8. menuItems

```
<menuItems
  name = NMTOKEN
  count = strictly positive int
>
  Content: class [ property ]*
</menuItems>

<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|Color|Font)
  value = string
/>
```

Specifies a dynamic set of menu items, that is, a Java™ Object implementing interface `com.xmlmind.xmleditapp.kit.AppMenuItems`.

The class implementing interface `com.xmlmind.xmleditapp.kit.AppMenuItems` is specified by the `class` child element.

Property child elements may be used to parametrize a newly created part. See bean properties [28].

Attributes:

name

Required. Unique name identifying the dynamic set of menu items in this GUI specification.

count

The fixed number of items which will be dynamically added to this part. This attribute must not be specified for truly dynamic set of menu items.

Examples:

```
<menuItems name="recentFilesMenuItems">
  <class>com.xmlmind.xmleditapp.kit.part.RecentFilesMenuItems</class>
</menuItems>

<menuItems name="configSpecificMenuItems">
  <class>com.xmlmind.xmleditapp.kit.part.ConfigSpecificMenuItems</class>
</menuItems>
```

9. openedDocumentHook

```
<openedDocumentHook
  name = NMTOKEN
>
  Content: class
```

```
</openedDocumentHook>

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

Specifies an `OpenedDocumentHook` hook, that is, a Java™ Object implementing interface `com.xmlmind.xmleditapp.kit.OpenedDocumentHook`.

The class implementing interface `com.xmlmind.xmleditapp.kit.OpenedDocumentHook` is specified by the `class` child element.

Attributes:

name

Required. Unique name identifying the hook in this GUI specification.

Example:

```
<openedDocumentHook name="hook">
  <class>com.acme.custom_xxe.Hook</class>
</openedDocumentHook>
```

10. pane

```
<pane
  name = NMTOKEN
  icon = anyURI
  label = non empty token
  helpId = NMTOKEN
>
  Content: class [ property ]*
</pane>

<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|Color|Font)
  value = string
/>
```

Specifies a pane, that is, a form like standard Edit tool or standard Attributes tool, intended to be placed at the left or at the right of the document views. The Java™ object implementing the form must be an instance of class `java.awt.Component`, implementing interface `com.xmlmind.xmleditapp.kit.AppPane`.

The class implementing interface `com.xmlmind.xmleditapp.kit.AppPane` is specified by the `class` child element.

Property child elements may be used to parametrize a newly created part. See bean properties [28].

Attributes:

name

Required. Unique name identifying the pane in this GUI specification.

icon

Required. Icon of the pane (the pane is generally contained in a tabbed container and this is needed for the tab showing the pane). This URI may be resolved using XML catalogs.

label

Required. Label of the pane (the pane is generally contained in a tabbed container and this is needed for the tab showing the pane).

helpId

Online help ID of the pane.

Example:

```
<pane name="textSearchReplacePane" label="Search"
      icon="icons/textSearchReplacePane.gif"
      helpId="textSearchReplacePane">
  <class>com.xmlmind.xmleditapp.kit.part.TextSearchReplacePane</class>
</pane>
```

11. part

```
<part
  name = NMTOKEN
>
  Content: class [ property ]*
</part>

<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|Color|Font)
  value = string
/>
```

Specifies a generic part, that is, a Java™ Object implementing interface `com.xmlmind.xmleditapp.kit.AppPart`. Unlike action [10], tool [32], pane [27], etc, generic parts are “behind the scene workers”, which are referenced in the hidden [20] section of a layout [16].

The class implementing interface `com.xmlmind.xmleditapp.kit.AppPart` is specified by the `class` child element.

`Property` child elements may be used to parametrize a newly created part. See bean properties [28].

Attributes:

name

Required. Unique name identifying the part in this GUI specification.

Examples:

```
<part name="autoSavePart">
  <class>com.xmlmind.xmleditapp.kit.part.AutoSavePart</class>
</part>
```

11.1. Bean properties

Most Java™ Objects specified in `.xxe_gui` files 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 manual.

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!
Color	java.awt.Color	<ul style="list-style-type: none"> • <code>#RRGGBB</code> where <i>RR</i>, <i>GG</i>, <i>BB</i> are hexadecimal numbers between 0 and 255 inclusive; • or <code>rgb(<i>R</i>, <i>G</i>, <i>B</i>)</code> where <i>R</i>, <i>G</i>, <i>B</i> are decimal numbers between 0 and 255 inclusive; • or standard HTML/CSS named colors: black, white, red, silver, etc. 	<ul style="list-style-type: none"> • <code>#FFFFFF</code> • <code>rgb(255,255,255)</code> • white
Font	java.awt.Font	<code>fontfamily [-BOLD BOLDITALIC ITALIC] [-pointsize]</code> Default <i>style</i> is PLAIN. Default <i>pointsize</i> is 12.	<ul style="list-style-type: none"> • Monospaced • Serif-14 • SansSerif-ITALIC • Serif-BOLD-10

Example (a `StatusTool` is a kind of `JTextField`):

```
<tool name="heavilyParametrizedStatusTool">
  <class>com.xmlmind.xmleditapp.kit.part.StatusTool</class>
  <property name="text" type="String" value="  Hello,  world!  " />
  <property name="editable" type="boolean" value="true" />
  <property name="focusable" type="boolean" value="true" />
  <property name="horizontalAlignment" type="int" value="RIGHT" />
  <property name="font" type="Font" value="Serif-BOLD-16" />
  <property name="foreground" type="Color" value="#000080" />
  <property name="background" type="Color" value="silver" />
  <property name="selectedTextColor" type="Color" value="rgb(255,0,0)" />
</tool>
```



```
<property name="caretPosition" type="int" value="5" />
<property name="alignmentX" type="float" value="0.5" />
</tool>
```

1 Notice here the use of symbolic integer constant `javax.swing.JTextField.RIGHT`.

12. preferencesSheet

```
<preferencesSheet
  name = NMTOKEN
>
  Content: class
</preferencesSheet>

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

Specifies a preferences sheet, that is, an instance of class `com.xmlmind.xmleditapp.dialog.PreferencesSheet`.

The class derived from `com.xmlmind.xmleditapp.dialog.PreferencesSheet` is specified by the `class` child element.

Attributes:

name

Required. Unique name identifying the sheet in this GUI specification.

Example:

```
<preferencesSheet name="windowOptions">
  <class>com.xmlmind.xmleditapp.app.prefsheet.WindowOptions</class>
</preferencesSheet>
```

13. preferencesSheets

```
<preferencesSheets
  name = NMTOKEN
  insert = non empty token
>
  Content: [ insert | preferencesSheet ]+
</preferencesSheets>

<insert />

<preferencesSheet
  name = NMTOKEN
  label = non empty token
>
  Content: [ preferencesSheet ]*
</preferencesSheet>
```

Specifies a set of preferences sheets. This set contains references to `preferencesSheet` [30] elements declared elsewhere in the GUI specification.

The `insert` child element or the `insert` attribute may be used to extend the previous definition of a set of preferences sheets. More information in About the `insert` child element and the `insert` attribute [24].

Attributes:

name

Required. Unique name identifying the set of sheets in this GUI specification.

Example: standard preferences sheets:

```

<preferencesSheets name="preferencesSheets">
  <preferencesSheet name="openOptions">
    <preferencesSheet name="webDAVOptions" />
    <preferencesSheet name="schemaCacheOptions" />
  </preferencesSheet>
  <preferencesSheet name="saveOptions" />
  <preferencesSheet name="printOptions" />
  <preferencesSheet name="editOptions" />
  <preferencesSheet name="viewOptions" />
  <preferencesSheet name="tools" label="Tools">❶
    <preferencesSheet name="spellOptions" />
    <preferencesSheet name="spreadsheetOptions" />
  </preferencesSheet>
  <preferencesSheet name="windowOptions" />
  <preferencesSheet name="generalOptions" />
</preferencesSheets>

```

- ❶ Unlike all the other preferencesSheets, preferencesSheet "tools" is not implemented in Java™. It is created on the fly for grouping preferencesSheet "spellOptions" and preferencesSheet "spreadsheetOptions".

14. property

```

<property
  name = NMTOKEN
  url = boolean
  xml:space = preserve
>text</property>

```

Specifies system property called *name*, having *text* as its value.

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 system property is the fully resolved URL.

Examples:

```

<property name="color">red</property>

<property name="icon.3" url="true">resources/icon.gif</property>

```

15. statusBar

```

<statusBar
  name = NMTOKEN
  helpId = NMTOKEN
  insert = non empty token
>
  Content: [ insert | action | tool | separator ]+
</statusBar>

<insert />

<action
  name = NMTOKEN
/>

<tool
  name = NMTOKEN
  stretch = non negative double : 0
/>

<separator />

```

Specifies a status bar. A status bar contains references to action [10] and tool [32] elements declared elsewhere in the GUI specification.

The `insert` child element or the `insert` attribute may be used to extend the previous definition of a status bar. More information in About the `insert` child element and the `insert` attribute [24].

Attributes:

`name`

Required. Unique name identifying the status bar in this GUI specification.

`helpId`

Online help ID of the status bar.

A tool contained in a status bar can be "stretched", that is, it can be enlarged to fill all the available horizontal space. If several tools are to be stretched, the numeric value of the `stretch` attribute specifies the amount of space given of each of them. A tool with a large `stretch` attribute is given more space than a tool with a small `stretch` attribute.

Example: standard status bar:

```
<statusBar name="statusBar" helpId="statusBar">
  <tool name="checkValidityTool" />
  <tool name="statusTool" stretch="1" />
  <action name="showLogAction" />
  <tool name="clipboardTool" />
  <tool name="clipboardContentTool" />
</statusBar>
```

16. tool

```
<tool
  name = NMTOKEN
  helpId = NMTOKEN
>
  Content: class [ property ]*
</part>

<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|Color|Font)
  value = string
/>
```

Specifies a tool, that is, a small gadget like the standard "View Clipboard Content" tool, intended to be placed in a status bar or in an horizontal tool bar. The gadget must be an instance of class `java.awt.Component`, implementing interface `com.xmlmind.xmleditapp.kit.AppTool`.

The class implementing interface `com.xmlmind.xmleditapp.kit.AppTool` is specified by the `class` child element.

`Property` child elements may be used to parametrize a newly created part. See bean properties [28].

Attributes:

`name`

Required. Unique name identifying the tool in this GUI specification.

`helpId`

Online help ID of the tool.

Example: standard node path tool:

```
<tool name="nodePathTool" helpId="nodePathTool">
  <class>com.xmlmind.xmleditapp.kit.part.NodePathTool</class>
  <property name="dragEnabled" value="true" type="boolean" />
</tool>
```

17. toolBar

```
<toolBar
  name = NMTOKEN
  helpId = NMTOKEN
  insert = non empty token
>
  Content: [ insert | action | tool | separator | toolBarItems ]+
</toolBar>

<insert />

<action
  name = NMTOKEN
/>

<tool
  name = NMTOKEN
/>

<separator />

<toolBarItems
  name = NMTOKEN
/>
```

Specifies a tool bar. A tool bar contains references to action [10], tool [32] and toolBarItems [34] elements declared elsewhere in the GUI specification.

Unless the referenced toolBarItems element has a count attribute, the reference to the toolBarItems element, if any, must be the last reference contained in the toolBar element.

The insert child element or the insert attribute may be used to extend the previous definition of a tool bar. More information in About the insert child element and the insert attribute [24].

Attributes:

name

Required. Unique name identifying the tool bar in this GUI specification.

helpId

Online help ID of the tool bar.

Example: standard select tool bar:

```
<toolBar name="selectToolBar" helpId="selectToolBar">
  <action name="selectParentAction" />
  <action name="selectChildAction" />
  <action name="selectPreviousSiblingAction" />
  <action name="selectNextSiblingAction" />
  <separator />
  <action name="selectXPathAction" />
</toolBar>
```

Example: add a separator and tool countWordsTool at the end of the standard select tool bar:

```
<toolBar name="selectToolBar">
  <insert />
  <separator />
  <tool name="countWordsTool" />
</toolBar>
```

18. toolBarItems

```
<toolBarItems
  name = NMTOKEN
  count = strictly positive int
>
  Content: class [ property ]*
</toolBarItems>

<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|Color|Font)
  value = string
/>
```

Specifies a dynamic set of tool bar items, that is, a Java™ Object implementing interface `com.xmlmind.xmleditapp.kit.AppToolBarItems`.

The class implementing interface `com.xmlmind.xmleditapp.kit.AppToolBarItems` is specified by the `class` child element.

Property child elements may be used to parametrize a newly created part. See bean properties [28].

Attributes:

name

Required. Unique name identifying the dynamic set of tool bar items in this GUI specification.

count

The fixed number of items which will be dynamically added to this part. This attribute must not be specified for truly dynamic set of tool bar items.

Example:

```
<toolBarItems name="configSpecificToolBarItems">
  <class>com.xmlmind.xmleditapp.kit.part.ConfigSpecificToolBarItems</class>
</toolBarItems>
```

19. translation

```
<translation
  location = anyURI matching [path/]resourcename_lang.properties
/>
```

Specifies how to translate messages found in action [10] label and toolTip, pane [27] label, layout [16] label, etc.

Localizing GUI specification files works as follows:

1. The `location` attribute points to a Java™ property file. Example used in the tutorial:

```
<translation location="custom_gui_en.properties" />
...
<layout label="Document Editor" icon="docedit.png">
...
```

Where `custom_gui_en.properties` contains:

```
layout.label=Document Editor
...
```

The location URL specifies:

- The reference language of the GUI specification 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: `custom_gui`. More on this below.

The reference property file is only used to map messages to message IDs. For example, `custom_gui_en.properties` specifies that message "Document Editor" has ID "layout.label".

2. If, for example, XXE is started using a French locale, a property file called `custom_gui_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, `custom_gui_fr.properties` is supposed to be contained² in a `jar` file found in the `CLASSPATH`.

For performance reasons, language variants such `CA` in `fr-CA` are not supported.

3. For the localization to work, the translated property file must refer to the same IDs as those found in the reference property file.

For example, `custom_gui_fr.properties` contains:

```
layout.label=Éditeur de Document
...
```

²Directly contained, and not contained in a ``folder''. That is, "`jar tvf foo.jar`" must display `custom_gui_fr.properties` and not `foo/bar/custom_gui_fr.properties`.