<oXygen/> User Manual

SyncRO Soft Ltd.

Contributor: Sean Wheller

<oXygen/> User Manual

SyncRO Soft Ltd.
Contributor: Sean Wheller

Many of the designations used by manufacturers and sellers to distinguish their products are claimed as trademarks. Where those designations appear in this book, and SyncRO Soft Ltd., was aware of a trademark claim, the designations have been printed in caps or initial caps. While every precaution has been taken in the preparation of this book, the publisher assumes no responsibility for errors or omissions, or for damages resulting from the use of the information contained herein.

Third party software components are distributed in the <oXygen/> installation packages, including the Java Runtime Environment (JRE), Docbook DTD and stylesheets. This product includes software developed by the Apache Software Foundation (http://www.apache.org): the Apache FOP, Xerces XML Parser and Xalan XSLT. These products are not the property of SyncRO Soft Ltd.. To the best knowledge of SyncRO Soft Ltd. owners of the aforesaid products granted permission to copy, distribute and/or modify the software and its documents under the terms of the Apache Software License, Version 1.1. Other packages are used under the GNU Lesser General Public License. Users are advised that the JRE is provided as a free software, but in accordance with the licensing requirements of Sun Microsystems. Users are advised that SyncRO Soft Ltd. assumes no responsibility for errors or omissions, or for damages resulting from the use of <oXygen/> and the aforesaid third party software. Nor does SyncRO Soft Ltd. assume any responsibility for licensing of the aforesaid software, should the relevant vendors change their terms. By using <oXygen/> the user accepts responsibility to maintain any licenses required by SyncRO Soft Ltd. or third party vendors. Unless SyncRO Soft Ltd. declares in writing that the <oXygen/> license is inclusive of third party licensing.

Table of Contents

1. Introduction 1
    - Key Features and Benefits 1
    - About the <oXygen/> User Manual 2
2. Installation 4
    - Installation Requirements 4
        - Platform Requirements 4
        - Operating System, Tools and Environment Requirements 4
            - Operating System 4
            - Tools 4
            - Environment Prerequisites 5
    - Installation Instructions 5
    - Starting <oXygen/> 7
    - Obtaining and installing an <oXygen/> license 7
        - Named User license installation 8
        - How floating (concurrent) licenses work 9
            - How to install the <oXygen/> license server as a Windows service 11
            - How to release a floating license 12
    - Upgrading <oXygen/> 12
    - Checking for new versions 12
    - Uninstalling <oXygen/> 13
    - Performance problems 13
        - Large documents 13
        - Display problems on Linux/Solaris 14
3. Getting started 15
    - Supported types of documents 15
    - Getting help 15
    - Perspectives 18
        - Editor perspective 18
        - XSLT Debugger Perspective 20
        - XQuery Debugger Perspective 21
        - Tree Editor perspective 22
    - Dockable views and editors 24
4. Editing documents 26
    - Working with Unicode 26
        - Opening and saving Unicode documents 26
        - The Unicode toolbar 27
    - Opening and closing documents 29
        - Creating new documents 29
            - The New dialog 29
            - Creating Documents based on Templates 33
        - Saving documents 37
        - Opening existing documents 38
        - Opening and Saving Remote Documents via FTP/WebDAV 39
            - Changing file permissions on a remote FTP server 42
            - WebDAV over HTTPS 42
        - Closing documents 45
        - Creating and sharing new document templates 45
            - Creating a new document template 45
            - Sharing document templates 45
        - Viewing file properties 46
    - Editing XML documents 46
        - Associate a schema to a document 46
            - Setting a schema for the Content Completion 46

Setting a default schema 47
Adding a Processing Instruction 47
Learning document structure 48
Streamline with Content Completion 49
Code templates 52
Content Completion helper panels 52
The Model panel 53
The Element Structure panel 54
The Annotation panel 54
The Attributes panel 55
Debugging XML documents 56
Checking XML Form 56
Validating Documents 57
Validate as you type 59
References to XML Schema specification 61
Custom validation of XML documents 62
Document navigation 63
Quick document browsing using bookmarks 63
Folding of the XML elements 64
Outliner view 65
XML Document Overview 66
Modification Follow-up 66
Document Structure Change 66
The popup menu of the Outline tree 67
Document Tag Selection 67
Navigation buttons 68
Using the Go To dialog 68
Grouping documents in XML projects 69
Large Documents 69
Creating an included part 69
Using the Project view 70
Including document parts with XInclude 73
Working with XML Catalogs 75
Converting between schema languages 75
Editing XML tree nodes 76
Formatting and indenting documents (pretty print) 77
Viewing status information 78
Image preview 79
Making a persistent copy of results 80
Locking and unlocking XML markup 80
Adjusting the transparency of XML markup 80
XML editor specific actions 81
Split actions 81
Edit actions 81
Select actions 81
Source actions 81
XML document actions 83
XML Refactoring actions 84
XML Schema actions 85
Smart editing 85
Syntax highlight depending on namespace prefix 85
Editing XML Schema schemas 86
Special content completion features 86
XML Schema diagram 86
Introduction 86
Full model view 87
Logical model view 90
Schema components view 91

References to XML Schema specification 91
Create an XML Schema from a relational database table 92
XML Schema Instance Generator 92
Flatten an XML Schema 95
XML Schema regular expressions builder 100
Generating HTML documentation for an XML Schema 102
XML Schema editor specific actions 106
Search References and Declarations 106
Editing Relax NG schemas 107
Relax NG schema diagram 107
Introduction 107
Full model view 108
Logical model view 109
Schema components view 111
Relax NG editor specific actions 111
Search References and Declarations 112
Editing XSLT stylesheets 112
Validating XSLT stylesheets 113
Custom validation of XSLT stylesheets 113
Content Completion in XSLT stylesheets 113
Content Completion in XPath expressions 114
Code templates 117
The XSLT Input View 117
The Stylesheet Templates view 119
Finding XSLT references and declarations 121
XSLT refactoring actions 122
Editing XQuery documents 124
Generating HTML Documentation for an XQuery Document 125
Editing CSS stylesheets 126
Validating CSS stylesheets 126
Content Completion in CSS stylesheets 126
Folding in CSS stylesheets 127
Formatting and indenting CSS stylesheets (pretty print) 127
Other CSS editing actions 127
SVG documents 128
The Standalone SVG Viewer. 128
The Preview Result Pane. 129
Integrating external tools 129
Integrating the Ant tool 130
Scratch Buffer 130
Text editor specific actions 130
Undoing and redoing user actions 130
Copying and pasting text 131
Finding and replacing text in the current file 131
The Find/Replace dialog 131
The Quick Find toolbar 133
Keyboard shortcuts for finding the next and previous match 134
Finding and replacing text in multiple files 134
Using Check Spelling 136
Changing the font size 139
Dragging and dropping the selected text 140
Printing a file 140
Inserting a file at caret position 140
Opening edited file in system application 140
Opening the file at caret position 140
Exiting the <oXygen/> XML Editor 140
5. Transforming documents 141
Output formats 141

Transformation scenario 142
Built-in transformation scenarios 143
Defining a new transformation scenario 143
XSLT Stylesheet Parameters 147
Additional XSLT Stylesheets 149
Scenario Macros 150
XSLT/XQuery Extensions 150
Exporting and importing the transformation scenarios 151
XSL-FO processors 152
Common transformations 153
PDF Output 153
PS Output 154
TXT Output 154
HTML Output 155
HTML Help Output 156
JavaHelp Output 156
XHTML Output 156
Supported XSLT processors 157
Configuring custom XSLT processors 159
Configuring the XSLT processor extensions paths 160
6. Querying documents 161
Running XPath expressions 161
What is XPath 161
<oXygen/>'s XPath toolbar 161
The XPath Builder view 164
Working with XQuery 165
What is XQuery 165
Syntax Highlight and Content Completion 165
XQuery Validation 166
Other XQuery editing actions 167
Transforming XML Documents Using XQuery 167
How to configure eXist support in <oXygen/> 167
How to configure Berkeley DB XML support in <oXygen/> 168
How to configure TigerLogic support in <oXygen/> 170
How to configure X-Hive/DB support in <oXygen/> 171
How to configure MarkLogic support in <oXygen/> 171
7. Debugging XSLT stylesheets and XQuery documents 173
Overview 173
Layout 173
Control Toolbar 175
Information views 176
Multiple output documents in XSLT 2.0 177
Working with the XSLT/XQuery Debugger 178
Steps in a typical debug process 178
Using breakpoints 179
Inserting breakpoints 179
Removing breakpoints 179
Viewing processing information 179
Context node view 180
XPath watch view 180
Breakpoints view 181
Break conditions view 182
Messages view 183
Stack view 184
Trace history view 185
Templates view 187
Node set view 188
Variables view 188

Determining what XSL/XQuery expression generated particular output 190
8. Profiling XSLT stylesheets and XQuery documents 193
Overview 193
Viewing profiling information 193
Invocation tree view 193
Hotspots view 194
Working with XSLT/XQuery profiler 195
9. Comparing and merging documents 197
Directories Comparison 197
The directories comparison user interface 198
The Operations Menu 198
Compare Toolbar 199
File Filter options 199
Directories Selector 199
The comparison result 199
File Comparison 200
The Main Menu 201
The Source Menu 201
The Target Menu 201
Operations Menu 202
Compare Toolbar 202
Files Selector 204
File contents panel 204
Word Level Comparison 205
Character Level Comparison 205
10. Importing data 207
Introduction 207
Import from database 207
Import table content as XML document 207
Convert table structure to XML Schema 210
Import from MS Excel files 212
Import from HTML files 213
Import from text files 214
11. Composing Web Service calls 217
Overview 217
Composing a SOAP request 217
Testing remote WSDL files 220
The UDDI Registry browser 221
Generate WSDL documentation 222
12. Digital signature 223
Overview 223
Canonicalizing files 224
Certificates 226
Signing files 226
Verifying the signature 228
13. The <oXygen/> SVN Client 229
Introduction 229
What is <oXygen/> SVN Client 229
Quick start guide and reference 229
Main window 230
Starting <oXygen/> Subversion client 230
Views 231
Main menu 232
Getting started 234
Define a repository location 234
Add / Edit / Remove repository locations 234
Authentication 235
Defining a working copy 236

Check out a working copy 237
Use an existing working copy 239
Manage working copy resources 239
Edit files 239
Add resources to version control 240
Ignore resources not under version control 240
Delete resources 241
Copy / Move / Rename resources 241
Lock / Unlock resources 243
Scanning for locks 243
Locking a file 244
Unlocking a file 244
Synchronize with the repository 245
View differences 245
Resolve conflicts 247
Real conflicts vs Pseudo conflicts 247
Content conflicts vs Property conflicts 248
Revert your changes 248
Merge conflicted resources 249
Drop incoming modifications 250
Update the working copy 250
Send your changes to the repository 251
Obtain information for a resource 252
Request status information for a resource 252
Request history for a resource 253
Using the resource history view 254
History actions available for single selection 254
History actions available for double selection 255
Management of SVN properties 255
Add / Edit / Remove SVN properties 255
Creation and management of Branches/Tags 256
Create a Branch/Tag 257
Merge branches 259
Working with repositories 261
Import / Export resources 261
Import resources into the repository 261
Export resources from the repository 261
Copy / Move / Delete resources from the repository 262
Repository view 263
General description 263
Toolbar 264
Contextual menu actions 264
Working copy view 265
General description 265
Toolbar 265
Contextual menu actions 266
Icons 268
Synchronize View 269
General description 269
Synchronize trees 269
Toolbar 270
Contextual menu actions 270
Icons 271
Compare view 272
Description 272
Toolbar 273
Editor 273
Description 273

History view 274
Description 274
Features 275
Properties view 276
Description 276
Toolbar / Contextual menu 277
Console view 277
Description 277
Help view 277
Description 277
SVN Client Preferences 277
Command line interface cross reference 278
Actions commands reference 278
Checkout 278
Update 278
Commit 278
Diff 278
Show History 279
Refresh 279
Synchronize 279
Import 279
Export 279
Information 279
Add 280
Add to svn:ignore 280
Delete 280
Copy 280
Move / Rename 280
Mark resolved 281
Revert 281
Cleanup 281
Show / Refresh Properties 281
Branch / Tag 281
Merge 282
Scan for locks 282
Lock 282
Unlock 282
Mark as merged 282
Override and update 283
Override and commit 283
Add / Edit property 283
Remove property 283
Revert changes from this revision 283
Revert changes from these revisions 283
14. How to develop an <oXygen/> plugin 284
Introduction 284
Requirements 284
Implementing plugins 284
General plugins 285
Selection plugins 285
Document plugins 286
Custom protocol plugins 286
Example - *UppercasePlugin* 286
Example - a custom protocol plugin 287
Installing the plugin 288
15. Configuring the editor 289
Reset options 289
Preferences 289

Global 289
Fonts 292
Editor 293
Format 295
XML Format 297
CSS Format 298
Save 299
Code Templates 300
Performance 301
Default Schema Association 302
Content Completion 303
XSL/XPath 306
Diagram 307
Spell Check 307
Document Checking 309
Custom Validation 310
CSS Validator 312
XML 312
XML Catalog 312
XML Parser 313
XML Instances Generator 315
XSLT/FO/XQuery 317
XSLT 317
Saxon6 317
Saxon8 318
XSLTProc 320
MSXML 322
MSXML.NET 323
XQuery 326
Saxon 326
eXist 328
Berkeley DB XML 328
X-Hive/DB 329
MarkLogic 329
TigerLogic 330
Debugger 330
Profiler 331
FO Processors 333
XPath 335
Custom engines 336
Database 338
Import 340
Diff 340
Plugins 343
External Tools 344
Menu Shortcut Keys 346
File Types 347
HTTP / FTP / Proxy Configuration 348
Certificates 350
View 351
Print 351
Tree editor 352
SVN 352
Colors 353
Elements by Prefix 355
Automatically importing the preferences from the other distribution 355
Importing/Exporting <oXygen/> preferences 355
16. Common problems 357

A. Appendix 360
Accelerator Shortcut Keys 360
The Main Editor 360
The Tree View Editor 361
Unicode Character Encoding 362
References 363

Chapter 1. Introduction

Welcome to the User Manual of the <oXygen/> XML Editor ! This book explains how to use the 7.2 version of <oXygen/> effectively to develop complex XML applications quickly and easily. Please note that this manual assumes that you are familiar with the basic concepts of XML and its related technologies.

The <oXygen/> XML Editor is a cross-platform application for document development using structured mark-up languages such as XML , XSD, Relax NG, XSL, DTD.

<oXygen/> offers developers and authors a powerful Integrated Development Environment. Based on proven Java technology the intuitive Graphical User Interface of the <oXygen/> XML Editor is easy-to-use and provides robust functionality for editing, project management and validation of structured mark-up sources. Coupled with XSLT and FOP transformation technologies, <oXygen/> supports output to multiple target formats, including: PDF, PS, TXT, HTML and XML.

<oXygen/> is the XML Editor of choice for developers, authors and integrators that demand high-quality output with a flexible and robust, single-source, structured mark-up environment.

Key Features and Benefits

The <oXygen/> XML Editor offers the following key features and benefits.

Multiplatform availability: Windows, Mac OS X, Linux, Solaris	Multilanguage support: English, German, French, Italian and Japanese
Can be used as standalone desktop application, run through Java Web Start or as an Eclipse plugin	Non blocking operations, you can perform validation and transformation operations in background
Support for XML, XML Schema, Relax NG , Schematron, DTD, NRL schemas, XSLT, XSL:FO, WSDL, XQuery, CSS	Outliner view in sync with a non well-formed document
Validate XML Schema schemas, Relax NG schemas, DTDs, Schematron schemas, NRL schemas, WSDL, XQuery and CSS	Manual and automatic validation of XML documents against XML Schema schemas, Relax NG schemas, DTDs, Schematron schemas and NRL schemas
Multiple built-in validation engines (Xerces, libxml, MSXML 4.0, MSXML.NET) and support for custom validation engines (Saxon SA, XSV, SQC).	Multiple built-in XSLT transformers (Saxon 6.5, Saxon 8 B, Saxon 8 SA, Saxon.NET, Xalan, libxslt, MSXML 3.0 / 4.0, Microsoft .NET 1.0, Microsoft .NET 2.0) and support for custom JAXP transformers.
Visual schema editor with full and logical model views	Compare and merge files and directories
Ready to use FOP support to generate PDF or PS documents	XInclude support
Support for editing remote files over FTP, HTTP/WebDAV and HTTPS/WebDAV	Easy error tracking - locate the error source by clicking on it
Generate HTML documentation from XML Schemas	Support for latest versions of document frameworks: Docbook and TEI.
Conversions from DTD, Relax NG schema or a set of documents to XML Schema, DTD or Relax NG schema	Context sensitive content assistant driven by XML Schema, Relax NG, DTD or by the edited document structure enhanced with schema annotation presenter
XML Catalog support	Unicode support
New XML document wizards to easily create documents specifying a schema or a DTD	Syntax coloring for XML, DTD, Relax NG compact syntax, Java, C++, C, PHP, Perl, etc
Pretty-printing of XML files	Easy configuration for external FO Processors

Apply XSLT and FOP transformations	XPath search and evaluation support
Preview transformation results as XHTML or XML or in your browser	Support for document templates to easily create and share documents
Import data from a database, Excel, HTML or text file	Convert database structure to XML Schema
Canonicalize and sign documents	XML project manager
Tree view/edit support for XML documents	Batch validate selected files in project
Fully-fledged client for the Subversion (SVN) versioning system	Generate large sets of sample XML instances from XML Schema
Configurable external tools	Configurable actions key bindings
Find and replace support allows regular expressions, is XML aware, handle multiple files	All the usual editor capabilities (cut, copy, paste, find, replace, windows management)
Associate extensions with <oXygen/> on Windows	Bookmark support
Mac OS X ready	Print documents
XSLT Debugger with Backmapping support	XSLT Profiler
XQuery Debugger with Backmapping support	XQuery Profiler
Model View	Attributes View
Multidocument environment	XQuery 1.0 support
WSDL Support	SVG Editor and Viewer
XSLT 2.0 full support	XPath 2.0 support
XSLT refactoring actions	Dockable views and editors
Document folding	Text transparency levels adjuster
Spell checking supporting English, German and French including locals	Custom protocol plugin support
Drag&drop support	

About the <oXygen/> User Manual

This User Manual gives a complete overview of the <oXygen/> XML Editor and describes the basic process of authoring, management, validation of structured mark-up documents and their transformation to multiple target outputs. In this manual it is assumed that you are familiar with the use of your operating system and the concepts related to structured mark-up.

The <oXygen/> XML Editor User Manual is comprised of the following parts:

- Chapter 1, *Introduction*: Introduction - you are reading it.
- Chapter 2, *Installation*: Installation - defines the platform and environment requirements of <oXygen/> and instructions for application installation, license installation, starting <oXygen/>, upgrade and uninstalling.
- Chapter 3, *Getting started*: Getting started - provides general orientation and an overview of the <oXygen/>'s editing perspectives.
- Chapter 4, *Editing documents*: Editing documents - explains how to obtain maximum benefit from the editor, project and validation features.
- Chapter 5, *Transforming documents*: Transforming documents - explains the considerations for trans-

formation of structured sources to multiple target format and how to obtain maximum benefit.

- Chapter 6, *Querying documents*: Querying documents - This chapter explains the support offered by <oXygen/> for querying XML documents.
- Chapter 7, *Debugging XSLT stylesheets and XQuery documents*: Debugging XSLT stylesheets and XQuery documents - This chapter explains how to debug XSLT stylesheets or XQuery documents.
- Chapter 8, *Profiling XSLT stylesheets and XQuery documents*: Profiling XSLT stylesheets and XQuery documents - This chapter explains how to profile the execution of XSLT stylesheets or XQuery documents.
- Chapter 9, *Comparing and merging documents*: Comparing and merging documents - This chapter explains how to find differences and merge files and directories.
- Chapter 10, *Importing data*: Importing data - This chapter explains how to import data from a database, an Excel sheet or text file.
- Chapter 11, *Composing Web Service calls*: Composing Web Service calls - This chapter explains the facilities offered by <oXygen/> for composing and testing WSDL SOAP messages.
- Chapter 12, *Digital signature*: Digital signature - This chapter explains how to canonicalize, sign and verify the signature of documents.
- Chapter 13, *The <oXygen/> SVN Client*: SVN Client - This chapter explains how to configure and use the Subversion client of <oXygen/>.
- Chapter 15, *Configuring the editor*: Configuring the editor - explains how to configure preferences of <oXygen/>.
- Chapter 16, *Common problems*: Common problems - a list of frequent errors and their possible causes and solutions.
- Appendix A, *Appendix*: Appendix - a collection of documents covering topics such as credits, licensing, errors and known problems.

Feedback and input to the <oXygen/> User Manual is welcomed.

Chapter 2. Installation

This section explains platform requirements and installation procedures. It also provides instructions on how to obtain and apply an <oXygen/> license, how to perform upgrades and uninstall <oXygen/> if required.

If you need help at any point during these procedures please send email to `<support@oxygenxml.com>`.

Caution

If you want to execute <oXygen/> with Java WebStart directly from <oXygen/> Java WebStart page [http://www.oxygenxml.com/javawebstart/] or your intranet server please configure your Java WebStart not to ask for desktop integration (File -> Preferences, Shortcuts), otherwise it will show up a dialog in the same time with the <oXygen/> license registration dialog leading to a blocking situation.

Installation Requirements

Platform Requirements

Minimum run-time requirements are listed below.

- Pentium Class Platform
- 256 MB of RAM
- 200 MB free disk space

Operating System, Tools and Environment Requirements

Operating System

Windows	Windows 98 or later.
Mac OS	minimum Mac OS X 10.0
UNIX/Linux	All versions/flavors

Tools

Installation packages are supplied in compressed archives. Ensure you have installed a suitable archive extraction utility with which to extract the archive. The MD5 sum is available on the Download page [http://www.oxygenxml.com/download.html] for every archive. You should check the MD5 sum of the downloaded archive with a MD5 checking tool available on your platform.

Environment Prerequisites

Prior to installation ensure that your Operating System environment complies with the following:

- Sun Microsystems Java VM version 1.4.2 or later (available at http://java.sun.com) in case you use an installation kit without Java VM. For Mac OS X, Java VM updates are available at http://www.apple.com/macosx/features/java/.
- The PATH environment variable is set to the most current Java VM installation.
- References to older Java VM installations are removed from the PATH.

Installation Instructions

Prior to proceeding with the following instructions, please ensure that your system complies with the prerequisites detailed in the installation requirements.

Note

The following instructions assume that JRE is installed. If you have downloaded an installation package that contains the JRE, please note that the package will automatically install Java prior to execution of the application.

Procedure 2.1. Windows Installation

1. Download the oxygen.exe installation kit and run it.
2. Follow the instructions presented in the installation program.

   ### Note

   In order to specify another Virtual Machine to be used by <oXygen/>, edit the oxygen7.2.ini file from the installation directory. In the [Java Runtime Environment] section add the following entry:

   JRE Path = <path_to_jre>

   where <path_to_jre> is the path to the installed JRE of your choice (e.g.: C:\Program Files\Java\jre1.5.0_03).

Procedure 2.2. Mac OS X Installation

1. Create a folder called `oxygen` on your local disk.
2. Within the `oxygen` folder, create child folder named in accordance with the <oXygen/> version number. The directory structure looks as follows: `/../oxygen/7.2/`

3. Download the Mac OS X Installation package (`oxygen.tar.gz`) to this folder.

4. Extract the archive to the same folder.

5. Execute the file named `oxygen`

Procedure 2.3. All Platforms Installation

1. Create a folder called `oxygen` on your local disk.

2. Within the oxygen `folder`, create child folder named in accordance with the <oXygen/> version number. The directory structure looks as follows: `/../oxygen/7.2/`

3. Download the All Platforms Installation package (`oxygen.tar.gz`) to this folder.

4. Extract the archive to the same folder.

5. On Windows execute `oxygen.bat`, for Mac execute `oxygenMac.sh`, and for Unix execute `oxygen.sh`.

Procedure 2.4. Windows NT Terminal Server

1. Install the editor on the server, making its shortcuts available to all users.

2. Edit the `oxygen7.2.ini` file located in the install folder, changing the parameter "Virtual Machine Parameters" to **Virtual Machine Parameters = -Xmx256m -Dcom.oxygenxml.MultipleInstances=true** The "Xmx" value represents the maximum memory for each editor instance. Please make sure you tune them in a way that the multiple editor instances won't use all the available physical memory.

Procedure 2.5. Unix Server

1. Install the editor on the server, making sure the `oxygen.sh` script is executable and the installation directory is in the PATH of the users that need to use the editor.

2. Create a file called `oxygen7.2.vmoptions` in the <oXygen/> install folder where the `oxygen7.2` file is located. The content of the file must be:

   ```
   -Xmx256m -Dcom.oxygenxml.MultipleInstances=true
   ```

   The "-Xmx" value represents the maximum memory for each editor instance. Please make sure you tune it in a way that the multiple editor instances won't use all the available physical memory.

3. Make sure the X server processes located on the workstations allow connections from the server

host. For this use the xhost command.

4. Telnet (or ssh) on the server host.
5. Start an xterm process, with display on the workstation. Ex: **xterm -display workstationip:0.0**
6. Start the editor by typing **oxygen.sh**

Starting <oXygen/>

As a Java based application, <oXygen/> can run on all Operating Systems that support the Java Runtime Environment (JRE version 1.4.2 or later). The following instructions assume that JRE and the appropriate <oXygen/> distribution package for your Operating System are installed.

To start <oXygen/> follow the instructions for the installed package:

Procedure 2.6. Windows

- From the Windows Explorer double-click `oxygen.exe` .

Procedure 2.7. Linux

- At the prompt type: **sh oxygen.sh**.

Procedure 2.8. Mac OS X

- Double-click `oxygen`.

Procedure 2.9. All Platforms

- On Windows run `oxygen.bat`. On Mac OS X run `oxygenMac.sh`. On Linux/Unix run `oxygen.sh`

Obtaining and installing an <oXygen/> license

<oXygen/> is not free software and requires a license in order to enable the application.

For demonstration and evaluation purposes a time limited license is available upon request from the <oXygen/> Web Site [http://www.oxygenxml.com/register.html]. This license is supplied at no cost for a period of 30 days from date of issue. During this period <oXygen/> is fully functional enabling you to test all aspects of the application. Thereafter, the application is disabled and a permanent license must be purchased in order to use the application. For special circumstances, if a trial period of greater than 30 days is required, please contact `<support@oxygenxml.com>`. All licenses are obtained from <oXygen/> Web Site [http://www.oxygenxml.com].

For definitions and legal details of the license types available for <oXygen/> you should consult the End User License Agreement received with the license key and available also on the <oXygen/> website at http://www.oxygenxml.com/eula.html

Note

Starting with version 7.1 <oXygen/> accepts a license key for a newer version in the license registration dialog, e.g. version 7.1 accepts a license key for version 8.0.

Once you have obtained a license the installation procedure is described below.

Named User license installation

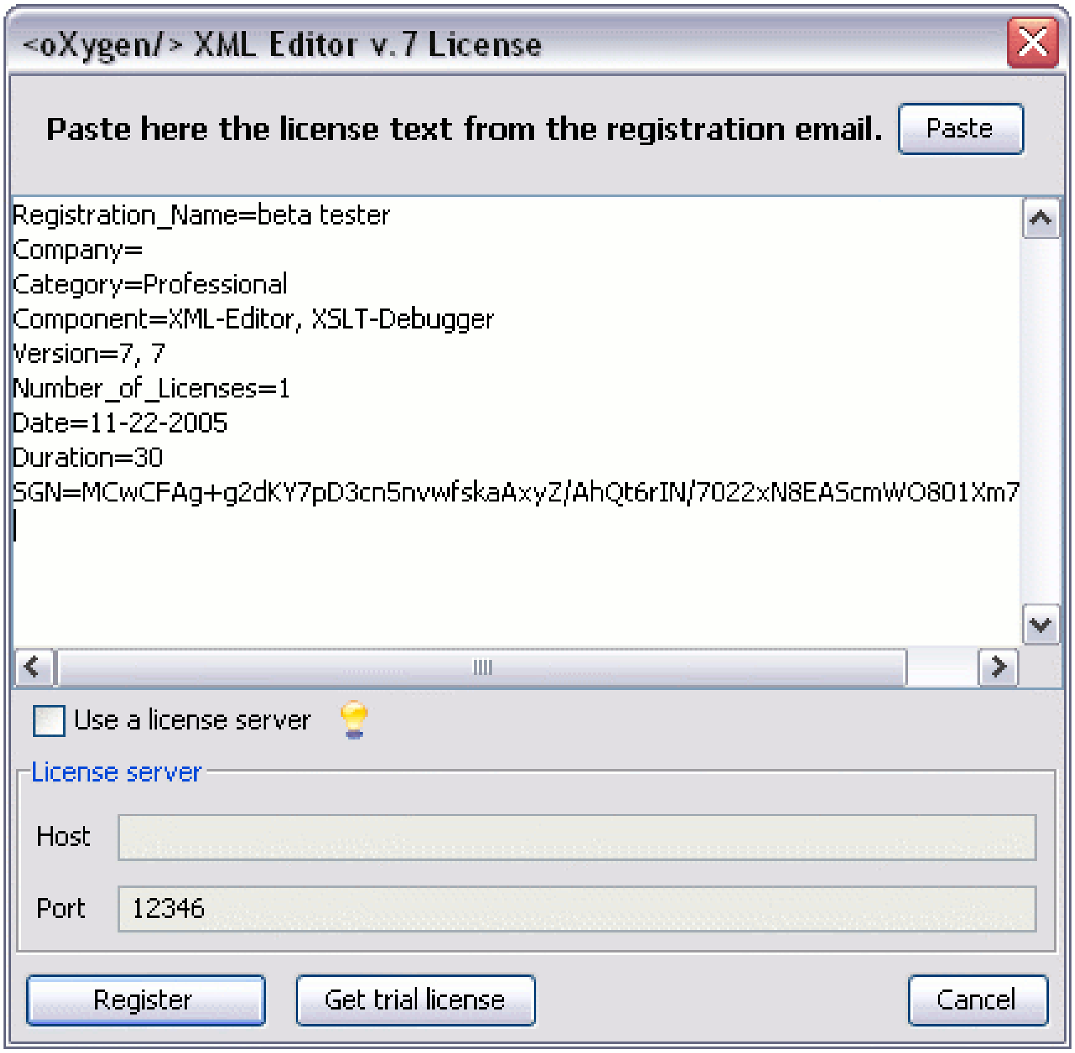
1. Save a backup copy of the message containing the new license key.

2. Start the <oXygen/> application.

3. Copy to the clipboard the license text as explained in the message.

4. If there is a new install of the editor then it will display automatically the registration dialog when it is started. In the case you already used the editor and obtained a new license, use the menu option Help/Register to make the registration dialog appear.

Figure 2.1. Registration Dialog


<oXygen/> XML Editor v.7 License
Paste here the license text from the registration email.
Paste
License server
Register
Get trial license
Cancel

```
Registration_Name=beta tester
Company=
Category=Professional
Component=XML-Editor, XSLT-Debugger
Version=7, 7
Number_of_Licenses=1
Date=11-22-2005
Duration=30
SGN=MCwCFAg+g2dKY7pD3cn5nvwfskaAxyZ/AhQt6rIN/7022xN8EA5cmWO801Xm7
```

□ Use a license server

Host

Port 12346

5. Paste the license text in the registration dialog, and press Register.

You have the following alternative for the procedure of license install:

1. Save the license key in a file named `licensekey.txt.`
2. Copy the file in the application folder. In that way the license will not be asked when <oXygen/> will start.
3. Start the <oXygen/> application.

How floating (concurrent) licenses work

If all the floating licenses are used in the same local network the installation procedure of floating licenses is the same as for the Named User licenses. Within the same network the license management is done by communication between the instances of <oXygen/> that are connected to the same local network and that run at the same time. Any new instance of <oXygen/> that is started after the number of running instances is equal with the number of purchased licenses will display a warning message and will disable the open file action.

If the floating licenses are used on machines connected to different local networks a separate license server must be started and the licenses deployed on it. Contact the <oXygen/> Support Team at `<support@oxygenxml.com>` to request the license server kit.

Procedure 2.10. Floating license server setup

1. Contact the <oXygen/> Support Team at `<support@oxygenxml.com>` to request the license server kit.

2. Unzip the zip archive containing the license server in a folder on your server machine. After that if you want to install the license server as a Windows service go to the special section which describes that.

3. You have to configure the server to look into a license directory (by default is [Server License Install Directory]/licenses) and use a certain TCP/IP port for communication (by default port 12346 is used). The license directory will contain the license files to be managed. A license file must begin with "license" and it has to have the extension "txt". It is the job of the license server to sum up the total number of licenses contained in the license files from the licenses directory.

   To change the default configuration of the license server the following parameters have to be used:

   - **-licenseDir** followed by the path of the directory where the license files will be placed;

   - **-port** followed by the port number used to communicate with <oXygen/> instances.

After the floating license server is set up the <oXygen/> application can be started and configured to request a license from it:

Procedure 2.11. Request a floating license from the license server

1. Start <oXygen/>.

2. Click *Help* -> *Register...*. The license dialog is displayed.

3. Check the *Use a license server* checkbox.

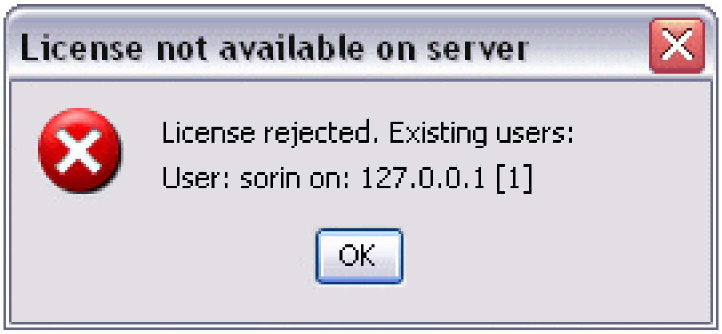
4. Fill-in the *Host* text field with the host name or IP address of the license server.

5. Fill-in the *Port* text field with the port number used for communicating with the license server. Default is 12346.

6. Click the *Register* button. If the maximum number of available licenses was not exceeded a license key is received from the floating license server and registered in <oXygen/>. If the maximum num-

ber of licenses was exceeded a warning dialog will pop up letting the user know about the problem.

Figure 2.2. Floating license number exceeded



License not available on server

License rejected. Existing users:
User: sorin on: 127.0.0.1 [1]

The error message contains information about the users who requested and successfully received the floating licenses.

How to install the <oXygen/> license server as a Windows service

In order to install the <oXygen/> license server as a Windows service run the following commands from the command line in the install folder of the license server:

```
installWindowsService.bat
startWindowsService.bat
stopWindowsService.bat
uninstallWindowsService.bat
```

The installService.bat script installs the <oXygen/> license server as a Windows service with the name "oXygenLicenseServer" and accepts two parameters: the path of the folder containing the floating license key files and the local port number on which the server accepts connections from instances of the <oXygen/> XML Editor. The parameters are optional. The default values are:

licenses	for the license file folder
12555	for the local port number

The JAVA_HOME variable must point to the home folder of a Java runtime environment installed on your Windows system.

The startService.bat script starts the Windows service so that the license server can accept connections from <oXygen/> clients.

The stopService.bat script stops the Windows service. The license server is shut down and it cannot accept connections from <oXygen/> clients.

The uninstallService.bat script uninstalls the Windows service created by the installService.bat script.

The license server creates two log files in the directory where the license server is installed:

outLicenseServer.log	the standard output stream of the server
errLicenseServer.log	the standard error stream of the server

The license server should be installed in a folder which does not contain blank spaces in the path name. Otherwise the install script fails.

How to release a floating license

The floating license key registered for the current <oXygen/> instance will be released automatically when the <oXygen/> instance is closed. If you do not have Internet access to connect to the floating license server and you own also an individual license which you want to use in this case instead of the floating license, you have to open the license registration dialog again by going to Help -> Register, uncheck the *Use a license server* checkbox, press the *Paste* button to paste the individual license and press OK to switch from the floating license to the pasted individual license.

Upgrading <oXygen/>

From time to time, upgrade and patch versions of <oXygen/> are released to provide enhancements that rectify problems, improve functionality and the general efficiency of the application.

This section explains the procedure for upgrading <oXygen/> while preserving any personal configuration settings and customizations.

Unless otherwise stated by instructions supplied with a patch or upgrade kit, the following procedure is recommended:

Procedure 2.12. Upgrade Procedure

1. Create a new folder under `/../oxygen` e.g. `/../oxygen/7.2`

2. Download and extract the upgrade to the new folder.

3. If you have defined <oXygen/> in the system PATH, modify it to the new installation folder.

4. Start <oXygen/> to ensure that the application can start and that your license is recognized by the upgrade installation.

5. If you are upgrading to a major version, for example from 6.2 to 7.0, then you will need to enter the new license text into the registration dialog that is shown when the <oXygen/> plugin is activated.

6. Select Help → About to determine the version number. If the previous version was 6.2, the About dialog should now show <oXygen/> XML Editor 7.0.

Checking for new versions

<oXygen/> offers the option of checking for new versions at the oxygenxml.com site when the application is started. If this option is enabled a message dialog will notify the user when new versions are released.

You can check for new versions manually at any time by going to menu Options → Check for New Versions

Uninstalling <oXygen/>

Caution

The following procedure will remove <oXygen/> from your system. It will not remove the JRE. If you wish to uninstall JRE please see the instructions provided with the Java product. *Please ensure that all valuable data is saved to another location prior to performing this procedure.*

Procedure 2.13. Uninstall Procedure

1. Backup all valuable data from the <oXygen/> installation folder.
2. On Windows use the appropriate uninstall provided with your OS. Make sure that Options/Integrate into Explorer shell feature is not active.

   On Mac OS X and Unix manually delete the installation folder and all its contents.
3. If you wish to completely remove the application directory and any work saved in it, you will have to delete this directory manually. To remove the application configuration and any personal customizations remove the `Application Data\com.oxygenxml` directory on Windows / `.com.oxygenxml` on Linux / `Library/Preferences/com.oxygenxml` from the user home directory.

Performance problems

Large documents

By default the maximum memory available to <oXygen/> is set to 180 MB. If <oXygen/> is used on large documents (more than 10 MB) and you see that performance slows down considerably after some time then a possible cause is that it needs more memory in order to run properly. You can increase the maximum amount of memory available to <oXygen/> by modifying a parameter in a configuration file specific to the platform that runs the application as specified below.

Warning

The maximum amount of memory should not be equal to the physical amount of memory available on the machine because in that case the operating system and other applications will have no memory available.

Note

The amount of memory allocated for the FOP operations is controlled by a different setting available in <oXygen/> Preferences: Memory available to the built-in FOP.

On the Windows platform the total amount of memory is specified by the value of the *-Xmx* parameter on the line *Virtual Machine Parameters* in the file `oxygen7.2.ini` found in the installation directory. The default value of the *-Xmx* parameter has the form:

```
-Xmx40:32:700P
```

That means <oXygen/> takes 40% of the system memory space but the size of the memory space allocated to <oXygen/> will not be less that 32 MB or more than 700 MB. To increase the maximum space for <oXygen/> one must increase the first value, for example from 40 to 60 and also the third value, for example from 700 to 1000.

On the Mac OS X platform to change the total amount of memory you have to right-click on the <oXygen/> application icon, in the pop-up menu select *Show Package Contents*, then in the *Contents* directory you edit the file *Info.plist*: in the key *VMOptions* modify the *-Xmx* parameter. The number specified in the parameter represents the number of megabytes allocated to <oXygen/>.

On the Linux platform the total amount of memory is specified by the value of the *-Xmx* parameter in the Java command line which starts the Java virtual machine at the end of the file *oxygen7.2* located in the <oXygen/> install directory.

If you use the *All platforms* distribution you can modify the total amount of memory by modifying the *Xmx* parameter of the java command line in the file `oxygen.bat` on Windows, `oxygenMac.sh` on Mac OS X and `oxygen.sh` on Linux. This file is located in the <oXygen/> installation directory.

When installed on a multi-user environment such as Windows Terminal Server or Unix/Linux, to each instance of <oXygen/> will be allocated the amount stipulated in the memory value. To avoid depreciating the general performance of the host system, please ensure that the amount of memory available is optimally apportioned for each of the expected instances.

Example 2.1. Example of java command line in startup script (Windows)

```
java -Xmx256m -cp %CP% ro.sync.exml.Oxygen $1 $2 $3 $4 $5 $6 $7 $8 $9
```

Modifying the value from 256 to 512 changes the memory available from 256 to 512.

Display problems on Linux/Solaris

Display problems like screen freeze or momentary menu pop-ups during mouse movements over screen on Linux or Solaris can be solved by specifying the parameter

```
-Dsun.java2d.pmoffscreen=false
```

for the Java virtual machine. This parameter disables off-screen pixmap support and must be added to the Java command line which starts the Java virtual machine at the end of the file *oxygen7.2* located in the <oXygen/> install directory.

Chapter 3. Getting started

Supported types of documents

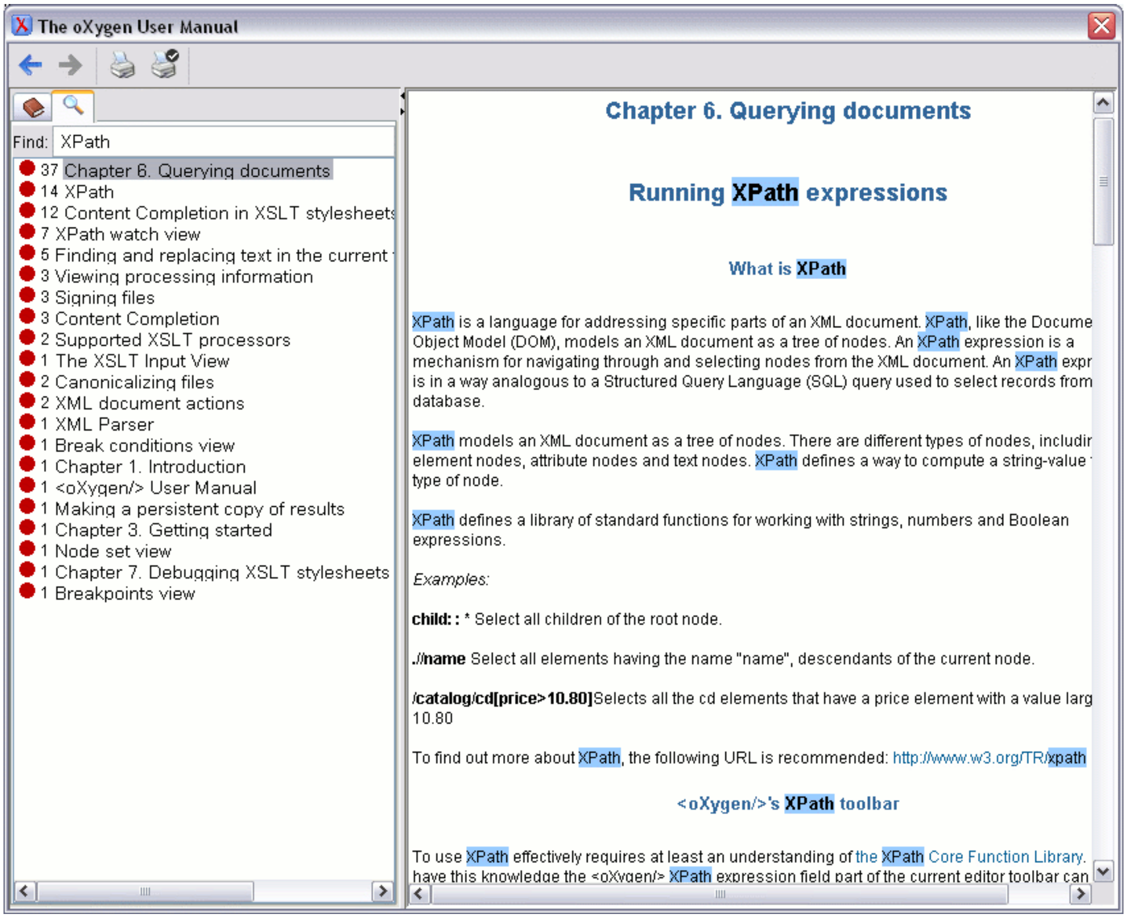
The <oXygen/> XML Editor provides a rich set of features for working with:

- XML documents and applications
- XSL stylesheets - transformations and debugging
- Schema languages: XML Schema, Relax NG (full and compact syntax), NRL, Schematron, DTD
- Querying documents using XPath and XQuery
- Analyzing, composing and testing WSDL SOAP messages

Getting help

Online help is available at any time while working in <oXygen/> by going to menu Help → Help ... which opens the Help dialog.

Figure 3.1. The <oXygen/> Help dialog



Find: XPath

- 37 Chapter 6. Querying documents
- 14 XPath
- 12 Content Completion in XSLT stylesheets
- 7 XPath watch view
- 5 Finding and replacing text in the current
- 3 Viewing processing information
- 3 Signing files
- 3 Content Completion
- 2 Supported XSLT processors
- 1 The XSLT Input View
- 2 Canonicalizing files
- 2 XML document actions
- 1 XML Parser
- 1 Break conditions view
- 1 Chapter 1. Introduction
- 1 <oXygen/> User Manual
- 1 Making a persistent copy of results
- 1 Chapter 3. Getting started
- 1 Node set view
- 1 Chapter 7. Debugging XSLT stylesheets
- 1 Breakpoints view

Chapter 6. Querying documents

Running XPath expressions

What is XPath

XPath is a language for addressing specific parts of an XML document. XPath, like the Docume Object Model (DOM), models an XML document as a tree of nodes. An XPath expression is a mechanism for navigating through and selecting nodes from the XML document. An XPath expr is in a way analogous to a Structured Query Language (SQL) query used to select records from database.

XPath models an XML document as a tree of nodes. There are different types of nodes, includir element nodes, attribute nodes and text nodes. XPath defines a way to compute a string-value type of node.

XPath defines a library of standard functions for working with strings, numbers and Boolean expressions.

Examples:

child:: * Select all children of the root node.

.//name Select all elements having the name "name", descendants of the current node.

/catalog/cd[price>10.80]Selects all the cd elements that have a price element with a value larg 10.80

To find out more about XPath, the following URL is recommended: http://www.w3.org/TR/xpath

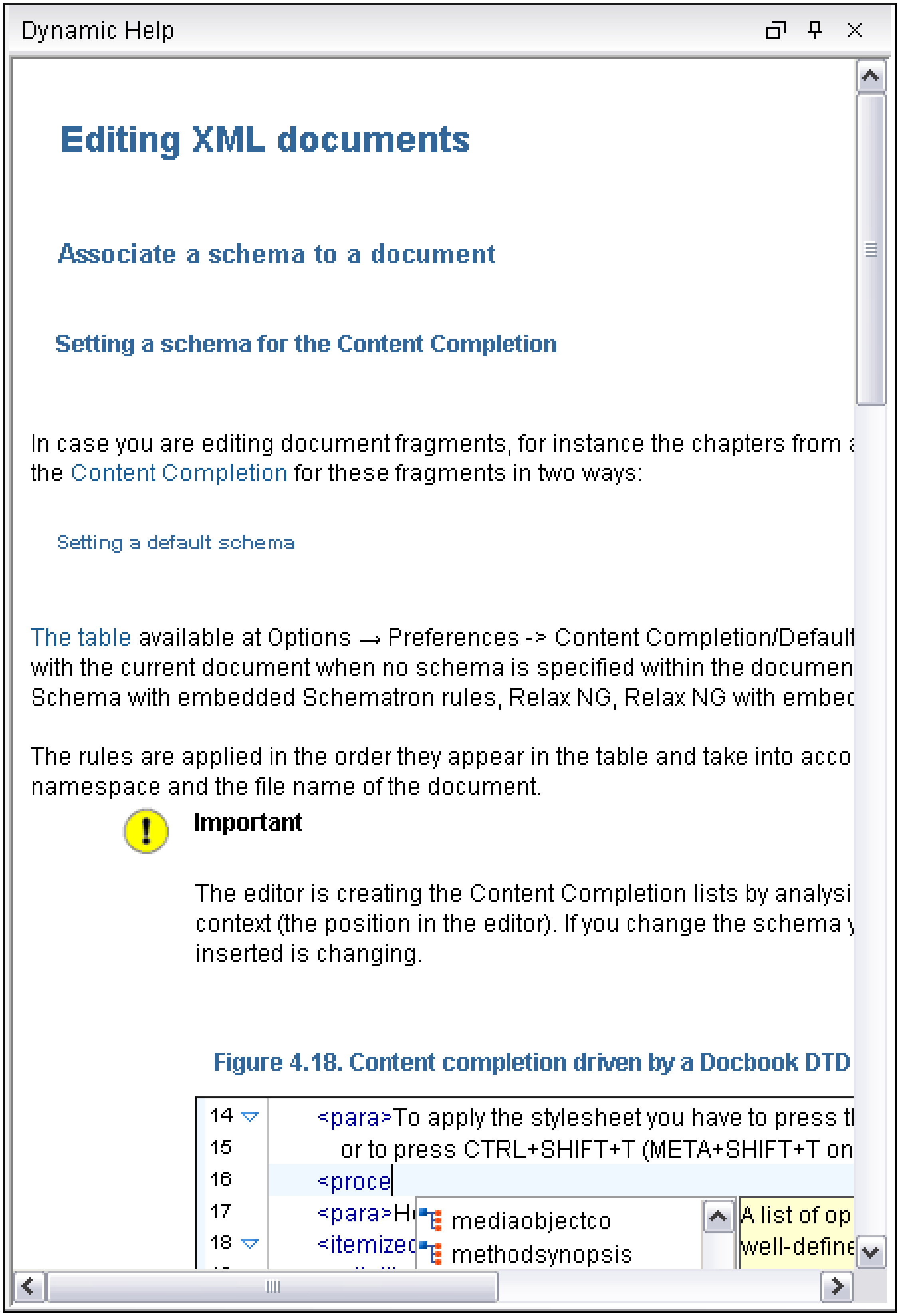
<oXygen/>'s XPath toolbar

To use XPath effectively requires at least an understanding of the XPath Core Function Library. have this knowledge the <oXygen/> XPath expression field part of the current editor toolbar can

Context sensitive help is available from any dialog or view by pressing the F1 key which opens the same Help dialog directly on a relevant page for the current view or dialog which has the editing focus.

The Help dialog is modal so it does not allow other editing actions in the <oXygen/> editors, views and dialogs. The same help content is available in the view Perspective → Show View → Dynamic Help which all allows editing actions when it is visible on screen and which switches automatically to the relevant help page for the focused editor, view or dialog..

Figure 3.2. The Dynamic Help view



Editing XML documents

Associate a schema to a document

Setting a schema for the Content Completion

In case you are editing document fragments, for instance the chapters from a
the Content Completion for these fragments in two ways:

Setting a default schema

The table available at Options → Preferences -> Content Completion/Default
with the current document when no schema is specified within the documen
Schema with embedded Schematron rules, Relax NG, Relax NG with embec

The rules are applied in the order they appear in the table and take into acco
namespace and the file name of the document.

Important

The editor is creating the Content Completion lists by analysi
context (the position in the editor). If you change the schema y
inserted is changing.

Figure 4.18. Content completion driven by a Docbook DTD

```
<para>To apply the stylesheet you have to press tl
   or to press CTRL+SHIFT+T (META+SHIFT+T on
<proce
<para>H
<itemizec
```

The name and version of the third-party libraries and frameworks used by <oXygen/> are listed in the About dialog box: Help → About ... Also you can see here the values of system properties like the version of the Java virtual machine, the location of the user home directory, the Java classpath, etc.

Perspectives

The <oXygen/> interface uses standard interface conventions and components to provide a familiar and intuitive editing environment across all operating systems.

In <oXygen/> you can work with documents in one of the perspectives:

Editor perspective — Editing of documents is supported by specialized and synchronized editors and views.

XSLT Debugger perspective — XSLT stylesheets can be debugged by tracing their execution step by step.

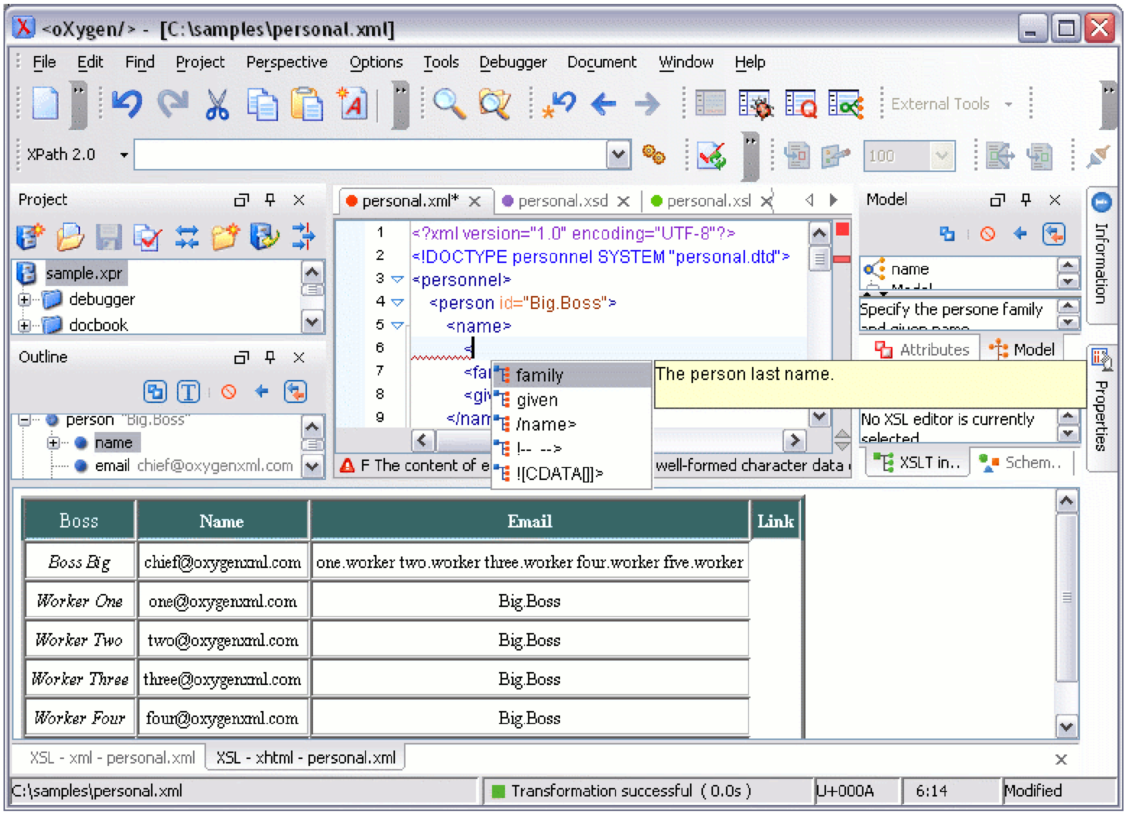
XQuery Debugger perspective — XQuery transforms can be debugged by tracing their execution step by step.

Tree Editor perspective — An XML document is viewed and edited as a tree of XML elements.

Editor perspective

The Editor perspective is used for editing the content of your documents. The space is organized in:

Figure 3.3. Editor perspective



```
1  <?xml version="1.0" encoding="UTF-8"?>
2  <!DOCTYPE personnel SYSTEM "personal.dtd">
3  <personnel>
4    <person id="Big.Boss">
5      <name>
6        <
7          <fa
8          <gi
9      </nam
```

The person last name.

Specify the persone family and given name

No XSL editor is currently selected

F The content of e... well-formed character data

Boss	Name	Email	Link
Boss Big	chief@oxygenxml.com	one.worker two.worker three.worker four.worker five.worker	
Worker One	one@oxygenxml.com	Big.Boss	
Worker Two	two@oxygenxml.com	Big.Boss	
Worker Three	three@oxygenxml.com	Big.Boss	
Worker Four	four@oxygenxml.com	Big.Boss	

C:\samples\personal.xml | Transformation successful (0.0s) | U+000A | 6:14 | Modified

When two or more panels are displayed, <oXygen/> provides divider bars. By selecting a divider bar, it can be dragged to a new position, therefore increasing the space occupied by one panel while decreasing it for the other.

As majority of the work process centers around the Editor panel, other panels can be hidden from view using the expand and collapse controls located on the divider bars.

This perspective organizes the workspace in the following panels:

Main menu
: Provides menu driven access to all the features and functions available within <oXygen/>.

Main toolbar
: Provides easy access to common and frequently used functions. Each icon is a button that acts as a shortcut to a related function.

Editor panel
: The place where you spend most of your time, reading, editing, applying markup and checking the validity and form of your documents.

Outliner view
: Provides the following functions: XML document overview, modification follow-up, document structure change, document tag selection.

Model view panel
: Presents the structure of the current edited tag and additional tag documentation.

Results panel
: Displays result messages returned from user operations. The following actions are available:

- Hierarchical view - that allows you to see the results in tree-like manner. Clicking on a tree leaf highlights the corresponding line in the document.

- Flat view ☰ - that will present the errors in a table-like manner. Clicking on a table row highlights the corresponding line in the document.
- Remove selected ✖ - removes the currently selected message from the list.
- Remove all ✖ - clears the message list.

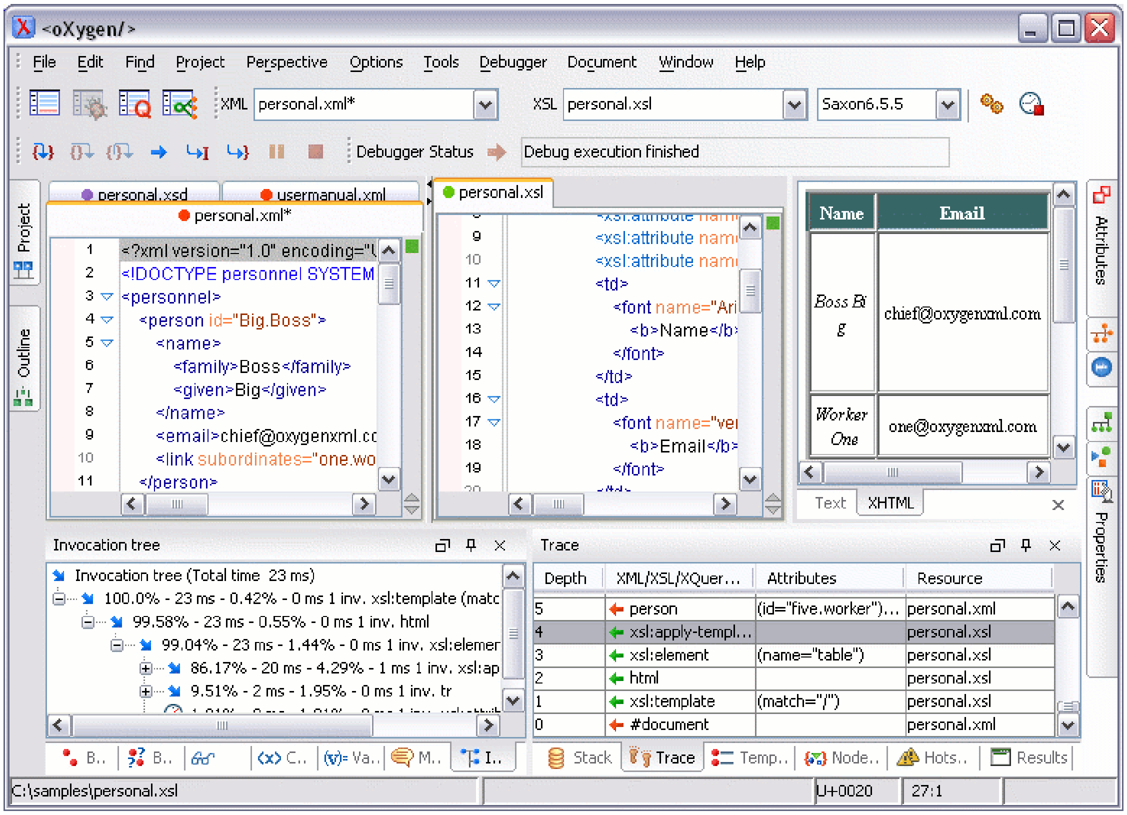
Navigation to the previous and next message is easy with the shortcuts **Ctrl + [** and **Ctrl +]**

Project view — Enables the definition of projects and logical management of the documents it contains.

XSLT Debugger Perspective

The XSLT Debugger perspective is used for detecting problems in an XSLT transformation process by executing the process step by step in a controlled environment and inspecting the information provided in different special views. The workspace is organized in:

Figure 3.4. XSLT Debugger perspective



XML: personal.xml*

XSL: personal.xsl

Saxon6.5.5

Debugger Status: Debug execution finished

```
<?xml version="1.0" encoding="l
<!DOCTYPE personnel SYSTEM
<personnel>
  <person id="Big.Boss">
    <name>
      <family>Boss</family>
      <given>Big</given>
    </name>
    <email>chief@oxygenxml.cc
    <link subordinates="one.wo
  </person>
```

```
        <xsl:attribute nam
        <xsl:attribute nam
        <td>
          <font name="Ari
            <b>Name</b>
          </font>
        </td>
        <td>
          <font name="ve
            <b>Email</b>
          </font>
```

Name	Email
Boss Bi g	chief@oxygenxml.com
Worker One	one@oxygenxml.com

```
Invocation tree (Total time  23 ms)
  100.0% - 23 ms - 0.42% - 0 ms 1 inv. xsl:template (matc
    99.58% - 23 ms - 0.55% - 0 ms 1 inv. html
      99.04% - 23 ms - 1.44% - 0 ms 1 inv. xsl:elemer
        86.17% - 20 ms - 4.29% - 1 ms 1 inv. xsl:ap
        9.51% - 2 ms - 1.95% - 0 ms 1 inv. tr
```

Depth	XML/XSL/XQuer...	Attributes	Resource
5	person	(id="five.worker")...	personal.xml
4	xsl:apply-templ...		personal.xsl
3	xsl:element	(name="table")	personal.xsl
2	html		personal.xsl
1	xsl:template	(match="/")	personal.xsl
0	#document		personal.xml

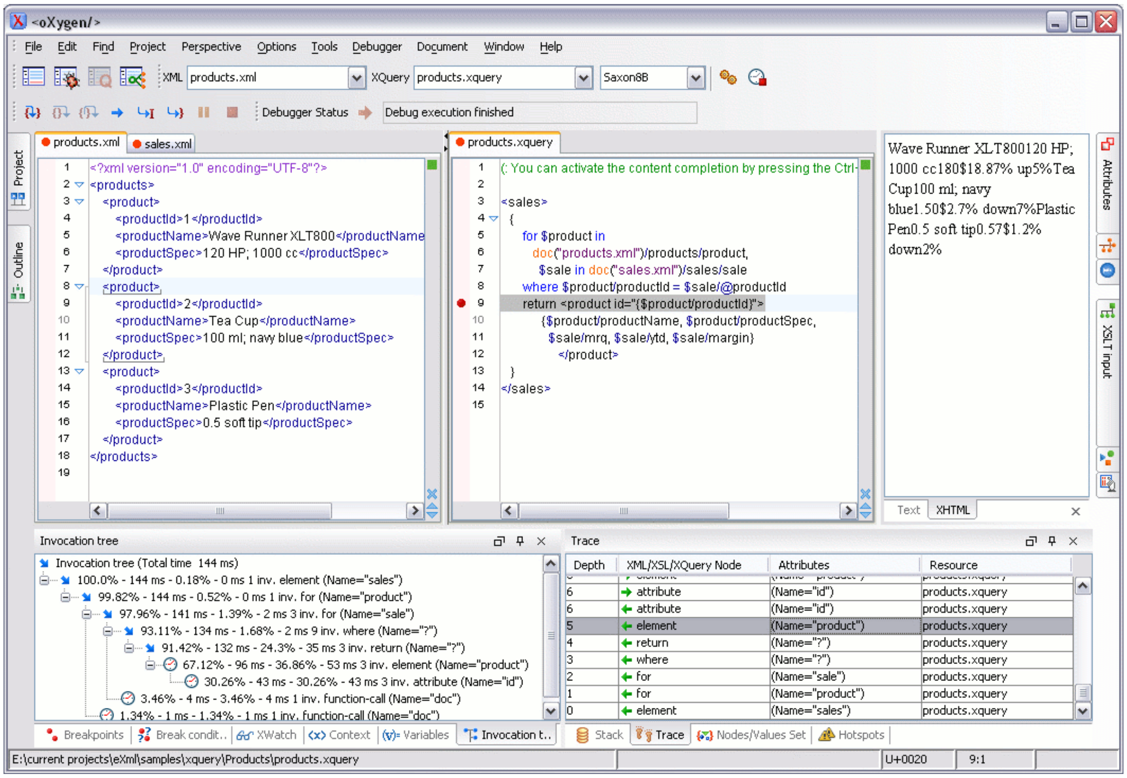
C:\samples\personal.xsl | U+0020 | 27:1

- Source document view - Displays and allows editing of data or document oriented XML files (documents).
- Stylesheet document view - Displays and allows editing of XSL files(stylesheets).
- Output document view - Displays the transformed output that results from the input of a selected document (XML) and selected stylesheet (XSL) to the transformer. The result of transformation is dynamically written as the transformation is processed. There are three types of views for the output: a text view (with XML syntax highlight), an XHTML view and one text view for each xsl:result-document element used in the stylesheet (if it is a XSLT 2.0 stylesheet).
- Control toolbar - Contains all actions needed in order to configure and control the debug process.
- Information views - Distributed in two panes that are used to display various types of information that can be used to understand the transformation process. For each information type there is a corresponding tab. While running a transformation, relevant events are displayed in the various information views. This enables the developer to obtain a clear view of the transformation progress.

XQuery Debugger Perspective

The XQuery Debugger perspective is similar to the XSLT Debugger perspective. It is used for detecting problems in an XQuery transformation process by executing the process step by step in a controlled environment and inspecting the information provided in different special views. The workspace is organized in:

Figure 3.5. XQuery Debugger perspective



XML products.xml XQuery products.xquery Saxon8B

Debugger Status Debug execution finished

```
<?xml version="1.0" encoding="UTF-8"?>
<products>
  <product>
    <productId>1</productId>
    <productName>Wave Runner XLT800</productName
    <productSpec>120 HP; 1000 cc</productSpec>
  </product>
  <product>
    <productId>2</productId>
    <productName>Tea Cup</productName>
    <productSpec>100 ml; navy blue</productSpec>
  </product>
  <product>
    <productId>3</productId>
    <productName>Plastic Pen</productName>
    <productSpec>0.5 soft tip</productSpec>
  </product>
</products>
```

```
(: You can activate the content completion by pressing the Ctrl-

<sales>
 {
    for $product in
      doc("products.xml")/products/product,
       $sale in doc("sales.xml")/sales/sale
    where $product/productId = $sale/@productId
    return <product id="{$product/productId}">
         {$product/productName, $product/productSpec,
          $sale/mrq, $sale/ytd, $sale/margin}
            </product>
 }
</sales>
```

```
Wave Runner XLT800120 HP;
1000 cc180$18.87% up5%Tea
Cup100 ml; navy
blue1.50$2.7% down7%Plastic
Pen0.5 soft tip0.57$1.2%
down2%
```

```
Invocation tree (Total time  144 ms)
100.0% - 144 ms - 0.18% - 0 ms 1 inv. element (Name="sales")
  99.82% - 144 ms - 0.52% - 0 ms 1 inv. for (Name="product")
    97.96% - 141 ms - 1.39% - 2 ms 3 inv. for (Name="sale")
      93.11% - 134 ms - 1.68% - 2 ms 9 inv. where (Name="?")
        91.42% - 132 ms - 24.3% - 35 ms 3 inv. return (Name="?")
          67.12% - 96 ms - 36.86% - 53 ms 3 inv. element (Name="product")
            30.26% - 43 ms - 30.26% - 43 ms 3 inv. attribute (Name="id")
      3.46% - 4 ms - 3.46% - 4 ms 1 inv. function-call (Name="doc")
    1.34% - 1 ms - 1.34% - 1 ms 1 inv. function-call (Name="doc")
```

Depth	XML/XSL/XQuery Node	Attributes	Resource
6	→ attribute	(Name="id")	products.xquery
6	← attribute	(Name="id")	products.xquery
5	← element	(Name="product")	products.xquery
4	← return	(Name="?")	products.xquery
3	← where	(Name="?")	products.xquery
2	← for	(Name="sale")	products.xquery
1	← for	(Name="product")	products.xquery
0	← element	(Name="sales")	products.xquery

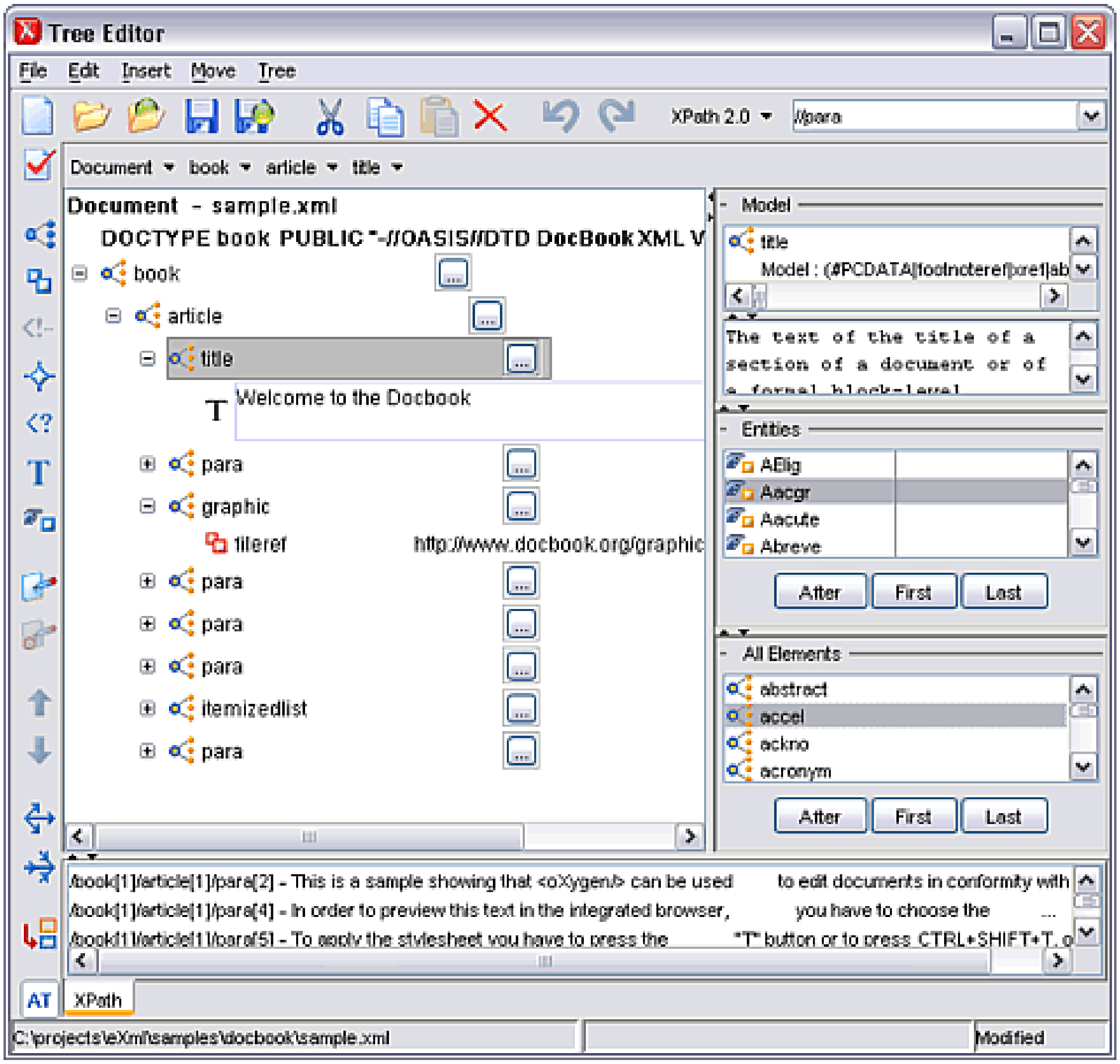
E:\current projects\eXml\samples\xquery\Products\products.xquery U+0020 9:1

- Source document view - Displays and allows editing of data or document oriented XML files (documents).
- XQuery document view - Displays and allows editing of XQuery files.
- Output document view - Displays the transformed output that results from the input of a selected document (XML) and selected XQuery document to the XQuery transformer. The result of transformation is dynamically written as the transformation is processed. There are two types of views for the output: a text view (with XML syntax highlight) and an XHTML view.
- Control toolbar - Contains all actions needed in order to configure and control the debug process.
- Information views - Distributed in two panes that are used to display various types of information that can be used to understand the transformation process. For each information type there is a corresponding tab. While running a transformation, relevant events are displayed in the various information views. This enables the developer to obtain a clear view of the transformation progress.

Tree Editor perspective

The Tree Editor perspective is used for editing the content of a document viewed as a XML tree. The workspace is organized in:

Figure 3.6. Tree Editor perspective



The text of the title of a section of a document or of a formal block-level

/book[1]/article[1]/para[2] - This is a sample showing that <oXygen/> can be used to edit documents in conformity with

/book[1]/article[1]/para[4] - In order to preview this text in the integrated browser, you have to choose the ...

/book[1]/article[1]/para[5] - To apply the stylesheet you have to press the "T" button or to press CTRL+SHIFT+T, o

- Main menu - provides menu driven access to all the features and functions available in <oXygen/> Tree Editor perspective.
- Toolbar - provides easy access to common and frequently used functions. Each icon is a button that acts as a shortcut to a related function.
- Editor panel - easy editing of structured mark-up documents. Each token has associated an icon for a easy visual identification of the tokens.
- Message panel - display messages returned from user operations.
- Model panel - show the detailed information about the attribute or element that you are working on.
- Entities panel - present a list of defined entities that you can insert within your document.
- All Elements panel - present a list of all defined elements that you can insert within your document.

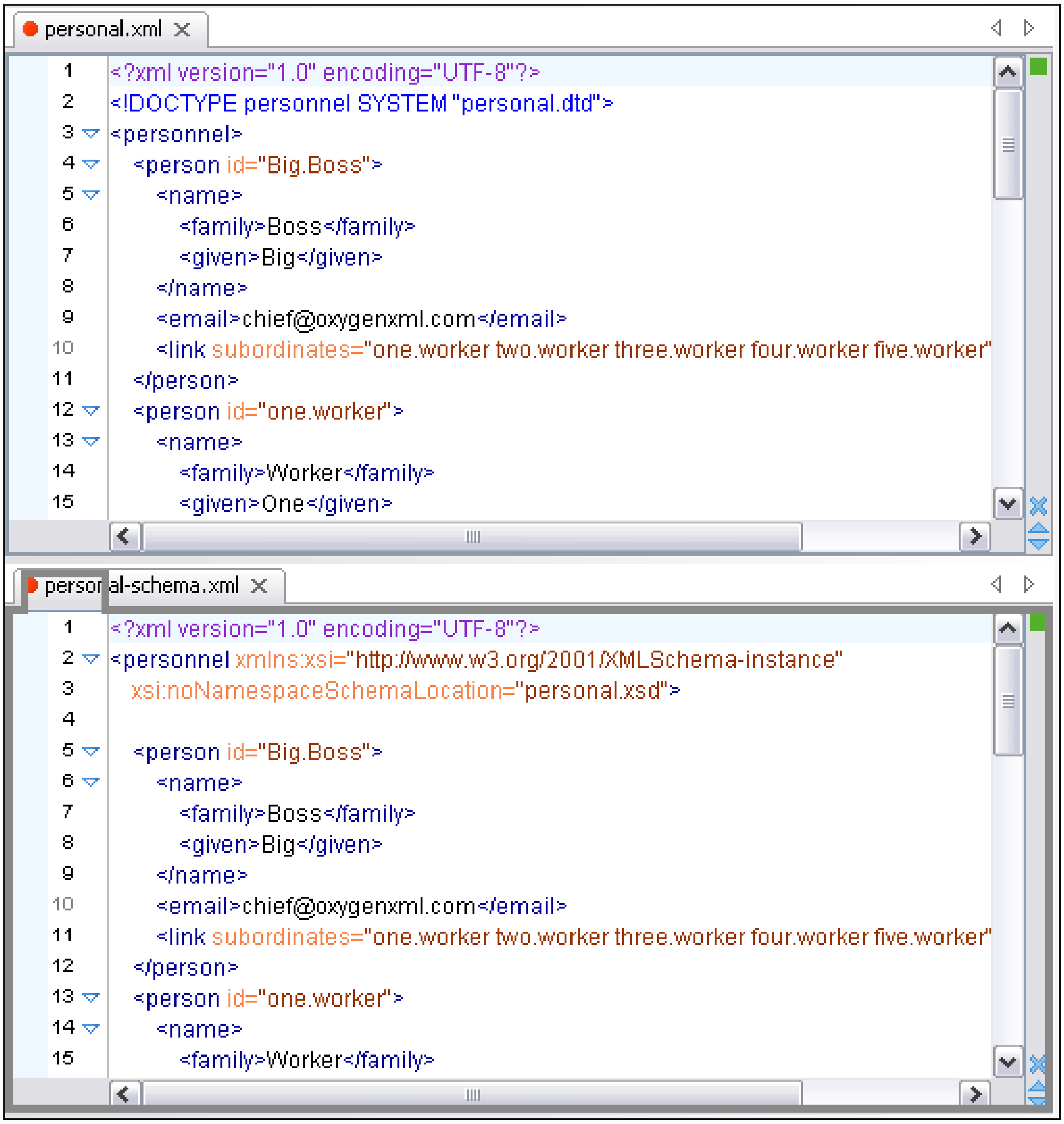
Dockable views and editors

All the <oXygen/> views available in the Editor Perspective, XSLT Debugger Perspective and XQuery Debugger Perspective are dockable. You can drag them to any margin of another view or editor inside the <oXygen/> window to form any desired layout. Also a view can be set to a floating state to enable it to hover over other views and editors.

For gaining more editing space in the <oXygen/> window you should set one or more views to the auto-hideable state: only the title will remain always visible, attached to one of the margins of the <oXygen/> window, the rest of the view will be restored only by the mouse pointer hovering over the title or clicking the title. The view will become hidden again when the mouse pointer goes out of the screen area covered by that view.

The editing area can be divided vertically in several editing panels by dragging the title of an editor inside the editing area and dropping it when the frame of the dragged editor is painted in the desired position. In the attached figure you can see how to unsplit the editing area by dragging the title of the `personal.xml` editor panel over personal-schema.xml until the drop frame painted in dark grey covers all the `personal-schema.xml` editor panel and then dropping it.

Figure 3.7. Split the editing area by drag and drop of the editor title



```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE personnel SYSTEM "personal.dtd">
<personnel>
  <person id="Big.Boss">
    <name>
      <family>Boss</family>
      <given>Big</given>
    </name>
    <email>chief@oxygenxml.com</email>
    <link subordinates="one.worker two.worker three.worker four.worker five.worker"
  </person>
  <person id="one.worker">
    <name>
      <family>Worker</family>
      <given>One</given>
```

```
<?xml version="1.0" encoding="UTF-8"?>
<personnel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="personal.xsd">

  <person id="Big.Boss">
    <name>
      <family>Boss</family>
      <given>Big</given>
    </name>
    <email>chief@oxygenxml.com</email>
    <link subordinates="one.worker two.worker three.worker four.worker five.worker"
  </person>
  <person id="one.worker">
    <name>
      <family>Worker</family>
```

Also the editing area can be divided vertically and horizontally with the split / unsplit actions available on the Split toolbar and the Document → Split menu: Split horizontally, Split vertically, Unsplit.

The default layout of any of the Editor Perspective, XSLT Debugger Perspective and XQuery Debugger Perspective can be restored at any time with the action *Restore Layout* of the *Perspective* menu.

Any <oXygen/> view or toolbar can be opened at any time from the menu items available in the menus Perspective → Show View and Perspective → Show Toolbar

Chapter 4. Editing documents

Working with Unicode

Unicode provides a unique number for every character, no matter what the platform, no matter what the program, no matter what the language. Unicode is an internationally recognized standard, adopted by industry leaders. The Unicode is required by modern standards such as XML, Java, ECMAScript (JavaScript), LDAP, CORBA 3.0, WML, etc., and is the official way to implement ISO/IEC 10646.

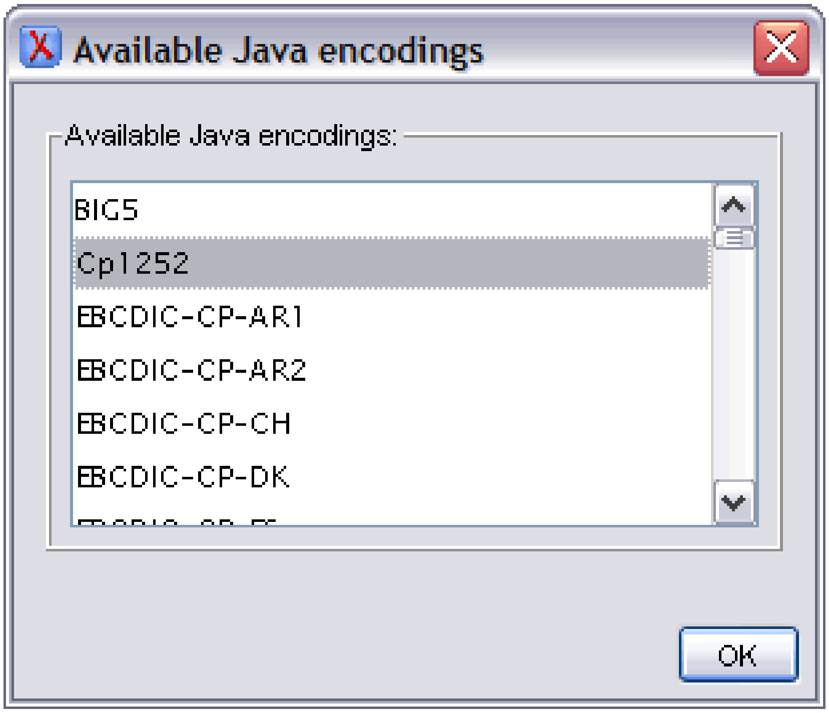
It is supported in many operating systems, all modern browsers, and many other products. The emergence of the Unicode Standard, and the availability of tools supporting it, are among the most significant recent global software technology trends. Incorporating Unicode into client-server or multi-tiered applications and websites offers significant cost savings over the use of legacy character sets.

As a modern XML Editor, <oXygen/> provides support for the Unicode standard enabling your XML application to be targeted across multiple platforms, languages and countries without re-engineering. Internally, the <oXygen/> XML Editor uses 16bit characters covering the Unicode Character set.

Opening and saving Unicode documents

On loading documents of the type XML, XSL, XSD and DTD, <oXygen/> reads the document prolog to determine the specified encoding type. This is then used to instruct the Java Encoder to load support for and save using the code chart specified. In the event that the encoding type cannot be determined, <oXygen/> will prompt and display the Available Java Encodings dialog. This dialog provides a list of all encodings supported by the Java platform.

Figure 4.1. Available Java encodings dialog



Available Java encodings

Available Java encodings:

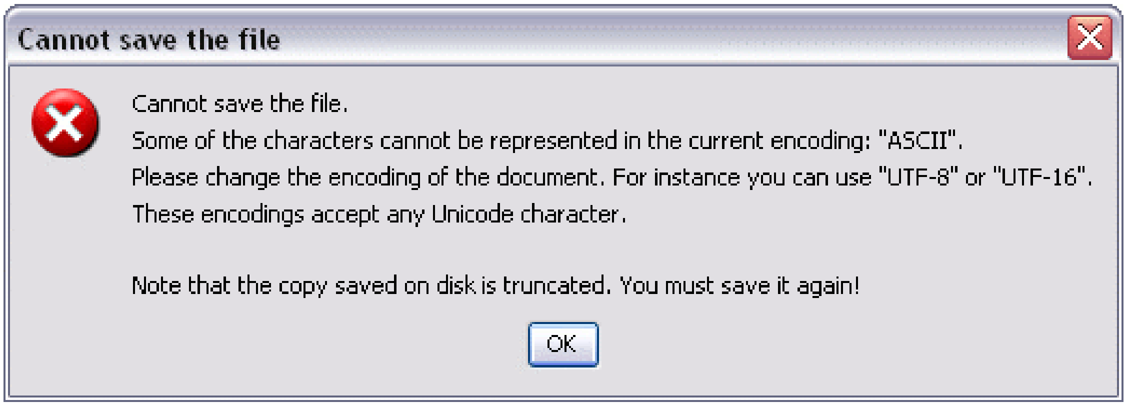
BIG5
Cp1252
EBCDIC-CP-AR1
EBCDIC-CP-AR2
EBCDIC-CP-CH
EBCDIC-CP-DK

If the opened document contains a character which cannot be represented with the encoding detected from the document prolog or selected from the Available Java Encodings dialog <oXygen/> applies the policy specified for handling such errors. If the policy is set to REPORT <oXygen/> displays an error dialog about the character not allowed by the encoding. If the policy is set to IGNORE the character is removed from the document displayed in the editor panel. If the policy is set to REPLACE the character will be replaced with a standard replacement character for that encoding.

While in most cases you will use UTF-8, simply changing the encoding name will cause the file to be saved using the new encoding. The appendix Unicode Character Encoding provides a matrix that matches common names with Java Names. It also explains what you should type in the XML prolog to cause the document to be saved as the required encoding.

On saving the edited document if it contains characters not included in the encoding declared in the document prolog <oXygen/> will detect the problem and will signal it to the user who is required to resolve the conflict before he is able to save the document.

Figure 4.2. Save with wrong encoding error



Cannot save the file

Cannot save the file.
Some of the characters cannot be represented in the current encoding: "ASCII".
Please change the encoding of the document. For instance you can use "UTF-8" or "UTF-16".
These encodings accept any Unicode character.

Note that the copy saved on disk is truncated. You must save it again!

To edit document written in Japanese or Chinese, you will need to change the font to one that supports the specific characters (a Unicode font). For the Windows platform, use of *Arial Unicode MS* or *MS Gothic* is recommended. Do not expect Wordpad or Notepad to handle these encodings. Use Explorer or Word to eventually examine XML documents.

If an XML document which specifies the UTF-16 encoding in the prolog using the attribute *encoding="UTF-16"* is edited in <oXygen/> and saved on disk the byte order mark (BOM) which always begins such an XML document is created by the save operation according with the byte order accepted by the CPU of that computer. That means that a UTF-16 document created on a Windows + Intel computer, where the byte order mark is *UnicodeLittle* and loaded and saved in <oXygen/> running on a Mac OS computer, where the byte order mark is *UnicodeBig*, is saved with the *UnicodeBig* encoding.

Note

The naming convention used under Java does not always correspond to the common names used by the Unicode standard. For instance, while in XML you will use encoding="UTF-8", in Java the same encoding has the name "UTF8".

The Unicode toolbar

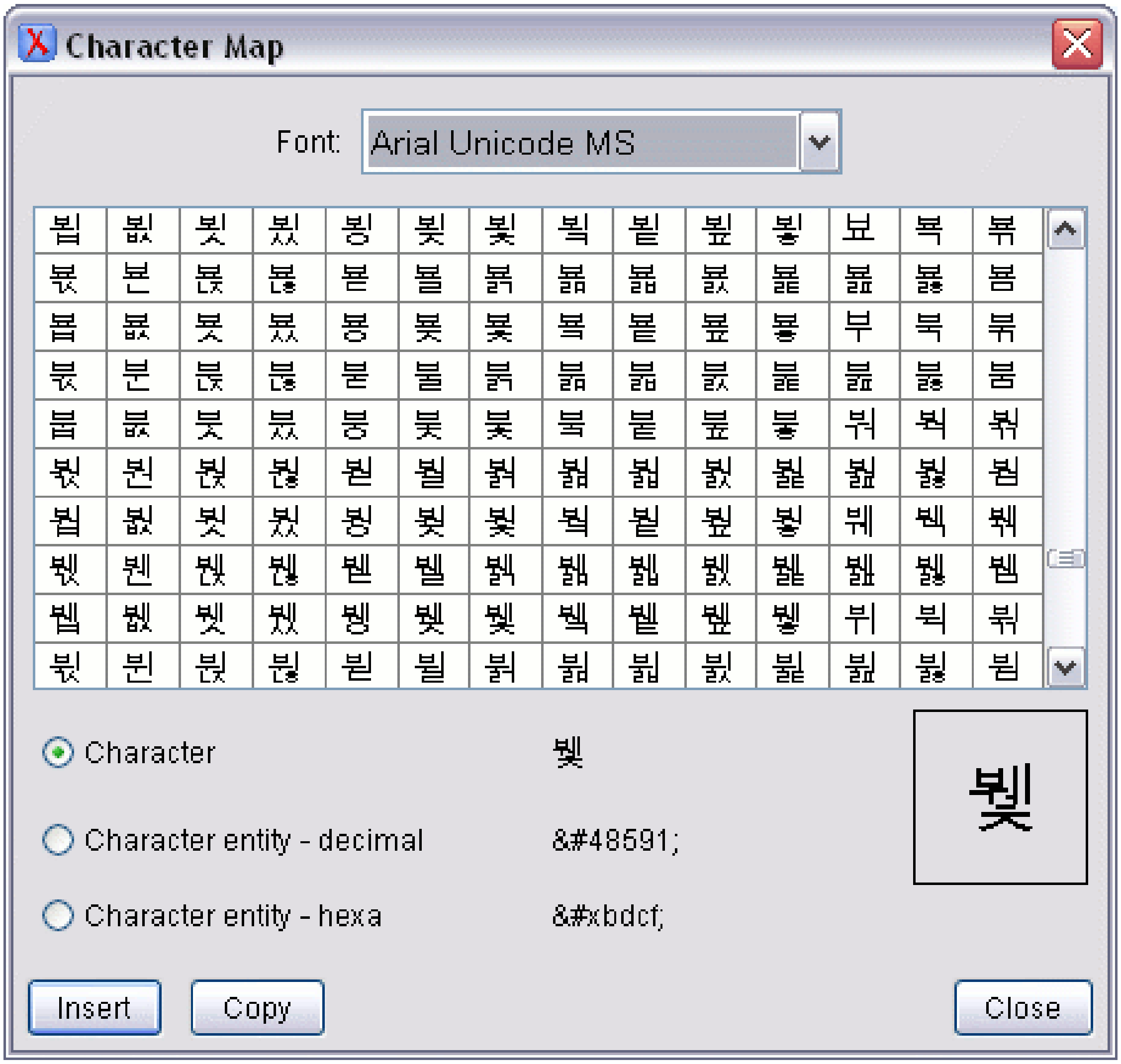
The display of the Unicode toolbar is switched on and off from Perspective → Show Toolbar → Uni-

Change text orientation with the default shortcut **Ctrl + Shift + O** and Insert from Character Map

The Change text orientation action enables editing documents in languages with right to left writing (Hebrew, Arabic, etc.) by moving the caret to the left when new characters are inserted in the document. Please note that you may have to set an appropriate Unicode aware font for the editor panel, able to render the characters of the language of the edited file.

The Insert from Character Map action opens a dialog in which you can select one character in the matrix of all characters available in a font and insert it in the edited document. The action is available also in the Tools menu.

Figure 4.3. The Character Map dialog



Font: Arial Unicode MS

뵙	뵚	뵛	뵜	뵝	뵞	뵟	뵠	뵡	뵢	뵣	뵤	뵥	뵦
뵧	뵨	뵩	뵪	뵫	뵬	뵭	뵮	뵯	뵰	뵱	뵲	뵳	뵴
뵵	뵶	뵷	뵸	뵹	뵺	뵻	뵼	뵽	뵾	뵿	부	북	붂
붃	분	붅	붆	붇	불	붉	붊	붋	붌	붍	붎	붏	붐
붑	붒	붓	붔	붕	붖	붗	붘	붙	붚	붛	붜	붝	붞
붟	붠	붡	붢	붣	붤	붥	붦	붧	붨	붩	붪	붫	붬
붭	붮	붯	붰	붱	붲	붳	붴	붵	붶	붷	붸	붹	붺
붻	붼	붽	붾	붿	뷀	뷁	뷂	뷃	뷄	뷅	뷆	뷇	뷈
뷉	뷊	뷋	뷌	뷍	뷎	뷏	뷐	뷑	뷒	뷓	뷔	뷕	뷖
뷗	뷘	뷙	뷚	뷛	뷜	뷝	뷞	뷟	뷠	뷡	뷢	뷣	뷤

● Character 뷏

○ Character entity - decimal &#48591;

○ Character entity - hexa &#xbdcf;

뷏

The character selected in the character table or an entity with the decimal code or the hexadecimal code of that character can be inserted in the current editor. You will see it in the editor if the font is able to render it. The *Insert* button inserts the selected character in the editor. The *Copy* button copies it to the clipboard without inserting it in the editor.

Opening and closing documents

As with most editing applications, <oXygen/> lets you open existing documents, save your changes and close them as required.

Creating new documents

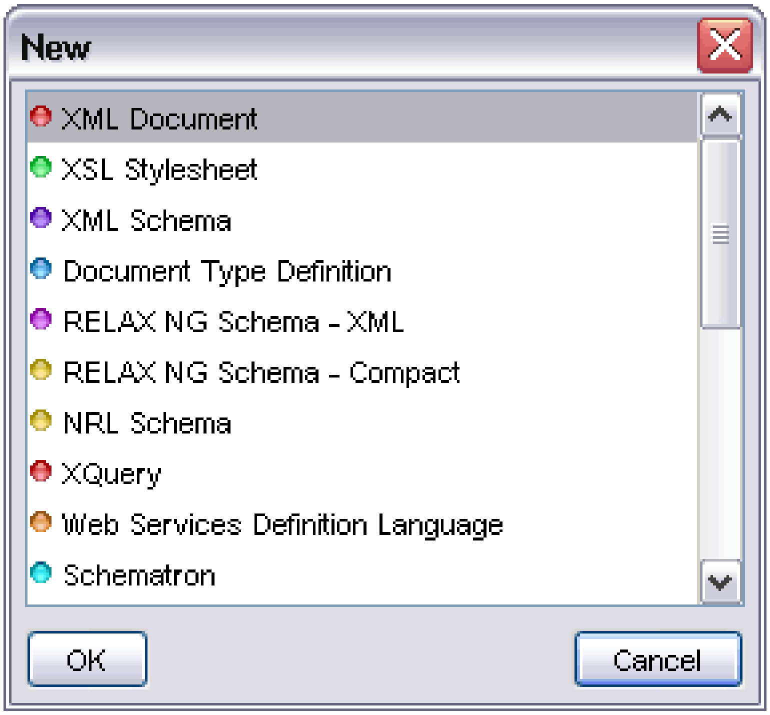
The New dialog

<oXygen/> supports a large number of document types. Use the following procedure to create documents.

Procedure 4.1. Creating new documents

1. Select File → New (**Ctrl+N**) or press the New toolbar button. The New dialog is displayed which contains the supported Document Types: XML, XSL, XML Schema, Document Type Definition, Relax NG Schema, XQuery, Web Services Definition Language, Schematron Schema, CSS File , Text File, Java File, JavaScript File, C File, C++ File, Batch File, Shell File, Properties File, SQL File, PHP File and PERL File.

   Figure 4.4. The New dialog

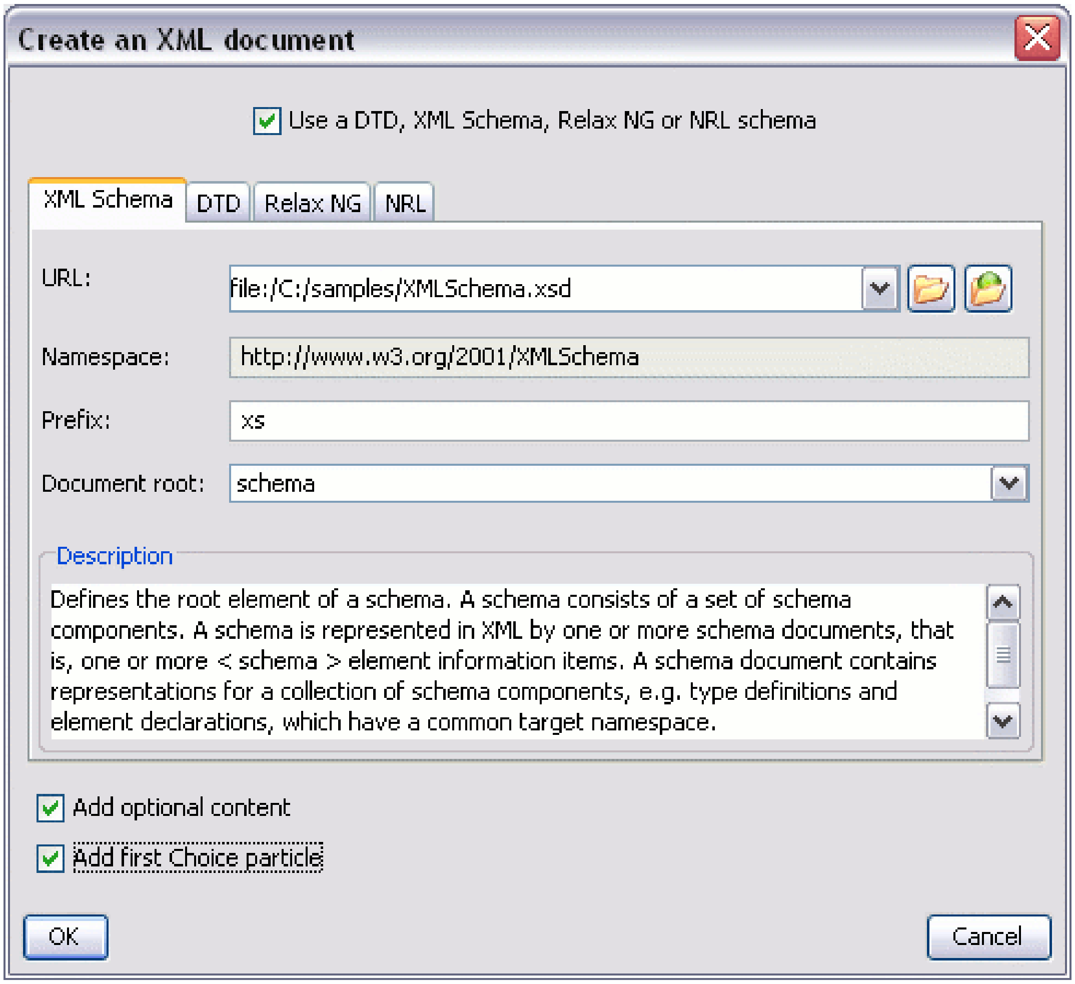
   

2. Select a document type, then click OK. If XML was selected the "Create an XML Document" dia-

log is displayed otherwise a new document is opened in the Editor Panel.

3. The Create an XML Document dialog enables definition of a XML Document Prolog using the system identifier of a XML Schema, DTD, Relax NG (full or compact syntax) schema or NRL (Namespace Routing Language) schema. As not all XML documents are required to have a Prolog, you may choose to skip this step by clicking OK. If the prolog is required complete the fields as the following.

Figure 4.5. The Create an XML Document Dialog - XML Schema Tab



☑ Use a DTD, XML Schema, Relax NG or NRL schema

URL: file:/C:/samples/XMLSchema.xsd

Namespace: http://www.w3.org/2001/XMLSchema

Prefix: xs

Document root: schema

Defines the root element of a schema. A schema consists of a set of schema components. A schema is represented in XML by one or more schema documents, that is, one or more < schema > element information items. A schema document contains representations for a collection of schema components, e.g. type definitions and element declarations, which have a common target namespace.

☑ Add optional content

☑ Add first Choice particle

Complete the dialog as follows:

Use a DTD, XML Schema, Relax NG or NRL schema
When checked enables selection between DTD, XML Schema, Relax NG schema or NRL schema.

URL
Specifies the location of an XML Schema Document (XSD).

Namespace
Specifies the document namespace.

Prefix
Specifies the prefix for the namespace of the document root.

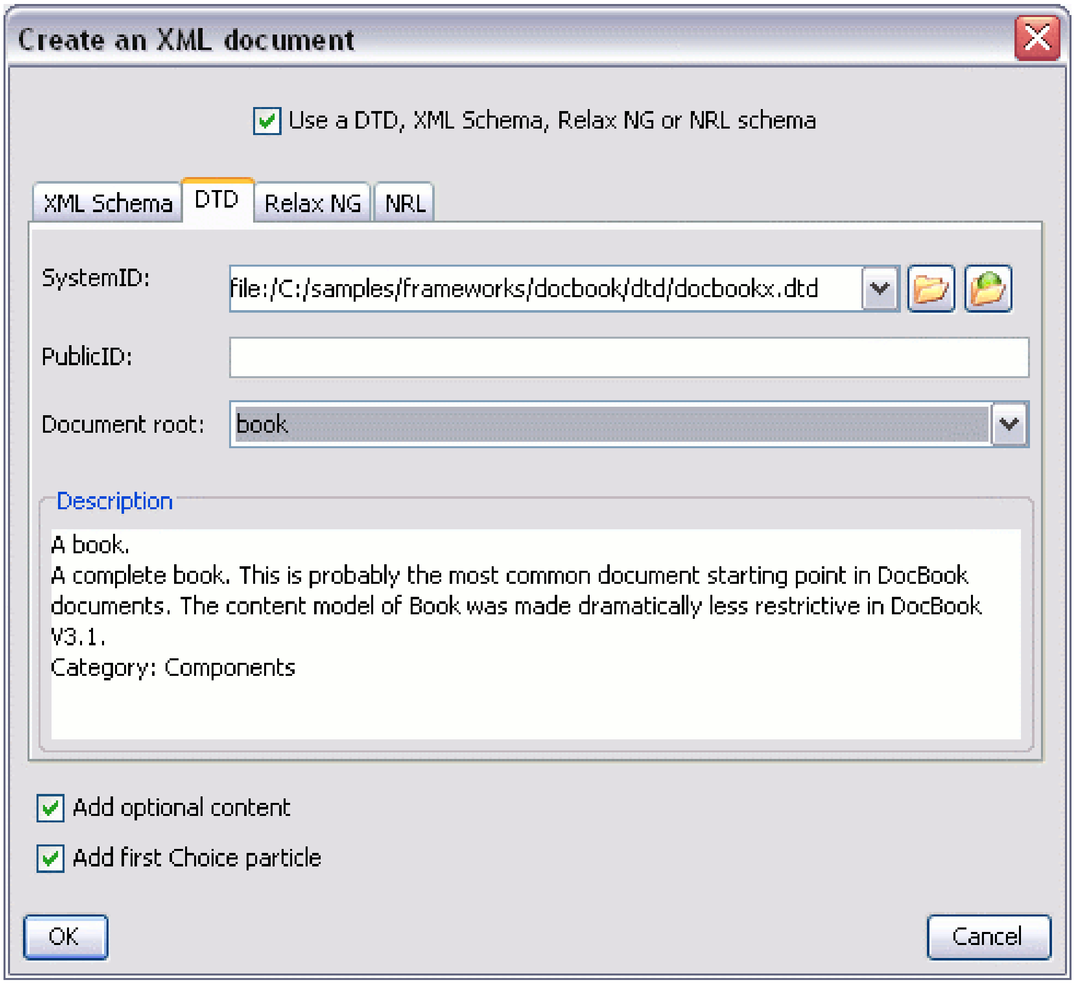
Document Root

Populated from the elements defined in the specified XSD, enables selection of the element to be used as document root.

Description

Shows a small definition for the currently selected element.

Figure 4.6. The Create an XML Document Dialog - DTD Tab



☑ Use a DTD, XML Schema, Relax NG or NRL schema

SystemID: file:/C:/samples/frameworks/docbook/dtd/docbookx.dtd

PublicID:

Document root: book

Description

A book.
A complete book. This is probably the most common document starting point in DocBook documents. The content model of Book was made dramatically less restrictive in DocBook V3.1.
Category: Components

☑ Add optional content

☑ Add first Choice particle

Complete the dialog as follows:

Use a DTD, XML Schema, Relax NG or NRL schema

When checked enables selection between DTD, XML Schema, Relax NG schema or NRL schema.

System ID

Specifies the location of a Document Type Definition (DTD).

Public ID

Specifies the PUBLIC identifier declared in the Prolog.

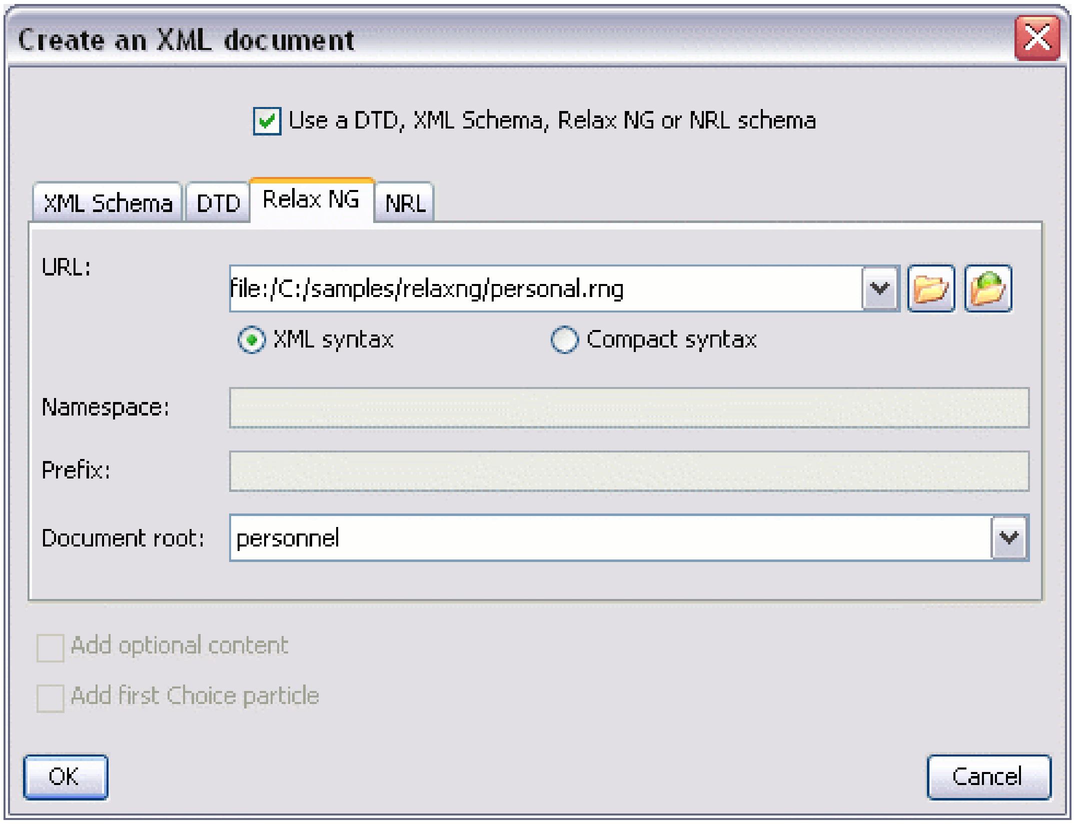
Document Root

Populated from the elements defined in the specified DTD, enables selection of the element to be used as document root.

Description

Shows a small definition for the currently selected element.

Figure 4.7. The Create an XML Document Dialog - Relax NG Tab



Create an XML document

☑ Use a DTD, XML Schema, Relax NG or NRL schema

URL: file:/C:/samples/relaxng/personal.rng

● XML syntax ○ Compact syntax

Namespace:

Prefix:

Document root: personnel

□ Add optional content

□ Add first Choice particle

Complete the dialog as follows:

Use a DTD, XML Schema, Relax NG or NRL schema

When checked enables selection between DTD, XML Schema, Relax NG schema or NRL schema.

URL

Specifies the location of a Relax NG schema in XML or compact syntax (RNG/RNC).

XML syntax

When checked the specified URL refers to a Relax NG schema in XML syntax. It will be checked automatically if the user selects a document with the *.rng* extension.

Compact syntax

When checked the specified URL refers to a Relax NG schema in compact syntax. It will be checked automatically if the user selects a document with the *.rnc* extension.

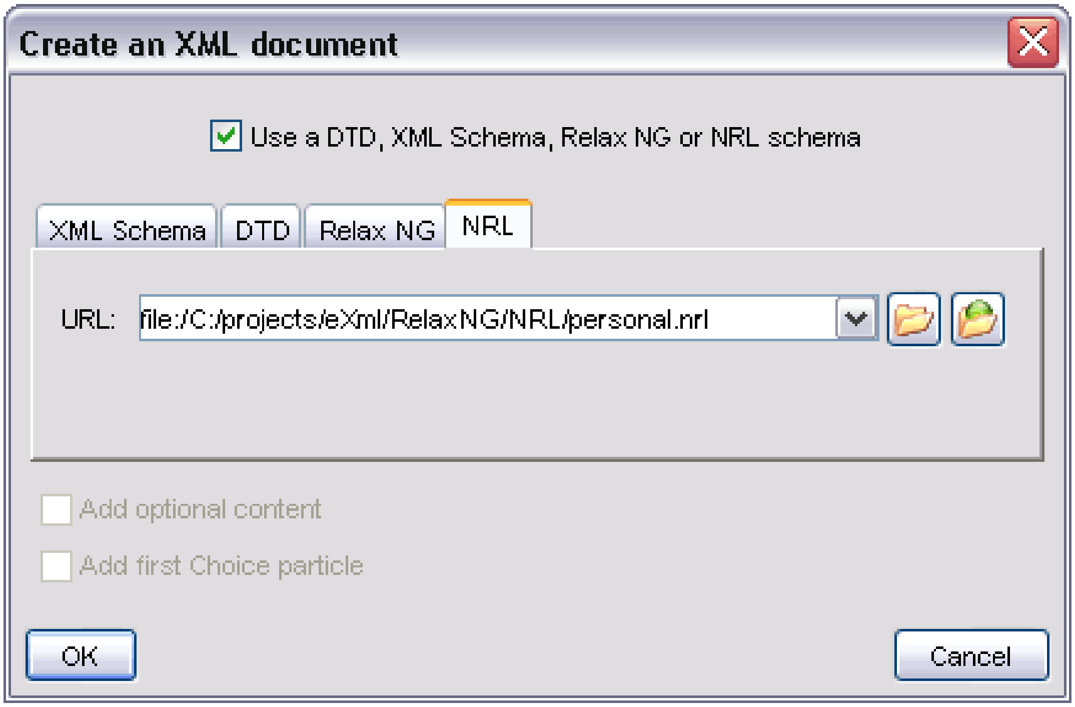
Namespace

Specifies the root element namespace.

Document Root

Populated from the elements defined in the specified RNG or RNC document, enables selection of the element to be used as document root.

Figure 4.8. The Create an XML Document Dialog - NRL Tab



Create an XML document

☑ Use a DTD, XML Schema, Relax NG or NRL schema

URL: file:/C:/projects/eXml/RelaxNG/NRL/personal.nrl

□ Add optional content

□ Add first Choice particle

Complete the dialog as follows:

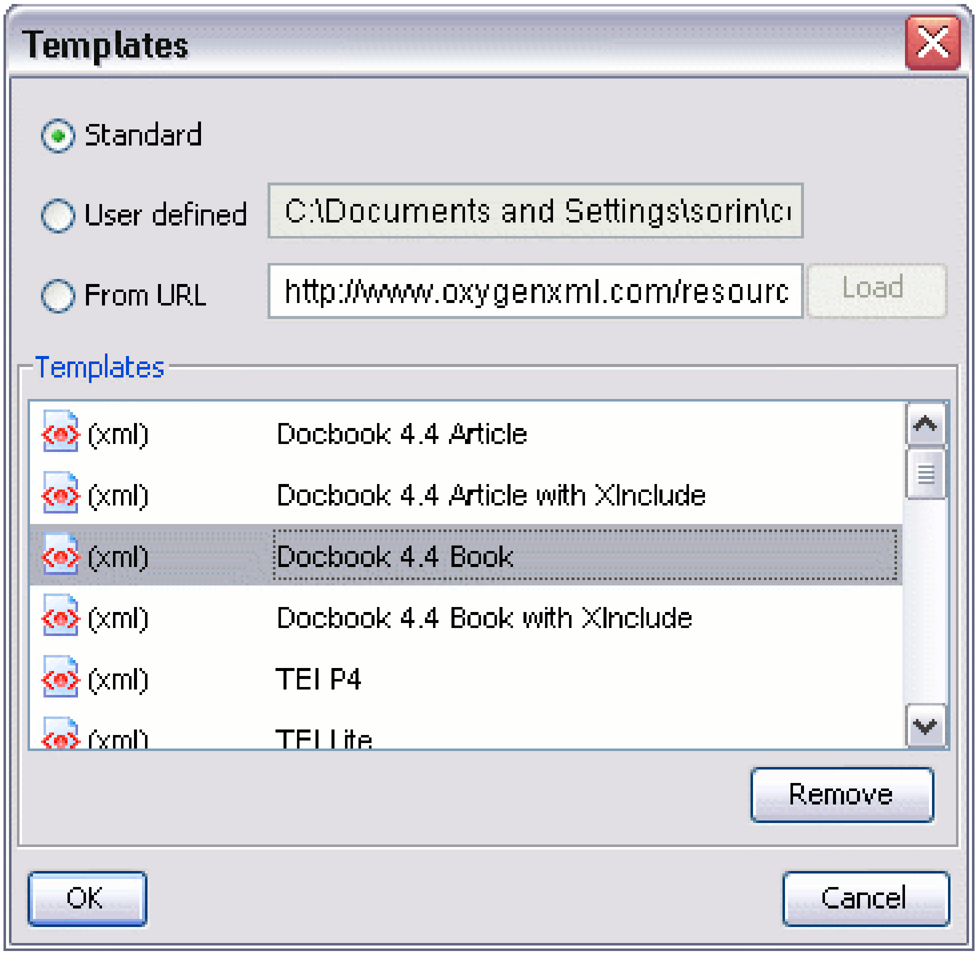
Use a DTD, XML Schema, Relax NG or NRL schema	When checked enables selection between DTD, XML Schema, Relax NG schema or NRL schema.
URL	Specifies the location of a NRL schema (NRL).

Creating Documents based on Templates

Templates are documents containing a predefined structure. They provide starting points on which one can rapidly build new documents that repeat the same basic characteristics. <oXygen/> installs a rich set of templates for a number of XML applications. You may also create your own templates and share them with other users.

The Templates dialog enables you to select predefined templates or templates that have already been created in previous sessions or by other users. Open a template using the following options:

Figure 4.9. The Templates dialog



● Standard

○ User defined C:\Documents and Settings\sorin\c

○ From URL http://www.oxygenxml.com/resourc

(xml)	Docbook 4.4 Article
(xml)	Docbook 4.4 Article with XInclude
(xml)	Docbook 4.4 Book
(xml)	Docbook 4.4 Book with XInclude
(xml)	TEI P4
(xml)	TEI Lite

Open a template using the following options:

Standard
Populates the Templates list to show templates supplied with the <oXygen/> installation package.

User defined
Populates the Templates list to show previous saved personal templates.

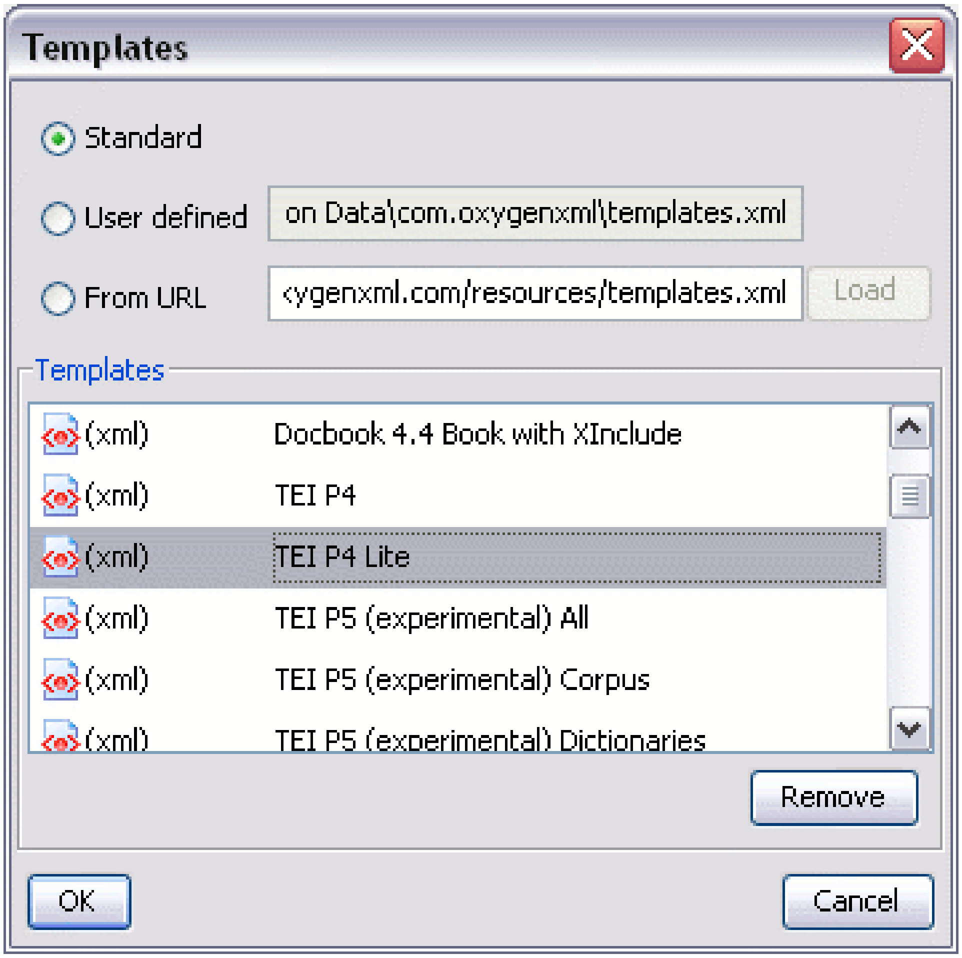
From URL
Enables definition of a URL location containing Templates.

Templates List
Displays the available templates for Standard, From File and From URL options.

Procedure 4.2. Creating Documents based on Standard Templates

1. Select File → New from Templates or press the New from templates toolbar button. The Templates dialog is displayed and is used to discover, select and open a new document based on an existing template document. Template documents act as starting points that have predefined properties such as file type, prolog, root element, containers and even existing content.

Figure 4.10. The Templates dialog



● Standard

○ User defined: on Data\com.oxygenxml\templates.xml

○ From URL: <ygenxml.com/resources/templates.xml

(xml)	Docbook 4.4 Book with XInclude
(xml)	TEI P4
(xml)	TEI P4 Lite
(xml)	TEI P5 (experimental) All
(xml)	TEI P5 (experimental) Corpus
(xml)	TEI P5 (experimental) Dictionaries

2. Select the Standard option from the Load Templates Group. The Templates list displays standard <oXygen/> templates.

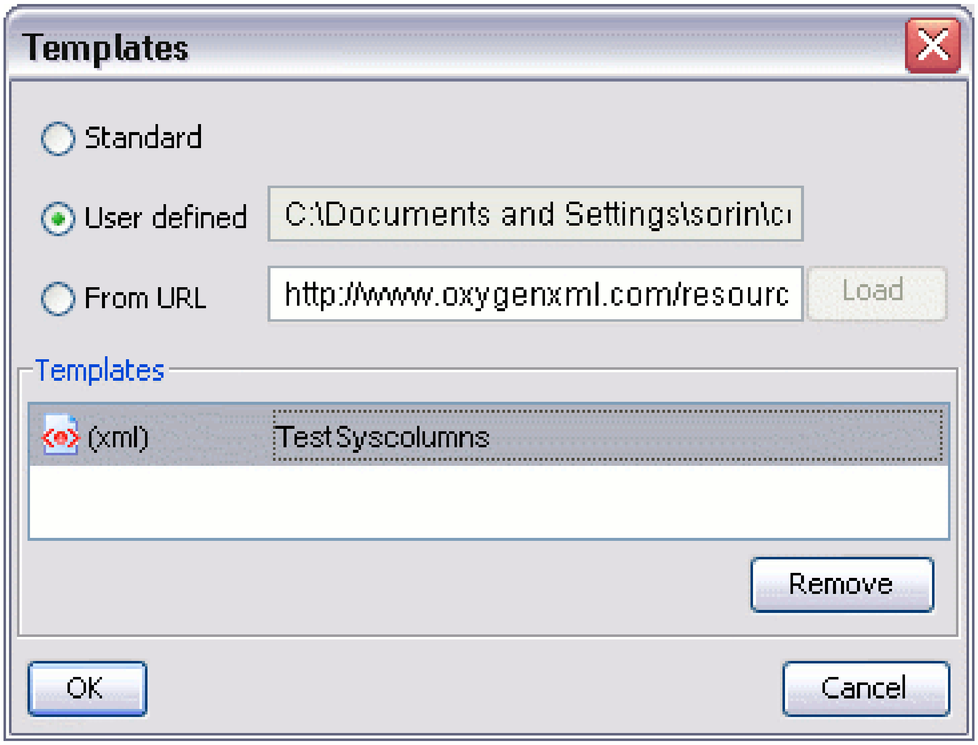
3. Scroll the Templates list and select the required Template Type.

4. Click OK. A new document is opened that already contains structure and content provided in the template starting point.

Procedure 4.3. Creating Documents based on Personal Template Files

1. Select File → New from Templates or press the New from templates toolbar button. The Templates dialog is displayed.

Figure 4.11. The Templates dialog



Templates

○ Standard

● User defined C:\Documents and Settings\sorin\c

○ From URL http://www.oxygenxml.com/resourc

Templates

(xml) Test Syscolumns

2. Select the User defined option from the Load Templates Group. The Templates list displays person templates.

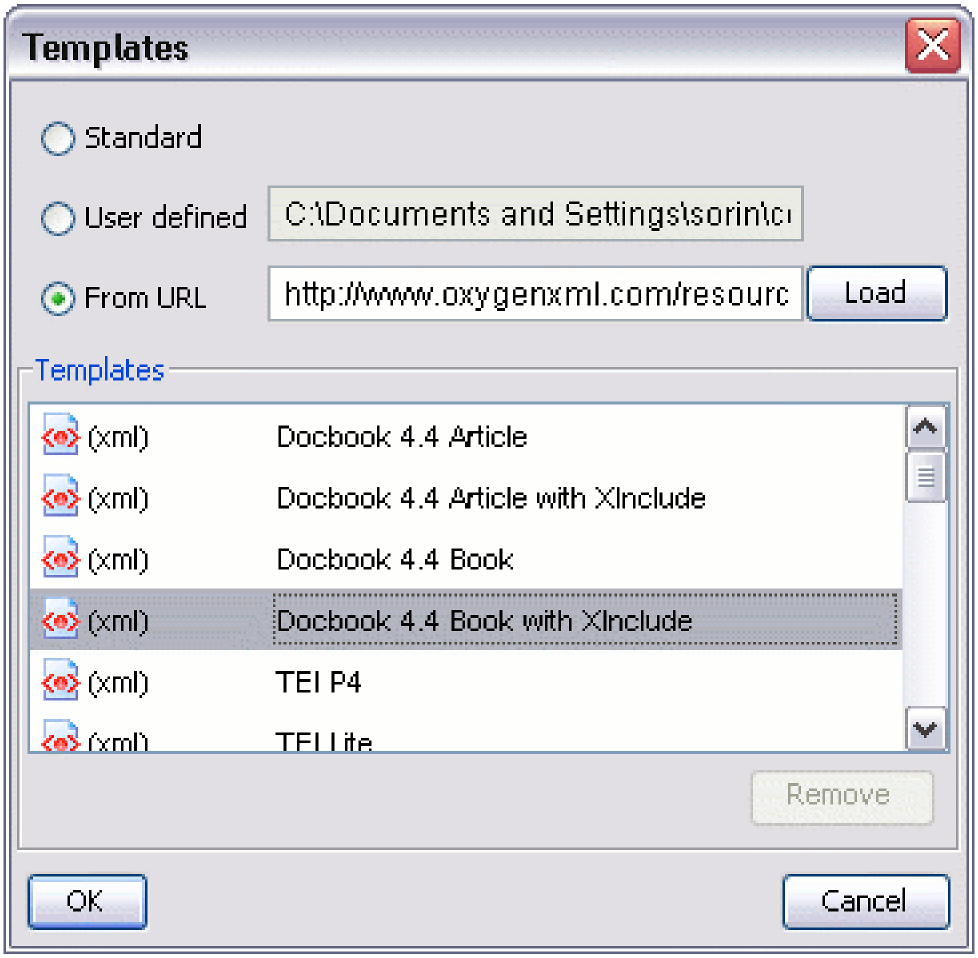
3. Scroll the Templates list and select the required Template Type.

4. Click OK. A new document is opened that already contains structure and content provided in the template starting point.

Procedure 4.4. Creating Documents based on URL Template Files

1. Select File → New from Templates or press the New from templates toolbar button. The Templates dialog is displayed.

Figure 4.12. The Templates dialog



○ Standard

○ User defined C:\Documents and Settings\sorin\c

● From URL http://www.oxygenxml.com/resourc

Templates

(xml)	Docbook 4.4 Article
(xml)	Docbook 4.4 Article with XInclude
(xml)	Docbook 4.4 Book
(xml)	Docbook 4.4 Book with XInclude
(xml)	TEI P4
(xml)	TEI Lite

2. Select the From URL option from the Load Templates Group. The From URL field is enabled.

3. Enter the URL location of the templates, then click Load. The list of templates is retrieved from the URL and displayed in the Templates list.

4. Scroll the Templates list and select the required Template Type.

5. Click OK. A new document is opened that already contains structure and content provided in the template starting point.

Saving documents

The edited document can be saved with one of the actions:

- File → Save (**Ctrl+S**) or press the Save toolbar button to save the current document. If the document does not have a file, displays the Save As dialog.
- File → Save As: Displays the Save As dialog, used to name and save an open document to a file; or save an existing file with a new name.

- File → Save To URL or press the Save To URL ... toolbar button to display the Save to URL dialog, used to name and save an open document to a file; or saves an existing file with a new name, using FTP/WebDAV.
- File → Save All: Saves all open documents. If any document does not have a file, displays the Save As dialog.

Opening existing documents

Documents can be opened using one of the actions:

- File → Open (**Ctrl+O**) or press the Open toolbar button to display the Open dialog used to discover, select and open one or more files.
- File → Open URL ... or press the Open URL ... toolbar button to display the Open URL dialog used to open a document using FTP/WebDAV.
- File → Revert: Loads the last saved file content. All unsaved modifications are lost.
- File → Reopen: Displays a list of recently opened document files. Select a file to open.
- Project view contextual menu → Open : Opens the selected file from the Project view.
- From the command line when the <oXygen/> application is launched. If <oXygen/> is launched from the command line with the startup script installed by the installation wizard you can specify local file names as optional parameters:
  - multiple XML files to be opened automatically at startup in separate editor panels:

    ```
    scriptName [pathToXMLFile1] [pathToXMLFile2] ...
    ```

    where *scriptName* is the name of the startup script for your platform (oxygen.bat on Windows, oxygen.sh on Unix/Linux, oxygenMac.sh on Mac OS) and *pathToXMLFileN* is the name of a local XML file
  - an XML file and a schema file to be associated automatically to the file and used for validation and content completion:

    ```
    scriptName -instance pathToXMLFile -schema pathToSchemaFile
          -schemaType XML_SCHEMA|DTD_SCHEMA|RNG_SCHEMA|RNC_SCHEMA
    ```

    where *scriptName* is the name of the startup script for your platform (oxygen.bat on Windows, oxygen.sh on Unix/Linux, oxygenMac.sh on Mac OS), pathToXMLFile is the name of a local XML file, pathToSchemaFile is the name of the schema which you want to associate to the XML file and the four constants (XML_SCHEMA, DTD_SCHEMA, RNG_SCHEMA, RNC_SCHEMA) are the possible schema types (W3C XML Schema, DTD, Relax NG schema in full syntax, Relax NG schema in compact syntax).

  The two possibilities of opening files at startup by specifying them in the command line are explained also if the startup script receives one of the *-h* or *--help* parameters.

Note

When more files are opened and the tabs names are on a single line, you can change the tab order by clicking and dragging a tab in the desired position.

In addition <oXygen/> supports direct opening of files from the command prompt. Use the following command syntax:

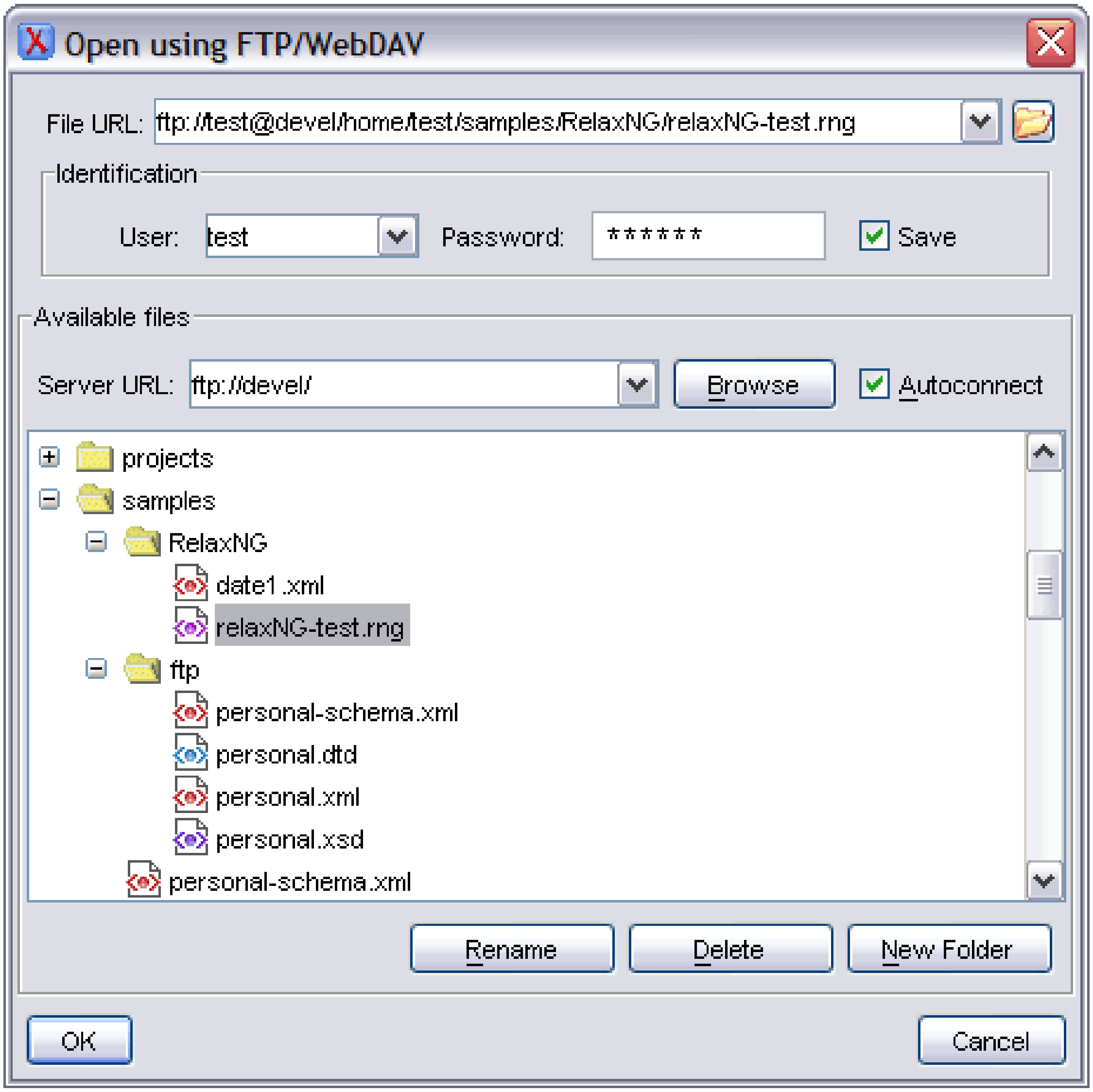
- On Windows:
  oxygen.bat FileToOpen.xml
- On Unix/Linux:
  sh ./oxygen.sh FileToOpen.xml
- On Mac OS X:
  sh ./oxygenMac.sh FileToOpen.xml

Also when the Tree Editor perspective is activated the current document in the Editor perspective will be opened and displayed as a tree of XML elements.

Opening and Saving Remote Documents via FTP/ WebDAV

<oXygen/> supports editing remote files, using the FTP and WebDAV protocols. The remote opened files can be edited exactly as the local ones. They can be added to the project, and can be subject to XSL and FO transformations.

Figure 4.13. Open URL dialog



Open using FTP/WebDAV

File URL: ftp://test@devel/home/test/samples/RelaxNG/relaxNG-test.rng

Identification

User: test

Password: ******

☑ Save

Available files

Server URL: ftp://devel/

☑ Autoconnect

```
⊞ projects
⊟ samples
    ⊟ RelaxNG
        date1.xml
        relaxNG-test.rng
    ⊟ ftp
        personal-schema.xml
        personal.dtd
        personal.xml
        personal.xsd
    personal-schema.xml
```

Note

The WebDAV access is implemented using the Slide package of the Apache Software Foundation. The FTP part is using passive access to the FTP servers. Make sure the server you are trying to connect to is supporting passive connections. Also the UTF-8 encoding is supported and can be configured for communication with the FTP server if the server supports it.

The FTP/WebDAV capabilities have been extensively tested with various servers running on Windows (IIS), Mac OS X and Linux (Apache).

Note

If you have set a proxy server to be used by <oXygen/>, make sure it supports the WebDAV protocol. If it does not, make sure you uncheck the "Use proxy server" from the Options/Preferences/Proxy Configuration pane, otherwise you will not be able to connect to a WebDAV server.

To open the remote files, choose from the main menu File → Open URL ... The displayed dialog is composed of three parts.

- The first one is an editable combo box, in which it can be specified directly the URL to be opened or saved.

  ### URLs that can be directly opened

  You can type in here an URL like http://some.site/test.xml, in case the file is accessible through normal HTTP protocol, or ftp://anonymous@some.site/home/test.xml if the file is accessible through anonymous FTP.

  This combo box is also displaying the current selection when the user changes selection by browsing the tree of folders and files on the server.

- The second part is controlling the access credentials. If you want to browse for a file on a server, you have to specify the user and password. This information is bound to the selected URL displayed in the "File URL" combo box, and used further in opening/saving the file. If the check box "Save" is selected, then the user and password are saved between editing sessions. The password is kept encrypted into the options file.

  ### Note

  Your password is well protected. In the case the options file is moved to another installation, on other machine, the password will become unreadable, since the encryption is user and machine dependent. This is also true if you add URLs having user and password to your project.

- The third part contains the server combo and the "Autoconnect" check box. Into the server combo it may be specified the protocol (HTTP, HTTPS or FTP), the name or IP of the server and, in case of WebDAV, the path to the WebDAV directory.

  ### Server URLs

  When accessing a FTP server, you need to specify only the protocol and the host, like: ftp://server.com, ftp://ftp.apache.org, or if using a nonstandard port: ftp://server.com:7800/ etc.

  When accessing a WebDAV server, along with the protocol and the host, it must be specified also the directory of the WebDAV repository.

  #### Important

  Make sure that the repository directory ends in a slash "/".

  Ex: https://www.some-webdav-server.com:443/webdav-repository/, http://devel:9090/webdav/

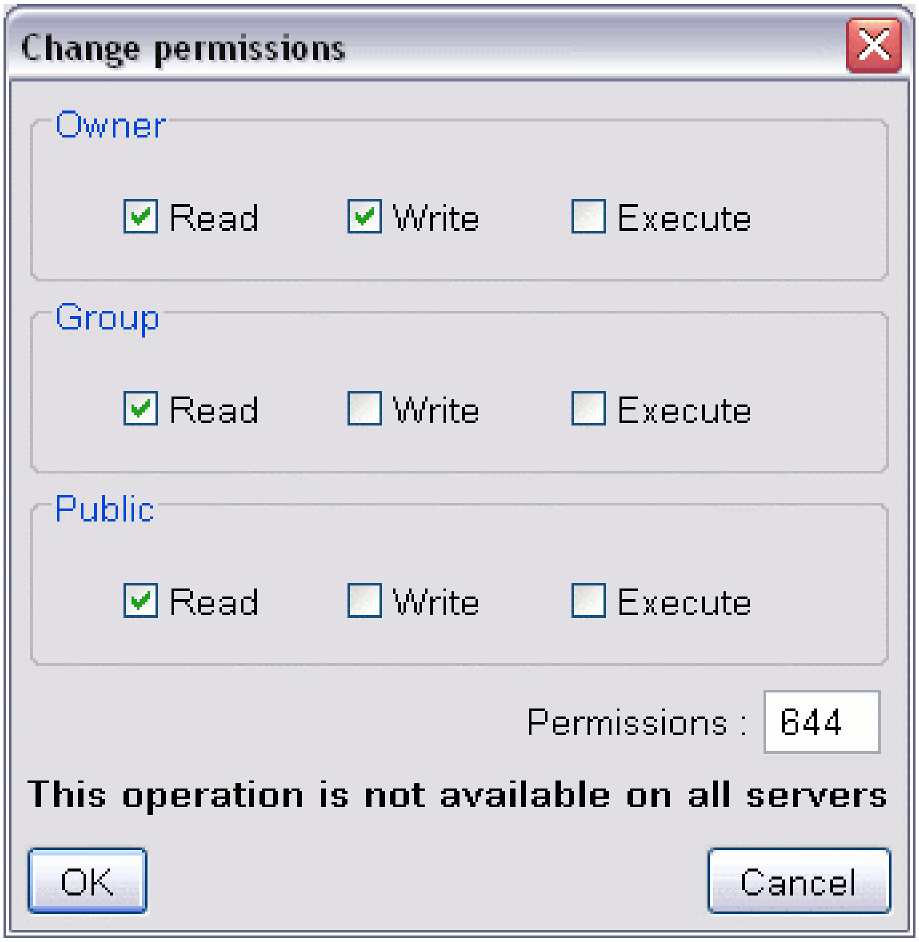
  By pressing the "Browse" button the directory listing will be shown in the component bellow. When "Autoconnect" is selected then at every time the dialog is shown, the browse action will be performed.

- The last part consists of a tree view of the documents stored on the server. You can browse the directories, and make multiple selections. Additionally, you may use the "Rename", "Delete", and "New Folder" to manage the file repository.

Changing file permissions on a remote FTP server

Some FTP servers allow the modification of file permissions on the filesystem for the files that they serve over the FTP protocol. This feature of the protocol is accessible directly in the FTP/WebDAV file browser dialog by right-clicking on a tree node and selecting the *Change permissions* menu item which brings up the following dialog:

Figure 4.14. FTP server - change file permissions



Change permissions

Owner

☑ Read ☑ Write □ Execute

Group

☑ Read □ Write □ Execute

Public

☑ Read □ Write □ Execute

Permissions : 644

This operation is not available on all servers

The usual Unix file permissions *Read*, *Write* and *Execute* are granted or denied in this dialog for the owner of the file, the group of the owner and the rest of the users. The aggregate number of the current state of the permissions is updated in the *Permissions* text field when a permission is modified with one of the check boxes.

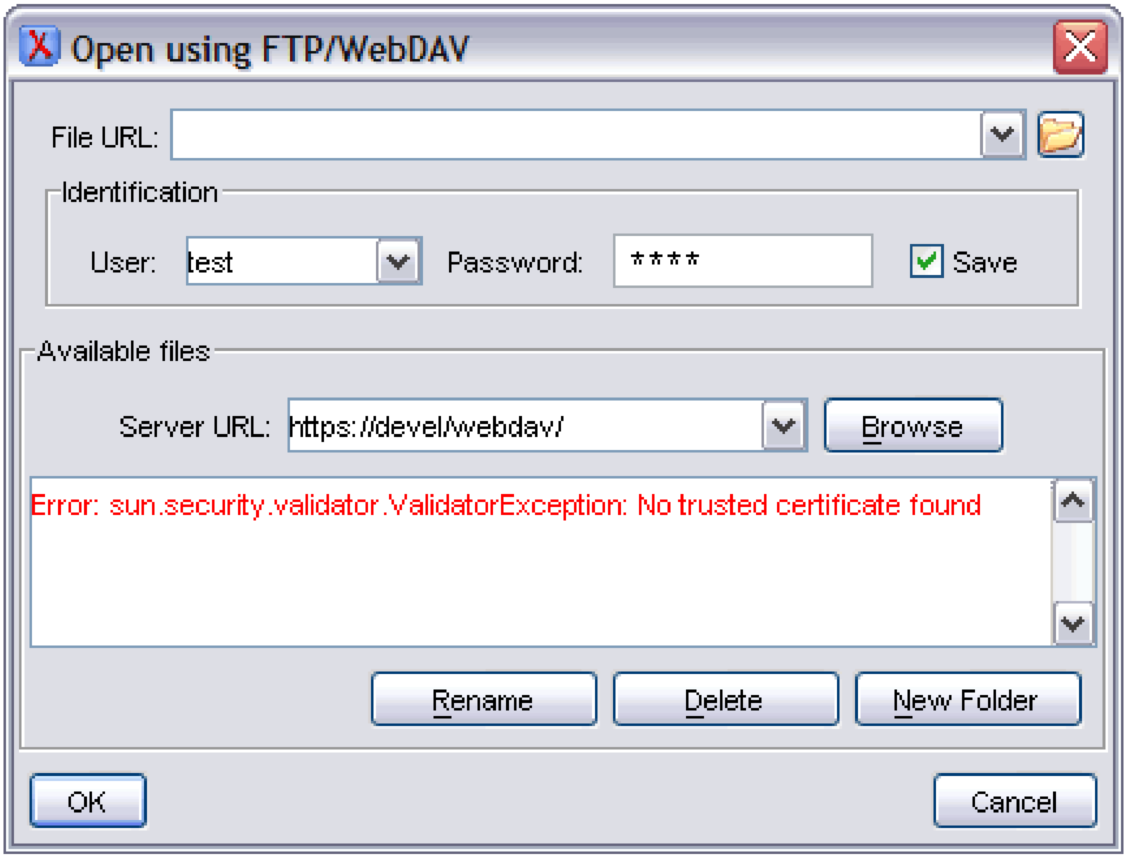
WebDAV over HTTPS

If you want to access a WebDAV repository across an insecure network <oXygen/> allows you to load and save the documents over the HTTPS protocol (if the server understands this protocol) so that any data exchange with the WebDAV server is encrypted.

When a WebDAV repository is first accessed over HTTPS the server hosting the repository will present a security certificate to <oXygen/> as part of the HTTPS protocol, without any user intervention.

<oXygen/> will use this certificate to decrypt any data stream received from the server. For the authentication to succeed you should make sure the security certificate of the server hosting the repository can be read by <oXygen/>. This means that <oXygen/> can find the certificate in the key store of the Java Runtime Environment in which it runs. You know the server certificate is not in the JRE's key store if you get the error "No trusted certificate found" when trying to access the WebDAV repository:

Figure 4.15. The server certificate is not available



User: test

Password: ****

☑ Save

Server URL: https://devel/webdav/

Error: sun.security.validator.ValidatorException: No trusted certificate found

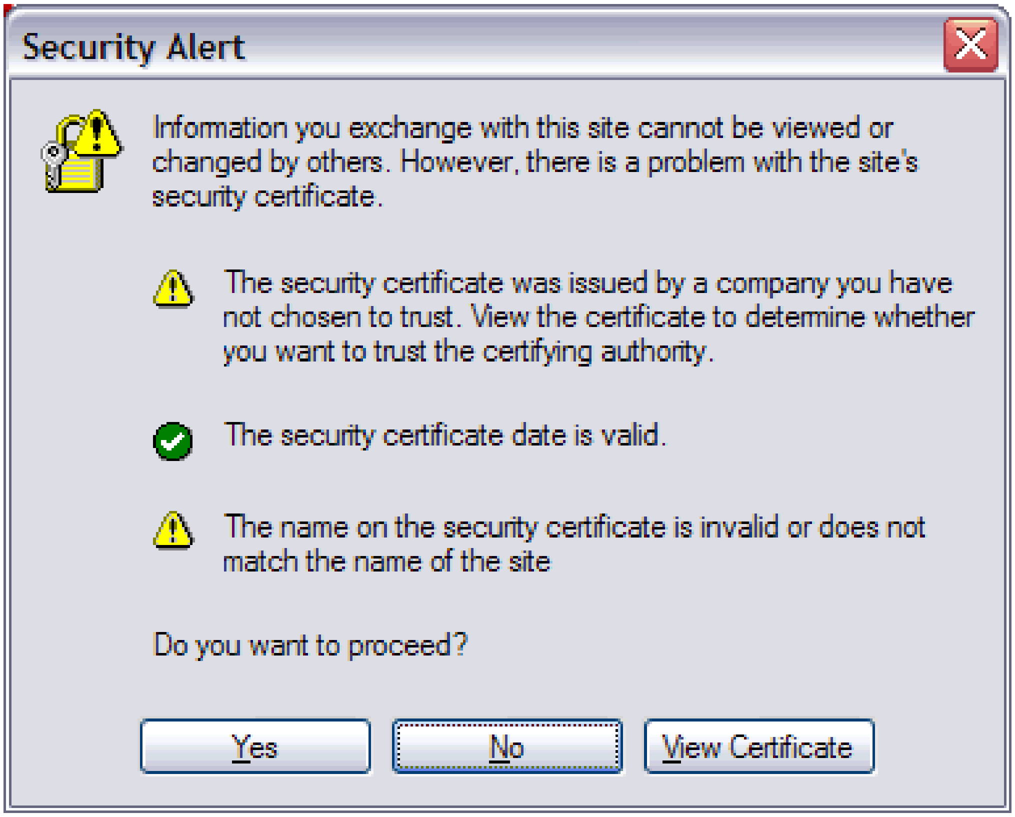
You can add a certificate to the key store by exporting it to a local file using any HTTPS-capable Web browser (for example Internet Explorer) and then importing this file into the JRE using the keytool executable bundled with the JRE. The steps are the following using Internet Explorer (if you use other browser the procedure is similar):

Procedure 4.5. Import a HTTPS server certificate

1. Export the certificate into a local file

   a. Point your HTTPS-aware Web browser to the repository URL. If this is your first visit to the repository it will be displayed a security alert stating that the security certificate presented by the server is not trusted.

Figure 4.16. Security alert - untrusted certificate



Security Alert

Information you exchange with this site cannot be viewed or changed by others. However, there is a problem with the site's security certificate.

⚠ The security certificate was issued by a company you have not chosen to trust. View the certificate to determine whether you want to trust the certifying authority.

✓ The security certificate date is valid.

⚠ The name on the security certificate is invalid or does not match the name of the site

Do you want to proceed?

b. Press the button "View Certificate".

c. Select the "Details" tab.

d. Press the button "Copy to file ...". This will start the Certificate Export Wizard on Windows

e. Follow the indications of the wizard to save the certificate to a local file, for example *server.cer* .

2. Import the local file into the JRE running <oXygen/>

a. Open a text-mode console.

b. Go to the lib/security subdirectory of your JRE directory, that is of the directory where it is installed the JRE running <oXygen/>, for example on Windows *C:\Program Files\Java\j2re1.4.2\lib\security*

c. Run the following command:**..\..\bin\keytool.exe -import -trustcacerts -file local-file.cer -keystore cacerts** where *local-file.cer* is the file containing the server certificate, created during the previous step. keytool requires a password before adding the certificate to the JRE keystore. The default password is "changeit". If somebody changed the default password then he is the only one who can perform the import. As a workaround you can delete the *cacerts* file, re-type the command and enter as password any combination of at least 6 characters. This will set the password for future operations with the key store.

3. Restart <oXygen/>

Closing documents

To close documents use one of the following methods:

- File → Close (**Ctrl+W**) : Closes only the selected tab. All other tab instances remain.
- File → Close All: Closes all opened documents. If a document is modified or has no file, a prompt to save, not to save, or cancel the save operation is displayed.
- Close - accessed by right-clicking on an editor tab: Closes the selected editor.
- Close other files - accessed by right-clicking on an editor tab: Closes the other files except the selected tab.
- Close all - accessed by right-clicking on an editor tab: Closes all open editors within the panel.

Creating and sharing new document templates

Creating a new document template

<oXygen/> enables user defined templates to be created. Templates are created by adding an existing document to the Template library.

Procedure 4.6. Creating New Templates

1. Open the document that will be used to create the Template.
2. Modify the structure and content as required.
3. File → Add to Templates or press the toolbar button Add to templates to display the Add Templates dialog used to define the name by which the template will be recognized in the New from templates option.
4. Enter the name by which the template will be known. Click OK the document is added to the list of Personal Templates.
5. Test the template using the From File option.

Sharing document templates

<oXygen/> stores Personal Templates in an XML file called `Application Data\com.oxygenxml\templates.xml` on Windows / `.com.oxygenxml\templates.xml` on Linux, located in the Home folder of the <oXygen/> user. By copying this file to a Web Server folder and making it accessible via HTTP, other <oXygen/> users can use the From URL option to access the templates.

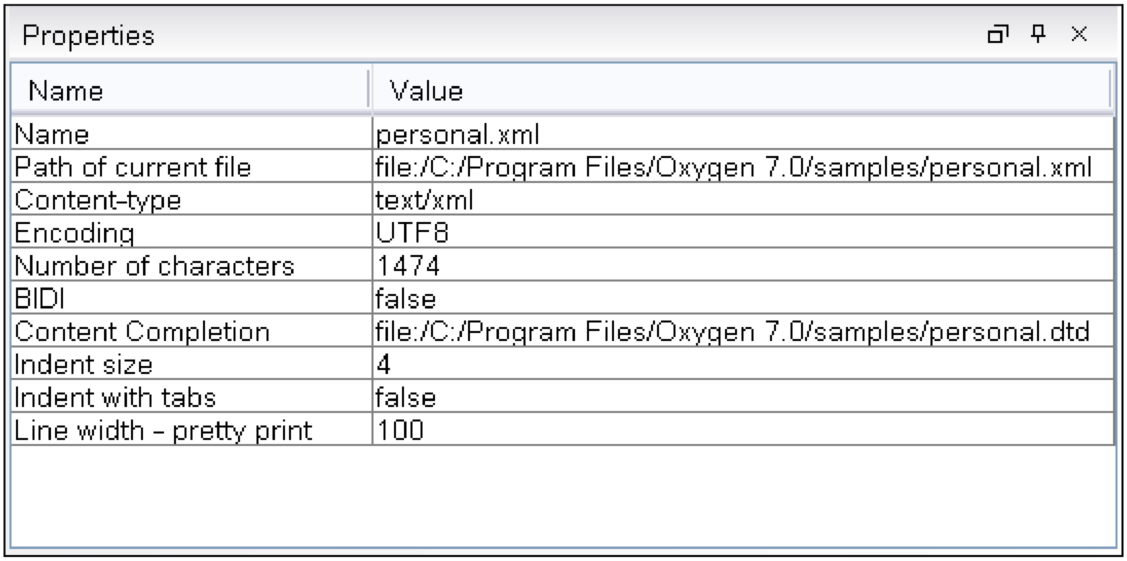
Procedure 4.7. Sharing Templates

1. Create one or more Personal Templates.
2. Copy `[user home dir]\com.oxygenxml\templates.xml` into an accessible directory on your web server.
3. Test the template using the From URL option.

Viewing file properties

In the Properties view you can quickly access information about the current edited document like the character encoding, full path on the file system, schema used for content completion and document validation, associated transformation scenario, if bidirectional text (left to right and right to left) is enabled, document's total number of characters, line width, if indent with tabs is enabled and the indent size. The view can be accessed by going to Perspective+Show View → Properties

Figure 4.17. The Properties view



Name	Value
Name	personal.xml
Path of current file	file:/C:/Program Files/Oxygen 7.0/samples/personal.xml
Content-type	text/xml
Encoding	UTF8
Number of characters	1474
BIDI	false
Content Completion	file:/C:/Program Files/Oxygen 7.0/samples/personal.dtd
Indent size	4
Indent with tabs	false
Line width - pretty print	100

Editing XML documents

Associate a schema to a document

Setting a schema for the Content Completion

In case you are editing document fragments, for instance the chapters from a book each one in a separate file, you can activate the Content Completion for these fragments in two ways:

Setting a default schema

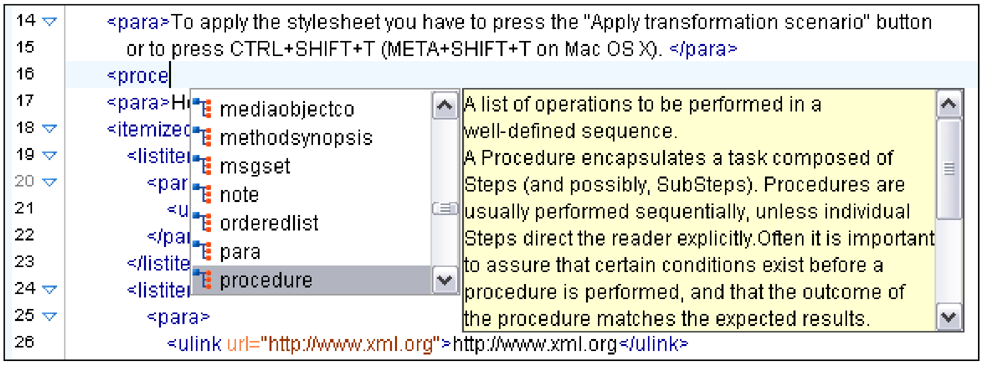
The table available at Options → Preferences -> Content Completion/Default contains a set of rules for associating a schema with the current document when no schema is specified within the document. The schema is one of the types: XML Schema, XML Schema with embedded Schematron rules, Relax NG, Relax NG with embedded Schematron rules, Schematron, DTD, NRL.

The rules are applied in the order they appear in the table and take into account the local name of the root element, the default namespace and the file name of the document.

Important

The editor is creating the Content Completion lists by analysing the specified schema and the current context (the position in the editor). If you change the schema you can observe that the list of tags to be inserted is changing.

Figure 4.18. Content completion driven by a Docbook DTD



```
<para>To apply the stylesheet you have to press the "Apply transformation scenario" button
  or to press CTRL+SHIFT+T (META+SHIFT+T on Mac OS X). </para>
<proce
<para>H
<itemized
  <listite
    <par
      <u
    </pa
  </listite
  <listite
    <para>
      <ulink url="http://www.xml.org">http://www.xml.org</ulink>
```

A list of operations to be performed in a well-defined sequence.
A Procedure encapsulates a task composed of Steps (and possibly, SubSteps). Procedures are usually performed sequentially, unless individual Steps direct the reader explicitly.Often it is important to assure that certain conditions exist before a procedure is performed, and that the outcome of the procedure matches the expected results.

Adding a Processing Instruction

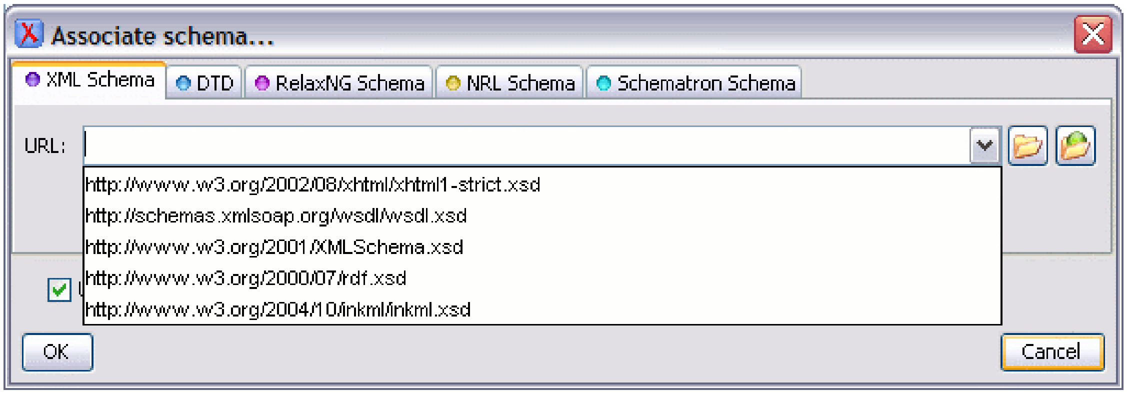
The same effect is obtained by configuring a processing instruction that specifies the schema to be used. The advantage of this method is that you can configure the Content Completion for each file. The processing instruction must be added at the beginning of the document, just after the XML prologue:

```
<?oxygen RNGSchema="file:/C:/work/relaxng/personal.rng" type="xml"?>
```

Select menu Document+XML Document → Associate schema... or click the toolbar button Associate schema to open a dialog for selecting a schema used for Content Completion and document validation. The schema is one of the types: XML Schema, DTD, Relax NG, NRL, Schematron.

This is a dialog helping the user to easily associate a schema file with the edited document . Enables definition of a XML Document Prolog using the system identifier of a XML Schema, DTD, Relax NG (full or compact syntax) schema, NRL (Namespace Routing Language) schema or Schematron schema.

Figure 4.19. Associate schema dialog


Associate schema...
XML Schema
DTD
RelaxNG Schema
NRL Schema
Schematron Schema
URL:
http://www.w3.org/2002/08/xhtml/xhtml1-strict.xsd
http://schemas.xmlsoap.org/wsdl/wsdl.xsd
http://www.w3.org/2001/XMLSchema.xsd
http://www.w3.org/2000/07/rdf.xsd
http://www.w3.org/2004/10/inkml/inkml.xsd
OK
Cancel

When associating a XML Schema to the edited document if the root element of the document defines a default namespace URI with a "xmlns" attribute the "Associate schema" action adds a xsi:schemaLocation attribute. Otherwise it adds a xsi:noNamespaceSchemaLocation attribute.

The URL combo box contains a predefined set of schemas that are used more often and it also keeps a history of the last used schemas.

<oXygen/> logs the URL of the detected schema in the Information view.

The *oxygen* processing instruction has the following attributes:

RNGSchema specifies the path to the Relax NG schema associated with the current document

type specifies the type of Relax NG schema, is used together with the RNGSchema attribute and can have the value "xml" or "compact".

NRLSchema specifies the path to the NRL schema associated with the current document

SCHSchema specifies the path to the SCH schema associated with the current document

Learning document structure

When working with documents that do not specify a schema, or for which the schema is not known or does not exist, <oXygen/> is able to learn and translate it to a DTD, which in turn can be saved to a file in order to provide a DTD for Content Completion and document validation. In addition to being useful for quick creation of a DTD that will be capable of providing an initialization source for the Content Completion assistant. This feature can also be used to produce DTDs for documents containing personal or custom element types.

When it is opened a document that does not specify a schema <oXygen/> automatically learns the document structure and uses it for Content Completion. To disable this feature uncheck the checkbox Learn on open document from Preferences.

Procedure 4.8. To create a DTD:

1. Open the structured document from which a DTD will be created.
2. Select menu Document+XML Document → Learn Structure (**Ctrl+Shift+L**) or click the toolbar button Learn structure to read the mark-up structure of the current document so that it can be saved as a DTD using the Save Structure option. <oXygen/> will learn the document structure, when finished displaying words Learn Complete in the Message Pane of the Editor Status bar.
3. Select menu Document+XML Document → Save Structure (**Ctrl+Shift+S**) or click the toolbar button Save structure to display the Save Structure dialog, used to name and create DTD documents learnt by the Learn Structure function.

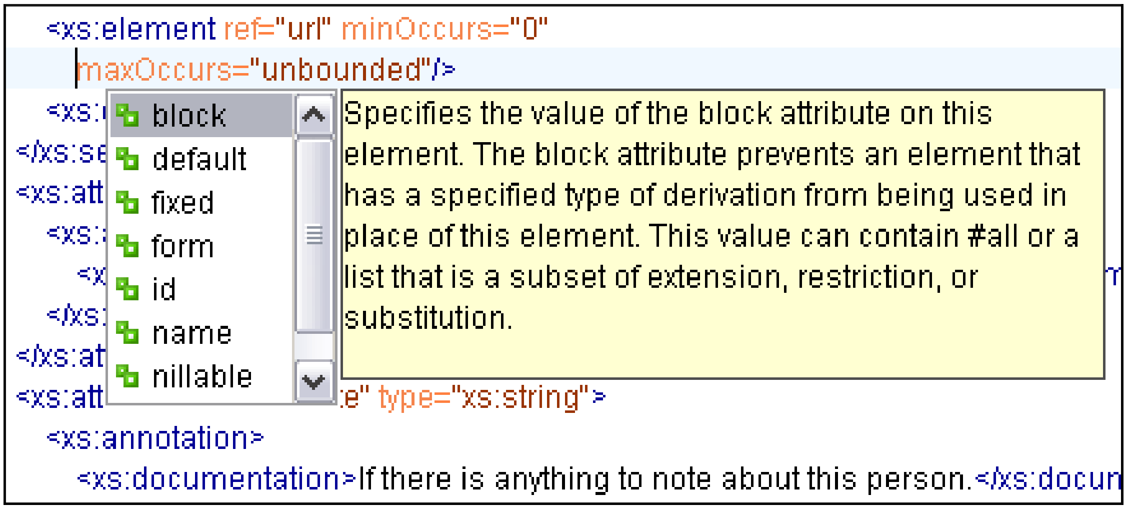
Note

The resulting DTD is only valid for documents containing the elements and structures defined by the document used as the input for creating the DTD. If new element types or structures are defined in a document, they must be added to the DTD in order for successful validation.

Streamline with Content Completion

<oXygen/>'s intelligent Content Completion feature is a content assistant that enables rapid, in-line identification and insertion of structured language elements, attributes and in some cases their parameter options.

Figure 4.20. Content Completion Assistant



```
  <xs:element ref="url" minOccurs="0"
    maxOccurs="unbounded"/>
  <xs:
</xs:se
<xs:att
  <xs:
    <x
  </xs:
</xs:at
<xs:att                          e" type="xs:string">
  <xs:annotation>
    <xs:documentation>If there is anything to note about this person.</xs:docun
```

Specifies the value of the block attribute on this element. The block attribute prevents an element that has a specified type of derivation from being used in place of this element. This value can contain #all or a list that is a subset of extension, restriction, or substitution.

If the Content Completion assistant is enabled in user preferences (the option *Use Content Completion*) it is automatically displayed whenever the < character is entered into a document or by pressing **CTRL+Space** on a partial element or attribute name. Moving the focus to highlight an element and pressing the **Enter** key or the **Tab** key, inserts both the start and end tags of the highlighted element into the document.

The DTD, XML Schema, Relax NG schema or NRL schema used to populate the Content Completion assistant is specified in the following methods, in order of precedence:

- The schema specified explicitly in the document. In this case <oXygen/> reads the beginning of the document and resolves the location of the DTD, XML Schema, Relax NG schema or NRL schema.
- The default schema rule declared in the Default Schema Associations options which matches the edited document.
- For XSLT stylesheets the schema specified in the <oXygen/> Content Completion options. <oXygen/> will read the Content Completion settings when the prolog fails to provide or resolve the location of a DTD, XML Schema or Relax NG schema.

After inserting, the cursor is positioned directly before the > character of the start tag, if the element has attributes, in order to enable rapid insertion of any attributed supported by the element, or after the > char of the start tag if the element has no attributes. Pressing the space bar, directly after element insertion will again display the assistant. In this instance the attributes supported by that element will be displayed. If an attribute supports a fix set of parameters, the assistant will display the list of valid parameter. If the parameter setting is user defined and therefore variable, the assistant will be closed to enable manual insertion. The values of the attributes can be learned from the same elements in the current document.

If you press **CTRL + Enter** instead of **Enter** or **Tab** after inserting the start and end tags in the document <oXygen/> will insert an empty line between the start and end tag and the cursor will be positioned between on the empty line on an indented position with regard to the start tag.

If the feature Add Element Content of Content Completion is enabled all the elements that the new element must contain, as specified in the DTD or XML Schema, are inserted automatically in the document. The Content Completion assistant can also add optional content and first choice particle, as specified in the DTD or XML Schema, for the element if the two options are enabled.

The content assistant can be started at any time by pressing **CTRL+Space** Also it can be started with the action *Start Content Completion* (default shortcut is CTRL + Slash) which can be configured in Preferences → Menu Shortcut Keys : category *Content Completion*, description *Start Content Completion*. The effect is that the context-sensitive list of proposals will be shown in the current position of the caret in the edited document if element, attribute or attribute value insertion makes sense. Such positions are: anywhere within a tag name or at the beginning of a tag name in an XML document, XML Schema, DTD or Relax NG (full or compact syntax) schema, anywhere within an attribute name or at the beginning of an attribute name in any XML document with an associated schema, and within attribute values or at the beginning of attribute values in XML documents where lists of possible values have been defined for that element in the schema associated with the document.

The content of the Content Completion assistant is dependent on the element structure specified in the DTD, XML Schema, Relax NG (full or compact syntax) schema or NRL schema associated to the edited document.

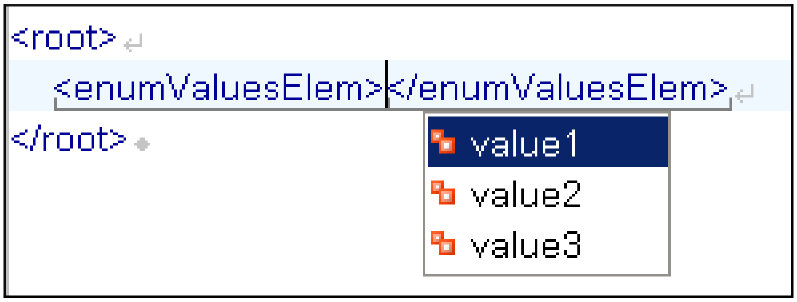
The number and type of elements displayed by the assistant is dependent on the current position of the cursor in the structured document . The child elements displayed within a given element are defined by the structure of the specified DTD, XML Schema, Relax NG (full or compact syntax) schema or NRL schema. All elements that can't be child elements of the current element according to the specified schema are not displayed.

Inside Relax NG documents the Content Completion assistant is able to present element values if such values are specified in the Relax NG schema. Also pattern names defined in the Relax NG schema are presented as possible values for pattern references. For example if the schema defines an *enumValuesElem* element

```
<element name="enumValuesElem">
    <choice>
        <value>value1</value>
        <value>value2</value>
        <value>value3</value>
    </choice>
</element>
```

in documents based on the schema the Content Completion assistant offers the list of values:

Figure 4.21. Content Completion assistant - element values in Relax NG documents



```
<root>
   <enumValuesElem></enumValuesElem>
</root>
```

If the schema for the edited document defines attributes of type ID and IDREF the content assistant will display for IDREF attributes a list of all the ID values already present in the document for an easy insertion of a valid ID value at the cursor position in the document. This is available for documents that use DTD, XML Schema and Relax NG schema.

Also values of all the *xml:id* attributes are treated as ID attributes and collected and displayed by the content completion assistant as possible values for *anyURI* attributes defined in the schema of the edited document. This works only for XML Schema and Relax NG schemas.

For documents that use an XML Schema or Relax NG schema the content assistant offers proposals for attributes and elements values that have as type an enumeration of tokens. Also if a default value is defined in the schema for an attribute or element that value is offered in the content completion window.

If the edited document is not associated with a schema explicitly using the usual mechanisms for associating a DTD or XML Schema with a document or using a processing instruction introduced by the *Associate schema* action the content assistant will extract the elements presented in the pop-up window from the default schema.

If the schema for the document is of type XML Schema, Relax NG (full syntax) or DTD and it contains element, attributes or attributes values annotations, these will be presented when the content completion window is displayed, if the option *Show annotations* is enabled. Also the annotation is presented in a small tooltip window displayed automatically when the mouse hovers over an element or attribute annotated in the associated schema of the edited document.

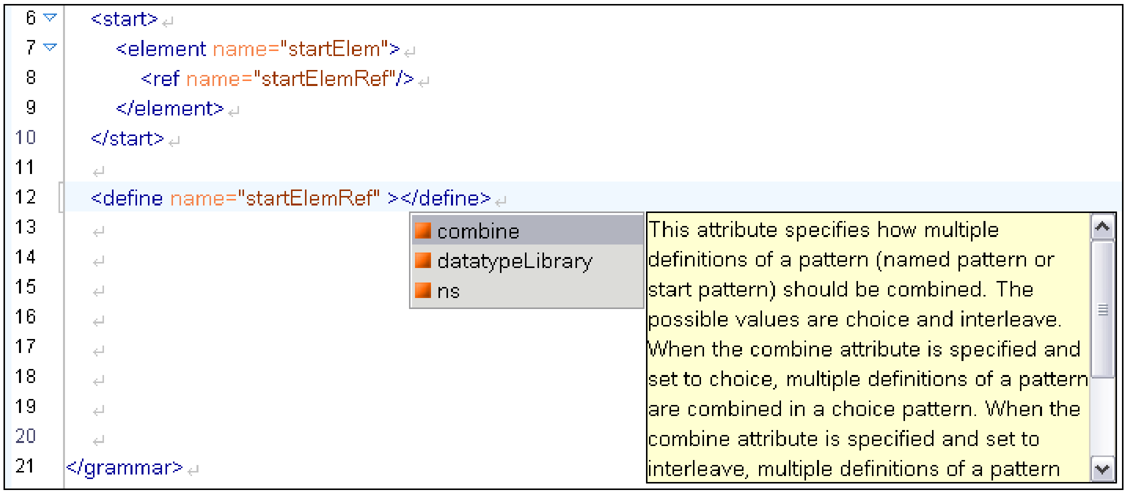
In an XML Schema annotations are put in an <xs:annotation> element:

```
    <xs:annotation>
        <xs:documentation>
            Description of the element.
        </xs:documentation>
    </xs:annotation>
```

If the current element / attribute in the edited document does not have an annotation in the schema and that schema is of the type XML Schema <oXygen/> seeks an annotation in the type definition of the element / attribute or, if no annotation is found there, in the parent type definition of that definition, etc.

In a Relax NG schema any element outside the Relax NG namespace (*http://relaxng.org/ns/structure/1.0*) is handled as annotation and the text content is displayed in the annotation window together with the content completion window:

Figure 4.22. Schema annotations displayed at Content Completion



```
  <start>
    <element name="startElem">
      <ref name="startElemRef"/>
    </element>
  </start>

  <define name="startElemRef" ></define>








</grammar>
```

This attribute specifies how multiple definitions of a pattern (named pattern or start pattern) should be combined. The possible values are choice and interleave. When the combine attribute is specified and set to choice, multiple definitions of a pattern are combined in a choice pattern. When the combine attribute is specified and set to interleave, multiple definitions of a pattern

For DTD <oXygen/> defines a custom mechanism for annotation using comments enabled from the option *Use DTD comments as annotations* . The text of a comment with the following format will be presented on content completion:

```
<!--doc:Description of the element. -->
```

The operation of the Content Completion assistant is configured by the options available in the group called Content Completion Features.

Code templates

You can define short names for predefined blocks of code called code templates. The short names are displayed in the content completion window if the word at cursor position is a prefix of such a short name. <oXygen/> comes with a lot of predefined code templates but you can define your own code templates for any type of editor. For more details see the example for XSLT editor code templates.

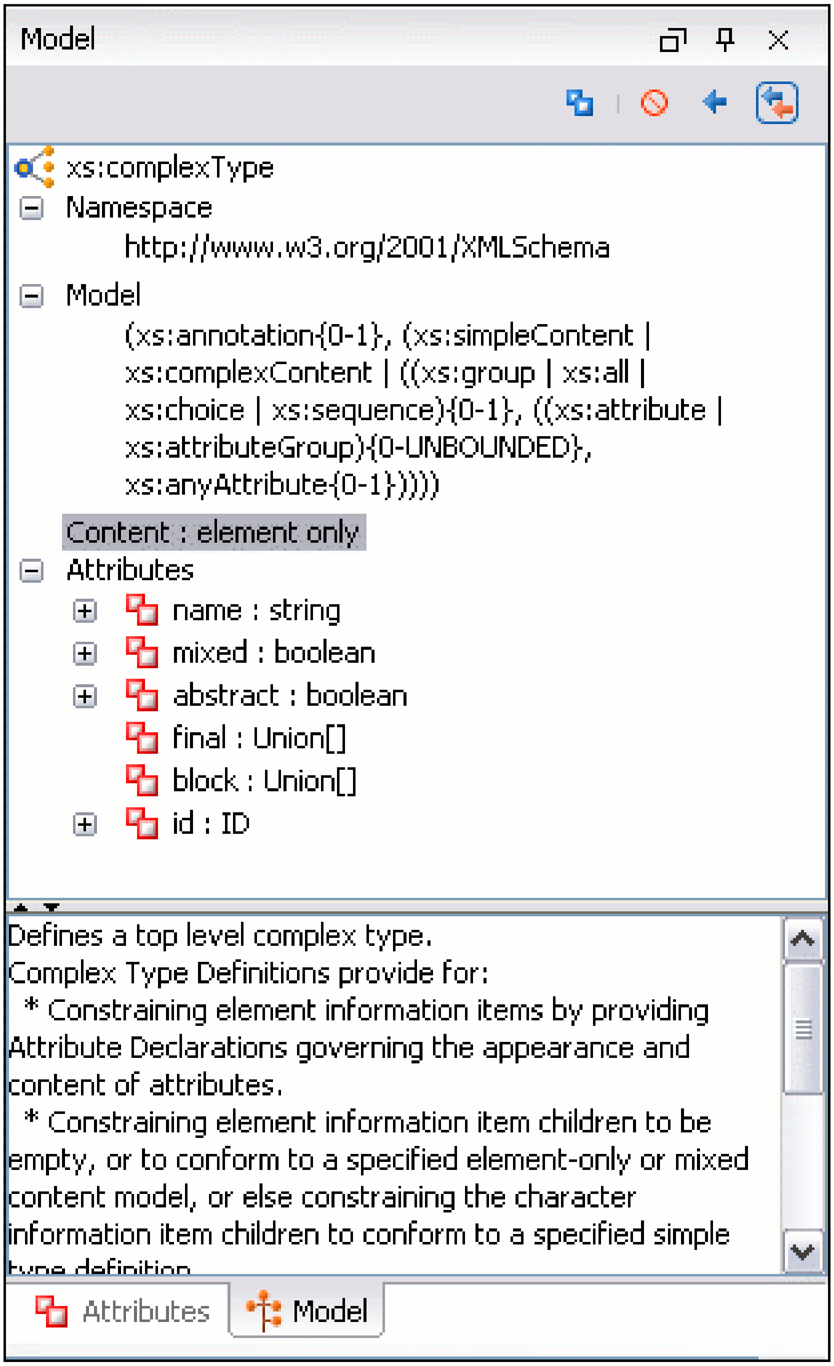
Content Completion helper panels

Information about the current element being edited are also available in the Model panel and Attributes panel, located on the left-hand side of the main window. The Model panel and the Attributes panel combined with the powerful Outliner provide spacial and insight information on the edited document.

The Model panel

The Model panel presents the structure of the current edited tag and tag documentation defined as annotation in the schema of the current document.

Figure 4.23. The Model View



xs:complexType

- Namespace
  - http://www.w3.org/2001/XMLSchema
- Model
  - (xs:annotation{0-1}, (xs:simpleContent | xs:complexContent | ((xs:group | xs:all | xs:choice | xs:sequence){0-1}, ((xs:attribute | xs:attributeGroup){0-UNBOUNDED}, xs:anyAttribute{0-1}))))
  - Content : element only
- Attributes
  - name : string
  - mixed : boolean
  - abstract : boolean
  - final : Union[]
  - block : Union[]
  - id : ID

Defines a top level complex type.
Complex Type Definitions provide for:
 * Constraining element information items by providing Attribute Declarations governing the appearance and content of attributes.
 * Constraining element information item children to be empty, or to conform to a specified element-only or mixed content model, or else constraining the character information item children to conform to a specified simple type definition

The Model panel is comprised of:

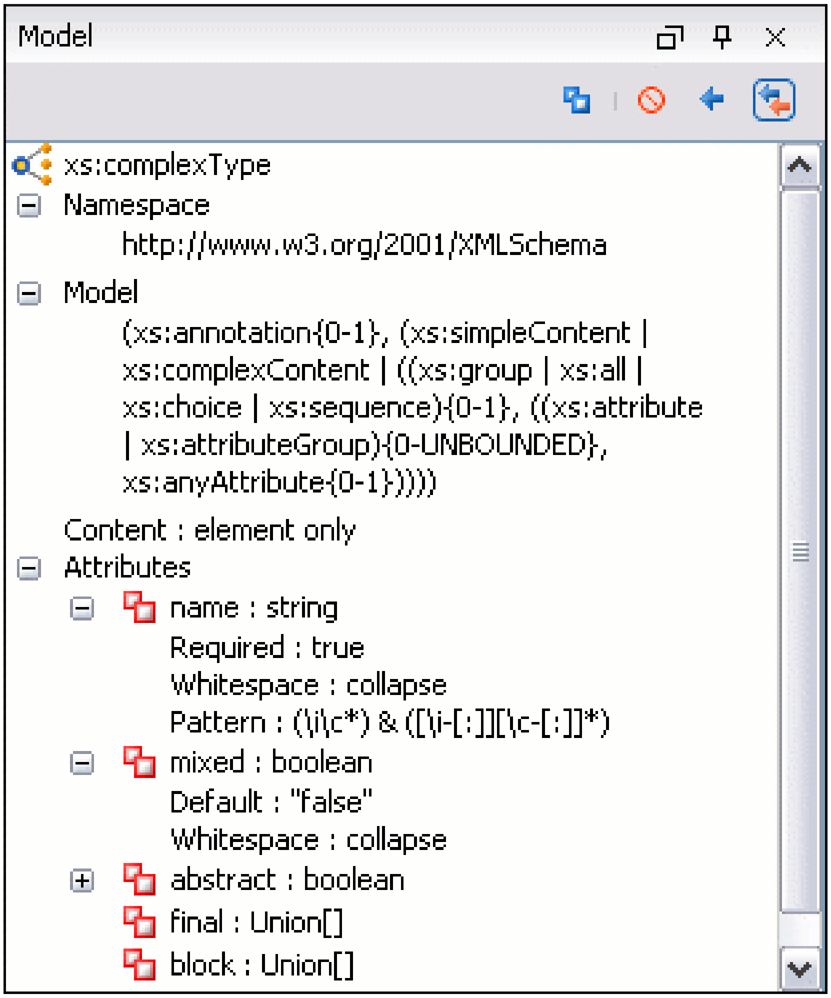
- An element structure panel.
- An annotation panel.

The Element Structure panel

The element structure panel shows the structure of the current edited or selected tag in a Tree format.

The information includes the name, model and attributes the currently edited tag may have. The allowed attributes are shown along with any restrictions they might possess.

Figure 4.24. The Element Structure panel



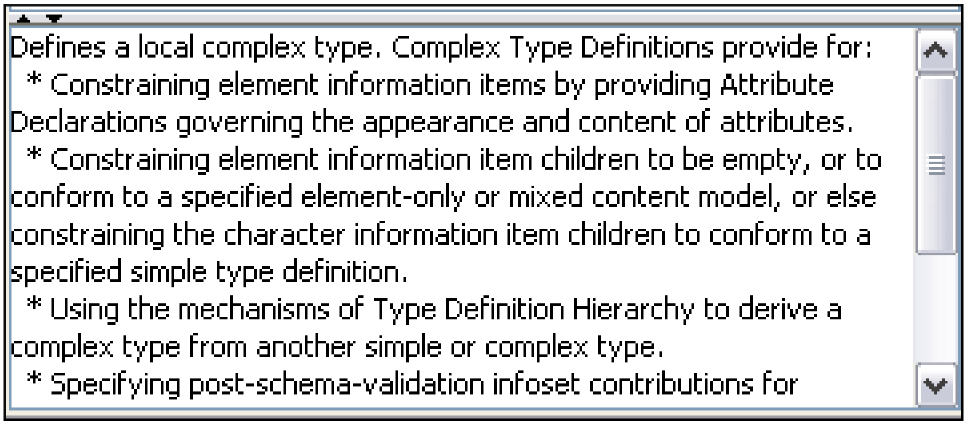
```
xs:complexType
⊟ Namespace
      http://www.w3.org/2001/XMLSchema
⊟ Model
      (xs:annotation{0-1}, (xs:simpleContent |
      xs:complexContent | ((xs:group | xs:all |
      xs:choice | xs:sequence){0-1}, ((xs:attribute
      | xs:attributeGroup){0-UNBOUNDED},
      xs:anyAttribute{0-1}))))
  Content : element only
⊟ Attributes
    ⊟  name : string
         Required : true
         Whitespace : collapse
         Pattern : (\i\c*) & ([\i-[:]][\c-[:]]*)
    ⊟  mixed : boolean
         Default : "false"
         Whitespace : collapse
    ⊞  abstract : boolean
       final : Union[]
       block : Union[]
```

The Annotation panel

The Annotation panel shows the annotations that are present in the used schema for the currently edited or selected tag.

This information can be very useful to persons learning XML because it has small available definitions for each used tag.

Figure 4.25. The Annotation panel

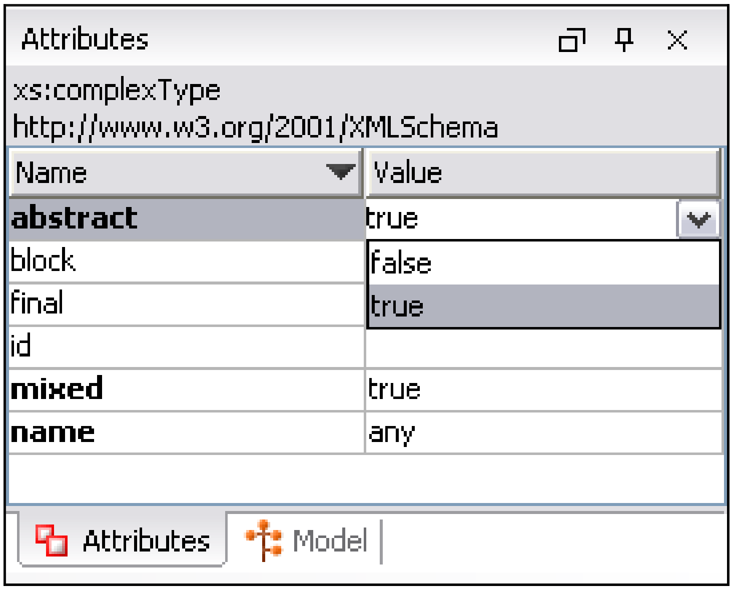


Defines a local complex type. Complex Type Definitions provide for:
 * Constraining element information items by providing Attribute Declarations governing the appearance and content of attributes.
 * Constraining element information item children to be empty, or to conform to a specified element-only or mixed content model, or else constraining the character information item children to conform to a specified simple type definition.
 * Using the mechanisms of Type Definition Hierarchy to derive a complex type from another simple or complex type.
 * Specifying post-schema-validation infoset contributions for

The Attributes panel

The Attributes panel presents all the possible attributes of the current element and allows to insert attributes in the current element or change the value of the attributes already used in the element. The attributes already present in the document are painted with a bold font. Clicking on the Value column of a table row will start editing the value of the attribute from the selected row. If the possible values of the attribute are specified as list in the schema associated with the edited document the Value column works as a combo box where you can select one of the possible values to be inserted in the document. The attributes table is sortable, 3 sorting orders being available by clicking on the columns' names. Thus the table's contents can be sorted in ascending order, in descending order or in a custom order, where the used attributes are placed at the beginning of the table as they appear in the element followed by the rest of the allowed elements as they are declared in the associated schema.

Figure 4.26. The Attributes panel



xs:complexType
http://www.w3.org/2001/XMLSchema

Name	Value
abstract	true
block	
final	
id	
mixed	true
name	any

Debugging XML documents

The W3C XML specification states that a program should not continue to process an XML document if it finds a validation error. The reason is that XML software should be easy to write, and that all XML documents should be compatible. With HTML it was possible to create documents with lots of errors (like when you forget an end tag). One of the main reasons that HTML browsers are so big and incompatible, is that they have their own ways to figure out what a document should look like when they encounter an HTML error. With XML this should not be possible.

However, when creating an XML document, errors are very easily introduced. When working with large projects or many files, the probability that errors will occur is even greater. Determining that your project is error free can be time consuming and even frustrating. For this reason <oXygen/> provides functions that enable easy error identification and rapid error location.

Checking XML Form

XML with correct syntax is *Well Formed XML*.

A *Well Formed XML* document is a document that conforms to the XML syntax rules.

- All XML elements must have a closing tag.
- XML tags are case sensitive.
- All XML elements must be properly nested.
- All XML documents must have a root element.
- Attribute values must always be quoted.
- With XML, white space is preserved.

If you select menu Document+XML Document → Check document form (**Ctrl+Shift+W**) or click the toolbar button ☑ Check document form <oXygen/> checks your current document for any deviation from these rules. If any error is found the result is returned to the Message Panel. Each error is one record in the Result List and is accompanied by an error message. Clicking the record will open the document containing the error and highlight the approximate location.

Example 4.1. Check XML Form Error Message

In our example we will use the case where an end tag is missing from a Docbook listitem element. In this case running Check XML Form will return the following error.

```
F The element type "listitem" must be terminated by the matching
end-tag "</listitem>".
```

To resolve the error, click in the result list record which will locate and highlight the errors approximate position. Review the "listitem" elements, identify which is missing an end tag and insert </listitem>.

Also the files contained in the current project and selected with the mouse in the Project view can be checked for well-formedness with one action available on the popup menu of the Project view : Check well form

Validating Documents

A *Valid* XML document is a *Well Formed* XML document, which also conforms to the rules of a schema which defines the legal elements of an XML document. The schema type can be: XML Schema, Relax NG (full or compact syntax), Schematron, Document Type Definition (DTD) or Namespace Routing Language (NRL).

The purpose of the schema is to define the legal building blocks of an XML document. It defines the document structure with a list of legal elements.

The <oXygen/> Validate document function ensures that your document is compliant with the rules defined by an associated DTD, XML Schema, Relax NG or Schematron schema. XML Schema or Relax NG Schema can embed Schematron rules. For Schematron it is possible to select the validation phase.

A line with a validation error or warning will be marked in the editor panel by underlining it with a red color. Also a red sign will mark the position in the document of that line on the right side ruler of the editor panel. The same will happen for a validation warning, only the color will be yellow instead of red.

The ruler on the right of the document is designed to display the errors found during the validation process and also to help the user to locate them more easily. The ruler contains the following areas:

- top area containing a success validation indicator that will turn green in case the validation succeeded or red otherwise.

  A more detailed report of the errors is displayed in the tool tip. In case there are errors, only the first three of them will be presented in the tool tip;

- middle area where the errors markers are depicted in red (with a darker color tone for the current selected one). The number of markers shown can be limited by modifying the setting Options → Preferences+Editor / Document checking+Limit error markers to

  Clicking on a marker will highlight the corresponding text area in the editor. The error message is displayed both in the tool tip and in the error area on the bottom of the editor panel.

  The Document checking user preferences are easily accessible from the button displayed at the beginning of the error message on the bottom of the editor panel.

- bottom area containing two navigation arrows that will go to the next or to the previous error and a button for clearing all the error markers from the ruler. The same actions can be triggered from Document → Validate as you type (**Ctrl + .**)-> Next error and Document → Validate as you type (**Ctrl + ,**)-> Previous error.

If you don't change the active editor and you don't switch to other application the schema associated to the current document is parsed and cached at the first validate action and is reused by the next *Validate document* actions without reparsing it. This increases the speed of the validate action starting with the second execution if the schema is large or is located on a remote server on the Web. To reset the cache and reparse the schema you have to use the Reset cache and validate action.

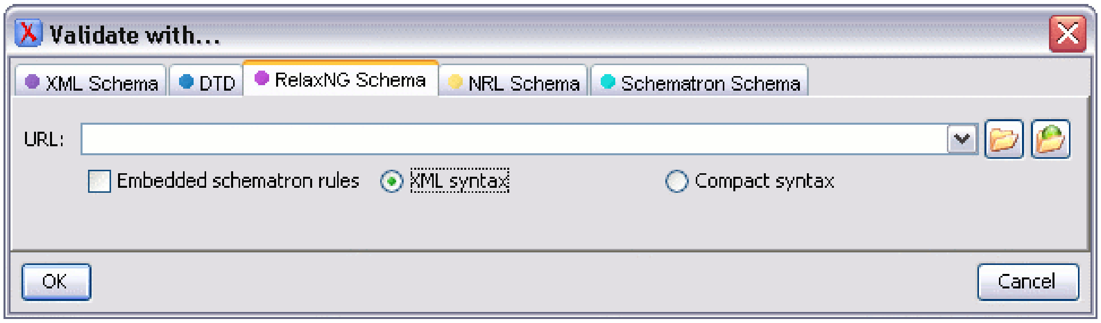
Use one of the actions for validating the current document:

- Select menu Document+XML Document → Validate document (**Ctrl+Shift+V**) or click the button Validate document available in the Validate toolbar to return an error result-list in the Message panel. Mark-up of current document is checked to conform with the specified DTD, XML Schema or Relax NG schema rules. It caches the schema and the next execution of the action uses the cached schema.

- Select menu Document+XML Document → Reset cache and validate (**Ctrl+Shift+V**) or click the button Reset cache and validate available in the Validate toolbar to reset the cache with the schema and validate the document. It returns an error result-list in the Message panel. Mark-up of current document is checked to conform with the specified DTD, XML Schema or Relax NG schema rules.

- Select menu Document+XML Document → External Validation or click the button External validation available in the Validate toolbar to display the External Validation dialog, used to select the external schemas (XML Schema, DTD, Relax NG, NRL,Schematron schema) and to execute the Validation operation on the current document using the selected schemas. Returns an error result-list in the Message panel. Mark-up of current document is checked to conform with the specified schemas rules.

Figure 4.27. The External validation dialog



Validate with...

XML Schema | DTD | RelaxNG Schema | NRL Schema | Schematron Schema

URL:

□ Embedded schematron rules ● XML syntax ○ Compact syntax

OK Cancel

- Select menu Document+XML Document → Open external schema or click the button Open external schema available in the Document toolbar to open the schema used for validating the current document in a new editor.

- Select contextual menu of Project Panel,Validate Selection to validate all selected files with their declared schemas.

- Select contextual menu of Project Panel,Validate Selection with ... to select a schema and validate all selected files with that schema.

The button Validation options available on the *Validate* toolbar allows quick access to the validation options of the built-in validator in the <oXygen/> user preferences.

Also you can select several files in the Project panel and validate them with one click by selecting the action Validate selection or the action Validate selection with ... available from the contextual menu of the Project view.

If there are too many validation errors and the validation process is long you can limit the maximum number of reported errors.

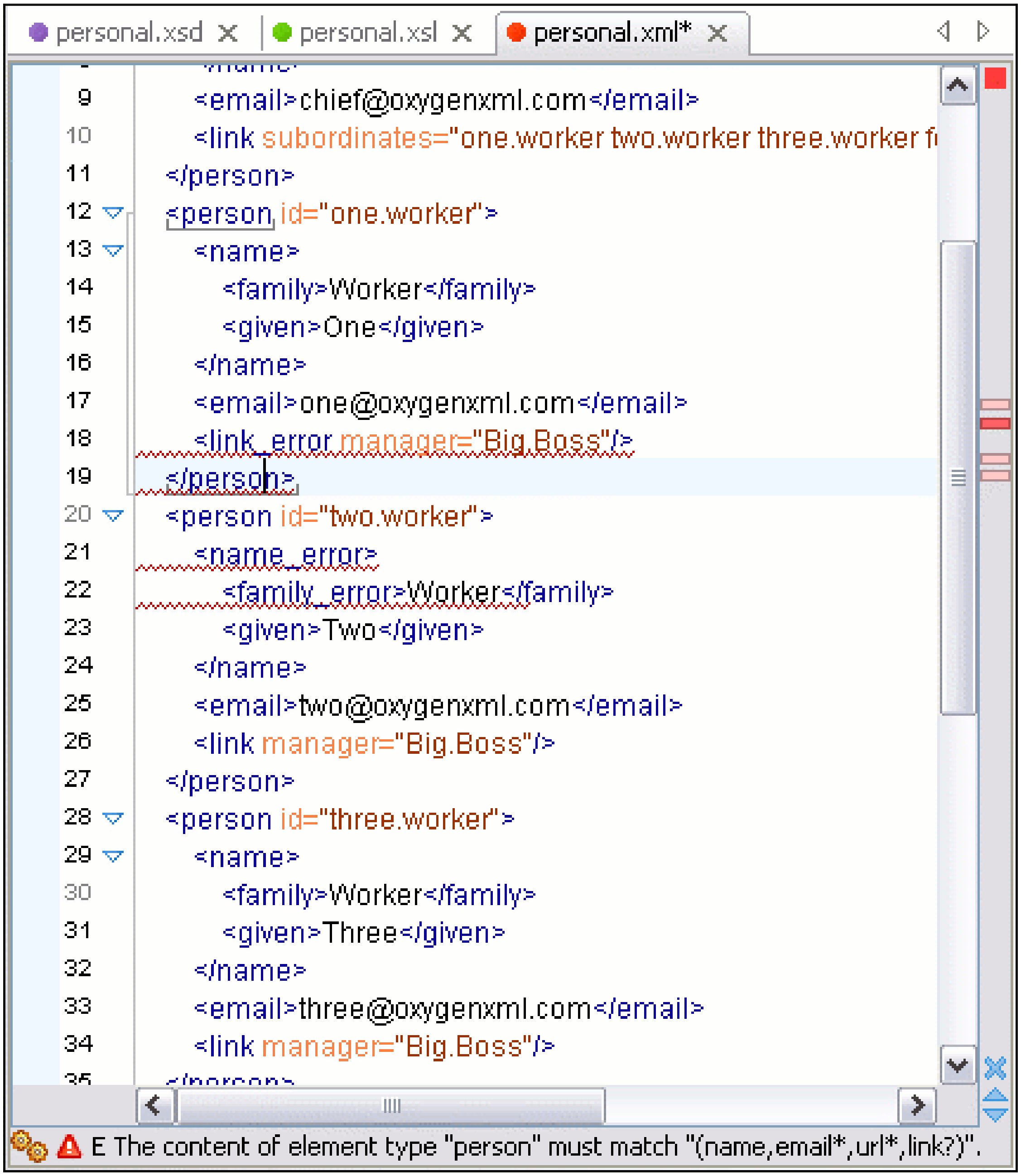
Validation of an XML document against an XML Schema containing a type definition with a *minOccurs* or *maxOccurs* attribute having a value larger than 256 limits the value to 256 and issues a warning about this restriction in the Message panel at the bottom of the <oXygen/> window. Otherwise for large values of the *minOccurs* and *maxOccurs* attributes the validator fails with an OutOfMemory error which practically makes <oXygen/> unusable without a restart of the entire application.

Status messages from every validation action are logged into the Information view.

Validate as you type

<oXygen/> can be configured to mark validation errors in the edited document as you modify it using the keyboard. If you enable the *Validate as you type* option any validation errors and warnings will be highlighted automatically in the editor panel after the configured delay from the last key typed, with underline markers in the editor panel and small rectangles on the right side ruler of the editor panel, in the same way as for manual validation invoked by the user.

Figure 4.28. Automatic validation of the edited document

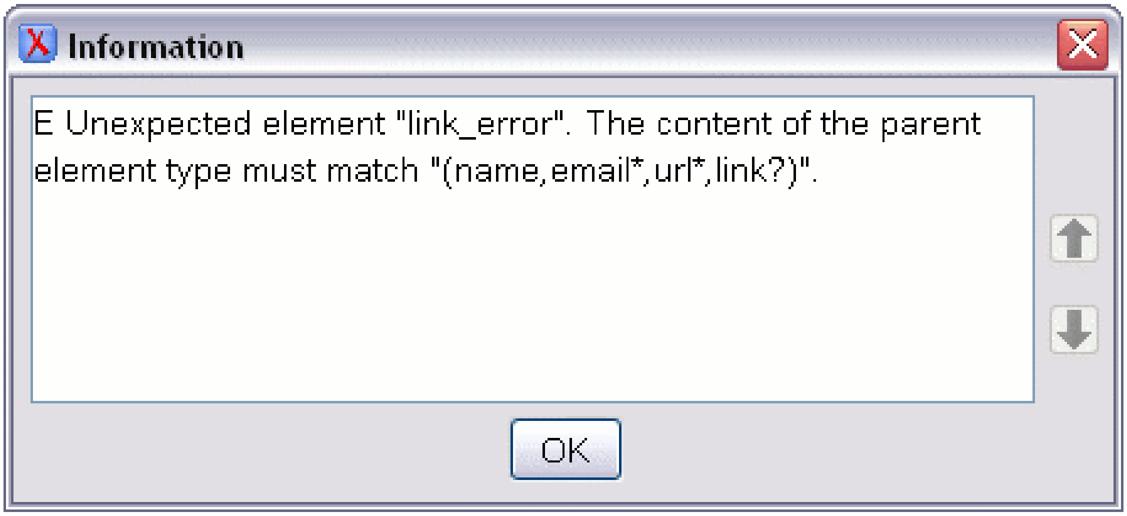


```
    </name>
    <email>chief@oxygenxml.com</email>
    <link subordinates="one.worker two.worker three.worker f
  </person>
  <person id="one.worker">
    <name>
      <family>Worker</family>
      <given>One</given>
    </name>
    <email>one@oxygenxml.com</email>
    <link_error manager="Big.Boss"/>
  </person>
  <person id="two.worker">
    <name_error>
      <family_error>Worker</family>
      <given>Two</given>
    </name>
    <email>two@oxygenxml.com</email>
    <link manager="Big.Boss"/>
  </person>
  <person id="three.worker">
    <name>
      <family>Worker</family>
      <given>Three</given>
    </name>
    <email>three@oxygenxml.com</email>
    <link manager="Big.Boss"/>
  </person>
```

E The content of element type "person" must match "(name,email*,url*,link?)".

If the error message is long and it is not displayed completely in the error line at the bottom of the editing area double-clicking on the error icon at the left of the error line or on the error line displays an information dialog with the full error message. The arrow buttons of the dialog enable the navigation to other errors issued by the validation as you type feature.

Figure 4.29. Full error message for validate as you type errors



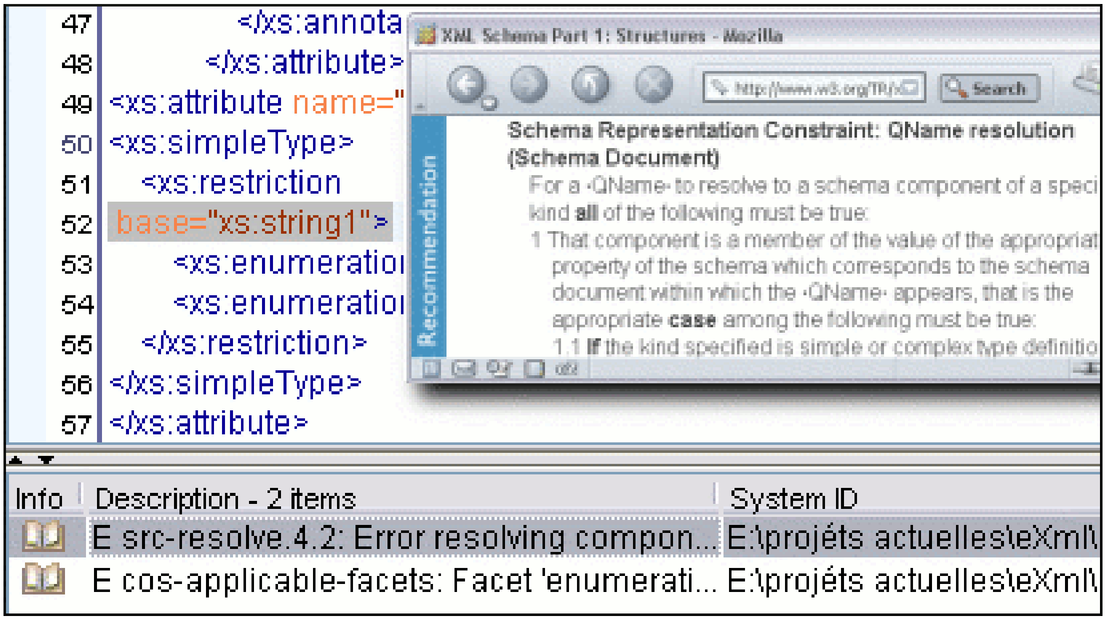
E Unexpected element "link_error". The content of the parent element type must match "(name,email*,url*,link?)".

<oXygen/> logs status messages of the validation action into the Information view.

References to XML Schema specification

If validation is done against XML Schema <oXygen/> indicates a specification reference relevant for each validation error. The error messages contain an Info field that when clicked will open the browser on the "XML Schema Part 1:Structures" specification at exactly the point where the error is described thus allowing you to understand the reason for that error.

Figure 4.30. Link to specification for XML Schema errors



```
            </xs:annota
         </xs:attribute>
<xs:attribute name="
<xs:simpleType>
   <xs:restriction
base="xs:string1">
      <xs:enumeratio
      <xs:enumeratio
   </xs:restriction>
</xs:simpleType>
</xs:attribute>
```

Schema Representation Constraint: QName resolution (Schema Document)

For a ·QName· to resolve to a schema component of a speci kind **all** of the following must be true:

1 That component is a member of the value of the appropriat property of the schema which corresponds to the schema document within which the ·QName· appears, that is the appropriate **case** among the following must be true:

1.1 **If** the kind specified is simple or complex type definitio

Info	Description - 2 items	System ID
📖	E src-resolve.4.2: Error resolving compon...	E:\projéts actuelles\eXml\
📖	E cos-applicable-facets: Facet 'enumerati...	E:\projéts actuelles\eXml\

Example 4.2. Validate document error message

In our example we will use the case where a Docbook listitem element does not match the rules of the `docbookx.dtd`. In this case running Validate document will return the following error.

```
E The content of element type "listitem" must
match"(calloutlist|glosslist|itemizedlist|orderedlist|segmentedlist|
simplelist|variablelist| caution|important|note|tip|warning|
literallayout|programlisting|programlistingco|screen|
screenco|screenshot|synopsis|cmdsynopsis|
funcsynopsis|classsynopsis|fieldsynopsis| constructorsynopsis|
destructorsynopsis|methodsynopsis|formalpara|para|simpara|
address|blockquote|graphic|graphicco|mediaobject|
mediaobjectco|informalequation| informalexample|
informalfigure|informaltable|equation|example|
figure|table|msgset|procedure|sidebar|qandaset|anchor|
bridgehead|remark|highlights|abstract|authorblurb|epigraph|
indexterm|beginpage)+".
```

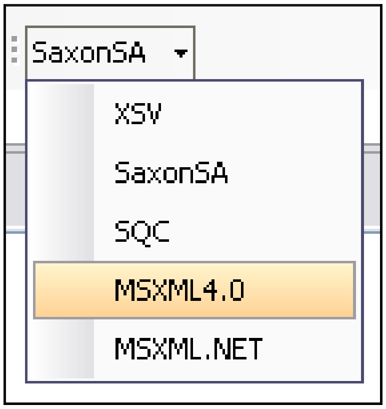
As you can see, this error message is a little more difficult to understand, so understanding of the syntax or processing rules for the Docbook XML DTD's "listitem" element is required. However, the error message does give us a clue as to the source of the problem, but indicating that "The content of element type "listitem" must match".

Luckily most standards based DTD's, XML Schema's and Relax NG schemas are supplied with reference documentation. This enables us to lookup the element and read about it. In this case we would want to learn about the child elements of "listitem" and their nesting rules. Once we have correctly inserted the required child element and nested it in accordance with the XML rules, the document will become valid on the next validation test.

Custom validation of XML documents

If you need to validate the edited document with other validation engine than the built-in one you have the possibility to configure external validators as custom validation engines in <oXygen/>. After such a custom validator is properly configured in Preferences it can be applied on the current document with just one click on the External Validation toolbar. The document is validated against the schema declared in the document.

Figure 4.31. External validation toolbar



Some validators are configured by default:

LIBXML

included in <oXygen/> (Windows edition), associated to XML Editor, able to validate the edited document against XML Schema, Relax NG schema full syntax, DTD or a custom schema type.

Saxon SA

not included in <oXygen/>, the jar file and license key file of Saxon 8 SA must be placed in the lib subdirectory of the installation directory After that <oXygen/> must be restarted. It is associated to XML Editor and XSD Editor.

MSXML 4.0

included in <oXygen/> (Windows edition). It is associated to XML Editor, XSD Editor and XSL Editor. It is able to validate the edited document against XML Schema, DTD or a custom schema type.

MSXML.NET

included in <oXygen/> (Windows edition). It is associated to XML Editor, XSD Editor and XSL Editor. It is able to validate the edited document against XML Schema, DTD or a custom schema type.

XSV

not included in <oXygen/>. A Windows distribution of XSV can be downloaded from: ftp://ftp.cogsci.ed.ac.uk/pub/XSV/XSV210.EXE [ftp://ftp.cogsci.ed.ac.uk/pub/XSV/XSV210.EXE] A Linux distribution can be downloaded from ftp://ftp.cogsci.ed.ac.uk/pub/XSV/XSV-2.10-1.noarch.rpm. [ftp://ftp.cogsci.ed.ac.uk/pub/XSV/XSV-2.10-1.noarch.rpm] The executable path is configured already in <oXygen/> for the installation directory `[oXygen-install-dir]/xsv`. If it is installed in a different directory the predefined executable path must be corrected in Preferences. It is associated to XML Editor and XSD Editor. It is able to validate the edited document against XML Schema or a custom schema type.

SQC (Schema Quality Checker from IBM)

not included in <oXygen/>. It can be downloaded from here [http://www.alphaworks.ibm.com/tech/xmlsqc?open&l=xml-dev,t=grx,p=shecheck] (it comes as a .zip file, at the time of this writing SQC2.2.1.zip is about 3 megabytes). The executable path and working directory are configured already for the SQC installation directory `[oXygen-install-dir]/sqc`. If it is installed in a different directory the predefined executable path and working directory must be corrected in Preferences. It is associated to XSD Editor. It must be used with a Java 1.4 virtual machine because it does not work with Java 1.5.

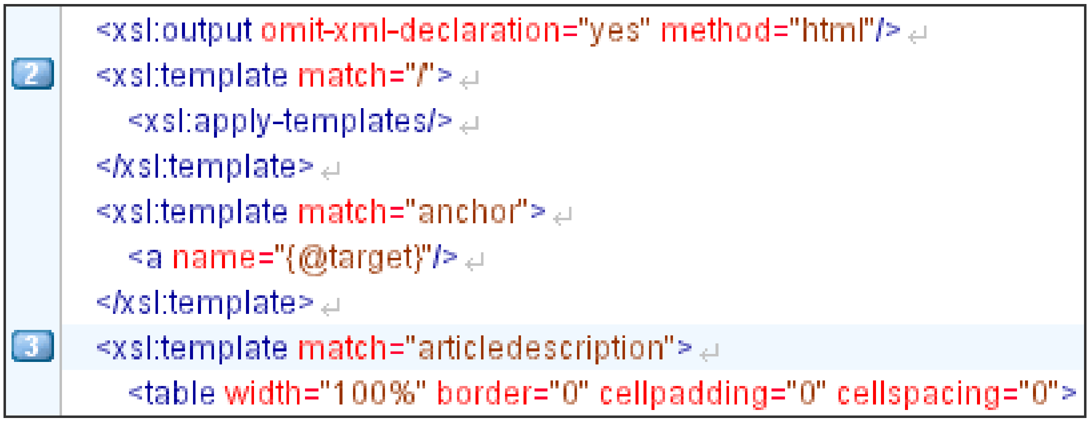
Document navigation

Navigating between XML elements located in various parts of the currently edited document is easy due to several powerful features.

Quick document browsing using bookmarks

The concept of bookmark is the same as in other IDEs: the user can mark a position in one edited document so that he can quickly return after further editing and browsing through one or more documents opened at the same time. Up to nine distinct bookmarks can be placed in any opened document. Configurable shortcut key strokes are available for placing bookmarks and for quick return to any of the marked positions.

Figure 4.32. Editor Bookmarks



```
<xsl:output omit-xml-declaration="yes" method="html"/>
<xsl:template match="/">
  <xsl:apply-templates/>
</xsl:template>
<xsl:template match="anchor">
  <a name="{@target}"/>
</xsl:template>
<xsl:template match="articledescription">
  <table width="100%" border="0" cellpadding="0" cellspacing="0">
```

The key strokes can be configured from Options → Preferences->Menu shortcut keys.

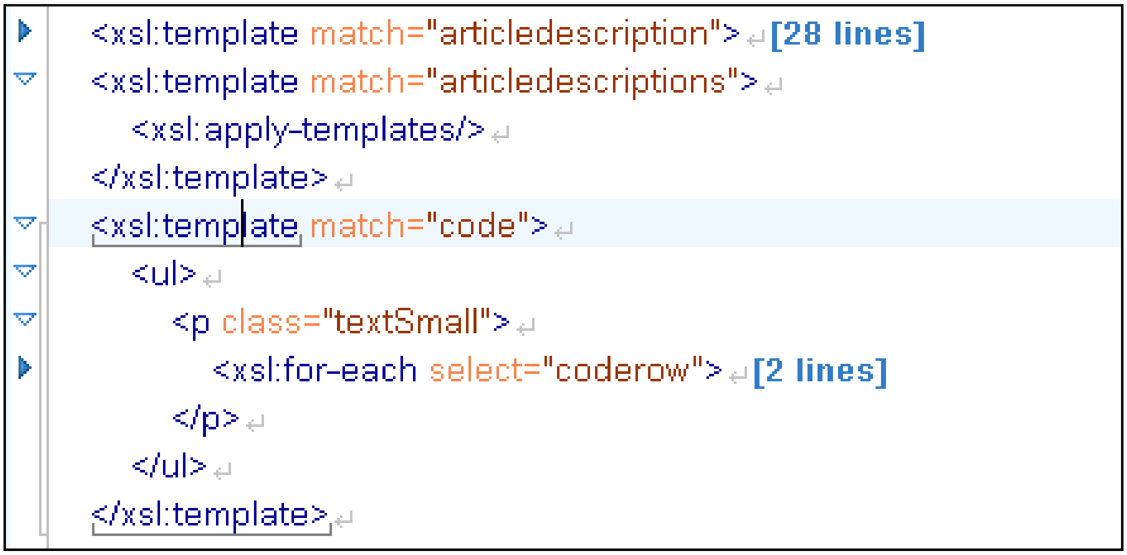
A bookmark can be placed from Edit → Bookmarks->Create, from Edit → Bookmarks (**F7**)->Bookmarks quick creation, by clicking the toolbar button Bookmarks quick creation and by clicking in the margin of the editing area, to the left of the line number area, reserved for bookmarks.

Quickly switching to a position marked by a bookmark can be done by Edit → Bookmarks->Go to.

Folding of the XML elements

XML documents are organized as a tree of elements. When working on a large document you can collapse some elements leaving in the focus only the ones you need to edit. Expanding and collapsing works on individual elements: expanding an element leaves the child elements unchanged.

Figure 4.33. Folding of the XML Elements



```
<xsl:template match="articledescription">[28 lines]
<xsl:template match="articledescriptions">
  <xsl:apply-templates/>
</xsl:template>
<xsl:template match="code">
  <ul>
    <p class="textSmall">
      <xsl:for-each select="coderow">[2 lines]
    </p>
  </ul>
</xsl:template>
```

An unique feature of <oXygen/> is the fact that the folds are persistent: the next time you will open the document the folds are restored to the last state so you won't have to collapse the uninteresting parts again.

To toggle the folded state of an element click on the special mark displayed in the left part of the document editor next to the start tag of that element or click on the action Toggle fold available from the context menu or from the menu Document+Folding → Toggle fold The element extent is marked with a grey line displayed in the left part of the edited document. The grey line covers always the lines of text comprised between the start tag and end tag of the element where it is positioned the cursor.

Other menu actions related to folding of XML elements are available from the context menu of the current editor or from the menu Document → Folding:

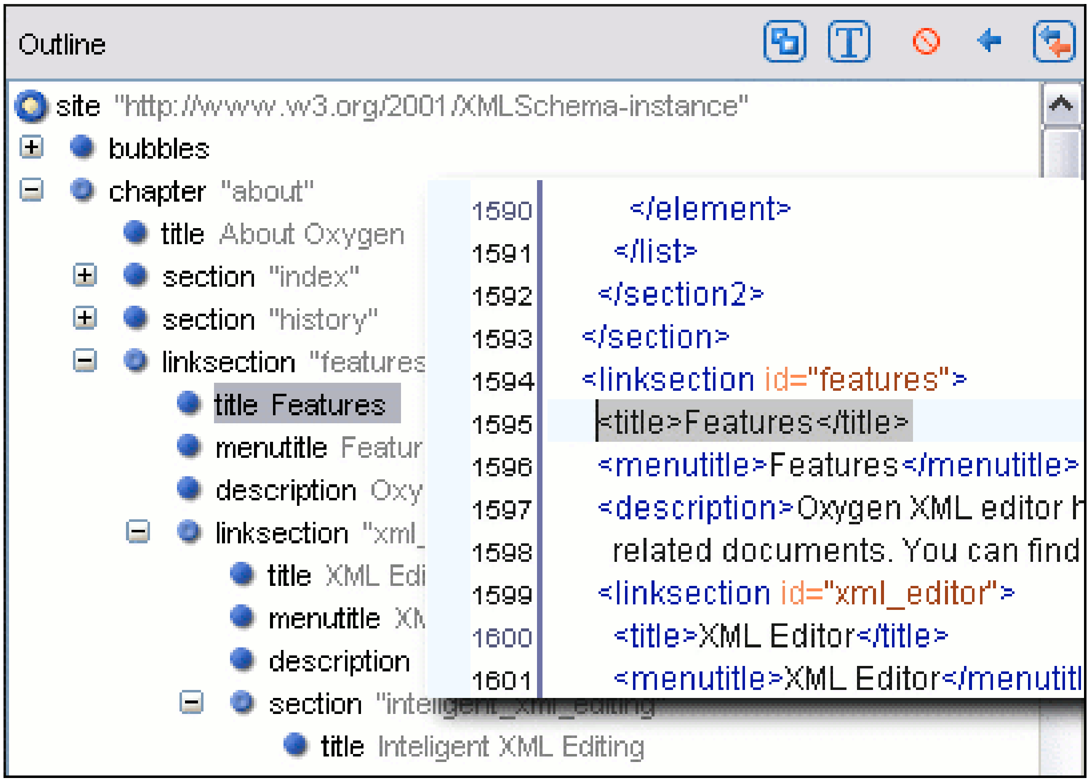
- Document+Folding+ → Close other folds (**Ctrl+NumPad+/**) Fold all the sections except the current element.
- Document+Folding+ → Collapse child folds (**Ctrl+NumPad+-**): Fold the sections indented with one level inside the current element.
- Document+Folding+ → Expand child folds (**Ctrl+NumPad++**): Unfold the sections indented with one level inside the current element.
- Document+Folding+ → Expand all (**Ctrl+NumPad+***): Unfold all the sections inside the current element.
- Document+Folding+ → Toggle fold: Toggles the state of the current fold.

Outliner view

The Outliner view has the following available functions:

- the section called “XML Document Overview”
- the section called “Modification Follow-up”
- the section called “Document Structure Change”
- the section called “Document Tag Selection”

Figure 4.34. The Outliner view



```
      </element>
    </list>
  </section2>
</section>
<linksection id="features">
  <title>Features</title>
  <menutitle>Features</menutitle>
  <description>Oxygen XML editor h
   related documents. You can find
  <linksection id="xml_editor">
   <title>XML Editor</title>
   <menutitle>XML Editor</menutitl
```

XML Document Overview

The Outliner displays a general tag overview of the current edited XML Document. It also shows the correct hierarchical dependencies between the tag elements, making it easier for the user to be aware of the document's structure and the way tags are nested.

The *Expand more* and *Collapse all* items of the popup menu available on the outliner tree enlarge or reduce the set of nodes of the edited document currently visible in the view. The tree expansion action is a faster alternative to mouse clicks on the plus signs of the tree when one wants to access quickly a node deeply nested in the hierarchy of document nodes. When a large number of nodes become expanded and the document structure is not clear any more the collapsing action clears the view quickly by reducing the depth of the expanded nodes to only one child of the currently selected node.

Modification Follow-up

When editing, the Outliner dynamically follows the modifications introduced by the user, showing in the middle of the panel the node which is currently being modified .This gives the user better insight on location where in the document one is positioned and how the structure of the document is affected by one's modifications.

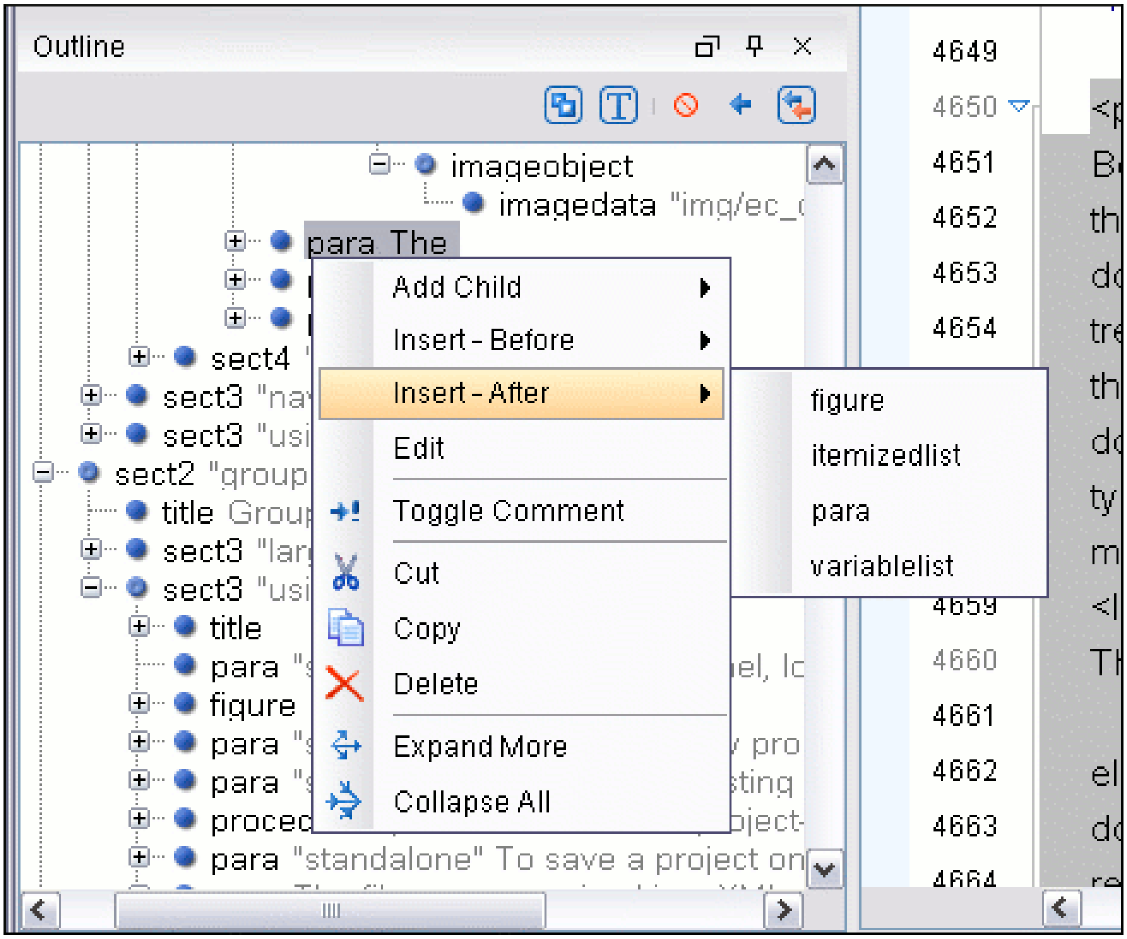
Document Structure Change

Entire XML elements can be moved or copied in the edited document using only the mouse in the Outliner view in drag-and-drop operations. If you drag an XML element in the Outliner view and drop it on another one in the same panel then the dragged element will be moved after the drop target element. If you hold the mouse pointer over the drop target for a short time before the drop then the drop element will be expanded first and the dragged element will be moved inside the drop one after its opening tag. If you hold down the CTRL key it will be performed a copy operation instead a move one.

The drag and drop action in the Outliner view can be disabled and reenabled from the Preferences dialog.

The popup menu of the Outline tree

Figure 4.35. Popup menu of the Outline tree



The *Add Child*, *Insert - Before* and *Insert - After* submenus of the outline tree popup menu allow to quickly insert new tags in the document at the place of the element currectly selected in the Outline tree. The *Add Child* submenu lists the names of all the elements which are allowed by the schema associated with the current document as child of the current element. The effect is the same as typing the '<' character and selecting an element name from the popup menu offered by the content completion assistant. The *Insert - Before* and *Insert - After* submenus of the Outline tree popup menu list the elements which are allowed by the schema associated with the current document as siblings of the current element inserted immediately before respectively after the current element.

The *Toggle comment* item of the outline tree popup menu is the same item as in the editor popup menu with the same name. It encloses the currently selected element of the outline tree in an XML comment, if the element is not commented, or uncomments it if it is commented.

The *Cut*, *Copy* and *Delete* items of the popup menu execute the same actions as the Edit menu items with the same name on the elements currently selected in the outline tree.

Document Tag Selection

The Outliner can also be used to search for a specific tag's location and contents in the edited document. Intuitively, by selecting with the left mouse button the desired tag in the Outliner view, the document is scrolled to the position of the selected tag. Moreover, the tag's contents are selected in the document, making it easy to notice the part of the document contained by that specific tag and furthermore to easily copy and paste the tag's contents in other parts of the document or in other documents.

Navigation buttons

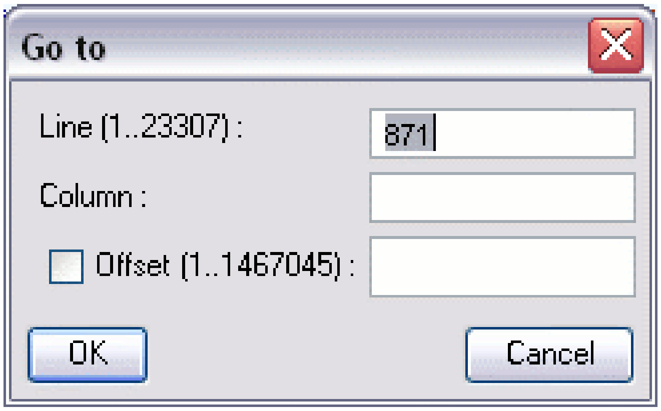
These buttons are available in editor's main toolbar:

- Go to last modification : Moves the caret to the last modification in any opened document.
- Back :Moves the caret to the previous position.
- Forward :Moves the caret to the next position. Enabled after at least one press of "Back" button.

Using the Go To dialog

The "Go to" dialog available from Find → Go to ... (**Ctrl+L (Cmd+L on Mac)**) enables you to go to a precise location in the current edited file specified by line and column or by offset relative to the beginning of the file.

Figure 4.36. Go to



Go to

Line (1..23307) : 871

Column :

□ Offset (1..1467045) :

Complete the dialog as follows:

Line The destination line in the current document.

Column The destination column in the current document.

Offset The destination offset relative to the beginning of document.

Grouping documents in XML projects

Large Documents

Let's consider the case of documenting a large project. It is likely to be several people involved. The resulting document can be few megabytes in size. How to deal with this amount of data in such a way the work parallelism would not be affected ?

Fortunately, XML provides a solution for this. It can be created a master document, with references to the other document parts, containing the document sections. The users can edit individually the sections, then apply FOP or XSLT over the master and obtain the result files, let say PDF or HTML.

Two conditions must be fulfilled:

- The master should declare the DTD to be used and the external entities - the sections. A sample document is:

  ```
  <?xml version="1.0" encoding="UTF-8"?>
  <!DOCTYPE book SYSTEM "../xml/docbookx.dtd" [
  <!ENTITY testing SYSTEM "testing.xml" > ]
  >
  <book>
  <chapter> ...
  ```

  At a certain point in the master document there can be inserted the section "testing.xml" entity:

  ... &testing; ...

- The document containing the section must not define again the DTD.

  <section> ... here comes the section content ... </section>

  Note

  The indicated DTD and the element names ("section", "chapter") are used here only for illustrating the inclusion mechanism. You can use any DTD and element names you need.

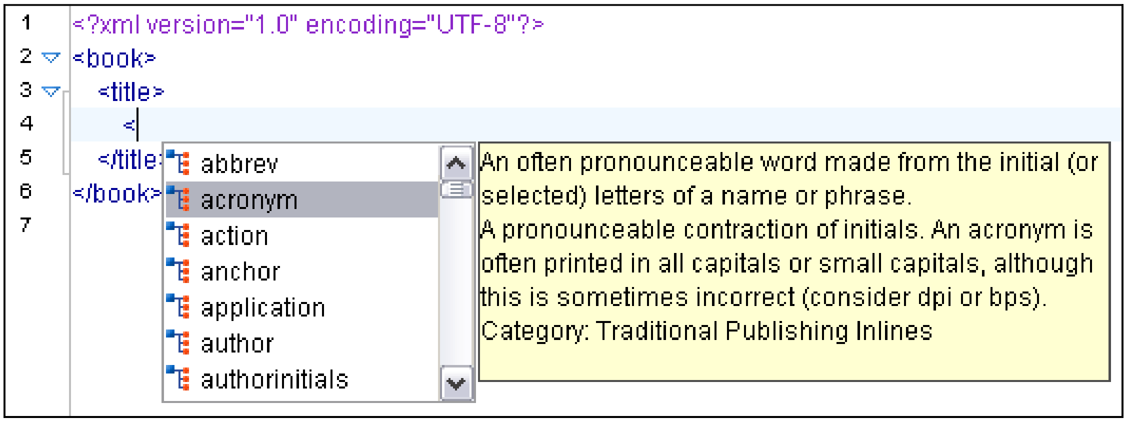
When splitting a large document and including the separate parts in the master file using external entities, only the master file will contain the Document Type Definition (the DTD) or other type of schema. The included sections can't define again the schema because the main document will not be valid. If you want to validate the parts separately you have to use XInclude for assembling the parts together with the master file.

Creating an included part

Open a new document of type XML, with no associated schema.

Make sure that in the Content Completion / Default preferences you have chosen the correct schema. Now you can type in the edited document the root element of your section. For example, if you are using docbook it can be "<chapter></chapter>" or "<section></section>". Now if you are moving the cursor between the tags and press "<", you will see the list of element names that can be inserted.

Figure 4.37. Content Completion list over a document with no schema



```
<?xml version="1.0" encoding="UTF-8"?>
<book>
  <title>
    <
  </title>
</book>
```

An often pronounceable word made from the initial (or selected) letters of a name or phrase.
A pronounceable contraction of initials. An acronym is often printed in all capitals or small capitals, although this is sometimes incorrect (consider dpi or bps).
Category: Traditional Publishing Inlines

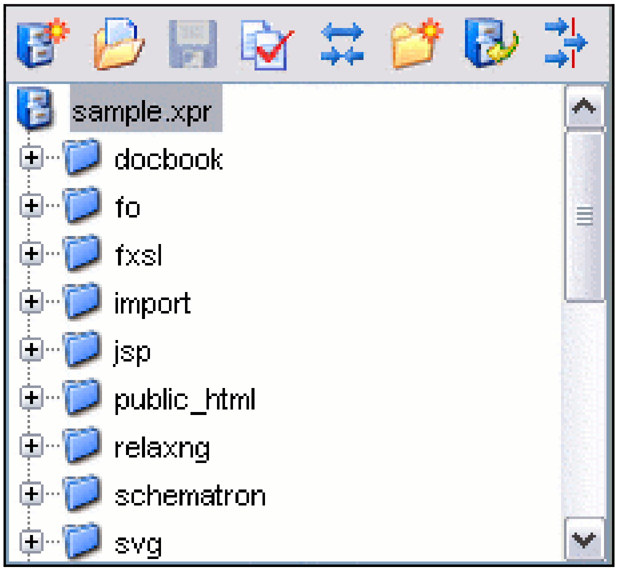
Note

The validation will not work on a included file, as no DTD is set. The validation can be done only from the master file. At this point you can only check the document to be well-formed.

Using the Project view

The Project view, located on the left-hand side of the main window, is designed to assist the user in organizing and managing related files grouped in the same XML project. The actions available on the context menu and toolbar associated to this panel enable the creation of XML projects and shortcuts to various operations on the project documents.

Figure 4.38. The Project view



The default layout initialized by the Perspective → Reset Layout menu item arranges the Project view on the left side of the <oXygen/> window, above the Outline view. If you closed the view at some time to get more editing space you can reopen it quickly at any time with the Project → Show Project View menu item.

To create a new project select File → New Project or click the toolbar button New Project

To open an existing project select File → Open Project ... (**Ctrl+F2**) or click the toolbar button Open Project or select File → Reopen Project (displays a list of recently opened project files, select a project file to open).

To save a project on disk select File → Save Project (**Ctrl+F3**) or click the toolbar button Save Project

The files are organized in a XML project usually as a collection of folders. There are two types of folders:

- Logical folders - they are marked with a blue icon and do not have any connection with folders on the disk, creating and deleting them in <oXygen/> does not affect the file system on disk.
- Linked folders - they are marked with a yellow icon and their name and content mirror a real folder existing in the file system on disk.

To create a new logical folder select in the contextual menu New Folder or Import Folders or Import Remote Folders or click the Project view toolbar button New Folder

You can create linked folders by dragging and dropping a folder from the Windows Explorer / Mac OS X Finder over the project tree or by selecting in the contextual menu Link to External Folders However you cannot drag and drop other files or folders over a linked folder.

To add one or more files to a folder, right click on it, and choose Add files or Add Edited File or click the toolbar button Add Edited File or right-click on the title of an opened editor and select from the pop-up menu Add to project or Add all to project.

The default target when adding files to a project is the project root. Selecting a folder changes the target to the selected folder. Files may have multiple instances, within the folder system but cannot appear twice within the same folder.

To remove one or more files and/or folders select them with the mouse in the project tree, right-click to invoke the contextual menu and select the Remove action or press the DELETE key.

A child (folder or file) of a linked folder can be renamed by right-clicking on it and accessing the Rename action from the contextual menu. The file or folder will be renamed both in the <oXygen/> Project view and on the local disk.

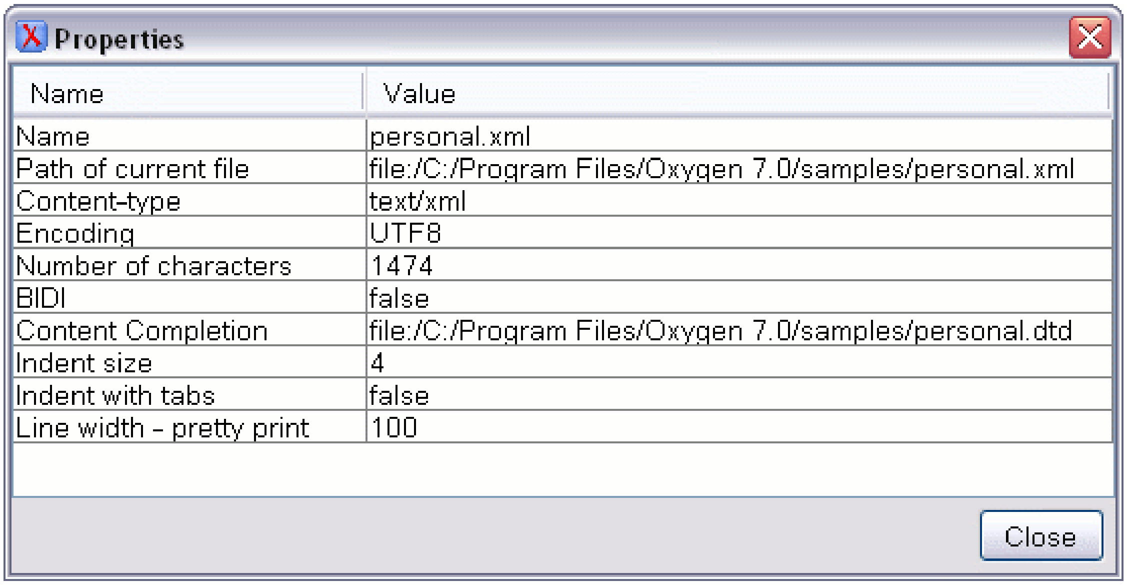
If a project folder contains many documents a certain document can be quickly located in the project tree if the user selects with the mouse the folder containing the desired document (or some arbitrary document in this folder) and types the first characters of the document name. The desired document will be automatically selected as soon as the typed characters uniquely identify its name in the folder. The selected document can be opened by pressing the ENTER key, by double-clicking on it and with one of the Open actions from the popup menu. For opening a file of known type with other editor than the default use the Open as action. Also the selected document can be deleted by pressing the DELETE key or by choosing Remove from the context menu.

The files from the entire project or from a project folder can be validated against a schema of type Schematron, XML Schema, Relax NG, NRL, or a combination of the later with Schematron with a single button click on ✓ Batch Validate. This together with the logical folder support of the project allows you to group your files and validate them very easily.

If the resources from a linked folder in the project have been changed outside the view you can refresh the content of the folder by using the Refresh action from the contextual menu. The action is also performed when selecting the linked resource and pressing **F5** key

A list of useful file properties similar to the ones available in the Properties view can be obtained with the *Properties* action of the popup menu invoked on a file node of the Project view tree, in a dialog like below:

Figure 4.39. The Properties dialog

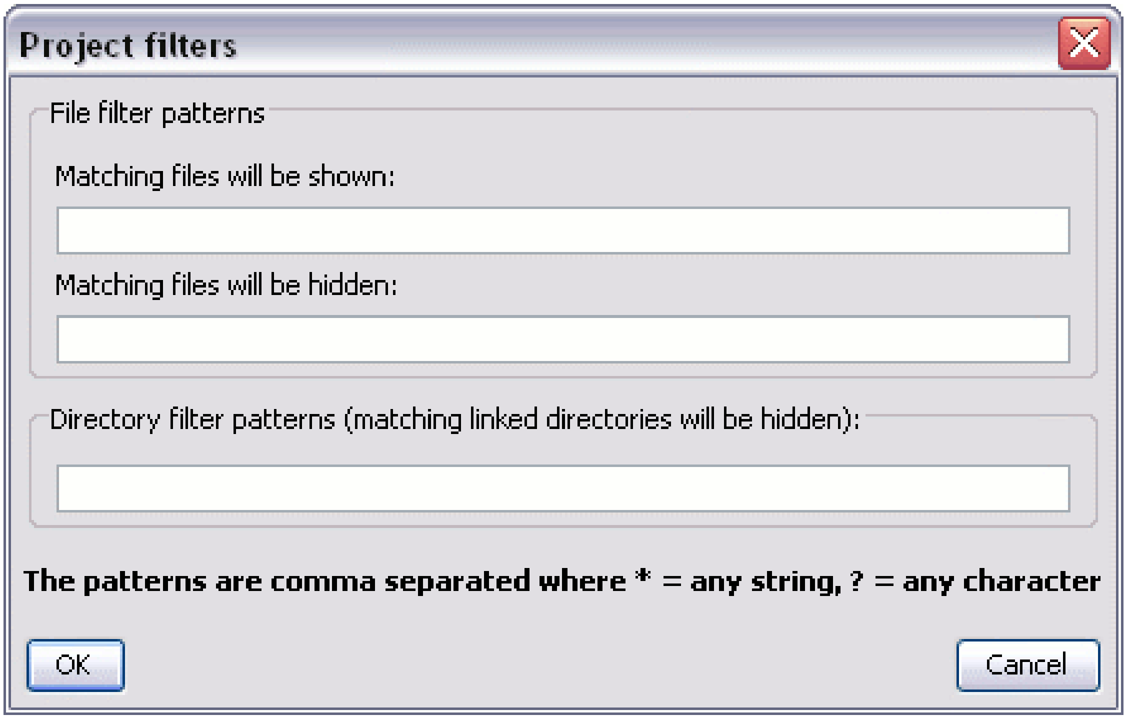


Name	Value
Name	personal.xml
Path of current file	file:/C:/Program Files/Oxygen 7.0/samples/personal.xml
Content-type	text/xml
Encoding	UTF8
Number of characters	1474
BIDI	false
Content Completion	file:/C:/Program Files/Oxygen 7.0/samples/personal.dtd
Indent size	4
Indent with tabs	false
Line width - pretty print	100

The full path to the project files is hidden by default. Click the toolbar button ⇔ Show/Hide Path to toggle the file path on or off.

The files and folders that appear as visible in the Project view can be filtered. Click the toolbar button → Filters to set filter patterns for the files you want or do NOT want to show.

Figure 4.40. Project filters dialog


Project filters
File filter patterns
Matching files will be shown:
Matching files will be hidden:
Directory filter patterns (matching linked directories will be hidden):
OK
Cancel

The patterns are comma separated where * = any string, ? = any character

In the dialog you can introduce filter patterns for the files that will be shown, files that will be hidden and filter patterns for the linked directories of the Project view that will be hidden.

Right-clicking any object in the tree-view displays the Project menu with functions that can be performed on, or from the selected object. Options available from the Project menu are specific to the object type selected in the tree-view.

Including document parts with XInclude

XInclude is a standard for assembling XML instances into another XML document through inclusion. It enables larger documents to be dynamically created from smaller XML documents without having to physically duplicate the content of the smaller files in the main file. XInclude is targeted as the replacement for External Entities. The advantage of using XInclude is that, unlike the entities method, each of the assembled documents is permitted to contain a Document Type Declaration (DocType Decl.). This means that each file is a valid XML instance and can be independently validated. It also means that the main document to which smaller instances are included can be validated without having to remove or comment the DocType Decl. as is the case with External Entities. This is makes XInclude a more convenient and effective method for managing XML instances that need to be stand-alone documents and part of a much larger work.

The main application for XInclude is in the document orientated content frameworks such as manuals and Web pages. Employing XInclude enables authors and content managers to manage content in a modular fashion that is akin to Object Orientated methods used in languages such as Java, C++ or C#.

The advantages of modular documentation include: reusable content units, smaller file units that are easier to edited, better version control and distributed authoring.

An example: create a chapter file and an article file in the `samples` folder of the <oXygen/> install folder and include the chapter file in the article file using XInclude.

Chapter file introduction.xml:

```
<?xml version="1.0"?>
<!DOCTYPE chapter PUBLIC "-//OASIS//DTD DocBook XML V4.3//EN"
"http://www.oasis-open.org/docbook/xml/4.3/docbookx.dtd">
<chapter>
    <title>Getting started</title>
    <section>
        <title>Section title</title>
        <para>Para text</para>
    </section>
</chapter>
```

Main article file:

```
<?xml version="1.0"?>
<!DOCTYPE article PUBLIC "-//OASIS//DTD DocBook XML V4.3//EN"
"http://www.docbook.org/xml/4.3/docbookx.dtd"
[ <!ENTITY % xinclude SYSTEM "../frameworks/docbook/dtd/xinclude.mod">
%xinclude;
]>
<article>
    <title>Install guide</title>
    <para>This is the install guide.</para>
    <xi:include xmlns:xi="http://www.w3.org/2001/XInclude"
                    href="introduction.xml">
      <xi:fallback>
        <para>
          <emphasis>FIXME: MISSING XINCLUDE CONTENT</emphasis>
        </para>
      </xi:fallback>
    </xi:include>
</article>
```

In this example the following is of note:

- The DocType Decl. defines an entity that references a file containing the information to add the xi namespace to certain elements defined by the Docbook DTD.
- The href attribute of the xi:include element specifies that the `introduction.xml` file will replace the xi:include element when the document is parsed.
- If the `introduction.xml` file cannot be found the parse will use the value of the xi:fallback element - a message to FIXME.

If you want to include only a fragment of other file in the master file the fragment must be contained in a tag having an *xml:id* attribute and you must use an XPointer expression pointing to the *xml:id* value. For example if the master file is:

```
<?xml version="1.0" encoding="UTF-8"?>
<?oxygen RNGSchema="test.rng" type="xml"?>
<test>
    <xi:include href="a.xml" xpointer="a1"
        xmlns:xi="http://www.w3.org/2001/XInclude"/>
</test>
```

and the `a.xml` file is:

```
<?xml version="1.0" encoding="UTF-8"?>
<test>
    <a xml:id="a1">test</a>
</test>
```

after resolving the XPointer reference the document is:

```
<?xml version="1.0" encoding="UTF-8"?>
<?oxygen RNGSchema="test.rng" type="xml"?>
<test>
    <a xml:id="a1" xml:base="a.xml">test</a>
</test>
```

The XInclude support in <oXygen/> is turned off by default. You can turn it on by going to the entry Enable XInclude processing in the menu Options → Preferences ...+XML / XML Parser When enabled <oXygen/> will be able to validate and transform documents comprised of parts added using XInclude.

Working with XML Catalogs

When Internet access is not available or the Internet connection is slow the OASIS XML catalogs [http://www.oasis-open.org/committees/entity/spec.html] present in the list maintained in the XML Catalog Preferences panel will be scanned trying to map a remote system ID (at document validation) or a URI reference (at document transformation) pointing to a resource on a remote Web server to a local copy of the same resource. If a match is found then <oXygen/> will use the local copy of the resource instead of the remote one. This enables the XML author to work on his XML project without Internet access or when the connection is slow and waiting until the remote resource is accessed and fetched becomes unacceptable. Also XML catalogs make documents machine independent so that they can be shared by many developers by modifying only the XML catalog mappings related to the shared documents.

<oXygen/> supports any XML catalog file that conforms to one of:

- the OASIS XML Catalogs Committee Specification [http://www.oasis-open.org/committees/entity/specs/cs-entity-xml-catalogs-1.0.html]
- the OASIS Technical Resolution 9401:1997 [http://www.oasis-open.org/specs/a401.htm] including the plain-text flavor described in that resolution

User preferences related to XML Catalogs can be configured from Options → Preferences ... +XML / XML Catalog

Converting between schema languages

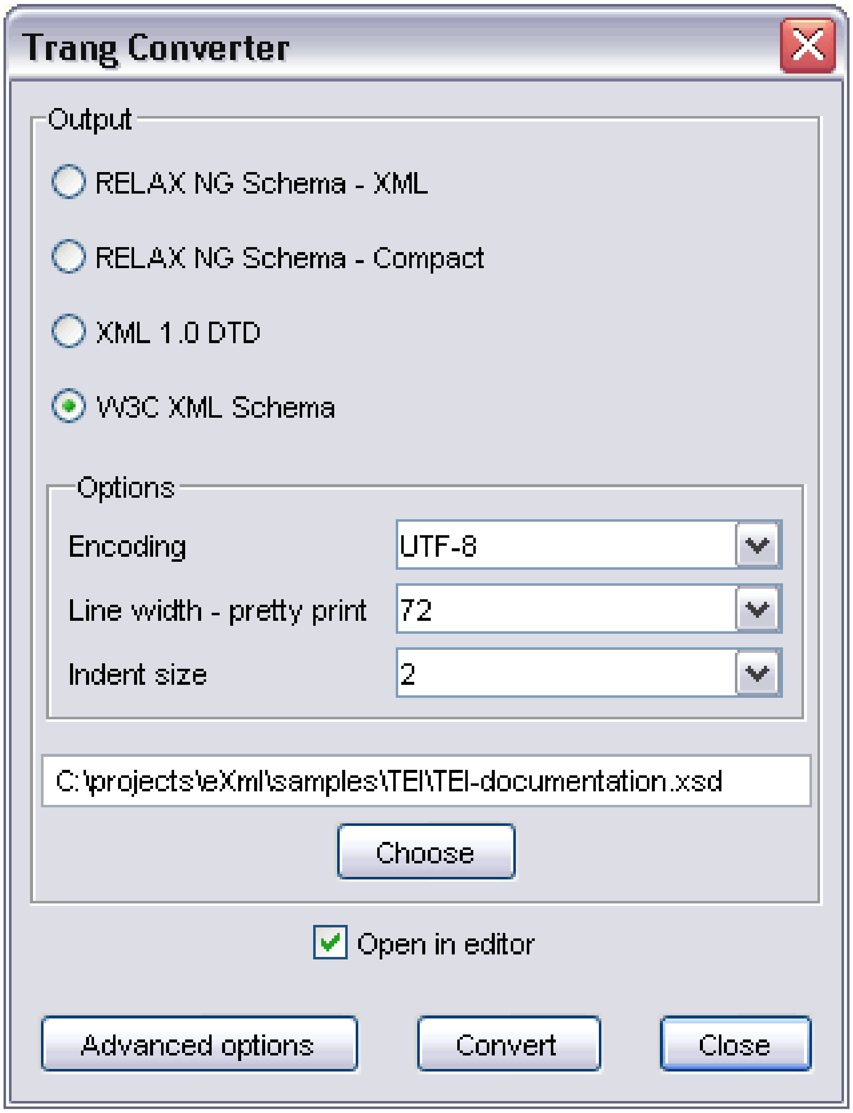
The Trang converter allows you to convert a DTD or Relax NG (full or compact syntax) schema or a set of XML files to an equivalent XML Schema, DTD or Relax NG (full or compact syntax) schema. Where perfect equivalence is not possible due to limitations of the target language <oXygen/> will generate an approximation of the source schema.

The conversion functionality is available from Tools → Trang Converter... (**Ctrl+Alt+T**) from the

Convert to ...

A schema being edited can be converted with just one click on a toolbar button if that schema can be the subject of a supported conversion. For example if you press the button Convert to ... while editing a Relax NG schema or DTD document the following dialog will be displayed:

Figure 4.41. Convert an edited schema



Output

○ RELAX NG Schema - XML

○ RELAX NG Schema - Compact

○ XML 1.0 DTD

● W3C XML Schema

Options

Encoding: UTF-8

Line width - pretty print: 72

Indent size: 2

C:\projects\eXml\samples\TEI\TEI-documentation.xsd

☑ Open in editor

Here you can set the target language of the conversion and the target schema name.

Editing XML tree nodes

A well-formed XML document can be viewed and edited in <oXygen/> also as a tree of XML elements. This is possible in the Tree Editor perspective available from Perspective → Tree Editor... (**Ctrl+T**) or

Tree Editor that provides specially designed views and toolbars and an editable tree allowing you to execute common actions for nodes of a tree like create and delete nodes, edit node names, move nodes with drag and drop.

If you want to be able to edit XML documents that are not well-formed all the time and still have a tree view of the document you should use the Outliner view in the Editor perspective.

Formatting and indenting documents (pretty print)

In structured markup languages, the whitespace between elements that is created by use of the **Space bar**, **Tab** or multiple line breaks insertion from use of the **Enter**, is not recognized by the parsing tools. Often this means that when structured markup documents are opened, they are arranged as one long, unbroken line, what seems to be a single paragraph.

While this is perfectly acceptable practice, it makes editing difficult and increases the likelihood of errors being introduced. It also makes the identification of exact error positions difficult. Formatting and Indenting, also called Pretty Print, enables such documents to be neatly arranged, in a manner that is consistent and promotes easier reading on screen and in print output.

Pretty print is in no way associated with the layout or formatting that will be used in the transformed document. This layout and formatting is supplied by the XSL style sheet specified at time of transformation.

Procedure 4.9. To format and indent a document:

1. Open or focus on the document that is to be formatted and indented.
2. Select menu Document → XML Document → Format and Indent (**Ctrl+Shift+P**) or click the toolbar button Format and indent . While in progress the Status Panel will indicate Pretty print in progress. On completion, this will change to Pretty print successful and the document will be arranged.

Note

Pretty Print can format empty elements as an auto-closing markup tag (ex. <a/>) or as a regular tag (ex. <a></a>). It can preserve the order or attributes or order them alphabetically. Also the user may specify a list of elements for which white spaces are preserved exactly as before Pretty print and a one with elements for which white space is stripped. These can be configured from Options → Preferences+Editor / Format.

Pretty Print requires that the structured document is *well formed*. If the document is not *well formed* an error message is displayed. The message will usually indicate that a problem has been found in the form and will hint to the problem type. It will not highlight the general position of the error, to do this run the *well formed* action by selecting Document → Check document form (**Ctrl+Shift+W**).

To change the formatting of just one XML element see the action Pretty print element . To change the indenting of the current selected text see the action Indent selection .

For user preferences related to formatting and indenting like Detect indent on open and Indent on paste see the corresponding Preferences panel.

XML elements can be excepted from the reformatting performed by the pretty-print operation by including them in the *Preserve space elements (XPath)* list. That means that when the *Format and Indent* (pretty-print) action encounters in the document an element with the name contained in this list the whitespace is preserved inside that element. This is useful when most of the elements must be reformatted with the exception of a few ones which are listed here.

For the situation when whitespace should be preserved in most elements with the exception of a few elements, the names of these elements must be added to the *Strip space elements (XPath)* list.

In addition to simple element names both the *Preserve space elements (XPath)* list and the *Strip space elements (XPath)* one accept a restricted set of XPath expressions for covering a pattern of XML elements with only one expression. The allowed types of expressions are:

//xs:documentation
: the XPath descendant axis can be used only at the beginning of the expression; the namespace prefix can be attached to any namespace, no namespace binding check is performed when aplying the pretty-print operation

/chapter/abstract/title
: note the use of the XPath child axis

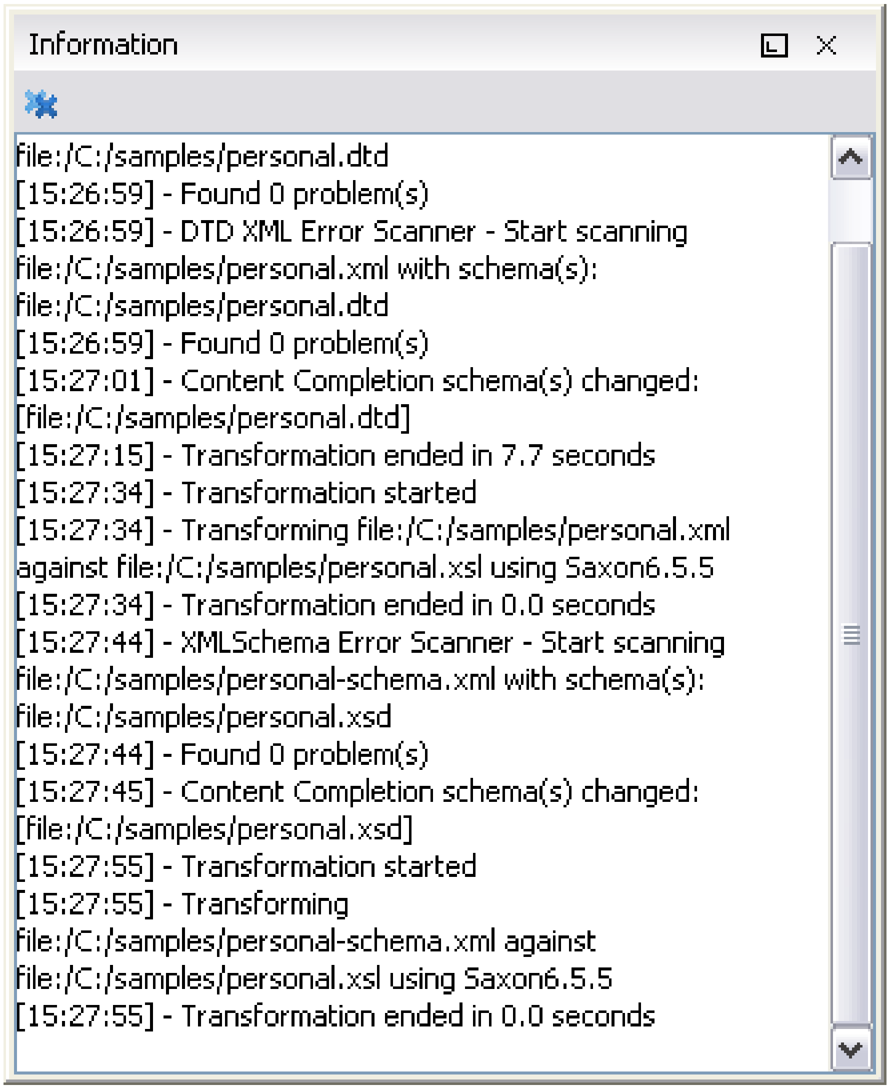
//section/title
: the descendant axis can be followed by the child axis

The value of an *xml:space* attribute present in the XML document on which the pretty-print operation is applied always takes precedence over the *Preserve space elements (XPath)* and the *Strip space elements (XPath)* lists.

Viewing status information

Status information generated by the Schema Detection, Validation, Validate as you type and Transformation threads are fed into the Information view allowing the user to monitor how the operation is being executed.

Figure 4.42. In Information view messages



```
file:/C:/samples/personal.dtd
[15:26:59] - Found 0 problem(s)
[15:26:59] - DTD XML Error Scanner - Start scanning
file:/C:/samples/personal.xml with schema(s):
file:/C:/samples/personal.dtd
[15:26:59] - Found 0 problem(s)
[15:27:01] - Content Completion schema(s) changed:
[file:/C:/samples/personal.dtd]
[15:27:15] - Transformation ended in 7.7 seconds
[15:27:34] - Transformation started
[15:27:34] - Transforming file:/C:/samples/personal.xml
against file:/C:/samples/personal.xsl using Saxon6.5.5
[15:27:34] - Transformation ended in 0.0 seconds
[15:27:44] - XMLSchema Error Scanner - Start scanning
file:/C:/samples/personal-schema.xml with schema(s):
file:/C:/samples/personal.xsd
[15:27:44] - Found 0 problem(s)
[15:27:45] - Content Completion schema(s) changed:
[file:/C:/samples/personal.xsd]
[15:27:55] - Transformation started
[15:27:55] - Transforming
file:/C:/samples/personal-schema.xml against
file:/C:/samples/personal.xsl using Saxon6.5.5
[15:27:55] - Transformation ended in 0.0 seconds
```

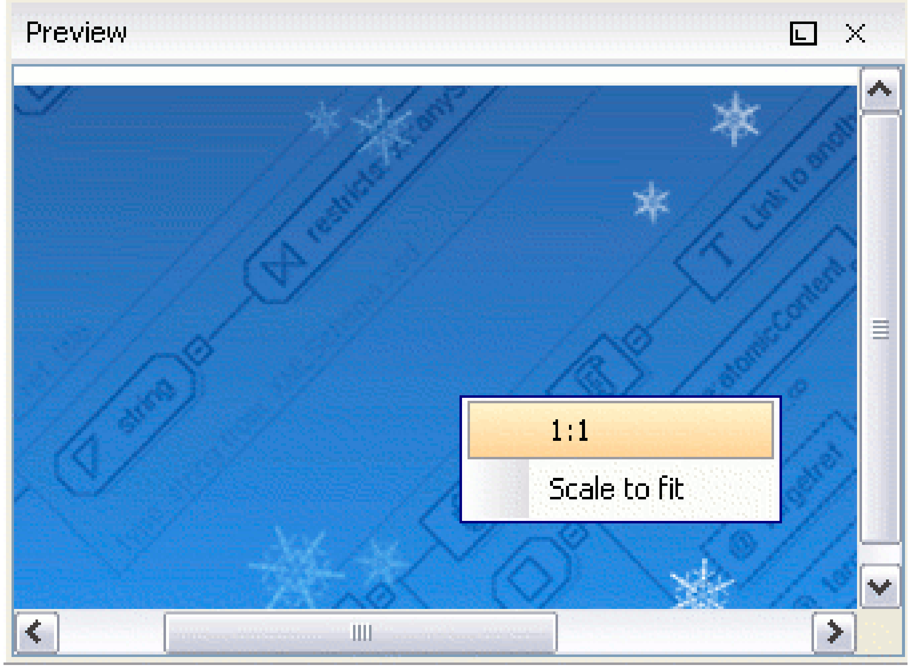
Messages contain a timestamp, the name of the thread that generated it and the actual status information. The number of displayed messages can be controlled from the options panel.

In order to make the view visible go to Perspective+Show View → Information

Image preview

Images and SVG files from the Project view can be previewed in a separate panel.

Figure 4.43. The Preview panel



To preview an image one has to either double click the image name or click the Preview action from the Project's tree contextual menu. Supported image types are GIF, JPEG/JPG, PNG, BMP. Once the image is displayed in the Preview panel using the actions from the contextual menu one can scale the image at its original size (1:1 action) or scale it down to fit in the view's available area (Scale to fit action).

To preview a SVG file click the Preview action from the Project's tree contextual menu. Once the SVG is displayed in the Preview panel the following actions are available on the contextual menu: Zoom in, Zoom out and Rotate.

Making a persistent copy of results

To make a persistent copy of the results displayed in the Results panel from operations like document validation, checking the form of documents, XSLT or FO transformation, find all occurances of a string, applying an XPath expression to the current document use one of the actions:

- File → Save Results - displays the Save Results dialog, used to save the result-list of the current message tab.
- File → Print Results - displays the Page Setup dialog used to define the page size and orientation properties for printing the result-list of the current message tab.

Locking and unlocking XML markup

For documents with fixed markup such as forms in which the XML tags are not allowed to be modified but only their text content, editing of the XML tag names can be disabled and re-enabled with an action available from Document+XML Document → Locks/Unlocks the XML Tags or from the toolbar button 🔒 Locks/Unlocks the XML tags

Adjusting the transparency of XML markup

Most of the time you want the content of a document displayed on screen with zero transparency. When you want to focus your attention only on editing text content inside XML tags <oXygen/> offers the option of reducing the visibility of the tags by increasing their transparency when they are displayed. There are two levels of tag transparency: semi-transparent markup and transparent markup. For the opposite case, when you want to focus on the tag names, the text transparency can be set to one of two levels: semi-transparent text and transparent text. To change the level of transparency:

- Click the toolbar button Adjust contrast to adjust the contrast of markup in Editor perspective.

XML editor specific actions

<oXygen/> offers groups of actions for working on single XML elements. They are available from the Document menu and the context menu of the main editor panel.

Split actions

Also the editing area can be divided vertically and horizontally with the split / unsplit actions available on the Split toolbar, the Document → Split menu and the popup menu of the editor panel for XML files: Split horizontally, Split vertically, Unsplit.

Edit actions

- Document+Edit → Toggle Line Wrap (**Ctrl + Shift + Y**): Turns on line wrapping in the editor panel if it was off and viceversa. It has the same effect as the Line wrap preference.
- Document+Edit → Toggle comment (**Ctrl + Shift + ,**): Comment the current selection of the current editor. If the selection already contains a comment the action uncomments the selection. If there is no selection in the current editor and the cursor is not positioned inside a comment the current line is commented. If the cursor is positioned inside a comment then the commented text is uncommented. The action is also available on the popup menu of the editor panel.

Select actions

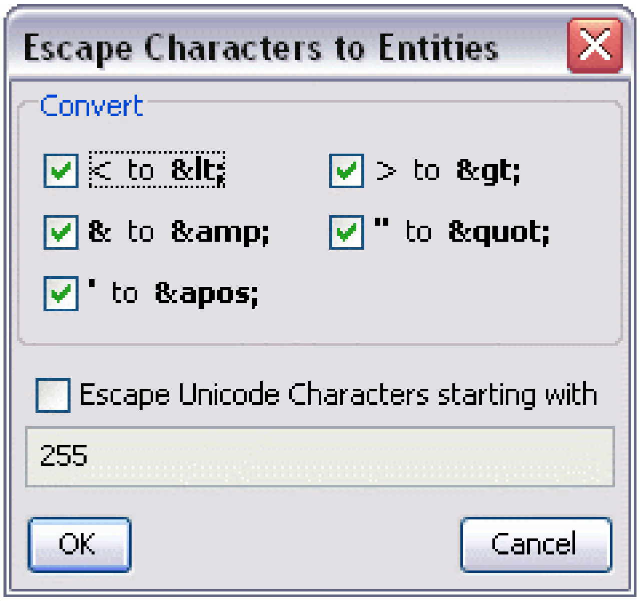
The Select actions are enabled when the caret is positioned inside a tag name.

- Document+Select → Select element: Selects the entire current element;
- Document+Select → Select content: Selects the current element, excluding the start tag and end tag;
- Document+Select → Select attributes: Selects all the attributes of the current element;
- Document+Select → Select parent: Selects the parent element of the current element;

Source actions

- Document+Source+ → Locks / Unlocks the XML Tags: Disable / Enable editing of XML tags

- Document+Source → To lower case: Converts the selection's content to lower case characters.
- Document+Source → To upper case: Converts the selection's content to upper case characters.
- Document+Source → Capitalize lines: Converts to upper case the first character of every selected line.
- Document+Source+ → Shift Right (**Tab**): Shifts the selected block to the right;
- Document+Source+ → Shift Left (**Shift+Tab**): Shifts the selected block to the left;
- Document+Source+ → Escape Selection ...: Escapes a range of characters by replacing them with the corresponding character entities.



Escape Characters to Entities

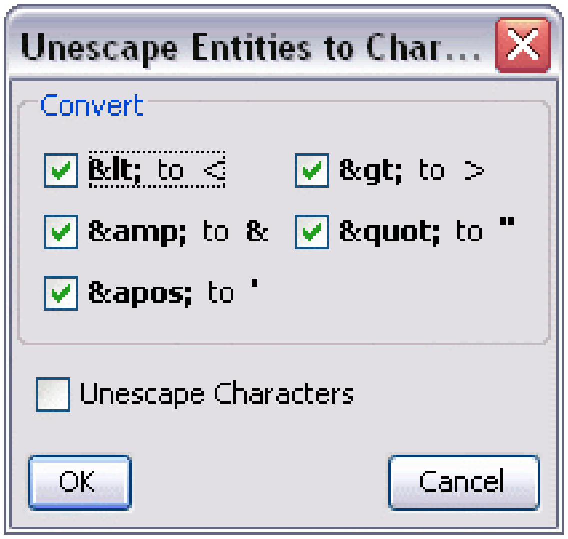
Convert

☑ < to &lt; ☑ > to &gt;
☑ & to &amp; ☑ " to &quot;
☑ ' to &apos;

□ Escape Unicode Characters starting with

255

- Document+Source+ → Unescape Selection ...: Replaces the character entities with the corresponding characters;



Unescape Entities to Char...

Convert

☑ &lt; to < ☑ &gt; to >
☑ &amp; to & ☑ &quot; to "
☑ &apos; to '

□ Unescape Characters

- Document+Source+ → Indent selection (**Ctrl + I**):Corrects the indentation of the selected block of lines.
- Document+Source+ → Pretty-Print Element: Pretty prints the element that surrounds the caret position;
- Document+Source+ → Import entities list : Shows a dialog that allows you to select a list of files as sources for external entities. The DOCTYPE section of your document will be updated with the chosen entities. For instance, if choosing the file chapter1.xml, and chapter2.xml, the following section is inserted in the DOCTYPE:

  ```
  <!ENTITY chapter1 SYSTEM "chapter1.xml">

  <!ENTITY chapter2 SYSTEM "chapter2.xml">
  ```

- Triple click on an element or processing instruction - If the triple click is done before the start tag of an element or after the end tag of an element then all the element is selected by the triple click action. If it is done after the start tag or before the end tag then only the element content without the start tag and end tag is selected.
- Document+Source → To Lower Case : The action works on the selection converting all upper case letters to lower case.
- Document+Source → To Upper Case : The action works on the selection converting all lower case letters to upper case.
- Document+Source → Capitalize lines: It capitalizes the first letter found on every new line that is selected. Only the first letter is affected, the rest of the line remains the same. If the first character on the new line is not a letter then no changes are made.
- Document+Source → Join and normalize: The action works on the selection. It joins the lines by replacing the *line separator* with a single space character. It also normalizes the whitespaces by replacing a sequence of such characters with a single space.

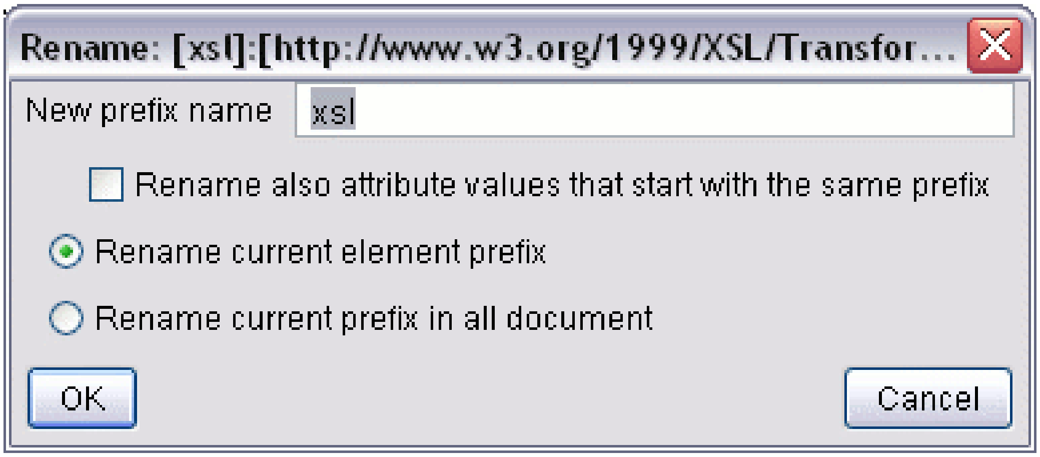
XML document actions

- Document+XML Document → Show Definition (also available on the contextual menu of the editor panel) : move the cursor to the definition of the current element in the schema associated with the edited XML document (DTD, XML Schema, Relax NG schema).
- Document+XML Document → Copy XPath (**Ctrl+Alt+.**): Copy XPath expression of current element from current editor to clipboard.
- Document+XML Document+ → Go to the matching tag (**Ctrl+Shift+G**): Moves the cursor to the end tag that matches the start tag, or vice versa.
- Document+XML Document → Go after Next Tag (**Ctrl+Close Bracket**): Moves the cursor to the end of the next tag.
- Document+XML Document → Go after Previous Tag (**Ctrl+Open Bracket**): Moves the cursor to the end of the previous tag.

XML Refactoring actions

- Document+XML Refactoring+ → Surround with tag... (**Ctrl+E**): Selected Text in the editor is marked with the specified start and end tags.
- Document+XML Refactoring+ → Surround with <tag> (**Ctrl+/**): Selected Text in the editor is marked with start and end tags of the last 'Surround in' action.
- Document+XML Refactoring+ → Rename element (**Alt+Shift+R**): The element from the caret position and the elements that have the same name as the current element can be renamed according with the options from the Rename dialog.
- Document+XML Refactoring+ → Rename prefix (**Alt+Shift+P**): The prefix of the element from the caret position and the elements that have the same prefix as the current element can be renamed according with the options from the Rename dialog.

Figure 4.44. Rename Prefix Dialog



Rename: [xsl]:[http://www.w3.org/1999/XSL/Transfor...

New prefix name: xsl

□ Rename also attribute values that start with the same prefix

● Rename current element prefix

○ Rename current prefix in all document

OK | Cancel

Selecting the *Rename current element prefix* option the application will recursively traverse the current element and all its children.

For example, to change the xmlns:p1="ns1" association existing in the current element to xmlns:p5="ns1" just select this option and press OK. If the association xmlns:p1="ns1" is applied on the parent of the current element, then <oXygen/> will introduce a new declaration xmlns:p5="ns1" in the current element and will change the prefix from p1 to p5. If p5 is already associated in the current element with another namespace, let's say ns5, then a dialog showing the conflict will be displayed. Pressing the OK button, the prefix will be modified from p1 to p5 without inserting a new declaration xmlns:p5="ns1". On Cancel no modification is made.

Selecting the "Rename current prefix in all document" option the application will apply the change on the entire document.

To apply the action also inside attribute values one must check the *Rename also attribute values that start with the same prefix* checkbox.

- Document+XML Refactoring+ → Split element (**Ctrl+Alt+D**): Split the element from the caret position in two identical elements. The caret must be inside the element
- Document+XML Refactoring+ → Join elements (**Ctrl+Alt+J**): Joins the left and the right elements relative to the current caret position. The elements must have the same name, attributes and attributes values.
- Document+XML Refactoring+ → Delete element tags (**Ctrl+Alt+X**): Deletes the start tag and end tag of the current element.

XML Schema actions

- Document+Schema → Show definition (**Ctrl + Shift + ENTER**): Move the cursor to the definition of the referenced XML Schema item - element, group, simple or complex type.

Note

The actions are available when the current editor is of XML Schema type.

Smart editing

Closing tag auto-expansion

If you want to insert content into an auto closing tag like <tag/> deleting the / character saves some keystrokes by inserting a separate closing tag automatically and placing the cursor between the start and end tags: <tag></tag>

Auto-breaking the edited line

The *Hard line wrap* option breaks the edited line automatically when its length exceeds the maximum line length defined for the pretty-print operation.

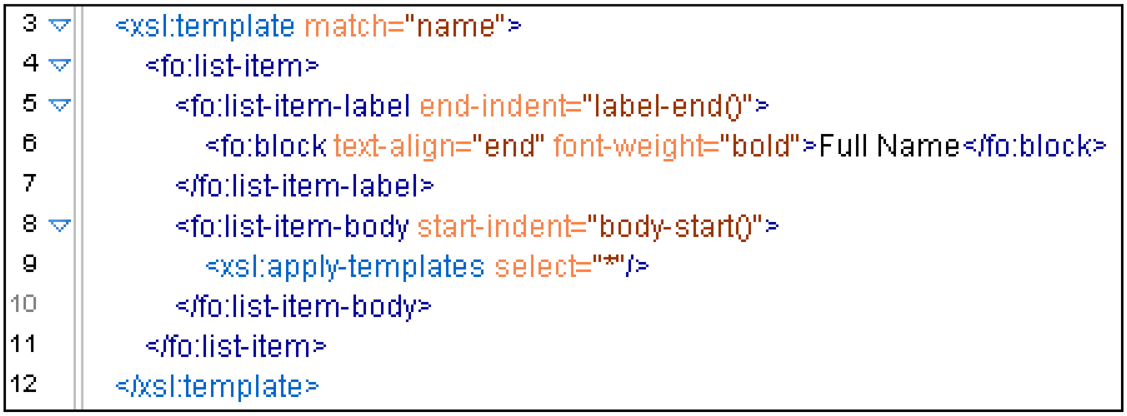
Smart Enter

The *Smart Enter* option inserts an empty line between the start and end tags and places the cursor in an indented position on the empty line automatically when the cursor is between the start and end tag and Enter is pressed.

Syntax highlight depending on namespace prefix

The syntax highlight scheme of an XML file type allows the configuration of a color per each type of token which can appear in an XML file. Distinguishing between the XML tag tokens based on the namespace prefix brings additional visual help in editing some XML file types. For example in XSLT stylesheets elements from different namespaces like XSLT, XHTML, XSL:FO or XForms are inserted in the same document and the editor panel can become cluttered. Marking tags with different colors based on the namespace prefix allows easier identification of the tags.

Figure 4.45. Example of coloring XML tags by prefix



```
<xsl:template match="name">
  <fo:list-item>
    <fo:list-item-label end-indent="label-end()">
      <fo:block text-align="end" font-weight="bold">Full Name</fo:block>
    </fo:list-item-label>
    <fo:list-item-body start-indent="body-start()">
      <xsl:apply-templates select="*"/>
    </fo:list-item-body>
  </fo:list-item>
</xsl:template>
```

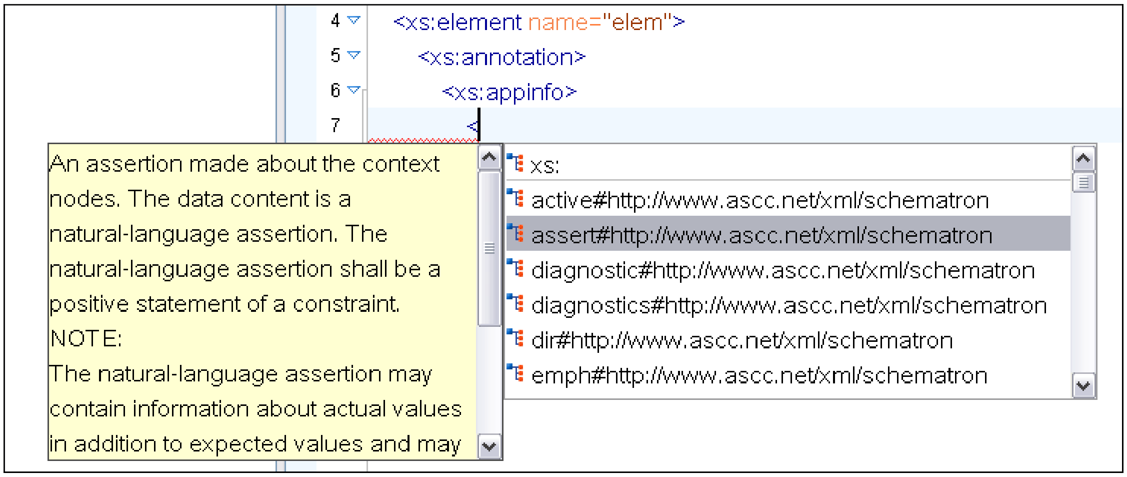
Editing XML Schema schemas

<oXygen/> provides a special type of editor for XML Schema schemas. This editor presents the usual text view of an XML document synchronized in real time with a graphical view of the schema components.

Special content completion features

The XML Schema editor of <oXygen/> enhances the content completion of the XML editor with special support for the elements and attributes of a Schematron schema inside the *xs:annotation/xs:appinfo* elements of an XML Schema.

Figure 4.46. Schematron support in XML Schema content completion



```
<xs:element name="elem">
  <xs:annotation>
    <xs:appinfo>
      <
```

An assertion made about the context nodes. The data content is a natural-language assertion. The natural-language assertion shall be a positive statement of a constraint.
NOTE:
The natural-language assertion may contain information about actual values in addition to expected values and may

xs:
active#http://www.ascc.net/xml/schematron
assert#http://www.ascc.net/xml/schematron
diagnostic#http://www.ascc.net/xml/schematron
diagnostics#http://www.ascc.net/xml/schematron
dir#http://www.ascc.net/xml/schematron
emph#http://www.ascc.net/xml/schematron

XML Schema diagram

Introduction

<oXygen/> provides a simple, expressive and easy to read Schema Diagram View for XML Schema schemas.

With this new feature you can easily develop complex schemas, print them on multiple pages or save them as JPEG, PNG and BMP images. It helps both schema authors in developing the schema and content authors that are using the schema to understand it.

<oXygen/> is the only XML Editor to provide a side by side source and diagram presentation and have them synchronized in real-time:

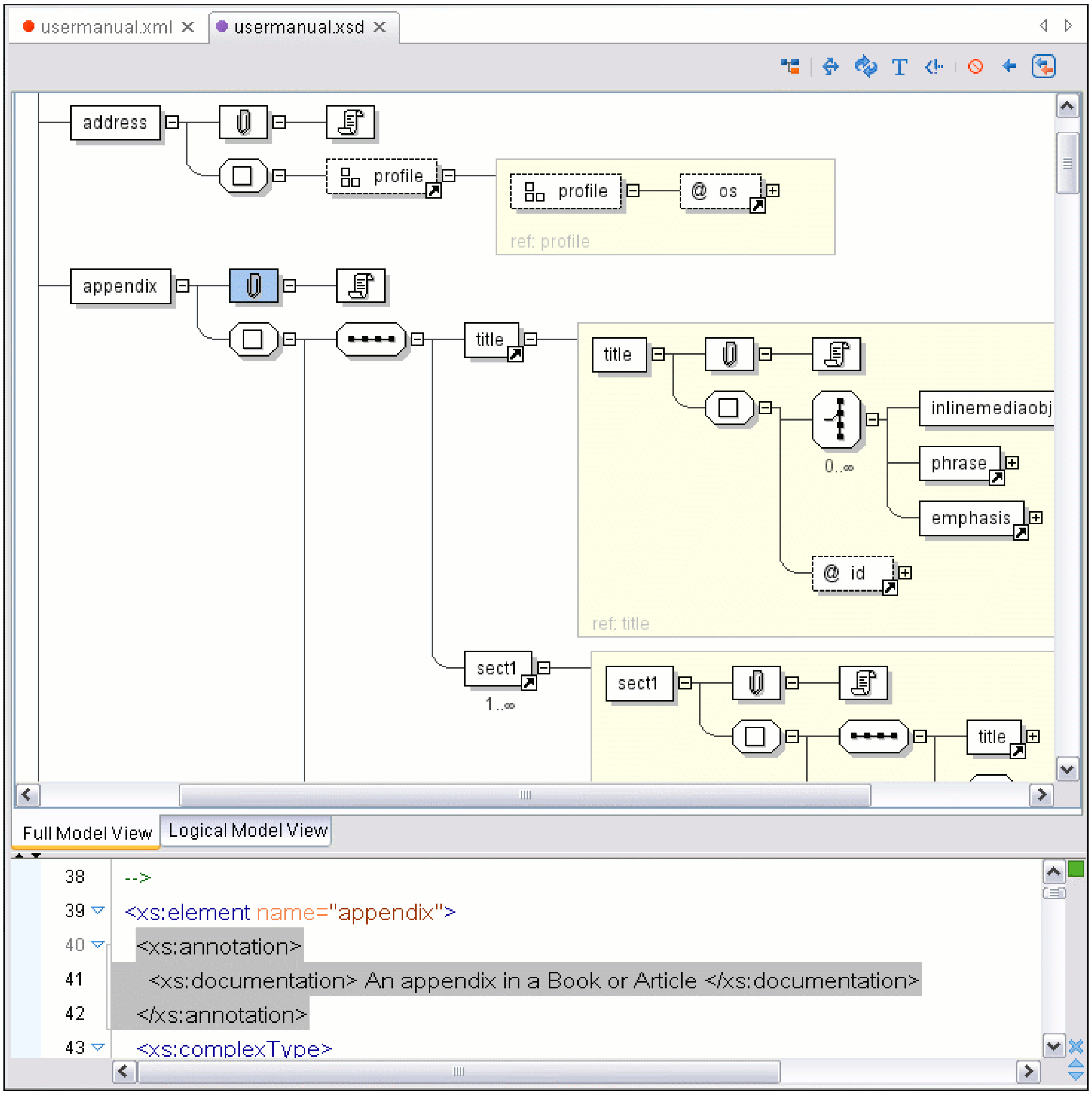
- the changes you make in the Editor will immediately be visible in the Diagram (no background parsing).
- changing the selected element in the diagram will select the underlaying code in the source editor.

The diagram image can be zoomed with one of the predefined factors available on the *Schema* toolbar: 25%, 50%, 75%, 100%, 200%, 300% or with a custom factor that can be defined on the same toolbar. Also the zoom factor is used by the print and save actions applied on the diagram.

Full model view

When you create a new schema document or open an existing one the Editor Panel is divided in two sections: one containing the Schema Diagram and the second the source code. The Diagram View has two tabbed panes offering a Full Model View and a Logical Model View.

Figure 4.47. XML Schema editor - full model view



```
-->
<xs:element name="appendix">
  <xs:annotation>
    <xs:documentation> An appendix in a Book or Article </xs:documentation>
  </xs:annotation>
  <xs:complexType>
```

The Full Model View renders all the XML Schema elements with intuitive icons. The following references can be expanded in place: elements, attributes, groups, assigned types, base types, substitution elements and identity constraints. This coupled with the synchronization support makes the schema navigation easy.

At the top of the diagram view there are buttons corresponding to the following actions:

Show only the selected component

It is a two state button. When it is turned on the diagram view presents only the top level definition of the schema from the cursor position and it is updated when the cursor goes to another definition. When it is turned off the view presents all the schema definitions.

Expand to references

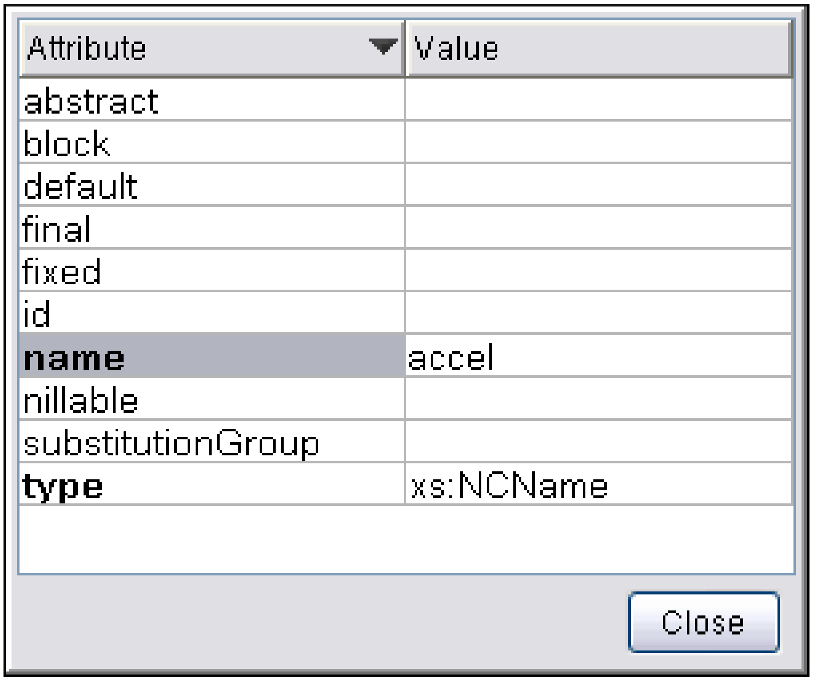
This option controls how the schema diagram is automatically expanded. For instance if you select it and then edit a top level element or you make a refresh, the diagram will be expanded until it reaches referred components. If this is left unchecked, only the

	first level of the diagram is expanded, showing the top level elements. For large schemas, the editor disables this option automatically.
Refresh	Refreshes the Schema Diagram according to the changes in your code (changes in your imported documents or those that are not reflected automatically in the compiled schema)
Show/Hide Annotations	Depending on its state (selected/not selected), the documentation nodes are shown or hidden.
Show/Hide Comments	Depending on its state (selected/not selected), the comment nodes are shown or hidden.

The contextual menu offers quick access to:

- Add Child: offers a list of possible items to be added as children of the current node.
- Insert - Before: offers a list of possible items to be added before the current node.
- Insert - After: offers a list of possible items to be added after the current node.
- Edit: allows the user to edit the attributes of the current node. This action can also be triggered by double-clicking an element.

Figure 4.48. Edit attributes of current XML Schema element



Attribute	Value
abstract	
block	
default	
final	
fixed	
id	
name	accel
nillable	
substitutionGroup	
type	xs:NCName

- Remove: allows the user to remove the current element.

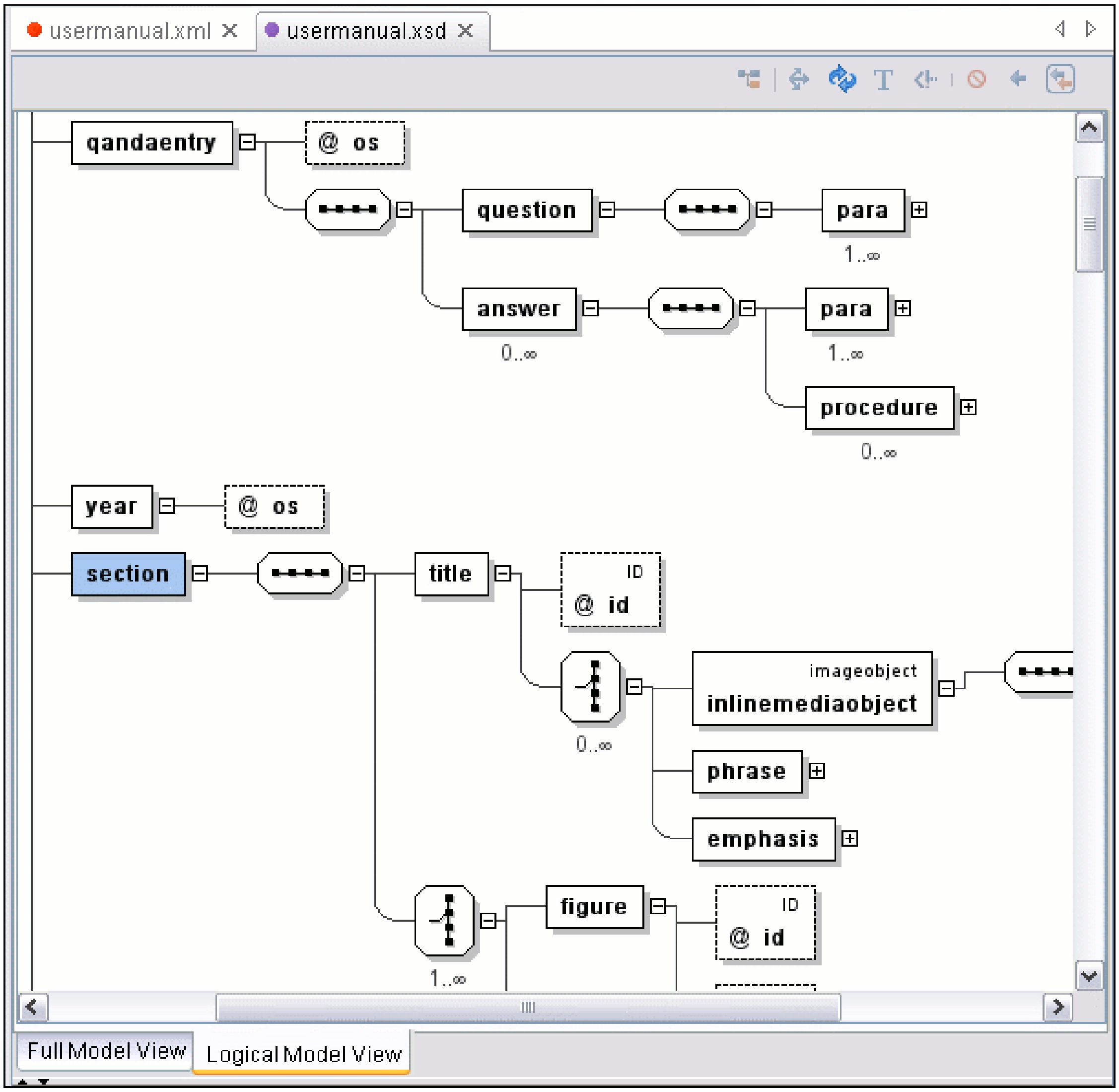
Also, the contextual menu offers access to the Collapse children, Expand children, Print, Print selection, Save as Image, Save Selection as Image and Refresh actions. The diagram can be saved as JPEG, PNG and BMP image.

Logical model view

The Logical Model View displays a diagram of the compiled schema. This is not synchronized automatically with the source editor and it is obtained after resolving the references, type extensions and type restrictions, redefinitions etc.

It presents the global elements that when expanded show the types and identity constraints. If an element has a simple type then the type name is rendered. If an element has a complex type then the content type and attributes are presented.

Figure 4.49. Logical Model View for XML Schema

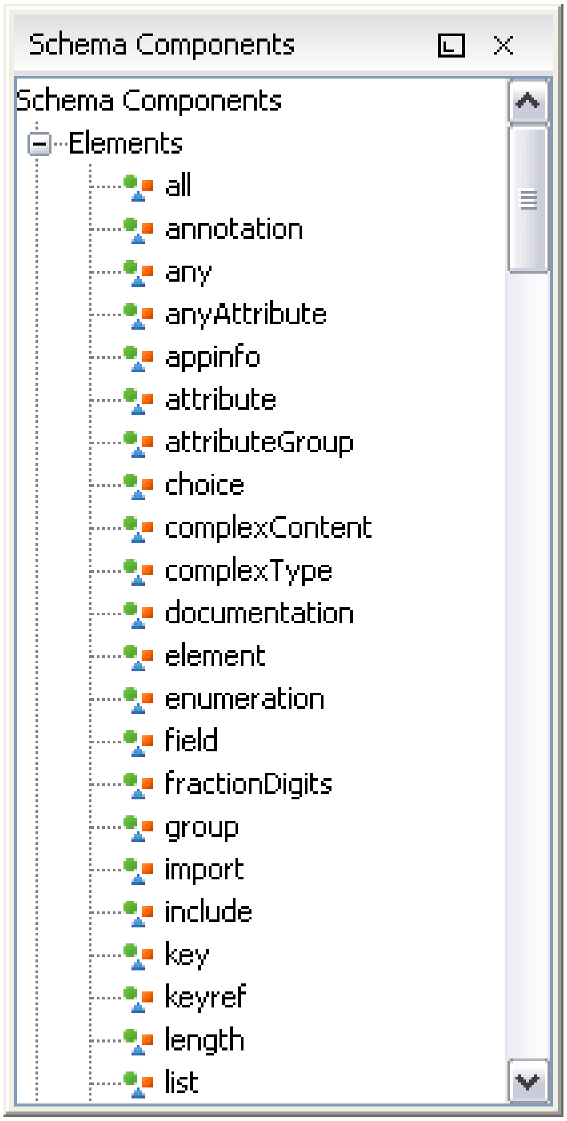


If the schema is not valid you will see an error message in the Logical Model View instead of the diagram.

Schema components view

The Diagram View also contains a Schema Components View showing the global components grouped by their namespaces and types. It allows a quick access to a component by knowing its name.

Figure 4.50. Schema components view for XML Schema



Schema Components

Schema Components

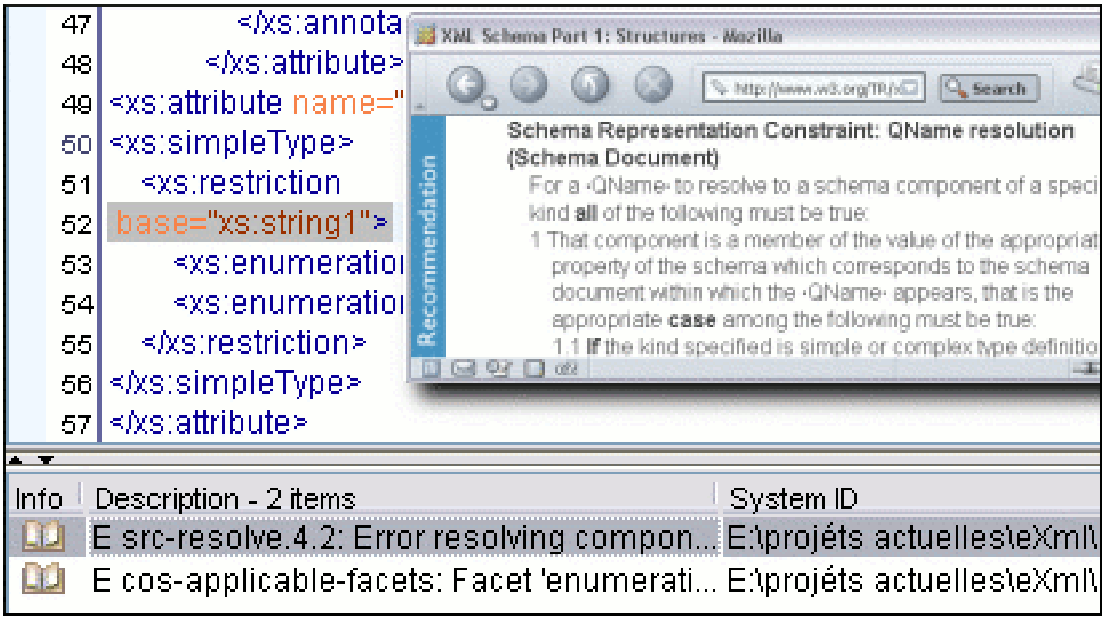
- Elements
  - all
  - annotation
  - any
  - anyAttribute
  - appinfo
  - attribute
  - attributeGroup
  - choice
  - complexContent
  - complexType
  - documentation
  - element
  - enumeration
  - field
  - fractionDigits
  - group
  - import
  - include
  - key
  - keyref
  - length
  - list

The view content depends on the selected view: in Full Model View it contains the global elements, attributes, simple types, complex types, groups, attribute groups. In Logical Model View it contains the global elements, grouped by their namespaces. It can be opened from Perspective → Show View → Schema Components

References to XML Schema specification

The same as in editing XML documents, the message of an error obtained by validation of an XML Schema document includes a specification reference to the W3C specification for XML Schema. An error message contains an Info field that when clicked will open the browser on the "XML Schema Part 1:Structures" specification at exactly the point where the error is described thus allowing you to understand the reason for that error.

Figure 4.51. Link to specification for XML Schema errors



```
            </xs:annota
         </xs:attribute>
<xs:attribute name="
<xs:simpleType>
   <xs:restriction
base="xs:string1">
      <xs:enumeratio
      <xs:enumeratio
   </xs:restriction>
</xs:simpleType>
</xs:attribute>
```

Schema Representation Constraint: QName resolution (Schema Document)

For a ·QName· to resolve to a schema component of a speci
kind **all** of the following must be true:
1 That component is a member of the value of the appropriat
property of the schema which corresponds to the schema
document within which the ·QName· appears, that is the
appropriate **case** among the following must be true:
1.1 If the kind specified is simple or complex type definitio

Info	Description - 2 items	System ID
📖	E src-resolve.4.2: Error resolving compon...	E:\projéts actuelles\eXml\
📖	E cos-applicable-facets: Facet 'enumerati...	E:\projéts actuelles\eXml\

Validation of an XML Schema containing a type definition with a *minOccurs* or *maxOccurs* attribute having a value larger than 256 limits the value to 256 and issues a warning about this restriction in the Message panel at the bottom of the <oXygen/> window. Otherwise for large values of the *minOccurs* and *maxOccurs* attributes the validator fails with an OutOfMemory error which practically makes <oXygen/> unusable without a restart of the entire application.

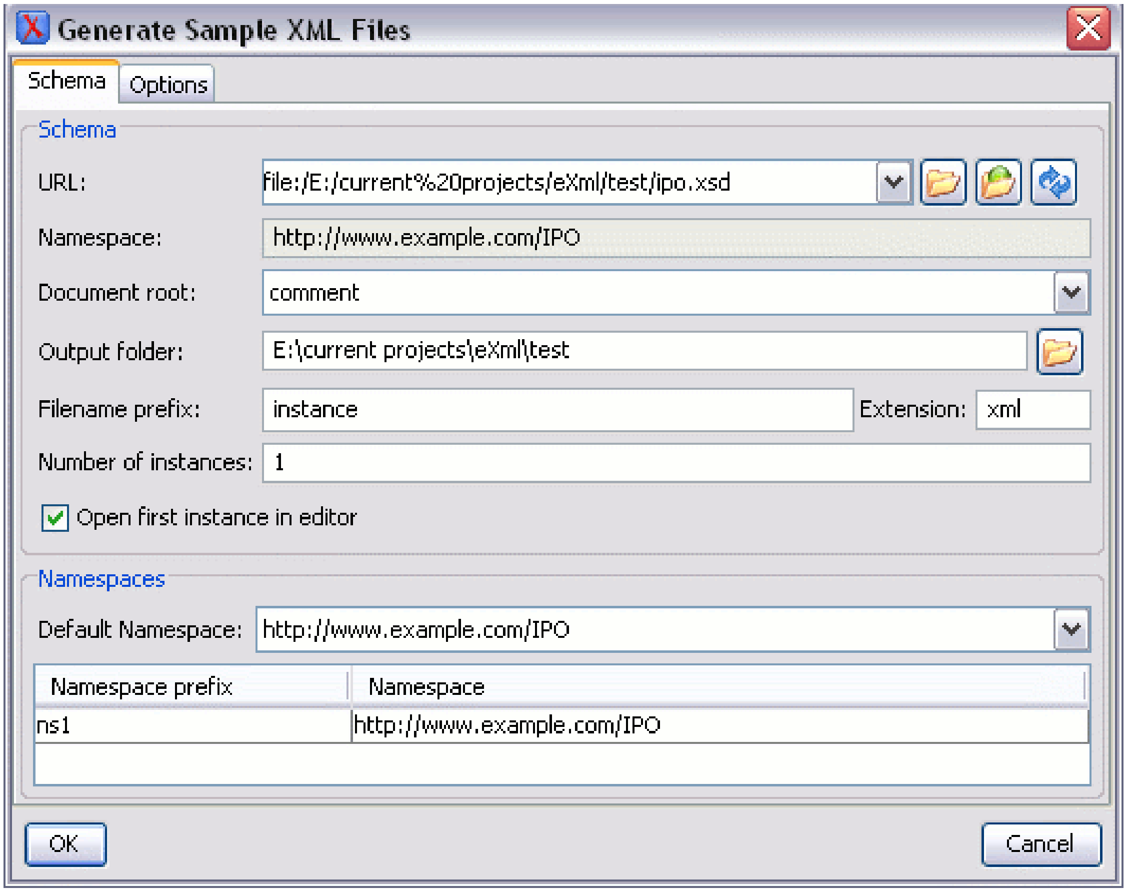
Create an XML Schema from a relational database table

To create an XML Schema from the structure of a relational database table use the special wizard available in the *Tools* menu.

XML Schema Instance Generator

To generate sample XML files from an XML Schema use the *Generate Sample XML Files...* dialog. It is opened with the action Tools → Generate Sample XML Files...

Figure 4.52. The Generate Sample XML Files dialog



URL: file:/E:/current%20projects/eXml/test/ipo.xsd

Namespace: http://www.example.com/IPO

Document root: comment

Output folder: E:\current projects\eXml\test

Filename prefix: instance

Extension: xml

Number of instances: 1

☑ Open first instance in editor

Default Namespace: http://www.example.com/IPO

Namespace prefix	Namespace
ns1	http://www.example.com/IPO

Complete the dialog as follows:

URL
Schema's URL. Last used URLs are displayed in the drop-down box.

Namespace
Displays the namespace of the selected schema.

Document root
After the list is selected, a list of elements is displayed in the combo box. The user should choose the root of the XML documents to be generated.

Output folder
Path to the folder where the generated XML instances will be saved.

Filename prefix and Extension
Generated files' names have the following format: prefixN.extension, where *prefix* and *extension* are specified by the user and *N* represents an incremental number from 0 upto *Number of instances - 1*.

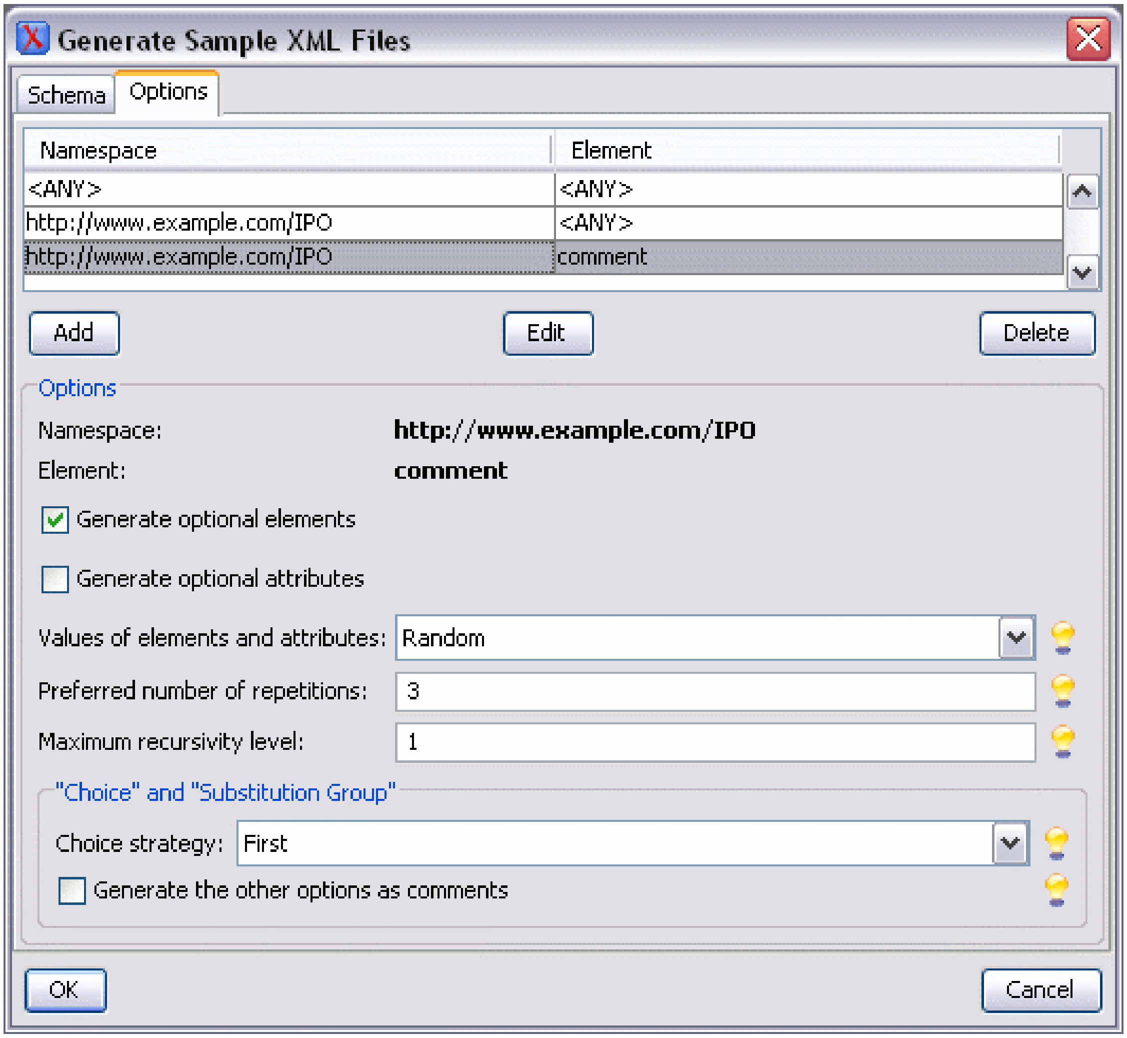
Number of instances
The number of XML files to be generated.

Open first instance in editor
When checked, the first generated XML file will be opened in editor.

Namespaces
Here the user can specify the default namespace as well as the proxies (prefixes) for namespaces.

The *Options* tab becomes active only after the URL field is filled-in and a schema is detected. It allows the user to set specific options for different namespaces and elements.

Figure 4.53. The Generate Sample XML Files dialog



Namespace	Element
<ANY>	<ANY>
http://www.example.com/IPO	<ANY>
http://www.example.com/IPO	comment

Options

Namespace: **http://www.example.com/IPO**

Element: **comment**

☑ Generate optional elements

☐ Generate optional attributes

Values of elements and attributes: Random

Preferred number of repetitions: 3

Maximum recursivity level: 1

"Choice" and "Substitution Group"

Choice strategy: First

☐ Generate the other options as comments

Namespace / Element

Allows the user to define settings for:

- All elements from all namespaces. This is the default setting and it can also be accessed from Options -> Preferences -> XML / XML Instance Generator.
- All elements from a specific namespace.
- A specific element from a specific namespace.

Generate optional elements

When checked, all elements will be generated, including the optional ones (having the *minOccurs* attribute set to 0 in the schema).

Generate optional attributes

When checked, all attributes will be generated, including the optional ones (having the *use* attribute set to *optional* in the schema.)

Values of elements and attributes

Controls the content of generated attributes and elements. Several choices are available:

- None - No content is inserted;
- Default - Inserts a default value depending of data type descriptor of the respective element/attribute. The default value can be either the data type name or an incremental name of the attribute or element (according to the global option from the *XML instance generator* preferences page);
- Random - Inserts a random value depending of data type descriptor of the respective element/attribute.

Preferred number of repetitions

Allows the user set the preferred number of repeating elements related with minOccurs and maxOccurs defined in XML Schema.

- If the value set here is between minOccurs and maxOccurs, that value will be used;
- If the value set here is less than minOccurs, the minOccur value will be used;
- If the value set here is greater than maxOccurs, that value will be used.

Maximum recursivity level

Option to set the maximum allowed depth of the same element in case of recursivity.

Choice strategy

Option to be used in case of xs:choice or substitutionGroup. The possible strategies are:

- First - the first branch of xs:choice or the head element of substritutionGroup will be always used;
- Random - a random branch of xs:choice or a substitute element or the head element of a substitutionGroup will be used.

Generate the other options as comments

Option to generate the other possible choices or substitutions (for xs:choice and substitutionGroup). These alternatives will be generated inside comments groups so you can uncomment them and use later. Use this option with care (for example on a restricted namespace and element) as it may generate large result files.

Flatten an XML Schema

If an XML Schema is organized on several levels linked by *xs:include* statements sometimes it is more convenient to work on the schema as a single flat file. To flatten schema <oXygen/> recursively adds included files to the master one. That means <oXygen/> replaces the *xs:include* elements with the ones coming from the included files.

This action can be accessed from the schema editor's contextual menu -> Refactoring -> Flatten Schema.

In the following example *master.sxd* includes *slave.xsd*. This, in turn, includes *slave1.xsd* which includes both *slave2.xsd* and *slave3.xsd*.

Listing of master.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="tns" xmlns
  <!-- included elements from slave.xsd -->
  <xs:include schemaLocation="slave.xsd"></xs:include>
  <!-- master.xsd -->
  <xs:element name="element1">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="tns:element2" />
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

Listing of slave.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="tns" xmlns
  <!-- included elements from slave1.xsd -->
  <xs:include schemaLocation="slave1.xsd"></xs:include>
  <!-- slave  -->
  <xs:element name="element2" xmlns:c="x"/>
</xs:schema>
```

Listing of slave1.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="tns" xmlns
  <!-- included elements from slave2.xsd -->
  <xs:include schemaLocation="slave2.xsd"></xs:include>
  <!-- included elements from slave3.xsd -->
  <xs:include schemaLocation="slave3.xsd"></xs:include>
  <!-- slave1  -->
  <xs:element name="element0"/>
  <xs:element name="element7"/>
  <xs:element name="element7Substitute" substitutionGroup="tns:element7"  block="e
  <xs:element name="element6">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="tns:element7"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:complexType name="type1">
    <xs:sequence>
      <xs:element ref="tns:element0"/>
    </xs:sequence>
  </xs:complexType>
</xs:schema>
```

Listing of slave2.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
  targetNamespace="tns"
  xmlns:tns="tns"
  elementFormDefault="qualified"
  attributeFormDefault="qualified">
  <!-- slave2 -->
  <xs:element name="a"></xs:element>
  <a:element name="element9" xmlns:a="http://www.w3.org/2001/XMLSchema">
    <xs:complexType>
      <xs:sequence>
        <!-- This element is from the target namespace -->
        <xs:element name="element3" xmlns:b="http://www.w3.org/2001/XMLSchema"/>
        <!-- Element from no namespace -->
        <xs:element name="element4" form="unqualified"/>
        <a:element ref="tns:a"></a:element>
      </xs:sequence>
      <!-- Attribute from the target namespace -->
      <b:attribute name="attr1" type="xs:string" xmlns:b="http://www.w3.org/2001/X
      <!-- Attribute from the no namespace -->
      <xs:attribute name="attr2" type="xs:string" form="unqualified"/>
    </xs:complexType>
  </a:element>
</xs:schema>
```

Listing of slave3.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" targetNamespace="tns" final
  <!-- slave3 -->
  <xs:complexType name="ct1"/>
  <xs:complexType name="ct2" final="extension">
    <xs:complexContent>
      <xs:extension base="tns:ct1"/>
    </xs:complexContent>
  </xs:complexType>
  <xs:simpleType name="st1" final="union">
    <xs:restriction base="xs:integer"/>
  </xs:simpleType>
  <xs:simpleType name="st2" final="union">
    <xs:restriction base="tns:st1">
      <xs:enumeration value="1"/>
      <xs:enumeration value="2"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:element name="e1" type="tns:c1" final="restriction"/>
  <xs:element name="e2ext" type="tns:c2" substitutionGroup="tns:e1"></xs:element>
  <xs:complexType name="c1">
    <xs:sequence>
      <xs:element ref="tns:e1"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="c2">
    <xs:complexContent>
      <xs:extension base="tns:c1">
        <xs:sequence>
          <xs:element ref="tns:e1"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
</xs:schema>
```

Listing of master.xsd after it has been flattened

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema targetNamespace="tns" xmlns:a="a" xmlns:b="b" xmlns:c="c" xmlns:tns="tn
  xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <!-- included elements from slave.xsd -->
  <!-- included elements from slave1.xsd -->
  <!-- included elements from slave2.xsd -->
  <!-- slave2 -->
  <xs:element block="restriction" name="a"/>
  <a:element block="restriction" name="element9" xmlns:a="http://www.w3.org/2001/X
    <xs:complexType>
      <xs:sequence>
        <!-- This element is from the target namespace -->
        <xs:element block="restriction" form="qualified" name="element3"
          xmlns:b="http://www.w3.org/2001/XMLSchema"/>
        <!-- Element from no namespace -->
        <xs:element block="restriction" form="unqualified" name="element4"/>
        <a:element ref="tns:a"/>
      </xs:sequence>
      <!-- Attribute from the target namespace -->
      <b:attribute form="qualified" name="attr1" type="xs:string"
        xmlns:b="http://www.w3.org/2001/XMLSchema"/>
      <!-- Attribute from the no namespace -->
      <xs:attribute form="unqualified" name="attr2" type="xs:string"/>
    </xs:complexType>
  </a:element>
  <!-- included elements from slave3.xsd -->
  <!-- slave3 -->
  <xs:complexType block="restriction" final="restriction" name="ct1"/>
  <xs:complexType block="restriction" final="extension" name="ct2">
    <xs:complexContent>
      <xs:extension base="tns:ct1"/>
    </xs:complexContent>
  </xs:complexType>
  <xs:simpleType final="union" name="st1">
    <xs:restriction base="xs:integer"/>
  </xs:simpleType>
  <xs:simpleType final="union" name="st2">
    <xs:restriction base="tns:st1">
      <xs:enumeration value="1"/>
      <xs:enumeration value="2"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:element block="restriction" final="restriction" name="e1" type="tns:c1"/>
  <xs:element block="restriction" final="restriction" name="e2ext" substitutionGro
    type="tns:c2"/>
  <xs:complexType block="restriction" final="restriction" name="c1">
    <xs:sequence>
      <xs:element ref="tns:e1"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType block="restriction" final="restriction" name="c2">
    <xs:complexContent>
      <xs:extension base="tns:c1">
        <xs:sequence>
```

```
          <xs:element ref="tns:e1"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <!-- slave1  -->
  <xs:element block="restriction" name="element0"/>
  <xs:element block="restriction" name="element7"/>
  <xs:element block="extension" name="element7Substitute" substitutionGroup="tns:e
  <xs:element block="restriction" name="element6">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="tns:element7"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:complexType block="restriction" name="type1">
    <xs:sequence>
      <xs:element ref="tns:element0"/>
    </xs:sequence>
  </xs:complexType>
  <!-- slave  -->
  <xs:element name="element2" xmlns:c="x"/>
  <!-- master.xsd -->
  <xs:element name="element1">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="tns:element2"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

The case of XML Schema redefinitions is also handled as the example below shows.

Listing of master.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:redefine schemaLocation="slave1.xsd">
    <xs:complexType name="tp">
      <xs:complexContent>
        <xs:extension base="tp">
          <xs:choice>
            <xs:element name="el2" type="xs:NCName"/>
            <xs:element name="el3" type="xs:string"/>
          </xs:choice>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
  </xs:redefine>
  <xs:element name="el" type="tp"/>
</xs:schema>
```

Listing of slave1.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
```

```
  <xs:redefine schemaLocation="slave2.xsd">
    <xs:complexType name="tp">
      <xs:complexContent>
        <xs:extension base="tp">
          <xs:attribute name="a"/>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
  </xs:redefine>
</xs:schema>
```

Listing of slave2.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType name="tp">
    <xs:sequence>
      <xs:element name="el" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
</xs:schema>
```

Listing of master.xsd after it has been flattened>

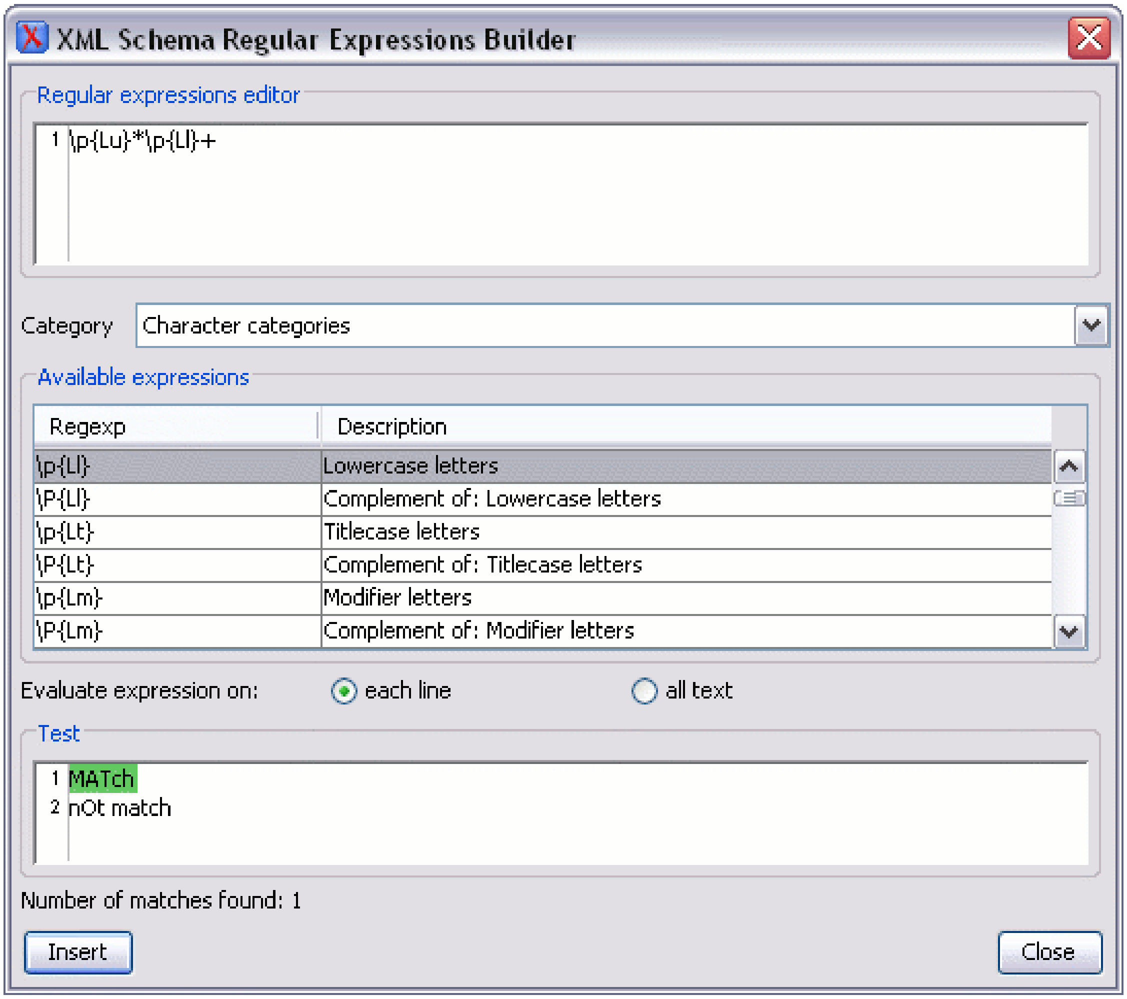
```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:complexType name="tp">
    <xs:complexContent>
      <xs:extension base="tp_Redefined1">
        <xs:choice>
          <xs:element name="el2" type="xs:NCName"/>
          <xs:element name="el3" type="xs:string"/>
        </xs:choice>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="tp_Redefined1">
    <xs:complexContent>
      <xs:extension base="tp_Redefined0">
        <xs:attribute name="a"/>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:complexType name="tp_Redefined0">
    <xs:sequence>
      <xs:element name="el" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="el" type="tp"/>
</xs:schema>
```

The references to the included schema files can be resolved through an XML Catalog.

XML Schema regular expressions builder

To generate XML Schema regular expressions use the action Tools → XML Schema Regular Expressions Builder It will open a dialog which allows you to build and test regular expressions.

Figure 4.54. XML Schema regular expressions builder dialog


XML Schema Regular Expressions Builder
Regular expressions editor
Available expressions
Test
Insert
Close

```
\p{Lu}*\p{Ll}+
```

Category: Character categories

Regexp	Description
\p{Ll}	Lowercase letters
\P{Ll}	Complement of: Lowercase letters
\p{Lt}	Titlecase letters
\P{Lt}	Complement of: Titlecase letters
\p{Lm}	Modifier letters
\P{Lm}	Complement of: Modifier letters

Evaluate expression on: ● each line ○ all text

```
MATCh
nOt match
```

Number of matches found: 1

The dialog contains the following sections:

- *Regular expressions editor* - allows you edit the regular expression to be tested and used. Content completion is available and presents a list with all the predefined expressions. It is accessible by pressing **Ctrl + Space**.
- *Category* combo box - here you can choose from several categories of predefined expressions. The selected category influences the displayed expressions in the *Available expressions* table.
- *Available expressions* table - it consists of two columns. The first one presents the regular expressions, the second displays a short description of the expressions. The set of expressions depend on the category selected in the previous combo box. You can add an expression in the *Regular expressions editor* by double-clicking on the expression row in the table You will notice that in the case of *Character categories* and *Block names* the expressions are also listed in complementary format. For example: *\p{Lu}* - Uppercase letters; *\P{Lu}* - Complement of: Uppercase letters.

- *Evaluate expression on* radio buttons - there are available two options: *Evaluate expression on each line* and *Evaluate expression on all text* . If the first option is selected the edited expression will be applied on each line from the *Test* area. If the second option is selected the expression will be applied on the whole text.

- *Test* area - it is a text editor which allows you to enter a text sample on which the regular expression will be applied. The matches of the expression will be highlighted.

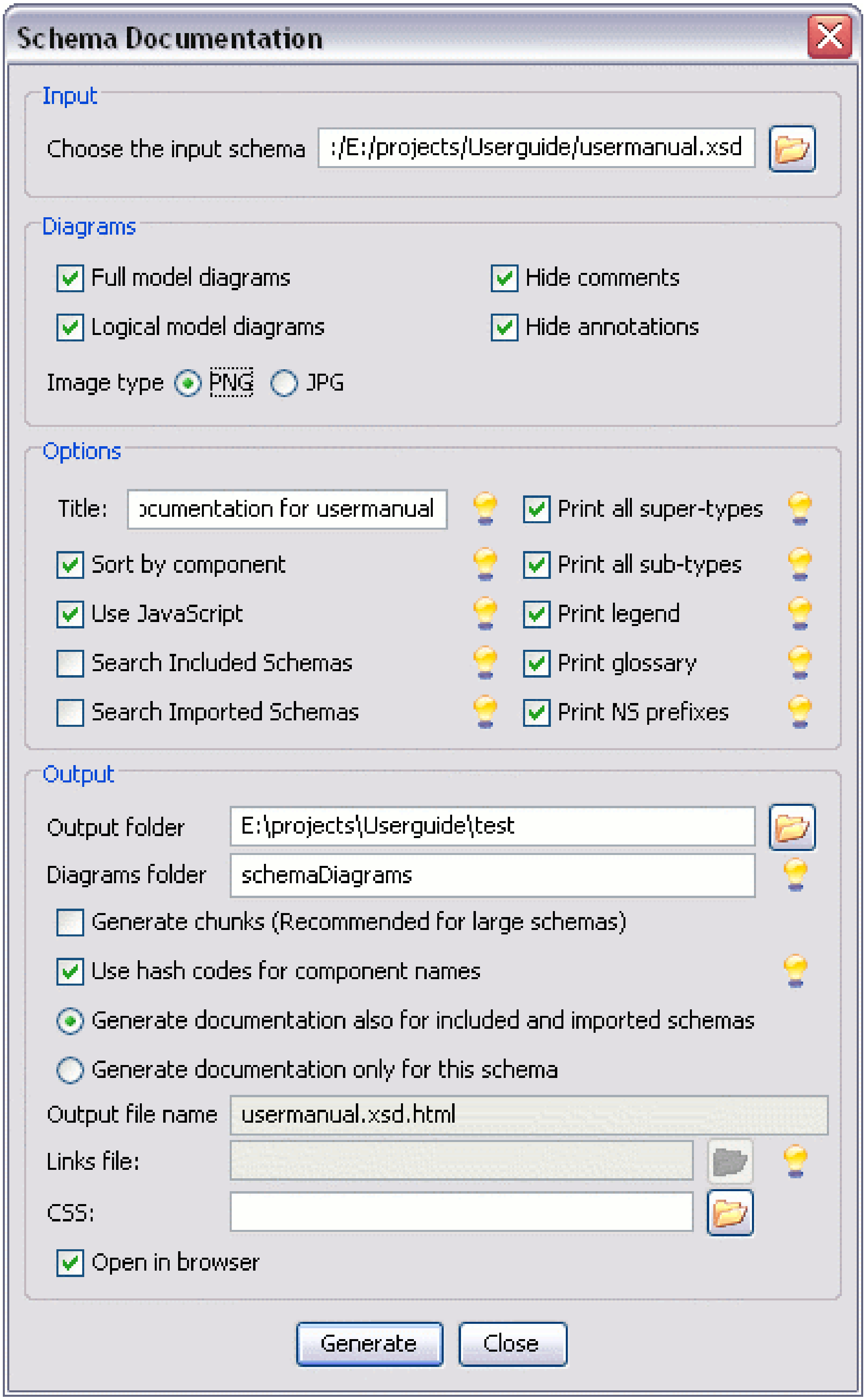
After editing and testing your regular expression you can insert it in the current editor. The *Insert* button will become active when an editor is opened in the background and there is an expression in the *Regular expressions editor*.

Generating HTML documentation for an XML Schema

To generate HTML documentation for a XML Schema document similar with the Javadoc documentation for Java classes use the dialog *Schema documentation*. It is opened with the action Tools → Generate Documentation → Schema Documentation... (**Ctrl+Alt+S**). It can be also opened from the Project Tree contextual menu: Generate Documentation → Schema Documentation... The dialog enables the user to configure a large set of parameters of the process of generating the HTML documentation.

The HTML documentation contains images corresponding to the schema definitions as the ones displayed by the schema diagram view. These images are divided in clickable areas which are linked to the definitions of the clicked names of types or elements. The documentation of a definition includes a *Used By* section with links to the other definitions which refer to it.

Figure 4.55. The XML Schema documentation dialog



Schema Documentation

Input

Choose the input schema :/E:/projects/Userguide/usermanual.xsd

Diagrams

☑ Full model diagrams ☑ Hide comments

☑ Logical model diagrams ☑ Hide annotations

Image type ● PNG ○ JPG

Options

Title: ɔcumentation for usermanual

☑ Print all super-types

☑ Sort by component

☑ Print all sub-types

☑ Use JavaScript

☑ Print legend

□ Search Included Schemas

☑ Print glossary

□ Search Imported Schemas

☑ Print NS prefixes

Output

Output folder E:\projects\Userguide\test

Diagrams folder schemaDiagrams

□ Generate chunks (Recommended for large schemas)

☑ Use hash codes for component names

● Generate documentation also for included and imported schemas

○ Generate documentation only for this schema

Output file name usermanual.xsd.html

Links file:

CSS:

☑ Open in browser

The text field of the *Input* panel must contain the full path to the XML Schema (XSD) file, if the schema is composed of only one file, or the full path to the main XSD file of the XML Schema document, that is the file that includes or imports other modules of the document.

<oXygen/> is able to include images of the XML Schema components in the final HTML result. The supported image formats are PNG and JPG. The image of an XML Schema component contains the graphical representation of that component as it is rendered in the Schema Diagram panel of the <oXygen/>'s XSD editor panel. The parameters related to images are:

Full model diagrams
Include in the HTML result the representation of each schema component in the <oXygen/>'s *Full Model View* of the schema.

Logical model diagrams
Include in the HTML result the representation of each schema component in the <oXygen/>'s *Logical Model View* of the schema.

Hide comments
When checked the comments are not included in the generated schema documentation.

Hide annotations
When checked the annotations are not included in the generated schema documentation.

Image type
One of the PNG or JPG formats.

The *Options* panel contain parameters for the level of details included in the documentation:

Title
The title displayed at the beginning of the HTML document and in the title bar of the web browser.

Sort by component
If this parameter is set to "true", the schema components are presented sorted by type and name. Otherwise, they are presented in the order that they appear in the schema. By default, this parameter is set to "true."

Use JavaScript
The generated XHTML document uses JavaScript to hide some details like the underlying schema component XML representation, which can be made to appear with a button press. Since some people have ideological objections to JavaScript, this feature can be turned off. If this parameter is set to "true", JavaScript will be used in the generated documentation. Otherwise, it won't. By default, this parameter is set to "true."

Search Included Schemas
If this parameter is set to "true", xs3p will search for components in "included" schemas when creating links and generating the XML Instance Representation table. When this parameter is set to "true", the "linksFile" parameter must also be set, which is described below. Otherwise, an error will be raised. This search is recursive, so schemas "included" in the current schema's "included" schemas will also be searched.

Search Imported Schemas
If this parameter is set to "true", xs3p will search for components in "imported" schemas when creating links and generating the XML Instance Representation table. The above discussion for the "searchIncludedSchemas" parameter also applies to this parameter. Also, when this parameter is set to "true", the "linksFile" parameter must also be set.

Print all super-types

The type hierarchy of a global type definition is displayed in its section. If this parameter is set to "true", all super-types of the current type are shown in the type hierarchy. Otherwise, only the immediate parent type is displayed. By default, this parameter is set to "true."

Print all sub-types

This parameter has a similar concept as printAllSuperTypes. If it is set to "true", all sub-types of the current type are shown in the type hierarchy. Otherwise, only the direct sub-types are displayed. By default, this parameter is set to "true."

Print legend

If this parameter is set to "true", the Legend section is included. Otherwise, it isn't. By default, this parameter is set to "true."

Print glossary

If this parameter is set to "true", the Glossary section is included. Otherwise, it isn't. By default, this parameter is set to "true."

Print NS prefixes

If this parameter is set to "true", namespace information is provided when displaying sample instances and references. This is done by providing a prefix in front of tags and references, which when clicked, will take the user to the declared namespace. The prefix matches the prefix in the namespace declaration in the schema. If not set to "true", namespace prefixes are not displayed. By default, this parameter is set to "true."

The *Output* panel contains parameters for the output folder and output file:

Output folder

The path of the folder containing the HTML result and the image files.

Diagrams folder

The folder where the images are going to be saved relative to the output file. If there is no folder specified, the images will be saved in the same directory as the output file.

Generate chunks (Recommended for large schemas)

If it is true the HTML result is organized as a main file containing only a table of contents with links to other HTML documents containing descriptions of the schema components. If it is false all the documentation will be stored in one HTML file.

Use hash codes for component names

If enabled then the anchors and links will be generated using the hashcode of the component identifier instead of using the identifier itself. This is useful when the schema component names contain characters that are not directly supported by the browsers or by the file system.

Generate documentation also for included and imported schemas

It will be generated HTML documentation also for the XML Schemas included or imported by the schema specified in the *Input* panel. The documentation can be navigated from a schema to the included/imported ones and back to the first schema following HTML hyperlinks.

Generate documentation only for this schema

It will not be generated HTML documentation for the XML Schemas included or imported by the schema specified in the *Input* panel.

Output file name

The name of the HTML file containing the documentation of the XML Schema

Links file

the file which maps from file locations of "included" and "imported" schemas to the file locations of their xs3p-generated documentation. This file must be provided if either "searchIncludedSchemas" or "searchImportedSchemas" is set to true. If relative addresses are used to specify the location of external xs3p-generated documentation, they must be relative to documentation file currently generated.

Note

The external documentation files does not need to exist at the time of generating the documentation for the current schema. The mapping is specified in XML. The dtd and schema for this mapping syntax are "links.dtd" and "links.xsd" respectively.

Note

The "xmlns" namespace attribute with the correct namespace must be provided in the mapping file for the xs3p stylesheet to work.

CSS file

The path to a CSS file which will be referred from the result HTML. This is useful for specifying a custom CSS stylesheet to be used in the generated HTML documentation instead of the default one.

Open in browser

If it is true the HTML result will be opened with the default Internet browser set in Preferences or with the system application for HTML files.

The same HTML documentation can be generated for an XML Schema from the command line by running the script `schemaDocumentation.bat` *(on Windows) /* `schemaDocumentation.sh` *(on Mac OS X / Unix / Linux) located in the <oXygen/> installation folder. The script can be integrated in an external batch process launched from the command line.*

XML Schema editor specific actions

The list of actions specific for the XML Schema editor of <oXygen/> is:

- Document+XML Document → Show Definition (also available on the contextual menu of the editor panel) : move the cursor to the definition of the current element in this XSD schema.

Search References and Declarations

All the following actions can be applied on *xs:element*, *xs:attribute*, *xs:attributeGroup*, *xs:complexType*, *xs:simpleType*, *xs:group*, *xs:key*, *xs:unique* or *xs:notation* parameters only.

- Document+References+ → References in Project (**Ctrl+Shift+R**): Searches in the project all references of the item found at current cursor position.

Note

This action and the following ones can also be accessed from XSD editor's *contextual menu -> Search*.

- Document+References → References in File: Searches in the current file all references of the item found at the current cursor position.
- Document+References → References Starting from File: Searches all references of the item at the cursor position in the current edited file and all its included and imported files.
- Document+References → References Starting from...: Opens a dialog that allows the user to specify the list of files used to start searching from. Pressing OK begins searching all references of the item at the cursor position in the selected files and their included and imported files.
- Document+References+ → Declarations in Project (**Ctrl+Shift+D**): Searches in the project all declarations of the item found at current cursor position.

  Note

  This action and the following ones can also be accessed from XSD editor's *contextual menu -> Search*.

- Document+References → Declarations in File: Searches in the current file all declarations of the item at the current cursor position.
- Document+References → Declarations Starting from File: Searches all declarations of the item at the cursor position in the current edited file and all its included and imported files.
- Document+References → Declarations Starting from...: Opens the Start locations dialog that allows the user to specify the list of files used to start searching from. Pressing OK begins searching all declarations of the item at the cursor position in the selected files and all their included and imported files.
- Document+References → Occurrences in File (**Ctrl+Shift+U**): Searches all occurrences of the item at the caret position in the currently edited file.

Editing Relax NG schemas

<oXygen/> provides a special type of editor for Relax NG schemas. This editor presents the usual text view of an XML document synchronized in real time with a graphical view of the schema components.

Relax NG schema diagram

Introduction

<oXygen/> provides a simple, expressive and easy to read Schema Diagram View for Relax NG schemas.

With this new feature you can easily develop complex schemas, print them on multiple pages or save them as JPEG, PNG and BMP images. It helps both schema authors in developing the schema and content authors that are using the schema to understand it.

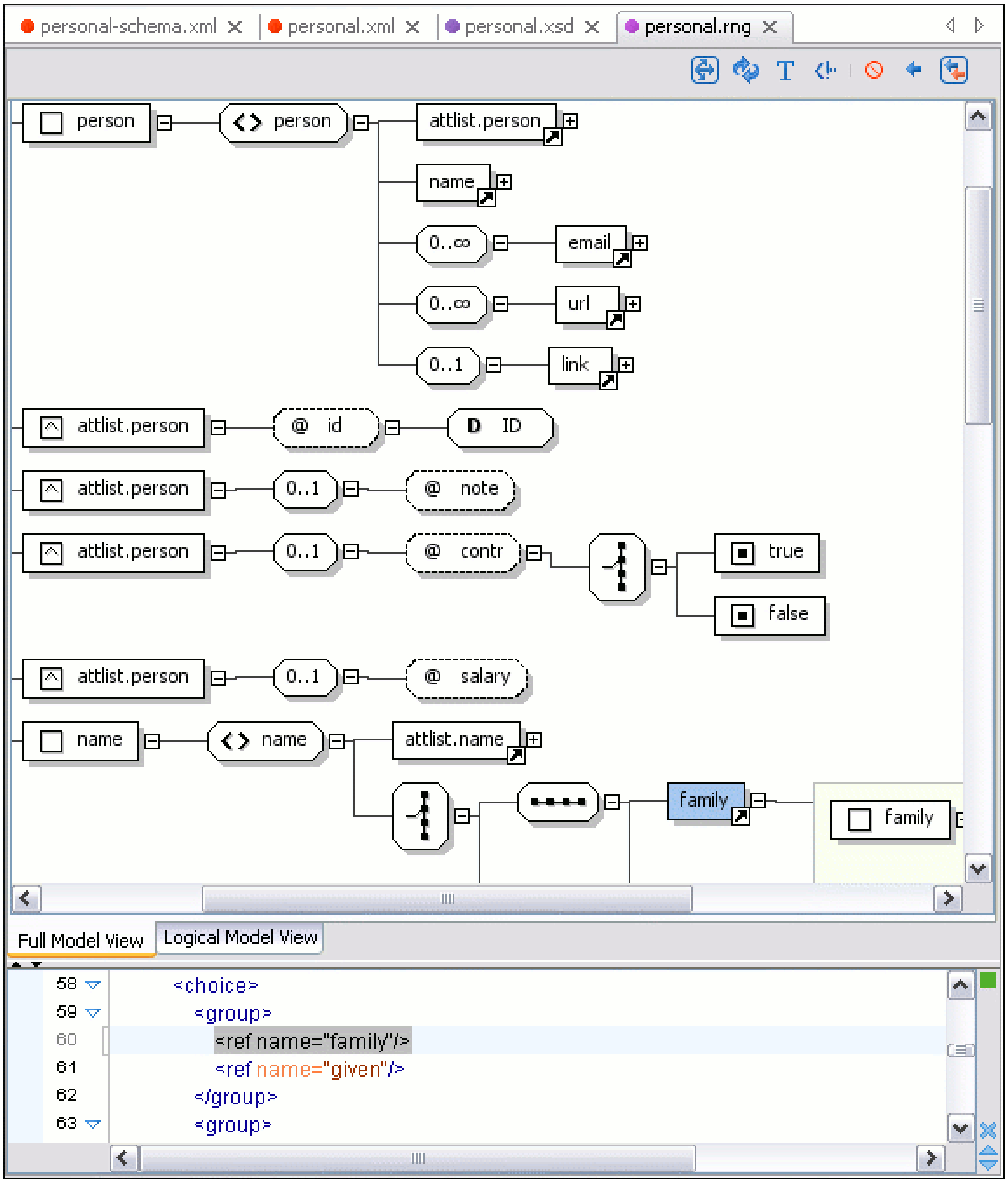
<oXygen/> is the only XML Editor to provide a side by side source and diagram presentation and have them synchronized in real-time:

- the changes you make in the Editor will immediately be visible in the Diagram (no background parsing).
- changing the selected element in the diagram will select the underlaying code in the source editor.

Full model view

When you create a new schema document or open an existing one the Editor Panel is divided in two sections: one containing the Schema Diagram and the second the source code. The Diagram View has two tabbed panes offering a Full Model View and a Logical Model View.

Figure 4.56. Relax NG schema editor - full model view



```
<choice>
  <group>
    <ref name="family"/>
    <ref name="given"/>
  </group>
  <group>
```

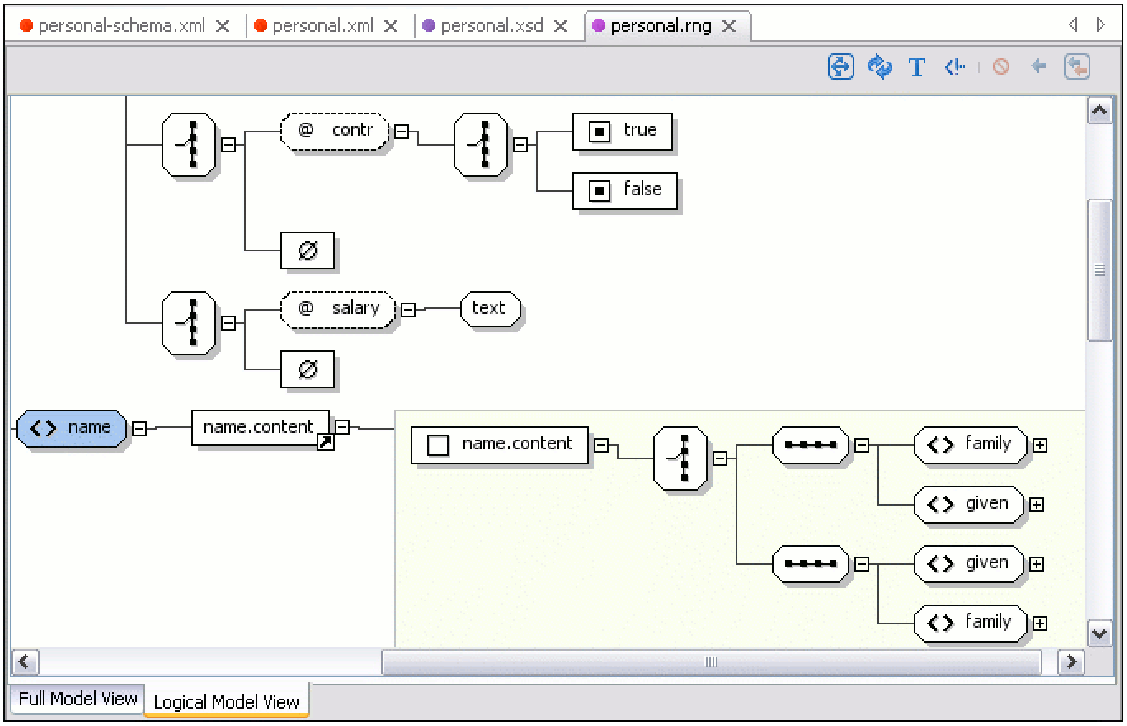
The Full Model View renders all the XML Schema elements with intuitive icons. The following references can be expanded in place: patterns, includes and external references. This coupled with the synchronization support makes the schema navigation easy.

All the element and attribute names are editable: double-click on any name to start editing it.

Logical model view

The Logical Model View presents the compiled schema which is a single pattern. The patterns that form the element content are defined as a top level pattern with a generated name. The name is generated depending of the name class of the elements.

Figure 4.57. Logical Model View for a Relax NG schema



At the top of the diagram view there are buttons corresponding to the following actions:

Expand to references

This option controls how the schema diagram is automatically expanded. For instance if you select it and then edit a top level element or you make a refresh, the diagram will be expanded until it reaches referred components. If this is left unchecked, only the first level of the diagram is expanded, showing the top level elements.

For large schemas, the editor disables this option automatically.

Refresh

Refreshes the Schema Diagram according to the changes in your code (changes in your imported documents or those that are not reflected automatically in the compiled schema)

Show/Hide Annotations

Depending on its state (selected/not selected), the documentation nodes are shown or hidden.

Show/Hide Comments

Depending on its state (selected/not selected), the comment nodes are shown or hidden.

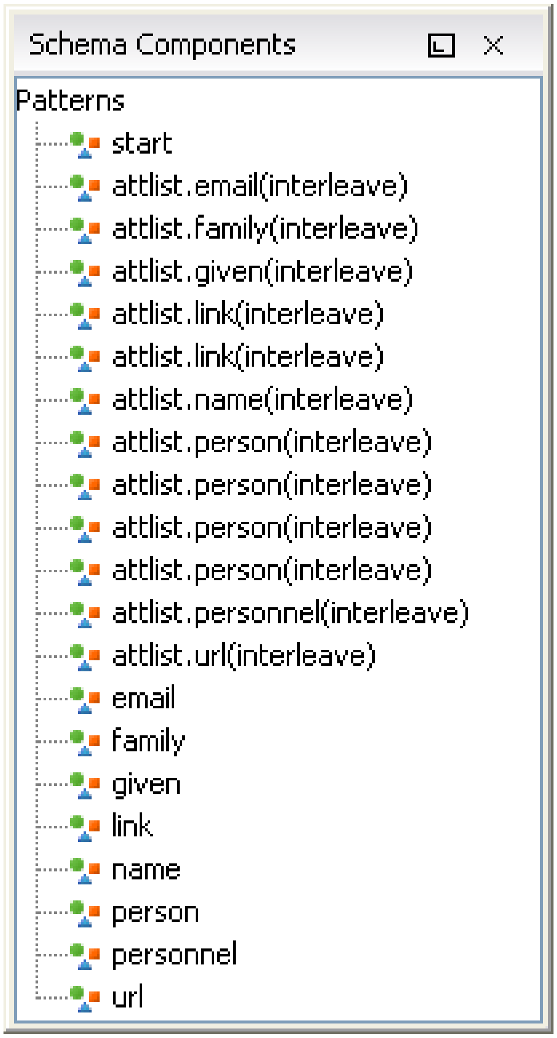
The contextual menu offers quick access to the Collapse children, Expand children, Print, Save as Image, Save Selection as Image and Refresh actions. The diagram can be saved as JPEG, PNG and BMP image.

If the schema is not valid you will see an error message in the Logical Model View instead of the diagram.

Schema components view

The Schema Components View presents a list with the patterns that appear in the diagram in both the Full Model View and Logical Model View cases. It allows a quick access to a component by knowing its name. It can be opened from Perspective → Show View → Schema Components

Figure 4.58. Schema components view for Relax NG



Patterns
- start
- attlist.email(interleave)
- attlist.family(interleave)
- attlist.given(interleave)
- attlist.link(interleave)
- attlist.link(interleave)
- attlist.name(interleave)
- attlist.person(interleave)
- attlist.person(interleave)
- attlist.person(interleave)
- attlist.person(interleave)
- attlist.personnel(interleave)
- attlist.url(interleave)
- email
- family
- given
- link
- name
- person
- personnel
- url

Relax NG editor specific actions

The list of actions specific for the Relax NG (full syntax) editor of <oXygen/> is:

- Document+XML Document → Show Definition (also available on the contextual menu of the editor panel) : move the cursor to the definition of the current element in this Relax NG (full syntax) schema.

Search References and Declarations

All the following actions can be applied on *ref* and *parentRef* parameters only.

- Document+References+ → References in Project (**Ctrl+Shift+R**): Searches in the project all references of the item found at current cursor position.

  ### Note

  This action and the following ones can also be accessed from RNG editor's *contextual menu -> Search*.

- Document+References → References in File: Searches in the current file all references of the item found at the current cursor position.
- Document+References → References Starting from File: Searches all references of the item at the cursor position in the current edited file and all its included and imported files.
- Document+References → References Starting from...: Opens a dialog that allows the user to specify the list of files used to start searching from. Pressing OK begins searching all references of the item at the cursor position in the selected files and their included and imported files.

All the following actions can be applied on named *define* parameters only.

- Document+References+ → Declarations in Project (**Ctrl+Shift+D**): Searches in the project all declarations of the item found at current cursor position.

  ### Note

  This action and the following ones can also be accessed from RNG editor's *contextual menu -> Search*.

- Document+References → Declarations in File: Searches in the current file all declarations of the item at the current cursor position.
- Document+References → Declarations Starting from File: Searches all declarations of the item at the cursor position in the current edited file and all its included and imported files.
- Document+References → Declarations Starting from...: Opens the Start locations dialog that allows the user to specify the list of files used to start searching from. Pressing OK begins searching all declarations of the item at the cursor position in the selected files and all their included and imported files.
- Document+References → Occurrences in File (**Ctrl+Shift+U**): Searches all occurrences of the item at the caret position in the currently edited file.

Editing XSLT stylesheets

<oXygen/> provides special support for developing XSLT 1.0 / 2.0 stylesheets.

Validating XSLT stylesheets

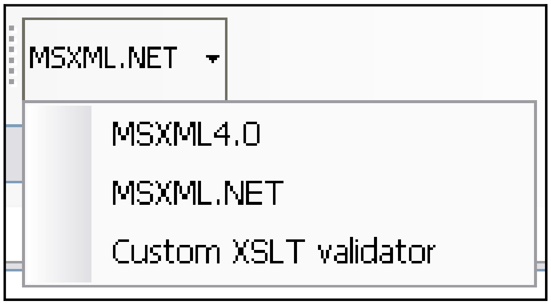
Validation of XSLT stylesheets documents is performed with the help of an XSLT processor configurable from user preferences according to the XSLT version: 1.0 or 2.0. For XSLT 1.0 the options are: Xalan, Saxon 6.5.5, Saxon 8B, Saxon 8SA (if the user installs it as additional package), MSXML 4.0, MSXML.NET, a JAXP transformer specified by the main Java class. For XSLT 2.0 the options are: Saxon 8B, Saxon 8SA (if the user installs it as additional package), a JAXP transformer specified by the main Java class.

The *Validate* toolbar provides a button ⚙ Validation options for quick access to the XSLT options in the <oXygen/> user preferences.

Custom validation of XSLT stylesheets

If you need to validate an XSLT stylesheet with other validation engine than the built-in ones you have the possibility to configure external engines as custom XSLT validation engines in <oXygen/>. After such a custom validator is properly configured in Preferences it can be applied on the current document with just one click on the External Validation toolbar. The document is validated against the schema declared in the document.

Figure 4.59. External validation toolbar



There are two validators configured by default:

MSXML 4.0	included in <oXygen/> (Windows edition). It is associated to the XSL Editor type in Preferences.
MSXML.NET	included in <oXygen/> (Windows edition). It is associated to the XSL Editor type in Preferences.

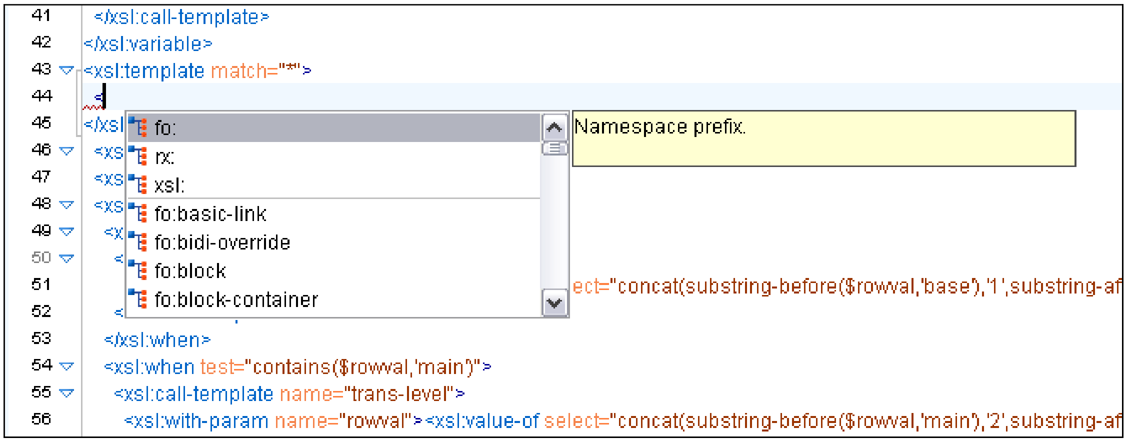
Content Completion in XSLT stylesheets

The content completion assistant adds special features for editing XSLT stylesheets.

Inside XSLT templates of an XSLT stylesheet the content completion presents also all the elements allowed in any context by the schema associated to the result of applying the edited stylesheet. That schema is defined by the user in the Content Completion / XSL preferences. There are presented all the elements because in a template there is no context defined for the result document so the user is allowed to insert any element defined by the schema of the result document.

Namespace prefixes in scope for the current context are presented at the top of the content completion window to speed the insertion of prefixed elements into the document.

Figure 4.60. Namespace prefixes in the content completion window



```
  </xsl:call-template>
</xsl:variable>
<xsl:template match="*">
<
</xsl
  <xs
  <xs
  <xs
   <x
    <
                                         ect="concat(substring-before($rowval,'base'),'1',substring-af
    <
   </xsl:when>
   <xsl:when test="contains($rowval,'main')">
    <xsl:call-template name="trans-level">
     <xsl:with-param name="rowval"><xsl:value-of select="concat(substring-before($rowval,'main'),'2',substring-af
```

Namespace prefix.

Content Completion in XPath expressions

In XSLT stylesheets the content completion assistant provides all the features available in the editor for XML documents and also adds some enhancements. In XPath expressions used in attributes of XSLT stylesheets elements like *match*, *select* and *test* it offers XPath functions, XSLT functions, XSLT axes and user defined functions. If a transformation scenario was defined and associated to the edited stylesheet the content completion assistant computes and presents elements and attributes based on the input XML document selected in the scenario and on the current context in the stylesheet. The associated document is displayed in the XSLT input view.

Content Completion for XPath expressions is started:

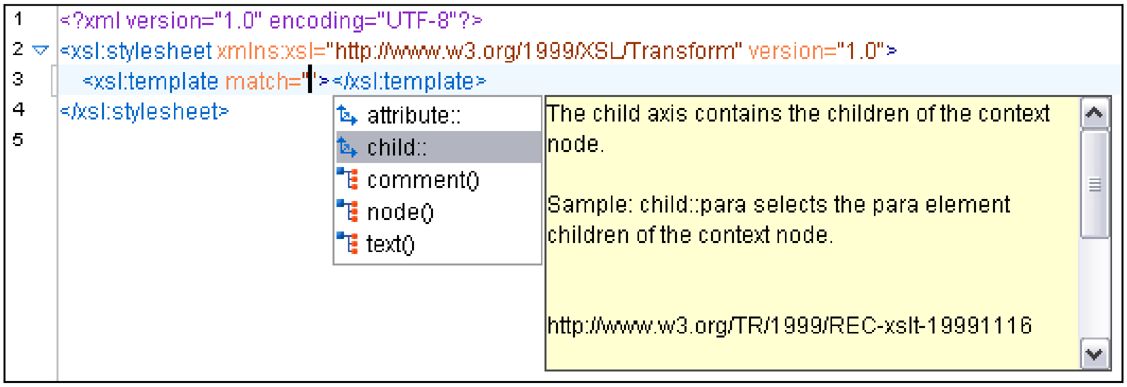
- on XPath operators detected in one of the *match*, *select* and *test* attributes of XSLT elements: ", ', /, //, (, [, |, :, ::, $
- for attribute value templates of non XSLT elements, that is the '{' character is detected as the first character of the attribute value
- on request if the combination CTRL + Space is pressed inside an edited XPath expression

The items presented in the content completion window are dependent on the context of the current XSLT element, the XML document associated with the edited stylesheet in the transformation scenario of the stylesheet and the XSLT version of the stylesheet (1.0 or 2.0). For example if the document associated with the edited stylesheet is:

```
<personnel>
    <person id="Big.Boss">
        <name>
            <family>Boss</family>
            <given>Big</given>
        </name>
        <email>chief@oxygenxml.com</email>
        <link subordinates="one.worker"/>
    </person>
    <person id="one.worker">
        <name>
            <family>Worker</family>
            <given>One</given>
        </name>
        <email>one@oxygenxml.com</email>
        <link manager="Big.Boss"/>
    </person>
</personnel>
```

and you enter an element *xsl:template* using the content completion assistant the *match* attribute is inserted automatically, the cursor is placed between the quotes and the XPath content completion assistant automatically displays a popup window with all the XSLT axes, XPath functions and elements and attributes from the XML input document that can be inserted in the current context. The set of XPath functions depends on the XSLT version declared in the root element - *xsl:stylesheet* (1.0 or 2.0).

Figure 4.61. Content Completion in the *match* attribute



```
<?xml version="1.0" encoding="UTF-8"?>
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform" version="1.0">
  <xsl:template match=""></xsl:template>
</xsl:stylesheet>
```

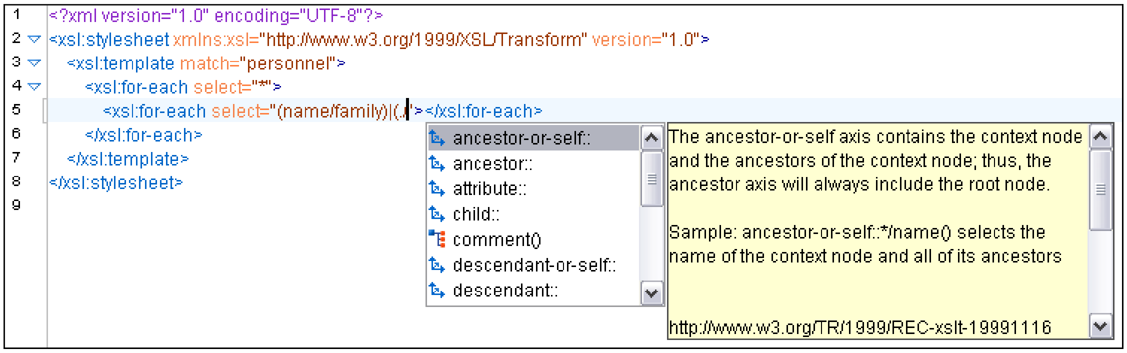
The child axis contains the children of the context node.

Sample: child::para selects the para element children of the context node.

http://www.w3.org/TR/1999/REC-xslt-19991116

If the cursor is inside the *select* attribute of an *xsl:for-each*, *xsl:apply-templates*, *xsl:value-of* or *xsl:copy-of* element the content completion proposals are dependent of the path obtained by concatenating the XPath expressions of the parent XSLT elements *xsl:template* and *xsl:for-each* like the following figure shows:

Figure 4.62. Content Completion in the *select* attribute



```
<?xml version="1.0" encoding="UTF-8"?>
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform" version="1.0">
  <xsl:template match="personnel">
    <xsl:for-each select="*">
      <xsl:for-each select="(name/family)|(."></xsl:for-each>
    </xsl:for-each>
  </xsl:template>
</xsl:stylesheet>
```

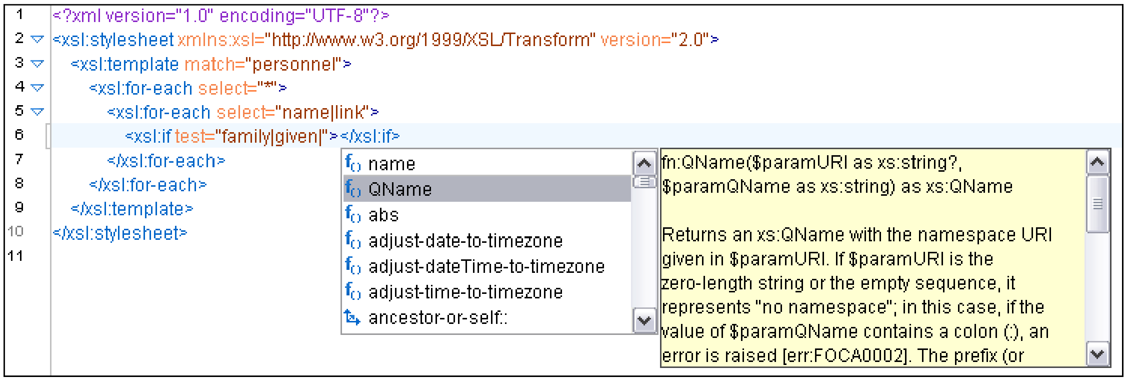
The ancestor-or-self axis contains the context node and the ancestors of the context node; thus, the ancestor axis will always include the root node.

Sample: ancestor-or-self::*/name() selects the name of the context node and all of its ancestors

http://www.w3.org/TR/1999/REC-xslt-19991116

Also XPath expressions typed in the *test* attribute of an *xsl:if* or *xsl:choose / xsl:when* element benefit of the assistance of the content completion.

Figure 4.63. Content Completion in the *test* attribute



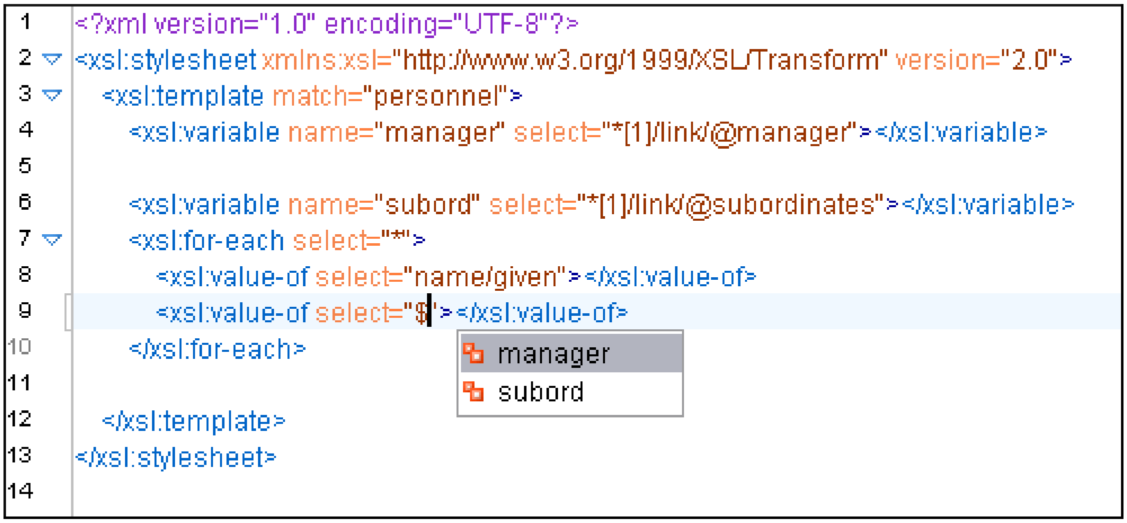
```
<?xml version="1.0" encoding="UTF-8"?>
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform" version="2.0">
  <xsl:template match="personnel">
    <xsl:for-each select="*">
      <xsl:for-each select="name|link">
        <xsl:if test="family|given|"></xsl:if>
      </xsl:for-each>
    </xsl:for-each>
  </xsl:template>
</xsl:stylesheet>
```

fn:QName($paramURI as xs:string?, $paramQName as xs:string) as xs:QName

Returns an xs:QName with the namespace URI given in $paramURI. If $paramURI is the zero-length string or the empty sequence, it represents "no namespace"; in this case, if the value of $paramQName contains a colon (:), an error is raised [err:FOCA0002]. The prefix (or

XSLT variable references are easier to insert in XPath expressions with the help of the content completion popup triggered by the $ character which signals the start of such a reference in an XPath expression.

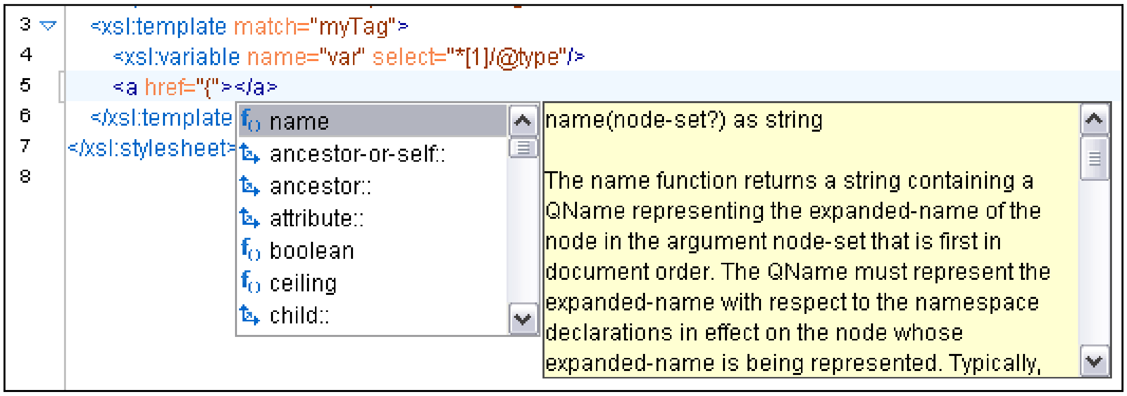
Figure 4.64. Content Completion in the *test* attribute



```
<?xml version="1.0" encoding="UTF-8"?>
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform" version="2.0">
  <xsl:template match="personnel">
    <xsl:variable name="manager" select="*[1]/link/@manager"></xsl:variable>

    <xsl:variable name="subord" select="*[1]/link/@subordinates"></xsl:variable>
    <xsl:for-each select="*">
      <xsl:value-of select="name/given"></xsl:value-of>
      <xsl:value-of select="$"></xsl:value-of>
    </xsl:for-each>

  </xsl:template>
</xsl:stylesheet>
```

The same content completion assistant is available also in attribute value templates of non XSLT elements if the '{' character is the first one in the value of the attribute.

Figure 4.65. Content Completion in attribute value templates



```
  <xsl:template match="myTag">
    <xsl:variable name="var" select="*[1]/@type"/>
    <a href="{"></a>
  </xsl:template
</xsl:stylesheet>
```

name(node-set?) as string

The name function returns a string containing a QName representing the expanded-name of the node in the argument node-set that is first in document order. The QName must represent the expanded-name with respect to the namespace declarations in effect on the node whose expanded-name is being represented. Typically,

Code templates

When the content completion is invoked by pressing **CTRL+Space** it also presents a list of code templates specific to the type of the active editor. Such a code template provides a shortcut for inserting a small document fragment at the current caret position. <oXygen/> comes with a large set of ready-to use templates for XSL and XML Schema documents.

Example 4.3. The XSL code template called Template-Match-Mode

Typing **t** in an XSL document and selecting **tmm** in the content assistant pop-up window will insert the following template at the caret position in the document:

```
<xsl:template match="" mode="">

</xsl:template>
```

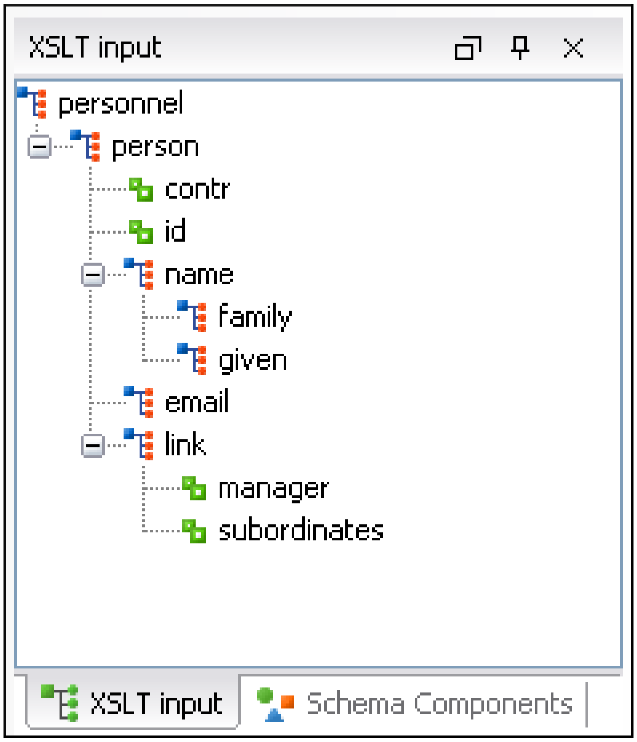
Other templates can be easily defined by the user. Also the code templates can be shared with other users.

The XSLT Input View

The structure of the XML document associated to the edited XSLT stylesheet is displayed in a tree form in a view called *XSLT Input*. The tree nodes represent the elements of the document.

If you click on a node, the corresponding template from the stylesheet will be highlighted. A node can be dragged and dropped in the editor area for quickly inserting *xsl:template*, *xsl:for-each* or other XSLT elements with the *match* / *select* / *test* attribute already filled with the correct XPath expression referring to the dragged tree node and based on the current editing context of the drop spot.

Figure 4.66. XSLT input view



For example for the following XML document

```
<personnel>
    <person id="Big.Boss">
        <name>
            <family>Boss</family>
            <given>Big</given>
        </name>
        <email>chief@oxygenxml.com</email>
        <link subordinates="one.worker"/>
    </person>
    <person id="one.worker">
        <name>
            <family>Worker</family>
            <given>One</given>
        </name>
        <email>one@oxygenxml.com</email>
        <link manager="Big.Boss"/>
    </person>
</personnel>
```

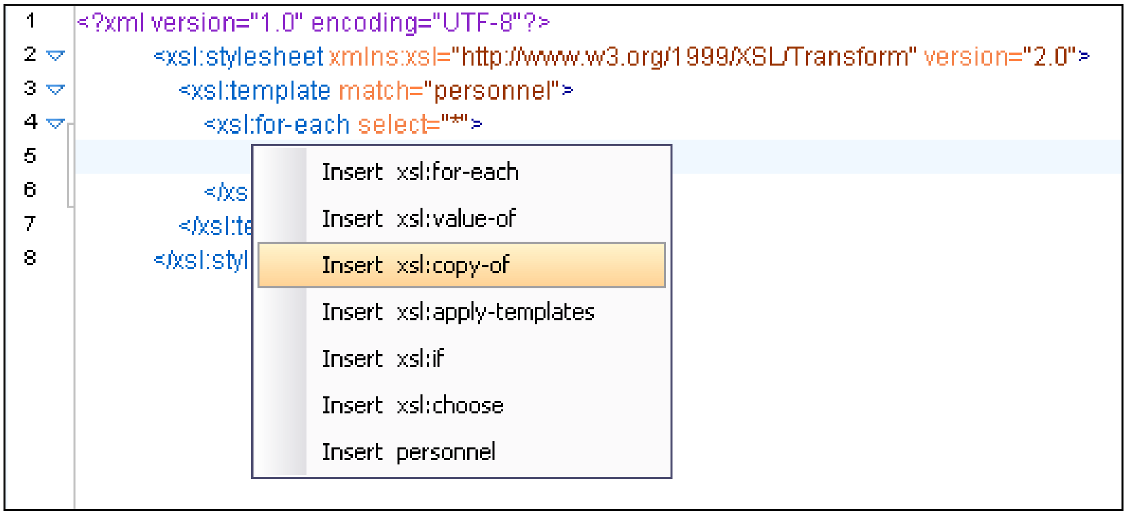
and the following XSLT stylesheet

```
<?xml version="1.0" encoding="UTF-8"?>
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
        version="2.0">
    <xsl:template match="personnel">
        <xsl:for-each select="*">

        </xsl:for-each>
    </xsl:template>
```

```
</xsl:stylesheet>
```

if you drag the *given* element and drop it inside the *xsl:for-each* element a popup menu will be displayed.

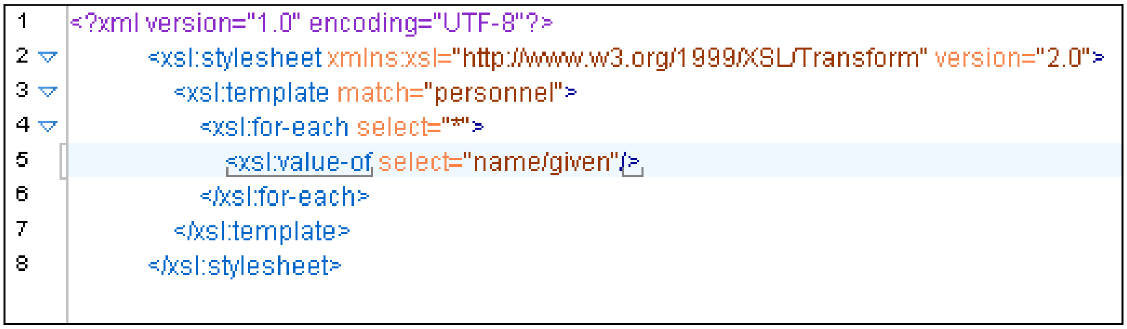
Figure 4.67. XSLT Input drag and drop popup menu



```
<?xml version="1.0" encoding="UTF-8"?>
    <xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform" version="2.0">
      <xsl:template match="personnel">
        <xsl:for-each select="*">

        </xs
      </xsl:te
    </xsl:styl
```

Select for example *Insert xsl:value-of* and the result document will be:

Figure 4.68. XSLT Input drag and drop result

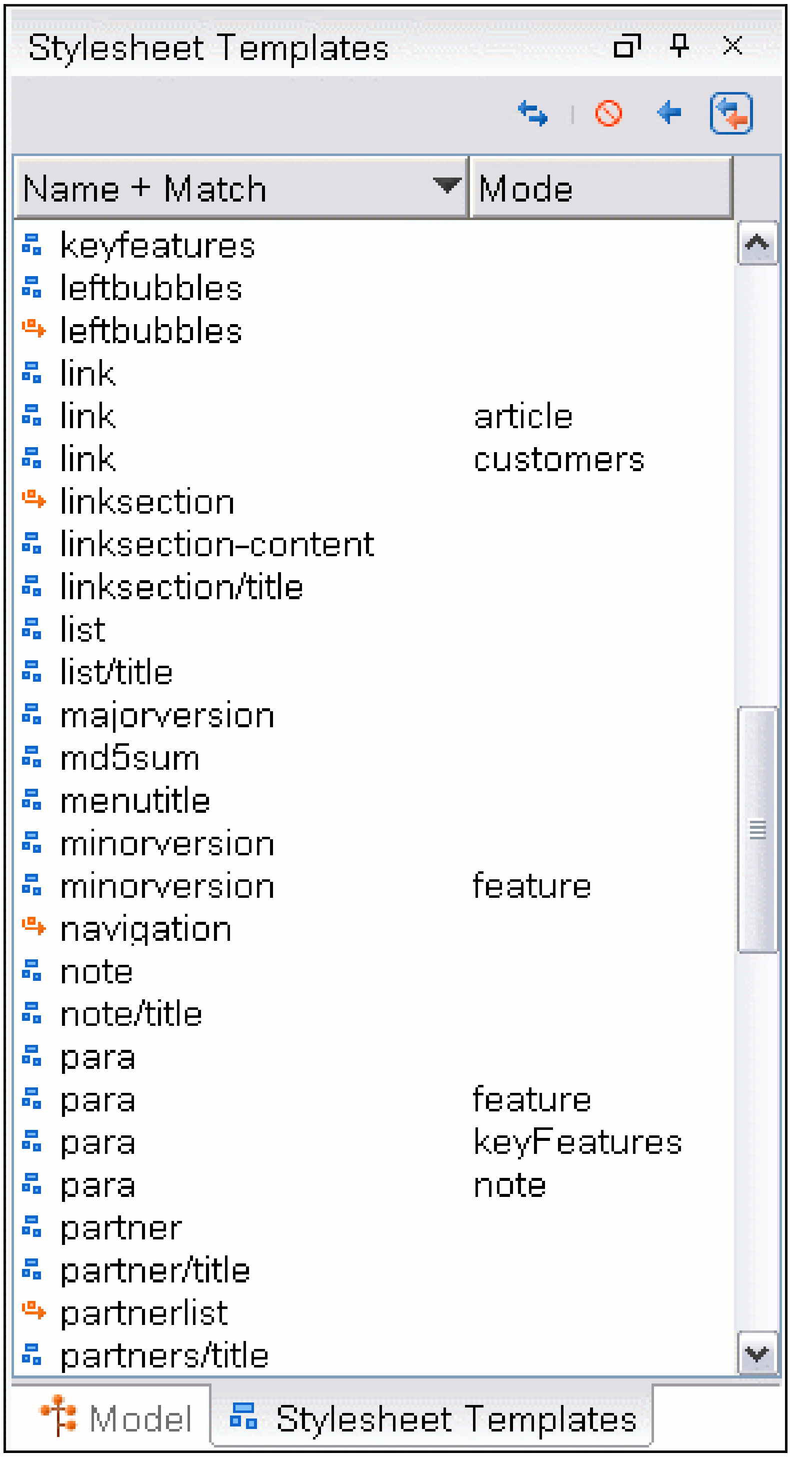


```
<?xml version="1.0" encoding="UTF-8"?>
    <xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform" version="2.0">
      <xsl:template match="personnel">
        <xsl:for-each select="*">
          <xsl:value-of select="name/given"/>
        </xsl:for-each>
      </xsl:template>
    </xsl:stylesheet>
```

The Stylesheet Templates view

The list of all templates of the edited stylesheet is presented in the view called *Stylesheet Templates.*

Figure 4.69. The Stylesheet Templates view



Name + Match	Mode
keyfeatures	
leftbubbles	
leftbubbles	
link	
link	article
link	customers
linksection	
linksection-content	
linksection/title	
list	
list/title	
majorversion	
md5sum	
menutitle	
minorversion	
minorversion	feature
navigation	
note	
note/title	
para	
para	feature
para	keyFeatures
para	note
partner	
partner/title	
partnerlist	
partners/title	

It has two operation modes: the *name* and *match* attributes of templates presented in separate columns of the table, and the *name* and *match* attributes presented in the same column. In the second case the entry in the *Name + Match* column is composed of the value of the *name* attribute followed by a space character and the value of the *match* attribute. The operation mode is switched from the action *Join/Split name and match columns* available on the toolbar of the view.

The view provides three levels of syncronization with the editor panel:

No selection update

The templates list selection is not synchronized with the caret position in the editor panel.

Selection update on document change

The templates list selection is synchronized with the caret position in the editor panel when the document is modified by an editing action.

Selection update on caret move

The templates list selection is synchronized with the caret position in the editor panel in real time, that is the list selection is updated for every move of the caret in the editor panel.

All the columns of the table with the templates are sortable in ascending and descending order. The first click on the column name sorts the rows of the table in ascending order after the clicked column, the second click sorts the table in descending order and the third click returns to the unsorted state, that is the order of the templates in the stylesheet.

A template can be located easily in the list using only the keyboard. If the focus is in the *Name* column, type the first characters of the template name and the selection moves to that template in the list. In a similar way if the focus is in the *Match* or *Mode* column, typing the first characters of the value of the *match* attribute or the *mode* attribute moves the selection to that template in the list.

Finding XSLT references and declarations

Note

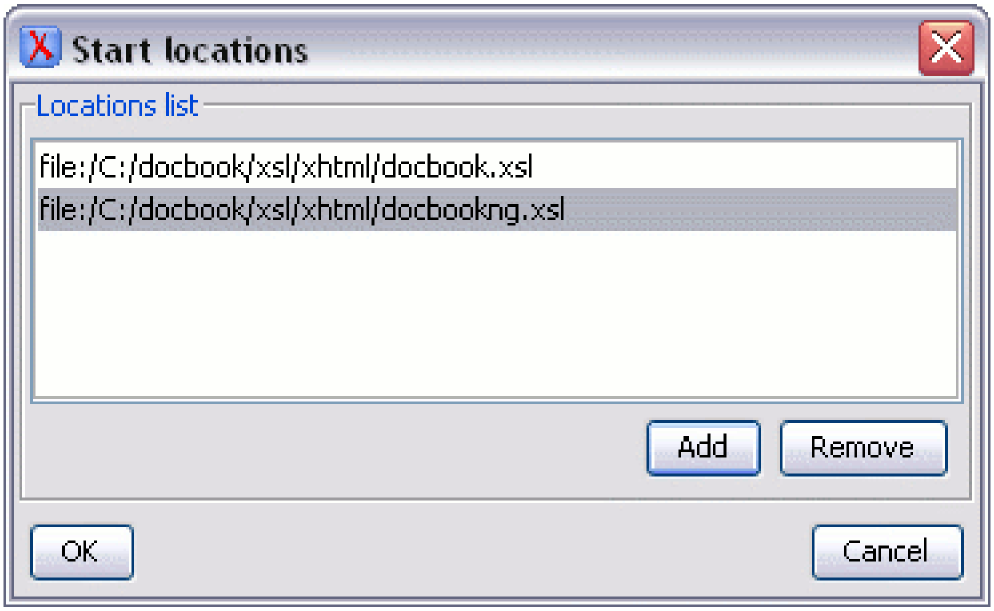
All the following actions can be applied on named templates, attribute sets, functions, decimal formats, keys, variables or parameters only. In case they are applied on other items, a warning message will pop-up.

- Document+XSL References+ → References in project (**Ctrl+Shift+R**): Searches in the project all references of the item found at current cursor position.

  ### Note

  For faster access, a shortcut to this action is also added in the XSL References toolbar.

- Document+XSL References → References in file: Searches in the current file all references of the item at the current cursor position.
- Document+XSL References → References starting from file: Searches all references of the item at the cursor position in the current edited file and all its included and imported files.
- Document+XSL References → References starting from...: Opens a dialog that allows the user to specify the list of files used to start searching from. Pressing OK begins searching all references of the item at the cursor position in the selected files and their included and imported files.



file:/C:/docbook/xsl/xhtml/docbook.xsl
file:/C:/docbook/xsl/xhtml/docbookng.xsl

- Document+XSL References+ → Declarations in project (**Ctrl+Shift+D**): Searches in the project all declarations of the item found at current cursor position.

> **Note**
>
> For faster access, a shortcut to this action is also added in the XSL References toolbar.

- Document+XSL References → Declarations in file: Searches in the current file all declarations of the item at the current cursor position.
- Document+XSL References → Declarations starting from file: Searches all declarations of the item at the cursor position in the current edited file and all its included and imported files.
- Document+XSL References → Declarations starting from...: Opens the Start locations dialog that allows the user to specify the list of files used to start searching from. Pressing OK begins searching all declarations of the item at the cursor position in the selected files and all their included and imported files.
- Document+XSL References → Occurrences in file (**Ctrl+Shift+U**): Searches all occurrences of the item at the caret position in the currently edited file.

XSLT refactoring actions

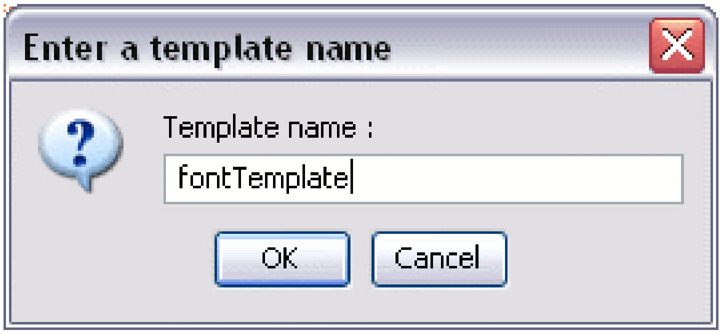
- Document+XSL Refactoring+ → Create template from selection...: Opens a dialog that allows the user to specify the name of the new template to be created. After pressing OK, the template is created and the selection is replaced by a

  ```
  xsl:call-template
  ```

  instruction referring the just created template.

Note

The selection must contain wellformed elements only.



Template name : fontTemplate

- Document+XSL Refactoring+ → Create stylesheet from selection...: Creates a separate stylesheet and replaces the selection with a

  `xsl:include`

  instruction referring the just created stylesheet.

  ### Note

  The selection must contain a well formed top level element.

- Document+XSL Refactoring → Extract attributes as xsl:attributes...: Extracts the attributes from the selected element and represents each of them with a

  `xsl:attribute`

  instruction.

  For example from the following element

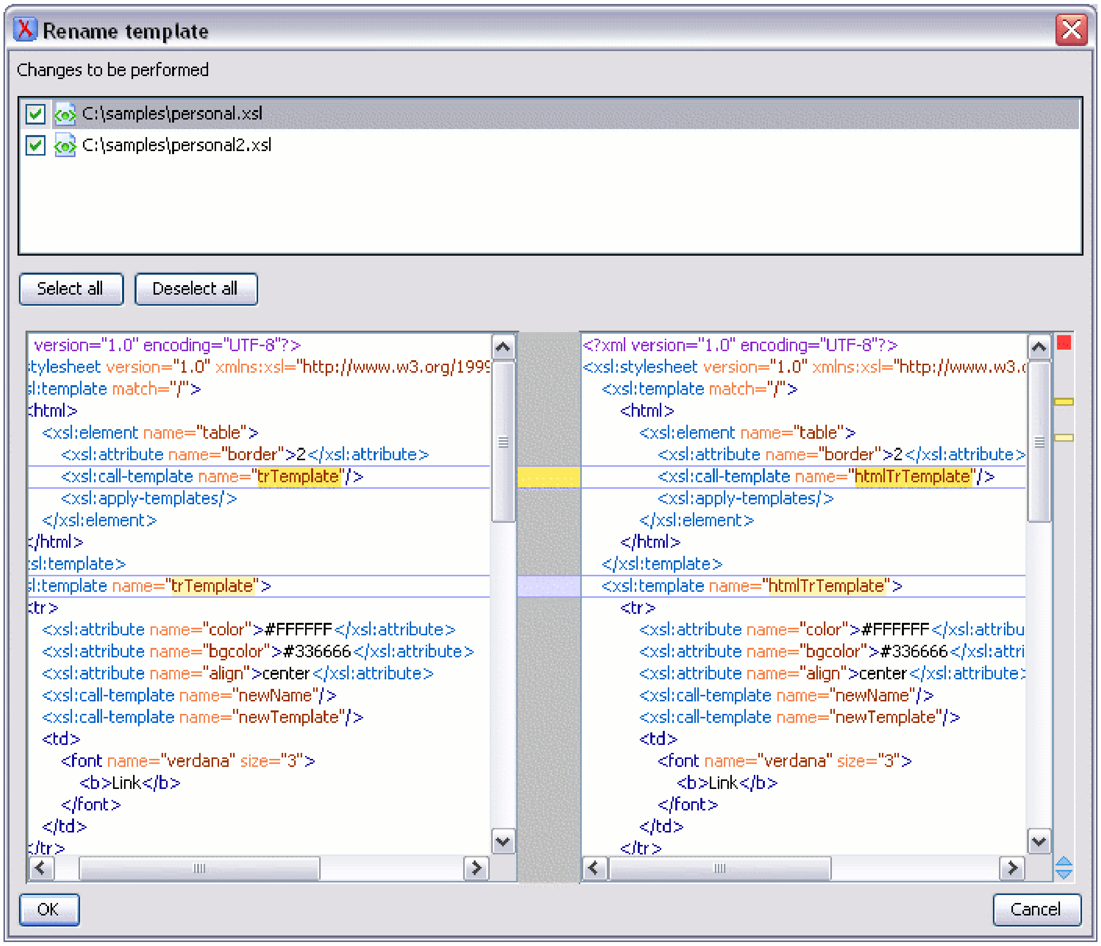
  ```
  <person id="Big{test}Boss"/>
  ```

  you would obtain

  ```
  <person>
      <xsl:attribute name="id">
          <xsl:text>Big</xsl:text>
          <xsl:value-of select="test"/>
          <xsl:text>Boss</xsl:text>
      </xsl:attribute>
  </person>
  ```

- Document+XSL Refactoring+ → Rename occurrences in project...: Renames all occurrences of the item at current cursor position in the entire project. The possible changes to be performed on the documents can be previewed prior to documents altering.

In the upper part of the Rename template dialog there are displayed all the project files in which the item was found, while in the central part of the dialog it can be seen where the replacements will be performed. The user has the possibility to allow or deny the altering of a file.



```
 version="1.0" encoding="UTF-8"?>
tylesheet version="1.0" xmlns:xsl="http://www.w3.org/1999
l:template match="/">
html>
  <xsl:element name="table">
    <xsl:attribute name="border">2</xsl:attribute>
    <xsl:call-template name="trTemplate"/>
    <xsl:apply-templates/>
  </xsl:element>
/html>
sl:template>
l:template name="trTemplate">
tr>
  <xsl:attribute name="color">#FFFFFF</xsl:attribute>
  <xsl:attribute name="bgcolor">#336666</xsl:attribute>
  <xsl:attribute name="align">center</xsl:attribute>
  <xsl:call-template name="newName"/>
  <xsl:call-template name="newTemplate"/>
  <td>
    <font name="verdana" size="3">
      <b>Link</b>
    </font>
  </td>
/tr>
```

```
<?xml version="1.0" encoding="UTF-8"?>
<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.c
  <xsl:template match="/">
    <html>
      <xsl:element name="table">
        <xsl:attribute name="border">2</xsl:attribute>
        <xsl:call-template name="htmlTrTemplate"/>
        <xsl:apply-templates/>
      </xsl:element>
    </html>
  </xsl:template>
  <xsl:template name="htmlTrTemplate">
    <tr>
      <xsl:attribute name="color">#FFFFFF</xsl:attribu
      <xsl:attribute name="bgcolor">#336666</xsl:attri
      <xsl:attribute name="align">center</xsl:attribute>
      <xsl:call-template name="newName"/>
      <xsl:call-template name="newTemplate"/>
      <td>
        <font name="verdana" size="3">
          <b>Link</b>
        </font>
      </td>
    </tr>
```

- Document+XSL Refactoring → Rename occurrences in file...: Renames all occurrences of the item at current cursor position in the entire file. The possible changes to be performed on the current file can be previewed prior to document altering.

- Document+XSL Refactoring → Rename occurrences starting from file...: Renames all occurrences of the item at current cursor position in the currently edited file and all its included and imported files. The possible changes to be performed can be previewed prior to document(s) altering.

- Document+XSL Refactoring → Rename occurrences starting from ...: Opens a dialog that allows the user to select the files to begin searching from, then renames all occurrences of the item at current cursor position in the selected files and all their included and imported files. The possible changes to be performed can be previewed prior to document(s) altering.

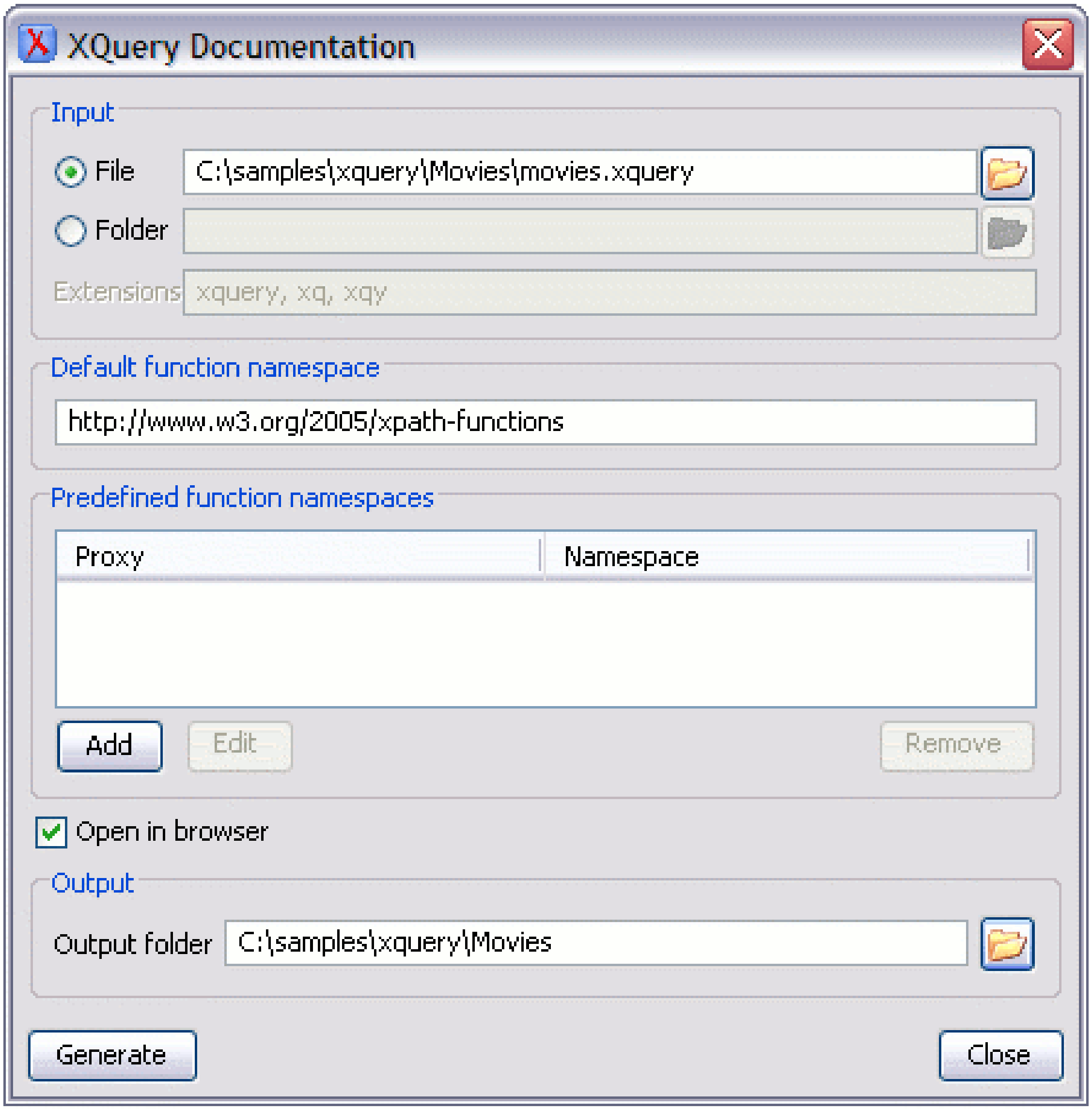
Editing XQuery documents

Generating HTML Documentation for an XQuery Docu-

ment

To generate HTML documentation for an XQuery document similar with the Javadoc documentation for Java classes use the dialog *XQuery Documentation*. It is opened with the action Tools → Generate Documentation → XQuery Documentation... (**Ctrl+Alt+Q**). It can be also opened from the Project Tree contextual menu: Generate Documentation → XQuery Documentation... . The dialog enables the user to configure a set of parameters of the process of generating the HTML documentation. The parameters are:

Figure 4.70. The XQuery Documentation dialog



XQuery Documentation

Input

● File: C:\samples\xquery\Movies\movies.xquery

○ Folder:

Extensions: xquery, xq, xqy

Default function namespace: http://www.w3.org/2005/xpath-functions

Predefined function namespaces

Proxy	Namespace

☑ Open in browser

Output

Output folder: C:\samples\xquery\Movies

Input

The *Input* panel allows the user to specify either the *File* or the *Folder* which contains the files for which to generate the documentation. One of the two text fields of the *Input* panel must contain the full path to the XQuery file. Extensions for the xquery files contained in the specified directory can be added as comma separated values. Default there are offered xquery, xq, xqy.

Default function namespace
Optional URI for the default namespace for the submitted XQuery if it exists.

Predefined function namespaces
Optional engine dependent, predefined namespaces that the submitted XQuery refers to. They allow the conversion to generate annotation information to support the presentation component's hypertext linking if the predefined modules have been loaded into the local xqDoc XML repository.

Open in browser
When checked, the generated documentation will be opened in an external browser.

Output
Allows the user to specify where the generated documentation will be saved on disk.

Editing CSS stylesheets

<oXygen/> provides special support for developing CSS stylesheet documents.

Validating CSS stylesheets

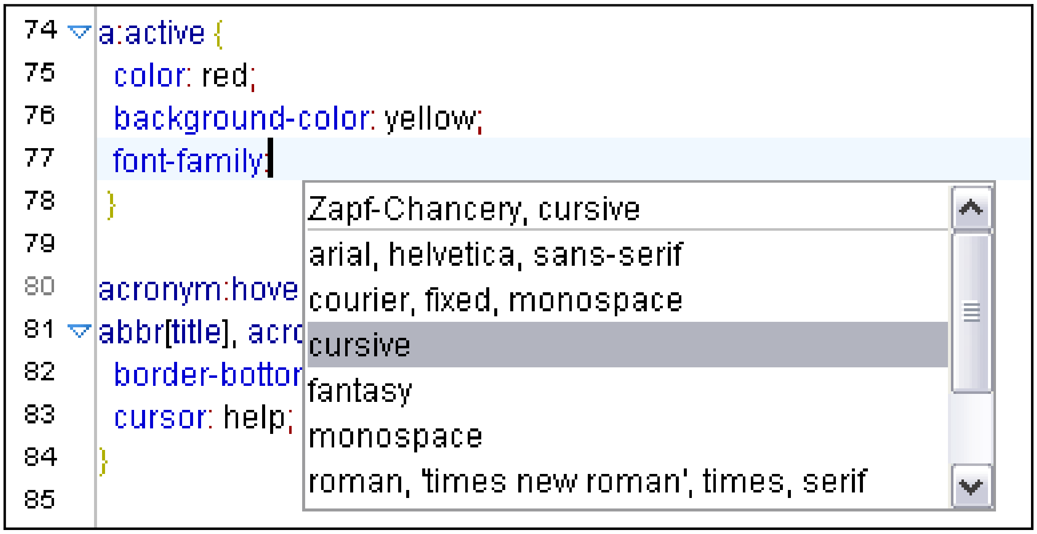
<oXygen/> includes a built-in CSS validator integrated with the general validation support. This brings the usual validation features to CSS stylesheets.

When the current editor is of CSS type the *Validate* toolbar provides a button Validation options for quick access to the CSS validator options in the <oXygen/> user preferences.

Content Completion in CSS stylesheets

A content completion assistant similar to the one of XML documents offers the CSS properties and the values available for each property. It is activated on the **CTRL + Space** shortcut and it is context sensitive when it is invoked for the value of a property.

Figure 4.71. Content Completion in CSS stylesheets



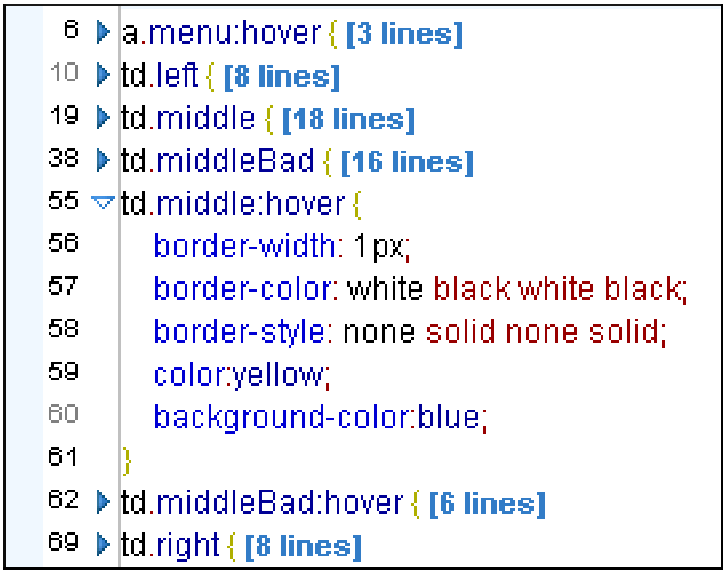
```
a:active {
  color: red;
  background-color: yellow;
  font-family:
 }

acronym:hove
abbr[title], acro
  border-bottor
  cursor: help;
}
```

Zapf-Chancery, cursive
arial, helvetica, sans-serif
courier, fixed, monospace
cursive
fantasy
monospace
roman, 'times new roman', times, serif

Folding in CSS stylesheets

In a large CSS stylesheet document some styles may be collapsed so that only the needed styles remain in focus. The same folding features available for XML documents are also available in CSS stylesheets.

Figure 4.72. Folding in CSS stylesheets



```
a.menu:hover { [3 lines]
td.left { [8 lines]
td.middle { [18 lines]
td.middleBad { [16 lines]
td.middle:hover {
    border-width: 1px;
    border-color: white black white black;
    border-style: none solid none solid;
    color:yellow;
    background-color:blue;
}
td.middleBad:hover { [6 lines]
td.right { [8 lines]
```

Formatting and indenting CSS stylesheets (pretty print)

If the edited CSS stylesheet becomes unreadable because of the bad alignment of the text lines the pretty-print operation available for XML documents is also available for CSS stylesheets. It works in the same way as for XML documents and is available as the same menu and toolbar action.

Other CSS editing actions

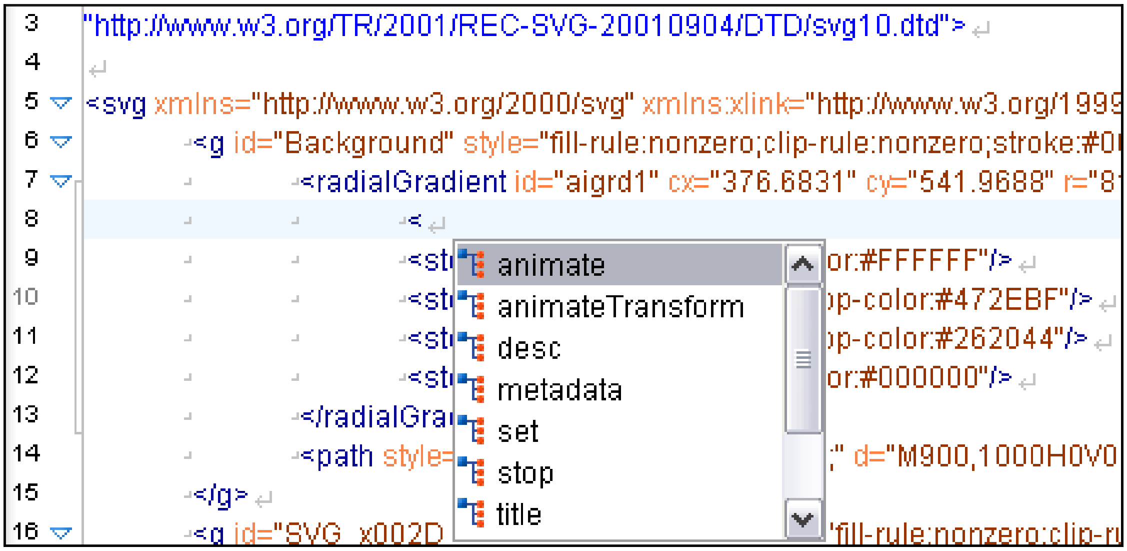
The CSS editor type offers a reduced version of the popup menu available in the XML editor type, that means only the split actions,the folding actions,the edit actions and a part of the source actions (only the actions *To lower case*, *To upper case*, *Capitalize lines*).

SVG documents

SVG is a platform for two-dimensional graphics. It has two parts: an XML-based file format and a programming API for graphical applications. Just to enumerate some of the key features: shapes, text and embedded raster graphics with many painting styles, scripting through languages such as ECMAScript and support for animation.

SVG is a vendor-neutral open standard that has important industry support. Companies like Adobe, Apple, IBM and others have contributed to the W3C specification. Many documentation frameworks, including Docbook have support for SVG by means of defining the graphics directly in the document.

Figure 4.73. SVG Content Completion



```
"http://www.w3.org/TR/2001/REC-SVG-20010904/DTD/svg10.dtd">

<svg xmlns="http://www.w3.org/2000/svg" xmlns:xlink="http://www.w3.org/1999
    <g id="Background" style="fill-rule:nonzero;clip-rule:nonzero;stroke:#0
            <radialGradient id="aigrd1" cx="376.6831" cy="541.9688" r="8
                    <
                    <st                                   or:#FFFFFF"/>
                    <st                                   p-color:#472EBF"/>
                    <st                                   p-color:#262044"/>
                    <st                                   or:#000000"/>
            </radialGra
            <path style=                                  ;" d="M900,1000H0V0
    </g>
    <g id="SVG_x002D                                      "fill-rule:nonzero;clip-ru
```

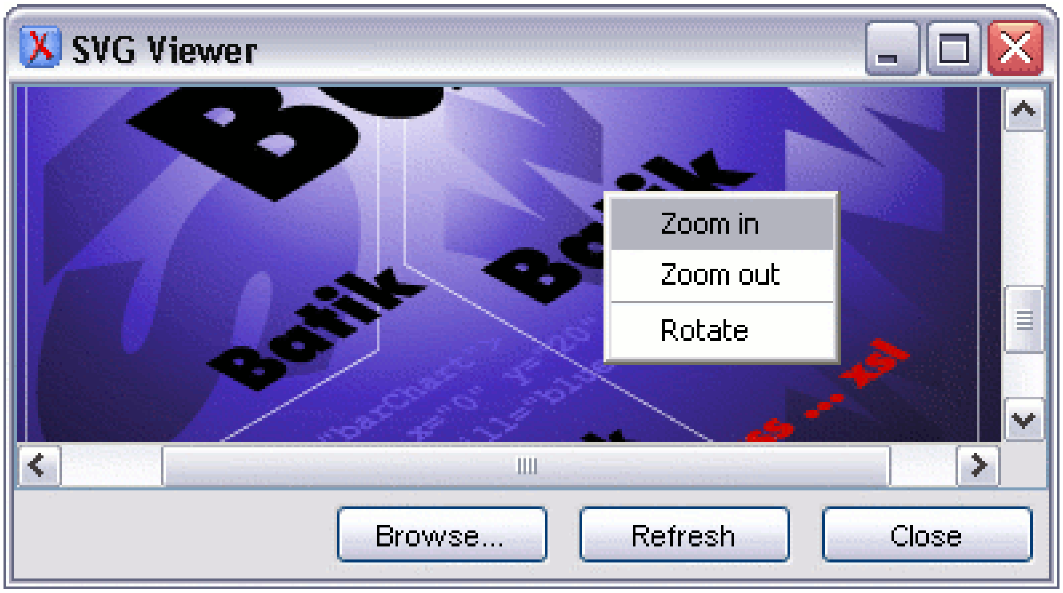
<oXygen/> XML Editor adds SVG support by using the Batik [http://xml.apache.org/batik/] package, an open source project developed by the Apache Software foundation. The SVG DTD is solved by <oXygen/>'s default XML catalog.

<oXygen/> can render SVG by two means:

The Standalone SVG Viewer.

You may use the action Tools → SVG Viewer ... to browse and open any SVG file having the extension `.svg` or `.svgz`. If the file is included in the current project then you can open it by right-clicking on it and selecting Open with → SVG Viewer

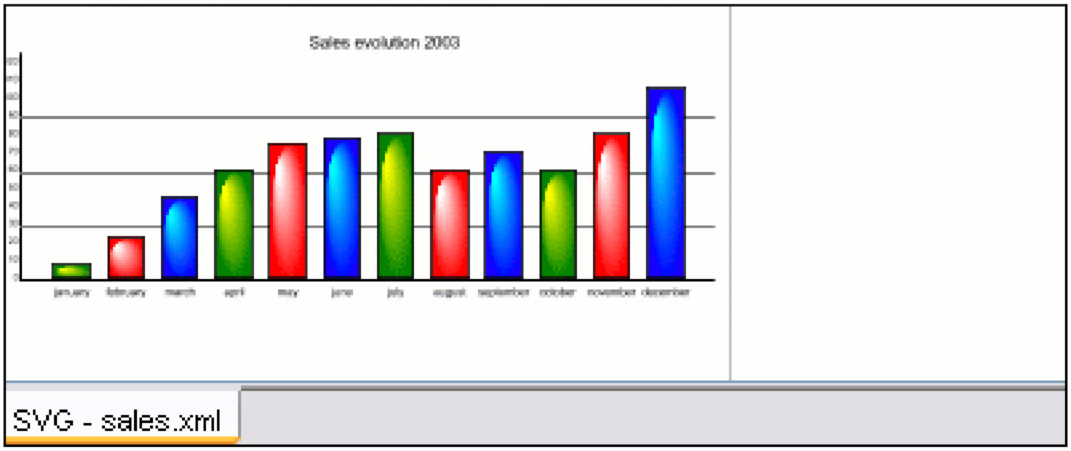
Figure 4.74. SVG Viewer



The Preview Result Pane.

This panel can render the result of an XSL transformation that generates SVG documents.

Figure 4.75. Integrated SVG Viewer



The basic use-case of <oXygen/> consists in the development of the XSL stylesheets capable of producing rich SVG graphics. For example when you have an XML document describing the evolution of a parameter over time and you need to create a graphic from it. You can start with a static SVG, written directly in <oXygen/> or exported from a graphics tool like the Adobe suite. Extract then the parts that are dependent of the data from the XML document and create the XSL templates.

Integrating external tools

When your XML project requires to run an external tool different than a FO processor and which can be launched from the command line <oXygen/> offers you the option of integrating the tool by specifying just the command line for starting the executable file of the tool and its working directory. To integrate such a tool go to Options → Preferences+External Tools

If the external tool is applied on one of the files opened in <oXygen/> you should enable the option for saving all edited files automatically when an external tool is applied.

Integrating the Ant tool

As example let us integrate the Ant build tool [http://ant.apache.org/] in <oXygen/>. The procedure for this purpose is:

1. Download [http://ant.apache.org/bindownload.cgi] and install [http://ant.apache.org/manual/install.html] Ant on your computer.
2. Test your Ant installation from the command line in the directory where you want to use Ant from <oXygen/>, for example run the clean target of your `build.xml` file `C:\projects\XMLproject\build.xml`: **ant clean**
3. Go to Options → Preferences+External Tools
4. Create a new external tool entry with the name Ant tool, the working directory `C:\projects\XMLproject` and the command line **"C:\projects\XMLproject\ant.bat" clean** obtained by browsing to the `ant.bat` file from directory `C:\projects\XMLproject`
5. Run the tool from Tools → External Tools → Ant tool. You can see the output in the Command results panel:

```
Started: "C:\projects\XMLproject\ant.bat" clean
Buildfile: build.xml

clean:
[echo] Delete output files.
[delete] Deleting 5 files from C:\projects\XMLproject

BUILD SUCCESSFUL
Total time: 1 second
```

Scratch Buffer

A handy addition to the document editing is the *Scratch Buffer* view used for storing fragments of arbitrary text during the editing process. It can be used to drop bits of paragraphs (including arbitrary xml markup fragments) while rearranging and editing the document. The Scratch Buffer is basically a text area offering XML syntax highlight. The view contextual menu contains basic edit actions: Cut, Copy, Paste a. o.

Text editor specific actions

<oXygen/> provides user actions common in any text editor:

Undoing and redoing user actions

- Edit → Undo (**Ctrl+Z**)or the toolbar button Undo to reverse a maximum of 100 editing actions to return to the preceding state. Complex operations like "Replace All", "Indent selection", etc are treated as a single undo event.
- Edit → Redo (**Ctrl+Shift+Z**)or the toolbar button Redo to recreate a maximum of 100 editing actions that were undone by the Undo function.

Copying and pasting text

- Edit → Cut (**Ctrl+X**)or the toolbar button Cut to remove the current selected node from the document and places it in the clipboard.
- Edit → Copy (**Ctrl+C**)or the toolbar button Copy to place a copy of the current selection in the clipboard.
- Edit → Paste (**Ctrl+V**)or the toolbar button Paste to place the current clipboard content into the document at the cursor position.
- Edit → Select All (**Ctrl+A**) selects the entire body of the current document, including whitespace preceding the first and following the last character.

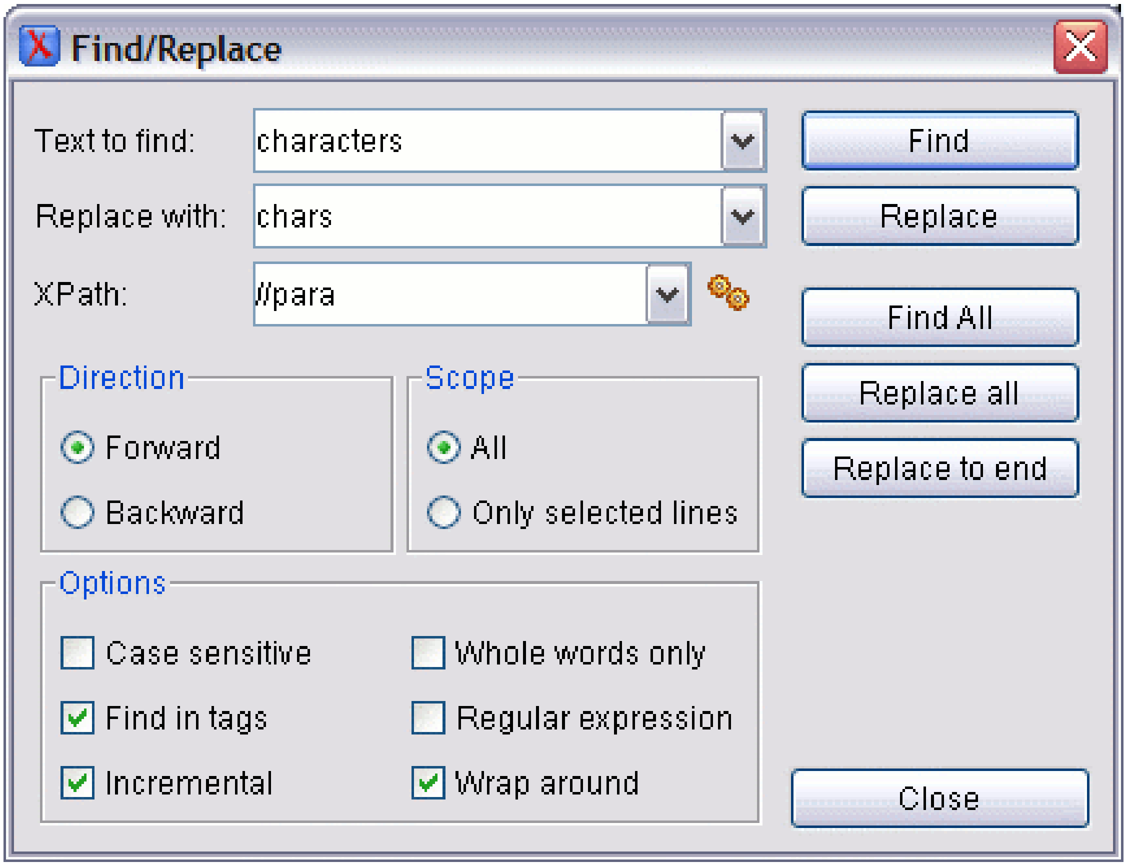
Finding and replacing text in the current file

The Find/Replace dialog

The Find/Replace dialog opened with the menu entry Find → Find/Replace... (**Ctrl+F**) or the toolbar button Find/Replace enables you to define "search for" or "search for and replace" operations on the current document. The find works at line level, which means a find match cannot cover characters on more than one line. The replace operation can bind Perl 5 regular expression group variables ($1, $2, etc.) from the find match. For example to replace the tag with attributes called *tag-name* with the tag *tag-name1* use as text to find *<tag-name(\s+)(.*)>* and as replace text *<tag-name1$1$2>*.

- find occurrences of a word or string of characters including white spaces and highlight the position in the editor.
- replace occurrences of target defined in the Find field with a word or string of characters, including white spaces, defined in the Replace field.
- find all occurrences of a word or string of characters including white spaces and return a result list to the Message Panel.
- replace all occurrences of a word or string of characters including white spaces.

Figure 4.76. Find/Replace Dialog



Text to find: characters

Replace with: chars

XPath: //para

Direction: ● Forward ○ Backward

Scope: ● All ○ Only selected lines

Options:
□ Case sensitive □ Whole words only
☑ Find in tags □ Regular expression
☑ Incremental ☑ Wrap around

Complete the dialog as follows:

Text to find
The target character string to search for.

Replace with
The character string with which to replace the target. It may contain '{$NEWLINE}' which at the replace time will insert a new line character.

XPath
The XPath 2.0 expression entered in this combo is used to restrict the search scope. It is applied only at the first search command (Find, Replace, Find all, Replace to end) after the user changes the content of this combo so that he is able to replace tag names covered by the current XPath expression.

The content completion assistant that helps in entering XPath expressions in attributes of XSLT stylesheets elements is also available in the XPath console and offers always proposals dependent of the current context of the cursor inside the edited document.

Direction
Specify if the search direction is from current position to end of file (forward direction) or to start of file (backward direction).

Scope
Specify if the search is executed on all file or only on the lines

that were selected when the dialog was invoked. If the selection was on a single line the search is executed on all the file.

Find

Execute a find operation for the next occurrence of the target and stop.

Replace

Execute a replace operation for the target followed by a find operation for the next occurrence.

Find all

Executes a find operation and returns all results to the Message Panel.

Replace to end

Execute a replace operation starting from current target until the end of the document, in the direction specified by the current selection of the Direction switch (forward or backward).

Replace all

Execute a replace operation in the entire scope of the document.

Case sensitive

When checked, operations are case sensitive.

Whole words only

When checked only whole occurrences of a word will be included in the operation.

Find in tags

When checked, operation will include content of the start and end tags of the XML elements.

Incremental

When checked, search operation is started for every letter typed in or deleted. The first match that obeys the checked conditions will be highlighted.

Regular Expression

When checked allows using any regular expression in PERL syntax.

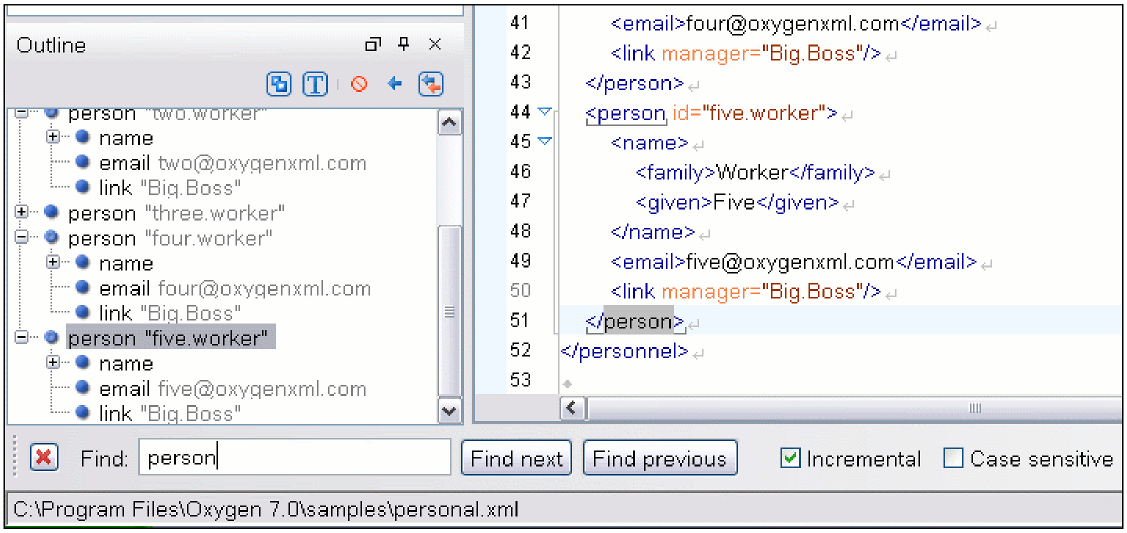
Wrap around

Continues the find from the start (end) of the document after reaching the end (start) if the search is in forward (backward) direction.

The Quick Find toolbar

A reduced version of the Find/Replace dialog is available as a toolbar, activated by the shortcut **Ctrl + Alt + F** and displayed by default at the bottom of the <oXygen/> window, above the status bar.

Figure 4.77. The Quick Find toolbar



```
      <email>four@oxygenxml.com</email>
      <link manager="Big.Boss"/>
    </person>
    <person id="five.worker">
      <name>
        <family>Worker</family>
        <given>Five</given>
      </name>
      <email>five@oxygenxml.com</email>
      <link manager="Big.Boss"/>
    </person>
</personnel>
```

☒ Find: person ☑ Incremental □ Case sensitive

C:\Program Files\Oxygen 7.0\samples\personal.xml

The Find, Find next, Find previous, Incremental and Case sensitive controls work in the same way as in the Find/Replace dialog. Also the search process works as if the Find in tags option of the Find/Replace dialog is true, the Whole words only one is false, the Regular expression one is false and the Wrap around one is true. The toolbar becomes invisible again when the **ESC** key is pressed.

The enabling shortcut can be changed in Options → Preferences+Menu Shortcut Keys+Quick FindAs with any dockable toolbar, the screen location of the Quick Find toolbar can be changed at any time by dragging (and docking) it to the desired location.

Keyboard shortcuts for finding the next and previous match

Navigation from a find match to the next one or the previous one is very easy with two keyboard shortcuts: F3 and Shift F3. They are useful to quickly repeat the last find action performed with the Find/Replace dialog, taking into account the same find options set there through check boxes.

Find → Find next (**F3**) performs another search in forward direction using the last search configuration.

Find → Find previous (**Shift+F3**) performs another search in backward direction using the last search configuration.

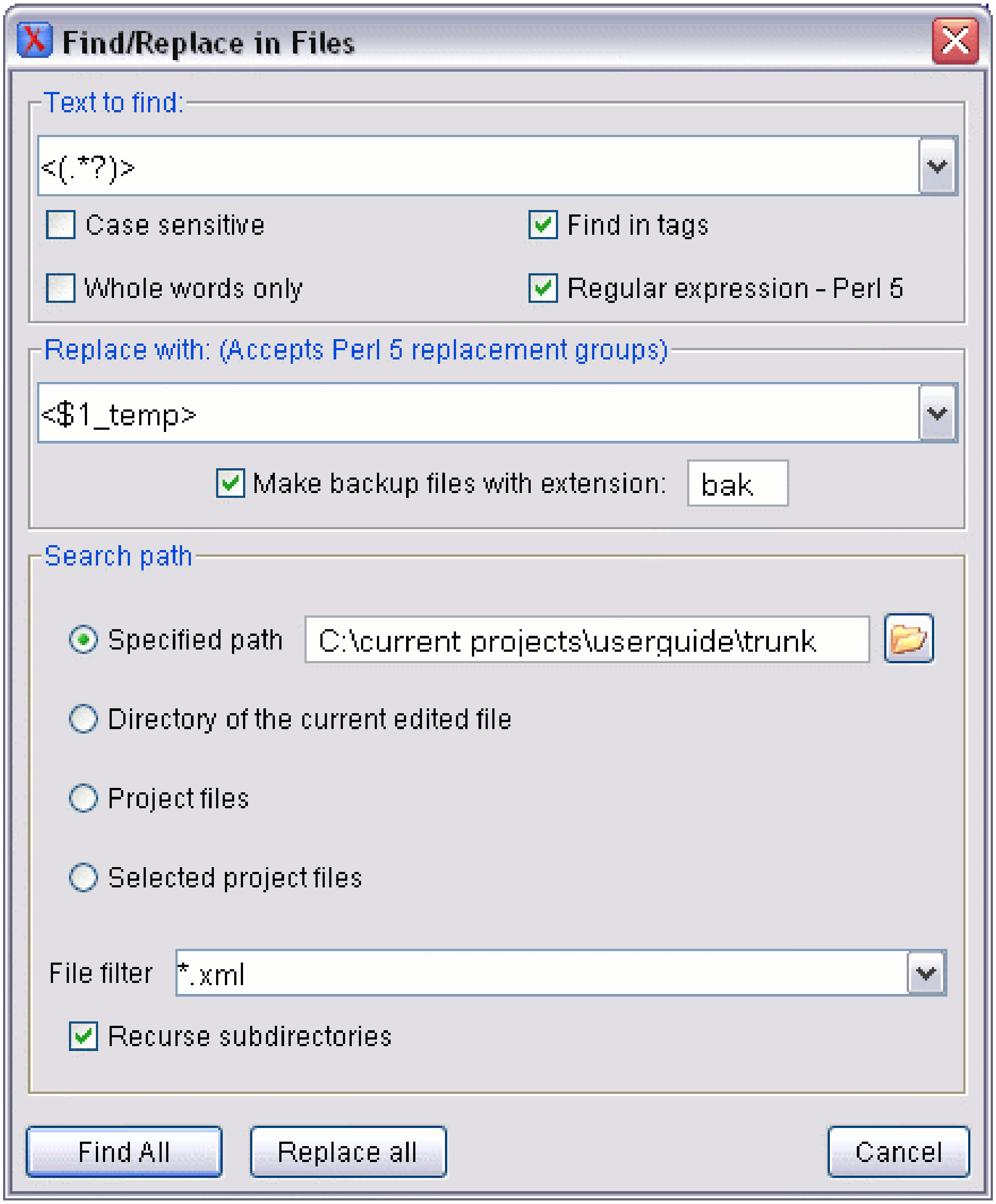
Finding and replacing text in multiple files

The Find and Replace in Files option (Find → Find/Replace in Files... or the toolbar button Find/Replace in Files) enables you to define "search for" or "search for and replace" operations across a number of files. The find works at line level, which means a find match cannot cover characters on more than one line. The replace operation can bind Perl 5 regular expression group variables ($1, $2, etc.) from the find match. For example to replace the tag with attributes called *tag-name* with the tag *tag-name1* use as text to find *<tag-name(\s+)(.*)>* and as replace text *<tag-name1$1$2>*.

The encoding used to read and write the files is detected from the XML header or from the BOM. If a file does not have an XML header or BOM <oXygen/> uses the UTF-8 encoding for files of type XML, that is one of the extensions: xml, xsl, fo, xsd, rng, nrl, sch, wsdl or an extension associated with the XML editor type, or the encoding configured for non XML files.

You can cancel a long operation at any time by pressing the Cancel button of the progress dialog displayed when the operation is executed.

Figure 4.78. Find/Replace in Files



Text to find: <(.*?)>

□ Case sensitive ☑ Find in tags

□ Whole words only ☑ Regular expression - Perl 5

Replace with: (Accepts Perl 5 replacement groups) <$1_temp>

☑ Make backup files with extension: bak

Search path

● Specified path C:\current projects\userguide\trunk

○ Directory of the current edited file

○ Project files

○ Selected project files

File filter *.xml

☑ Recurse subdirectories

Complete the dialog as follows:

Text to Find — The target character string to search for.

Case Sensitive — When checked, operations are case sensitive.

Whole words only

When checked only whole occurrences of a word will be included in the operation.

Find in tags

When checked, operation will include content of the start and end tags of the XML elements.

Regular Expression

When checked allows using any regular expression in PERL syntax.

Replace with

The character string with which to replace the target. It may contain '{$NEWLINE}' which at the replace time will insert a new line character.

Make Backups with extension

In the replace process <oXygen/> makes backup files of the modified files. The default extension is *bak, but you can change extension as you prefer.

Specified Path

Choose the search path

Directory of the current edited file

The search is done in the directory of the file opened in the current editor panel. If there is no opened file this option is disabled in the dialog.

Project Files (File Filter)

Search the files from the current project using the specified file filter.

Selected project files

Search only in the selected files of the current opened project

Note

The search is performed only on local files. If you have added to the project remote files from an FTP or Webdav server these will be skipped from the search.

Recurse subdirectories

The search is performed recursively in the sub-directories found in the specified directory path only when this option is checked.

Recurse subdirectories

When checked, the search is performed recursively in the sub-directories found in the specified directory path.

Find All

Executes a find operation and returns the result list to the Message Pane

Replace All

Replaces all occurrences of the target contained in the specified files.

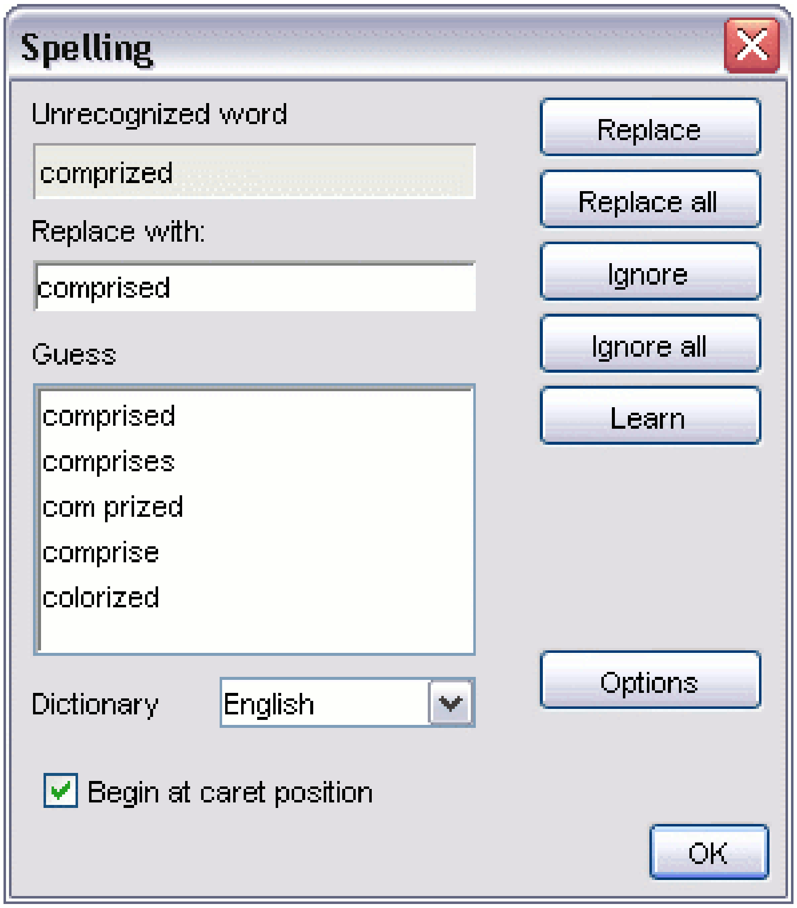
Use this option with caution.

Global search and replace across all project files does not open the files containing the targets, nor does it prompt on a per occurrence basis, to confirm that a replace operation must be performed. As the operation simply matches the string defined in the find field, this may result in replacement of matching strings that were not originally intended to be replaced.

Using Check Spelling

The Check Spelling option (Edit → Check Spelling (**F4**) or the toolbar button Check spelling) enables you to perform the check spelling on the current document:

Figure 4.79. Check Spelling Dialog



Spelling

Unrecognized word

comprized

Replace with:

comprised

Guess

comprised
comprises
com prized
comprise
colorized

Dictionary English

☑ Begin at caret position

Complete the dialog as follows:

Unrecognized Word — Contains the word that cannot be found in the selected dictionary. The word is also highlighted in the XML document.

Replace with — The character string which is suggested to replace the unrecognized word.

Guess — Displays a list of words suggested to replace the unknown word. Double clicking a word in this list automatically inserts it in the document and continues the spell checking process.

Dictionary — Displays a list with the available dictionaries.

Replace — Replaces the currently highlighted word in the XML document, with the selected word in the "Replace with" field.

Replace All
Replaces all occurrences of the currently highlighted word in the XML document, with the selected word in the "Replace with" field.

Ignore
Allows you to continue checking the document while ignoring the first occurrence of the unknown word. The same word will be flagged again if it appears in the document.

Ignore all
Ignores all instances of the unknown word in the whole document.

Learn
Includes the unrecognized word in the list of valid words so that the spell checker will not consider it for correction.

Options
Sets the configuration options of the Spell Checker.

Begin at caret position
When checked, the spell checker begins checking from the current cursor position.

OK
Closes the Spell Checker dialog.

<oXygen/> provides dictionaries only for the languages English (EN, GB, CA, US), French (FR, BE, CA, CH) and German in the form of .dar files located in the directory `[oXygen-install-dir]/dicts`. A pre-built dictionary can be added by copying the corresponding .dar archive to the same directory and restarting <oXygen/>. A dictionary can be built with the tool available at http://www.xmlmind.com/spellchecker/dictbuilder.shtml.

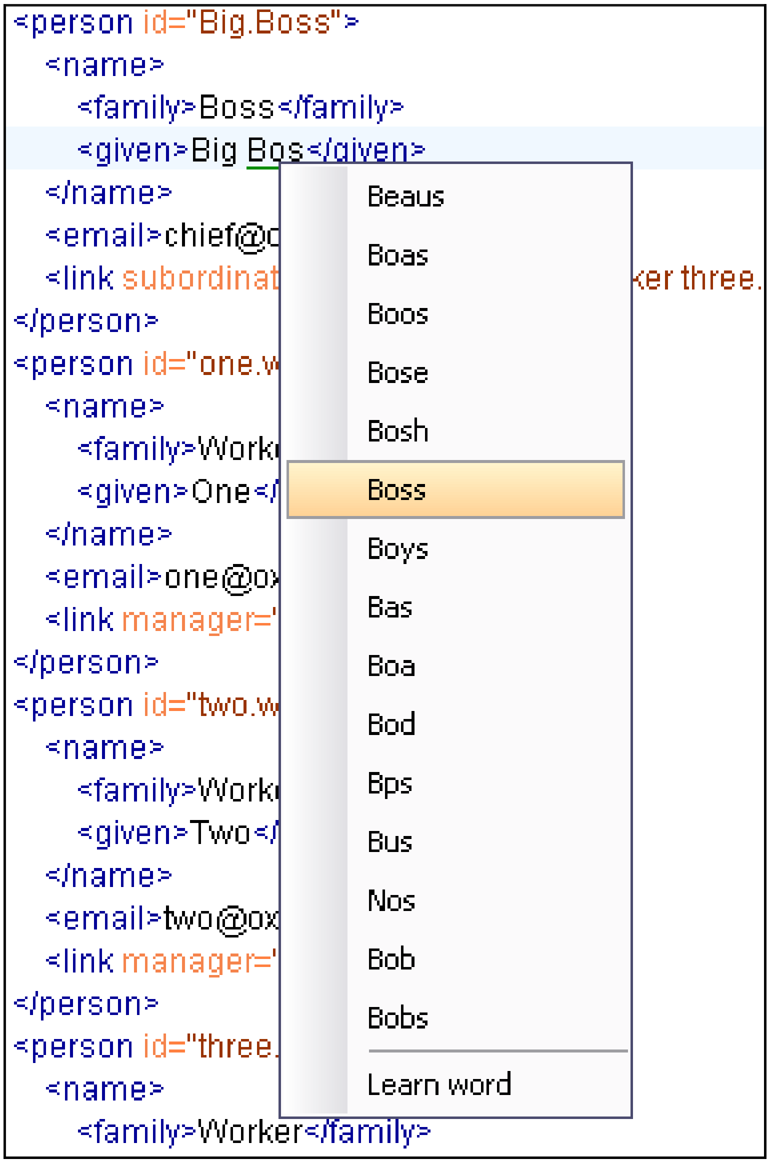
Learned words are stored into an persistent learned-words dictionary with the .tdi extensions located in [user-home-dir]/spell directory ([user-home-dir]/.spell directory on Mac OS X). There is one dictionary for each language-country variant combination. If the Learn button is pressed by mistake the only possibility to delete the learned word from the learned-words dictionary is to edit this dictionary manually and restart <oXygen/> because the spell-check component does not allow its editing by the user interface.

Note

The Czech check spelling dictionary may be downloaded from http://www.kosek.cz/sw/xxe/cs.dar

Spell checking feature can be also used as you type by enabling it from the Preferences panel. Also for words with wrong spelling the suggestions of the Spelling dialog are available on the context menu of the editor panel in the Spell check suggestions submenu:

Figure 4.80. Spell check suggestions in the editor context menu



```
<person id="Big.Boss">
  <name>
    <family>Boss</family>
    <given>Big Bos</given>
  </name>
  <email>chief@c
  <link subordinat                    ker three.
</person>
<person id="one.w
  <name>
    <family>Work
    <given>One</
  </name>
  <email>one@ox
  <link manager='
</person>
<person id="two.w
  <name>
    <family>Work
    <given>Two</
  </name>
  <email>two@ox
  <link manager='
</person>
<person id="three.
  <name>
    <family>Worker</family>
```

Note

Words with lengths in excess of 100 characters are ignored by the spell checker.

Changing the font size

The font size of the editor panel can be changed with the following actions:

Document → Font size → Increase editor font (**Ctrl** + **NumPad** + +)
Increase the font size with one point for each execution of the action.

Document → Font size → Decrease editor font (**Ctrl** + **NumPad** + -)
Decrease the font size with one point for each execution of the action.

editor font (**Ctrl + 0**) Reset the font size to the value of the editor font set in Preferences.

Dragging and dropping the selected text

To move a whole region of text to other location in the same edited document just select the text, drag the selection by holding down the left mouse button and drop it to the target location.

Printing a file

File → Print (**Ctrl+P**) displays the Page Setup dialog used to define the page size and orientation properties for printing.

Inserting a file at caret position

Document+File → Insert file... inserts in a file under the current position of the caret in the current document.

Opening edited file in system application

Document+File → Open in system application opens edited file with default application associated on current machine.

Opening the file at caret position

Document+File → Open file at cursor : Opens in a new panel the file with the name under the current position of the caret in the current document.

Exiting the <oXygen/> XML Editor

File → Exit (**Ctrl+Q**) : Terminates the <oXygen/> XML Editor. Session information such as the current Project, open Documents and Option settings is made persistent. When the <oXygen/> editor is re-opened, the persistence information returns to the last saved state.

Chapter 5. Transforming documents

XML is designed to store, carry, and exchange data, not to display data. When we want to view the data we must either have an XML compliant user agent or transform it to a format that can be read by other user agents. This process is known as transformation.

Status messages generated during transformation are displayed in the Information view.

Output formats

Within the current version of <oXygen/> you can transform your XML documents to the following formats without having to exit from the application. For transformation to formats not listed simply install the tool chain required to perform the transformation and process the xml files created with <oXygen/> in accordance with the processor instructions.

PDF

Adobe Portable Document Format (PDF) is a compact binary file format that can be viewed and printed by anyone, anywhere across a broad range of hardware and software using the free PDF Viewer from Adobe [http://www.adobe.com/products/acrobat/readstep.html].

PS

PostScript is the leading printing technology from Adobe [http://www.adobe.com:80/products/postscript/main.html] for high-quality, best-in-class printing solutions ranging from desktop devices to the most advanced digital presses, platemakers, and large format image setters in the world. Postscript files can be viewed using viewers such as GhostScript, but are more commonly created as a prepress format.

TXT

Text files are Plain ASCII Text and can be opened in any text editor or word processor.

XML

XML stands for eXtensible Markup Language and is a W3C [http://www.w3c.org/XML/] standard markup language, much like HTML, which was designed to describe data. XML tags are not predefined in XML. You must define your own tags. XML uses a Document Type Definition (DTD), an XML Schema or a Relax NG schema to describe the data. XML with a DTD, XML Schema or Relax NG schema is designed to be self-descriptive. XML is not a replacement for HTML. XML and HTML were designed with different goals:

- XML was designed to describe data and to focus on what data is.
- HTML was designed to display data and to focus on how data looks.
- HTML is about displaying information, XML is about describing information.

XHTML

XHTML stands for eXtensible HyperText Markup Language, a W3C [http://www.w3c.org/MarkUp/] standard. XHTML is aimed to replace HTML. While almost identical to HTML 4.01, XHTML is a stricter and cleaner version of HTML. XHTML is HTML defined as an XML application.

All formatting during a transformation is provided under the control of an Extensible Stylesheet (XSLT). Specifying the appropriate XSLT enables transformation to the above formats and preparation of output files for specific user agent viewing applications, including:

HTML

HTML stands for Hyper Text Markup Language and is a W3C Standard [http://www.w3c.org/MarkUp/] for the World Wide Web. HTML is a text file containing small markup tags. The markup tags tell the Web browser how to display the page. An HTML file must have an htm or html file extension. An HTML file can be created using a simple text editor.

HTML Help

Microsoft HTML Help [http://msdn.microsoft.com/library/default.asp?url=/library/en-us/htmlhelp/html/vsconHH1Start.asp?frame=true] is the standard help system for the Windows platform. Authors can use HTML Help to create online help for a software application or to create content for a multimedia title or Web site. Developers can use the HTML Help API to program a host application or hook up context-sensitive help to an application.

JavaHelp

JavaHelp software is a full-featured, platform-independent, extensible help system from Sun Microsystems [http://java.sun.com/products/javahelp/index.html] that enables developers and authors to incorporate online help in applets, components, applications, operating systems, and devices. JavaHelp is a free product and the binaries for JavaHelp can be redistributed.

Eclipse Help

Eclipse Help is the help system incorporated in the Eclipse platform [http://www.eclipse.org/] that enables Eclipse plugin developers to incorporate online help in their plugins.

Many other target formats are possible, these are the most popular. The basic condition for transformation to any format is that your source document is well-formed. Always, make sure that the XSL used for the transformation is the right one according to the desired output format and with the input source definition. For example, if you want to transform to HMTL format using a DocBook html stylesheet, your source xml document should respect the DocBook DTD.

An XSL stylesheet specifies the presentation of a class of XML documents by describing how an instance of the class is transformed into an output document by using special formatting vocabulary.

XSL consists of three parts:

XSL Transformations (XSLT)

XSLT is a language for transforming XML documents.

XML Path (XPath) Language

XPath is an expression language used by XSLT to access or refer parts of an XML document. (XPath is also used by the XML Linking specification).

XSL Formatting Objects (XSL:FO)

XSL:FO is an XML vocabulary for specifying formatting semantics.

<oXygen/> supports XSLT/XPath version 1.0 using Saxon 6.5.5, Xalan, Xsltproc, MSXML (3.0, 4.0, .NET) and XSLT/XPath 2.0 by using Saxon 8.7.1 B, Saxon 8.7.1 SA and Saxon.NET. Also the validation is done in function of the stylesheet version.

Transformation scenario

Before transforming the current edited XML document in <oXygen/> you must define a transformation scenario to apply to that document. A scenario is a set of values for various parameters defining a transformation. It is not related to any particular document but to a document type:

Scenarios that apply to XML files	Such a scenario contains the location of an XSLT stylesheet that is applied on the edited XML document and other transform parameters.
Scenarios that apply to XSL files	Such a scenario contains the location of an XML document that the edited XSL file is applied on and other transform parameters.

In order to apply a transformation scenario one has to press the Apply transformation scenario button from the toolbar. Alternatively, transform actions can be applied from the Project view's contextual menu without having to open the files:

- Configure transformation scenario - allows the configuration of file's associated transformation scenario. If no transformation scenario is associated with the file, then the menu action is disabled.
- Apply transformation scenario - applies the associated transformation scenario on the selected files. If the currently processed file does not have an associated transformation scenario then the Configure transformation scenario dialog is opened.
- Transform with... - allows the user to select a transformation scenario to be applied on the currently selected files.

Built-in transformation scenarios

If the Apply Transformation Scenario toolbar button is pressed, currently there is no scenario associated with the edited document and the edited document contains a "xml-stylesheet" processing instruction referring to a XSLT stylesheet (commonly used for display in Internet browsers), then <oXygen/> will prompt the user and offer the option to associate the document with a default scenario containing in the *XSL URL* field the URL from the *href* attribute of the processing instruction. This scenario will have the "Use xml-stylesheet declaration" checkbox set by default, will use Saxon as transformation engine, will perform no FO processing and will store the result in a file with the same URL as the edited document except the extension which will be changed to html. The name and path will be preserved because the output file name is specified with the help of two macros: ${cfd} and ${cfn}.

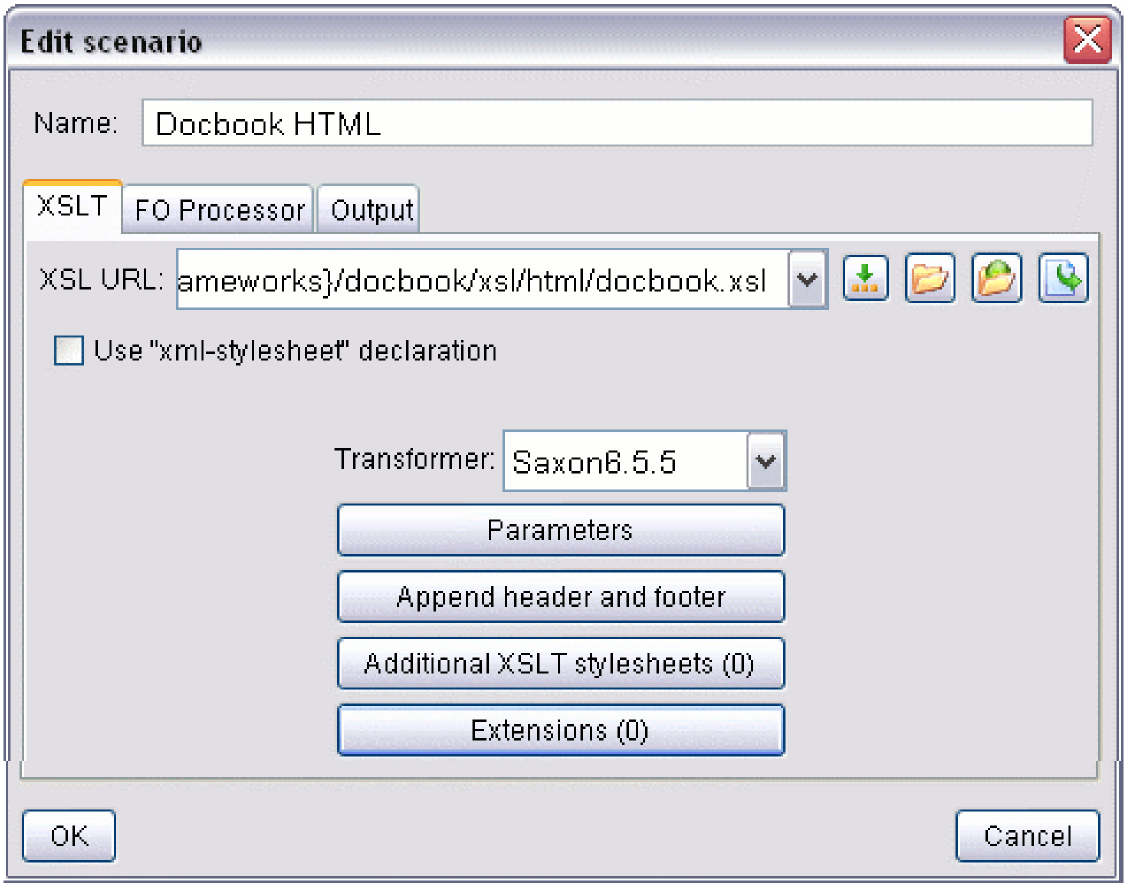
<oXygen/> comes with preconfigured built-in scenarios for usual transformations that enable the user to obtain quickly the desired output: associate one of the built-in scenarios with the current edited document and then apply the scenario with just one click.

Defining a new transformation scenario

The Configure Scenario dialog is used to associate a scenario from the list of all scenarios with the edited document by selecting an entry from the list. The dialog is opened by pressing the Configure Transformation Scenario button on the toolbar of the document view. Once selected the scenario will be applied with only one click on the Apply Transformation button on the same toolbar. Pressing the Apply Transformation button before associating a scenario with the edited document will invoke first the Configure Scenario dialog and then apply the selected scenario.

Open the Configure Transformation dialog by selecting Document+ XML Document → Configure transformation scenario. (**Ctrl+Shift+C**) Complete the dialog as follows:

Figure 5.1. The Configure Transformation Dialog - XSLT Tab



Edit scenario

Name: Docbook HTML

XSL URL: ameworks}/docbook/xsl/html/docbook.xsl

□ Use "xml-stylesheet" declaration

Transformer: Saxon6.5.5

XSL URL — Specifies an input XSL file to be used for the transformation.

Insert macros button — Opens a dialog allowing to introduce special <oXygen/> macros in the XSL URL field.

Button *Browse for local input XSL file* — Opens a file browser dialog allowing to select a local file name for the XSL URL field.

Button *Browse for remote input XSL file* — Opens a file browser dialog allowing to select a remote file name for the XSL URL field.

Button *Open XSL file* — Opens the file with the path specified in the XSL URL path in a new editor panel.

Checkbox *Use "xml-stylesheet" declaration* — Use the stylesheet declared with an "xml-stylesheet" declaration instead of the stylesheet specified in the XSL URL field.

Combo box *Transformer* — This combo box contains all the transformer engines available for applying the stylesheet. If you want to change the default selected engine just select other engine from the drop down list of the combo box.

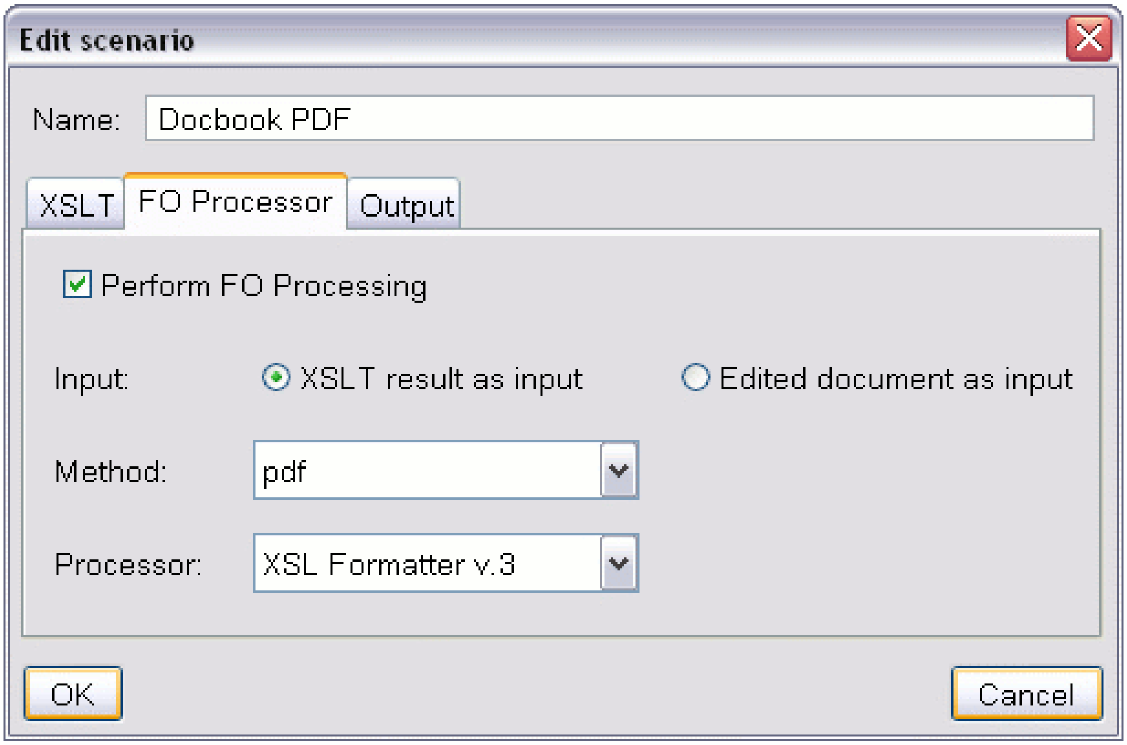
Button *Parameters* — Opens the dialog for configuring the XSLT parameters.

Button *Append header and footer* — Opens a dialog for specifying a URL for a header HTML file added at the beginning of the result of an HTML transformation and a URL for a footer HTML file added at the end of the HTML result.

Button *Additional XSLT stylesheets*   Opens the dialog for adding XSLT stylesheets which are applied on the result of the main stylesheet specified in the XSL URL field.

Button *Extensions*   Opens the dialog for configuring the XSLT/XQuery extension jars or classes which define extension functions called from the XSLT/XQuery transformation.

Figure 5.2. The Configure Transformation Dialog - FO Processor Tab



Name: Docbook PDF

☑ Perform FO Processing

Input: ● XSLT result as input ○ Edited document as input

Method: pdf

Processor: XSL Formatter v.3

Checkbox *Perform FO Processing*   Enable or disable the use of FOP during the transformation.

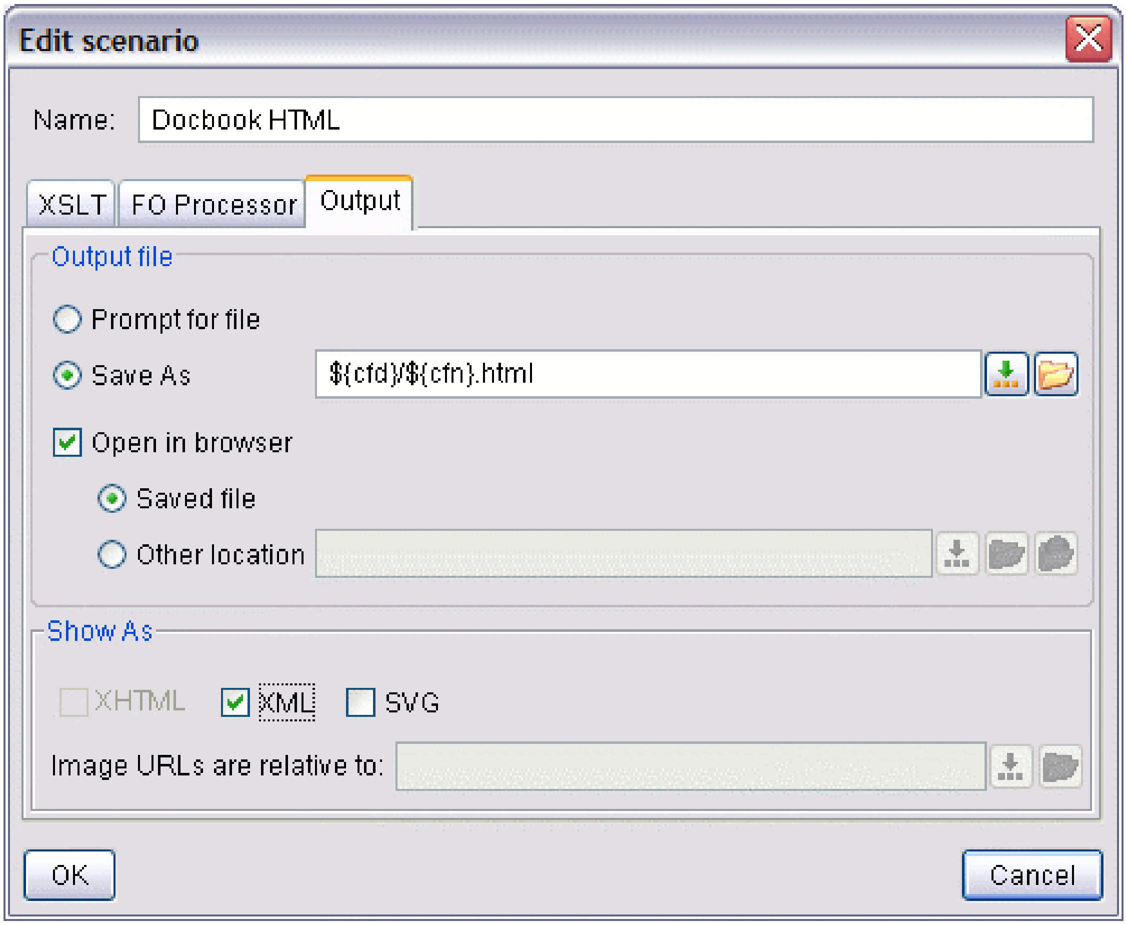
Radio button *XSLT result as input*   The FO processor is applied to the result of applying the XSLT stylesheet.

Radio button *Edited document as input*   The FO processor is applied directly to the current edited document.

Combo box *Method*   The output format of the FO processing: PDF, PostScript or plain text.

Combo box *Processor*   The FO processor, which can be the built-in Apache FOP processor or an external processor.

Figure 5.3. The Configure Transformation Dialog - Output Tab



Name: Docbook HTML

Output file

○ Prompt for file

● Save As ${cfd}/${cfn}.html

☑ Open in browser

● Saved file

○ Other location

Show As

□ XHTML ☑ XML □ SVG

Image URLs are relative to:

Radio button *Prompt for file*

At the end of the transformation it will be displayed a file browser dialog for specifying the path and name of the file which will store the transformation result.

Text field *Save As*

The path of the file where it will be stored the transformation result. The path can include special <oXygen/> macros.

Check box *Open in browser*

If this is checked <oXygen/> will open automatically the transformation result in a browser application specific for the type of that result (HTML/XHTML, PDF, text).

Radio button *Saved file*

When *Open in browser* is selected this button can be selected to specify that <oXygen/> should open the file specified in the *Save As* text field.

Radio button *Other location*

When *Open in browser* is selected this button can be used to specify that <oXygen/> should not open the file specified in the *Save As* text field, it should open the file specified in the text field of the *Other location* radio button. The file path can include special <oXygen/> macros.

Check box *Show As XHTML*

It is enabled only when *Open in browser* is disabled and if this is checked <oXygen/> will display the transformation result in a built-in XHTML browser panel of the <oXygen/> window.

> ### Important
>
> When transforming very large documents you should be aware that enabling this feature will result in a very long transformation time. This drawback appears due to the Java XHTML browser implementation. In this situations if you wish to see the result of the transformation you should use an external browser.

Check box *Show As XML*

If this is checked <oXygen/> will display the transformation result in an XML viewer panel with syntax highlight specific for XML documents.

Check box *Show As SVG*

If this is checked <oXygen/> will display the transformation result in a SVG viewer panel by rendering the result as a SVG image.

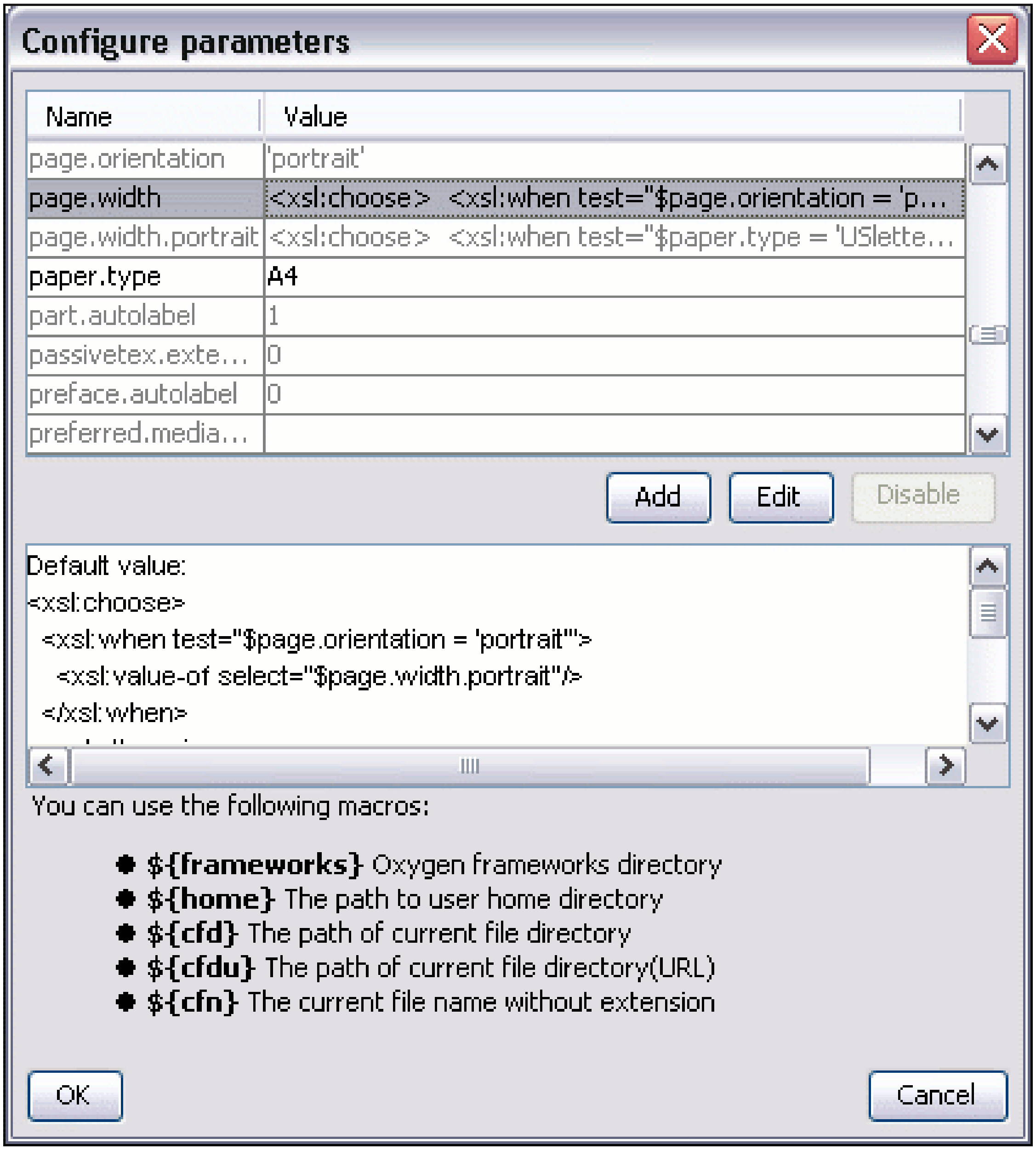
Text field *Image URLs are relative to*

If *Show As XHTML* is checked this text field specifies the path for resolving image paths contained in the transformation result.

XSLT Stylesheet Parameters

The parameters of the XSLT stylesheet used in the transformation scenario are configured from the dialog available from the *Parameters* button:

Figure 5.4. Configure parameters dialog



Name	Value
page.orientation	'portrait'
page.width	<xsl:choose> <xsl:when test="$page.orientation = 'p...
page.width.portrait	<xsl:choose> <xsl:when test="$paper.type = 'USlette...
paper.type	A4
part.autolabel	1
passivetex.exte...	0
preface.autolabel	0
preferred.media...	

```
Default value:
<xsl:choose>
  <xsl:when test="$page.orientation = 'portrait'">
    <xsl:value-of select="$page.width.portrait"/>
  </xsl:when>
```

You can use the following macros:

- **${frameworks}** Oxygen frameworks directory
- **${home}** The path to user home directory
- **${cfd}** The path of current file directory
- **${cfdu}** The path of current file directory(URL)
- **${cfn}** The current file name without extension

The table presents all the parameters of the XSLT stylesheet and all imported and included stylesheets with their current values. If a parameter value was not edited then the table presents its default value. The bottom panel presents the default value of the parameter selected in the table and the system ID of the stylesheet that declares it.

For setting the value of a parameter declared in the stylesheet in a namespace, for example:

```
<xsl:param name="p:param" xmlns:p="namespace">default</xsl:param>
```

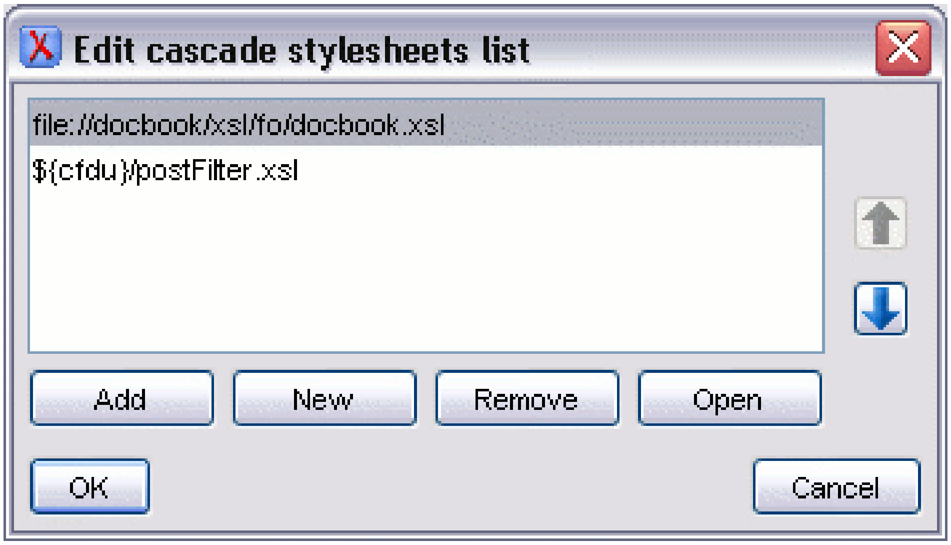
use the following expression in the *Name* column of the *Parameters* dialog:

```
{namespace}param
```

Additional XSLT Stylesheets

The list of additional XSLT stylesheets can be edited in the dialog opened by the button "Additional XSLT Stylesheets".

Figure 5.5. Edit additional XSL stylesheets list dialog



file://docbook/xsl/fo/docbook.xsl

${cfdu}/postFilter.xsl

Add Adds a stylesheet in the "Additional XSLT stylesheets" list using a file browser dialog , also you can type a macro in the file name field of the browser dialog. The name of the stylesheet will be added in the list after the current selection.

New Opens a dialog in which you can type the name of a stylesheet. The name is considered relative to the URL of the current edited XML document. You can use macros in the name of the stylesheet. The name of the stylesheet will be added in the list after the current selection.

Remove Deletes the selected stylesheet from the "Additional XSLT stylesheets" list.

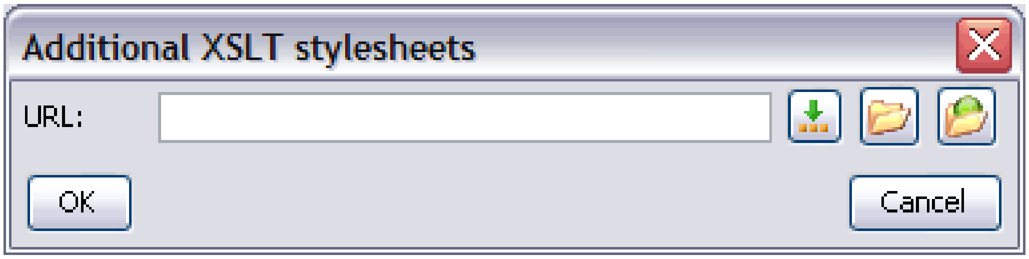
Open Opens the selected stylesheet in a separate view .

Up Move the selected stylesheet up in the list.

Down Move the selected stylesheet down in the list.

This dialog allows the user to add additional XSLT stylesheets to the transformation.

Figure 5.6. Add a new stylesheet



The path specified in the URL text field can include special <oXygen/> macros.

Scenario Macros

In the fields reserved for: input URL (XSL URL or XML URL, depending on scenario type), header URL, footer URL, the URLs in the list of additional XSLT stylesheets, image base URL, the user can use the following macros:

${frameworks}	the path of the `frameworks` subdirectory of the <oXygen/> install directory
${home}	the path of the user home directory
${cfdu}	current file directory url - the path of the current edited document up to the name of the parent directory as URL
${cfn}	current file name - the name of the current edited document without extension and parent directory

In the Save As field from the Output tab, the user can use the following macros:

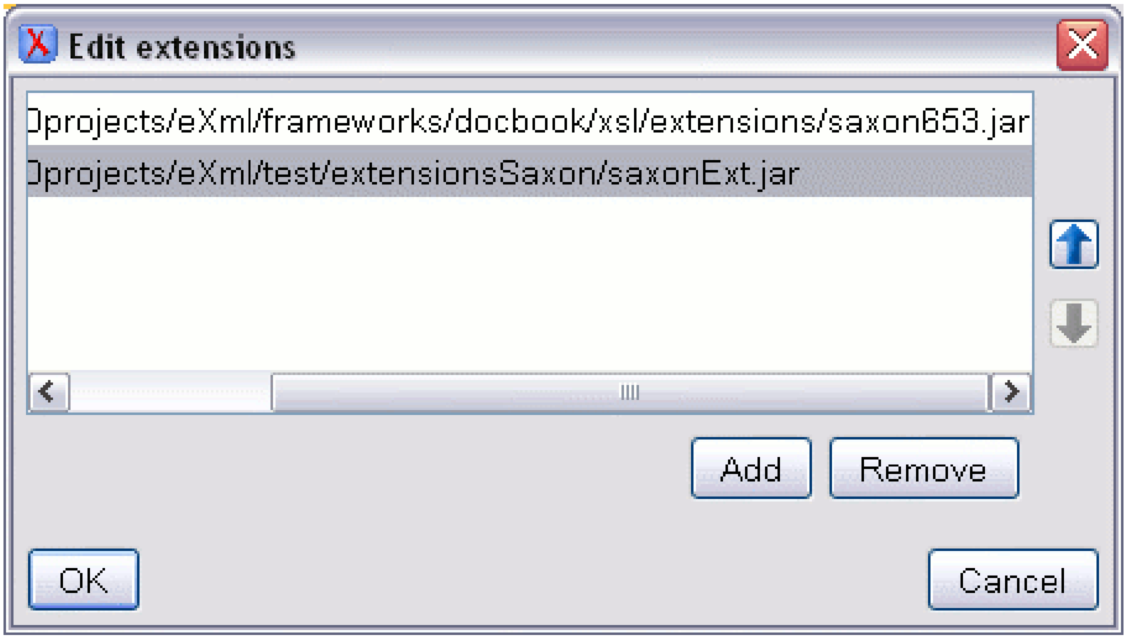
${frameworks}	the path of the `frameworks` subdirectory of the <oXygen/> install directory
${home}	the path of the user home directory
${cfd}	current file directory - the path of the current edited document up to the name of the parent directory
${cfn}	current file name - the name of the current edited document without extension and parent directory

The macros defined here can also be used in the values set for the parameters of the transformation (e.g. base.dir).

XSLT/XQuery Extensions

The edit extensions dialog is used to specify the jars and classes containing extension functions called from the XSLT/XQuery file of the current transformation scenario.

Figure 5.7. The XSLT/XQuery Extension Edit Dialog



Dprojects/eXml/frameworks/docbook/xsl/extensions/saxon653.jar

Dprojects/eXml/test/extensionsSaxon/saxonExt.jar

An extension function called from the XSLT or XQuery file of the current transformation scenario will be searched in the specified extensions in the order of the list displayed in the dialog. For changing the order of the items the user must select the item that must be moved to other position in the list and press the ↑ up and ↓ down buttons.

Use the following procedure to create a scenario.

1. Select Document+ XML Document → Configure transformation scenario (**Ctrl+Shift+C**) to open the Configure Transformation dialog.
2. Click the Duplicate Scenario button of the dialog to create a copy of the current scenario.
3. Click in the Name field and type a new name.
4. Click OK or Transform Now to save the scenario.

Exporting and importing the transformation scenarios

The option to Export Transformation Scenarios is used to store all the scenarios in a separate file , a properties file. In this file will also be saved the associations between document URLs and scenarios. The saved URLs are absolute . You can load the saved scenarios using Import Transformation Scenarios option. All the imported scenarios will have added to the name the word 'import'.

- The action Options → Import transformation scenarios loads a properties file with scenarios.
- The action Options → Export transformation scenarios stores all the scenarios in a separate file , a properties file.

XSL-FO processors

The <oXygen/> installation package is distributed with the Apache [http://www.apache.org]FOP [http://xml.apache.org/fop/index.html] (Formatting Objects Processor) for rendering your XML documents to PDF. FOP is a print and output independent formatter driven by XSL Formatting Objects. FOP is implemented as a Java application that reads a formatting object tree and renders the resulting pages to a specified output.

Tip

To include PNG images in the final PDF document you need the JIMI [http://java.sun.com/products/jimi/] or JAI [http://java.sun.com/products/java-media/jai/] libraries. For TIFF images you need the JAI [http://java.sun.com/products/java-media/jai/] library. The JIMI and JAI libraries are not bundled with <oXygen/> due to Sun's licensing. Using them is as easy as downloading them and copying the necessary jar files (required by the library documentation) in the lib subdirectory of the <oXygen/> installation directory. This means JimiProClasses.zip for JIMI and jai_core.jar, jai_codec.jar and mlibwrapper_jai.jar for JAI. For the JAI package you also need to include the directory containing the native libraries (mlib_jai.dll and mlib_jai_mmx.dll on Windows) in the PATH system variable.

The MacOS X version of the JAI library can be downloaded from ht-

. In order to use it, install the downloaded package.

Other FO processors can be configured in the Preferences -> FO Processors panel.

Common transformations

The following examples use the DocBook XSL Stylesheets to illustrate how to configure <oXygen/> for transformation to the various target formats.

Note

<oXygen/> comes with the latest versions of the DocBook and TEI frameworks including special XSLT stylesheets for DocBook and TEI documents. DocBook XSL extensions for the Saxon and Xalan processors are included in the `frameworks/docbook/xsl/extensions` directory. Also the FXSL (Functional Programming Library for XSLT) stylesheets [http://fxsl.sourceforge.net/] are shipped with <oXygen/>.

The following steps are common to all the example procedures below.

1. Set the editor focus to the document to be transformed.
2. Select Document+ XML Document → Configure transformation scenario (**Ctrl+Shift+C**) to open the Configure Transformation dialog.
3. If you want to edit an existing scenario select that scenario in the list and press the *Edit* button. If you want to create a new scenario press the *New* button. If you want to create a new scenario based on an existing scenario select the scenario in the list and press the *Duplicate* button.
4. Select the XSLT tab.
5. Click the "Browse for an input XSL file button". The Open dialog is displayed.

Note

During transformations the Editor Status Bar will show "Transformation - in progress". The transformation is successfully complete when the message "XSL transformation successful" displays. If the transform fails the message "XSL transformation failed" is displayed as an error message in the Messages Panel. The user can stop the transformation process at any point by pressing the "Stop transformation" button. In this case the message displayed in the status bar will be "Transformation stopped by user".

PDF Output

1. Change directory to **[oxygen]/frameworks/docbook/xsl/fo/**.
2. Select `docbook.xsl`, click Open. The dialog closes.
3. Select the FOP tab.

4. Check the Perform FOP option. The remaining options are enabled.
5. Select the following options:

   a. XSLT result as input.
   b. PDF as method.
   c. Built-in(Apache FOP) as processor.

6. Select the Output tab.
7. In the Save As field enter the output file name relative to the current directory (`YourFileName.pdf`) or the path and output file name (`C:\FileDirectory\YourFileName.pdf`).
8. Optionally, uncheck the XHTML and XML check boxes in the Show As group.
9. Click Transform Now. The transformation is started.

PS Output

1. Change directory to **[oxygen]/frameworks/docbook/xsl/fo/**.
2. Select `docbook.xsl`, click Open. The dialog closes.
3. Select the FOP tab.
4. Check the Perform FOP option. The remaining options are enabled.
5. Select the following options:

   a. XSLT result as input.
   b. PS as method.
   c. Built-in(Apache FOP) as processor.

6. Select the Output tab.
7. In the Save As field enter the output file name relative to the current directory (`YourFileName.ps`) or the path and output file name (`C:\FileDirectory\YourFileName.ps`).
8. Optionally, uncheck the XHTML and XML check boxes in the Show As group.
9. Click Transform Now. The transformation is started.

TXT Output

1. Change directory to **[oxygen]/frameworks/docbook/xsl/fo/**.
2. Select `docbook.xsl`, click Open. The dialog closes.
3. Select the FOP tab.
4. Check the Perform FOP option. The remaining options are enabled.
5. Select the following options:

   a. XSLT result as input.

   b. TXT as method.

   c. Built-in(Apache FOP) as processor.

6. Select the Output tab.
7. In the Save As field enter the output file name relative to the current directory (`YourFileName.txt`) or the path and output file name (`C:\FileDirectory\YourFileName.txt`).
8. Optionally, uncheck the XHTML and XML check boxes in the Show As group.
9. Click Transform Now. The transformation is started.

HTML Output

1. Change directory to **[oxygen]/frameworks/docbook/xsl/html/**.
2. Select `docbook.xsl`, click Open. The dialog closes.
3. Select the FOP tab.
4. Uncheck the Perform FOP option. The FOP options are disabled.
5. Select the Output tab.
6. In the Save As field enter the output file name relative to the current directory (`YourFileName.html`) or the path and output file name (`C:\FileDirectory\YourFileName.html`).

   a. If your pictures are not located relative to the out location, check the XHTML check box in the Show As group.

   b. Specify the path to the folder or URL where the pictures are located

7. Click Transform Now. The transformation is started.

HTML Help Output

1. Change directory to **[oxygen]/frameworks/docbook/xsl/htmlhelp/**.
2. Select `htmlhelp.xsl`, click Open. The dialog closes.
3. Set the XSLT parameter base.dir, it identifies the output directory. (If not specified, the output directory is system dependent.) Also set the manifest.in.base.dir to 1 in order to have the project files copied in output as well.
4. Select the FOP tab.
5. Uncheck the Perform FOP option. The FOP options are disabled.
6. Click Transform Now. The transformation is started.
7. At the end of the transformation you should find the html, hhp and hhc files in the *base.dir* directory.
8. Download Microsoft's HTML Help Workshop and install it.
9. Integrate HTML Help Workshop as an external tool. Go to Options → Preferences+External Tools
10. Create a new external tool entry named HTMLHelp with Working directory being the same with the base.dir parameter defined above and Configure command set to [path to installed HTML Help Workshop]\hhc.exe <filename>, where <filename> is the name of the html help project file (for example htmlhelp.hhp).
11. Run the tool from Tools → External Tools → HTMLHelp.

JavaHelp Output

1. Change directory to **[oxygen]/frameworks/docbook/xsl/javahelp/**.
2. Select `javahelp.xsl`, click Open. The dialog closes.
3. Set the XSLT parameter base.dir, it identifies the output directory. (If not specified, the output directory is system dependent.)
4. Select the FOP tab.
5. Uncheck the Perform FOP option. The FOP options are disabled.
6. Click Transform Now. The transformation is started.

XHTML Output

1. Change directory to **[oxygen]/frameworks/docbook/xsl/xhtml/**.

2. Select `docbook.xsl`, click Open. The dialog closes.
3. Select the FOP tab.
4. Uncheck the Perform FOP option. The FOP options are disabled.
5. Select the Output tab.
6. In the Save As field enter the output file name relative to the current directory (`YourFileName.html`) or the path and output file name (`C:\FileDirectory\YourFileName.html`).

   a. If your pictures are not located relative to the out location, check the XHTML check box in the Show As group.

   b. Specify the path to the folder or URL where the pictures are located

7. Click Transform Now. The transformation is started.

Supported XSLT processors

The <oXygen/> distribution comes with the following XSLT processors:

Xalan 2.7.0 — Xalan-Java http://xml.apache.org/xalan-j/ is an XSLT processor for transforming XML documents into HTML, text, or other XML document types. It implements XSL Transformations (XSLT) Version 1.0 and XML Path Language (XPath) Version 1.0.

Saxon 6.5.5 — Saxon 6.5.5 [http://saxon.sourceforge.net/saxon6.5.5/] is an XSLT processor, which implements the Version 1.0 XSLT and XPath with a number of powerful extensions. This version of Saxon also includes many of the new features that were first defined in the XSLT 1.1 working draft, but for conformance and portability reasons these are not available if the stylesheet header specifies version="1.0".

Saxon 8.7.1 B — Saxon-B http://saxon.sf.net/ implements the "basic" conformance level for XSLT 2.0 and XQuery. The term basic XSLT 2.0 processor is defined in the draft XSLT 2.0 specifications: it is a conformance level that requires support for all features of the language other than those that involve schema processing.

Besides the above list <oXygen/> supports the following processors:

Xsltproc (libxslt) — Libxslt http://xmlsoft.org/XSLT/ is the XSLT C library developed for the Gnome project. Libxslt is based on libxml2 the XML C library developed for the Gnome project. It also implements most of the EXSLT set of processor-portable extensions functions and some of Saxon's evaluate and expressions extensions. The libxml2 version included in <oXygen/> is 2.6.23 and the libxslt version is 1.1.15

<oXygen/> uses Libxslt through its command line tool (Xsltproc). The

XSLT processor is included into the distribution kit of the stand-alone version for Windows and Mac OS X. Because there are differences between different Linux distributions, on Linux you must install *Libxslt* on your machine as a separate application and set the PATH variable to contain the *Xsltproc* executable.

MSXML 3.0/4.0

MSXML 3.0/4.0 http://msdn.microsoft.com/xml/ is available only on Windows 2000, Windows NT and Windows XP platforms. It can be used for transformation and validation of XSLT stylesheets.

<oXygen/> use the Microsoft XML parser through its command line tool msxsl.exe [http://msdn.microsoft.com/library/default.asp?url=/library/en-us/dnxml/html/msxsl.asp]

Because msxsl.exe is only a wrapper, Microsoft Core XML Services (MSXML) must be installed on the computer otherwise you get an corresponding warning. You can get the latest Microsoft XML parser from Microsoft web-site http://www.microsoft.com/downloads/details.aspx?FamilyId=3144B72B-B4F2-46DA-B4B6-C5D7485F2B42&displaylang=en [http://www.microsoft.com/downloads/details.aspx?FamilyId=3144B72B-B4F2-46DA-B4B6-C5D7485F2B42&displaylang=en]

MSXML .NET

MSXML .NET http://msdn.microsoft.com/xml/ is available only on Windows NT4, Windows 2000 and Windows XP platforms. It can be used for transformation and validation of XSLT stylesheets.

<oXygen/> performs XSLT transformations and validations using .NET Framework's XSLT implementation (System.Xml.Xsl.XslTransform class) through the nxslt [http://www.tkachenko.com/dotnet/nxslt.html] command line utility.The nxslt version included in <oXygen/> is 1.6.

You should have the .NET Framework version 1.0 already installed on your system otherwise you get this warning: MSXML.NET requires .NET Framework version 1.0 to be installed. Exit code: 128

You can get the .NET Framework version 1.0 from Microsoft web-site http://www.microsoft.com/downloads/details.aspx?FamilyID=d7158dee-a83f-4e21-b05a-009d06457787&displaylang=en [http://www.microsoft.com/downloads/details.aspx?FamilyID=d7158dee-a83f-4e21-b05a-009d06457787&displaylang=en]

.NET 1.0

A transformer based on the System.Xml 1.0 library available in the .NET 1.0 and .NET 1.1 frameworks from Microsoft (http://msdn.microsoft.com/xml/). It is available only on Windows.

You should have the .NET Framework version 1.0 or 1.1 already installed on your system otherwise you get this warning: MSXML.NET requires .NET Framework version 1.0 to be installed. Exit code: 128

You can get the .NET Framework version 1.0 from Microsoft web-site http://www.microsoft.com/downloads/details.aspx?FamilyID=d7158dee-a83f-4e21-b05a-009d06457787&displaylang=en [http://www.microsoft.com/downloads/details.aspx?FamilyID=d7158dee-a83f-4e21-b05a-009d06457787&displaylang=en]

.NET 2.0

A transformer based on the System.Xml 2.0 library available in the .NET

2.0 framework from Microsoft (http://msdn.microsoft.com/xml/). It is available only on Windows.

You should have the .NET Framework version 2.0 already installed on your system otherwise you get this warning: MSXML.NET requires .NET Framework version 2.0 to be installed. Exit code: 128

You can get the .NET Framework version 2.0 from Microsoft web-site http://www.microsoft.com/downloads/details.aspx?FamilyID=9655156b-356b-4a2c-857c-e62f50ae9a55&DisplayLang=en [http://www.microsoft.com/downloads/details.aspx?FamilyID=9655156b-356b-4a2c-857c-e62f50ae9a55&DisplayLang=en]

Saxon 8SA

Saxon-8SA http://www.saxonica.com/ is the schema-aware edition of Saxon-8B and it is available on a commercial license from the Saxonica [http://www.saxonica.com/] site. Saxon-SA includes an XML Schema processor, and schema-aware XSLT, XQuery, and XPath processors

In order to use it with <oXygen/> you have to place the saxon8sa.jar and the license key from Saxonica in the [oXygen-install-folder]/lib folder

Saxon.NET

Saxon.NET http://weblog.saxondotnet.org/ is the port of Saxon-8B XSLT processor to the .NET platform and it is available on a Mozilla Public License 1.0 (MPL) from the Mozilla [http://www.mozilla.org/MPL/MPL-1.0.html] site.

In order to use it with <oXygen/> you have to unzip the Saxon.NET distribution http://www.saxondotnet.org/saxon.net/downloads/Saxon.NET-1.0-RC1.zip [http://www.saxondotnet.org/saxon.net/downloads/Saxon.NET-1.0-RC1.zip] in the <oXygen/> install folder.

You should have the .NET Framework version 1.1 already installed on your system otherwise you get this warning: Saxon.NET requires .NET Framework 1.1 to be installed.

You can get the .NET Framework version 1.1 from Microsoft web-site http://www.microsoft.com/downloads/ThankYou.aspx?familyId=262d25e3-f589-4842-8157-034d1e7cf3a3&displayLang=en [http://www.microsoft.com/downloads/ThankYou.aspx?familyId=262d25e3-f589-4842-8157-034d1e7cf3a3&displayLang=en]

Note

There is no integrated XML Catalog support for MSXML 3.0/4.0 and .NET processors.

The button ⚙ Transformation options available on the *Transformation* toolbar allows quick access to the XSLT options in the <oXygen/> user preferences.

Configuring custom XSLT processors

One can configure other XSLT transformation engines than the ones which come with the <oXygen/> distribution. Such an external engine can be used for XSLT transformations within <oXygen/>, in the

Editor perspective, and is available in the list of engines in the dialog for editing transformation scenarios. However it cannot be used in the XSLT Debugger perspective.

Configuring the XSLT processor extensions paths

The Xalan and Saxon processors support the use of extension elements and extension functions. Unlike a literal result element, which the stylesheet simply transfers to the result tree, an extension element performs an action. The extension is usually used because the xslt stylesheet fails in providing adequate functions to the user for accomplishing a more complex task.

Extensions for Xalan and Saxon are included in [<oXygen/> install directory] \frameworks\docbook\xsl\extensions. If you want to use the extensions group for Xalan, you have to rename the file "xalan25.jar.ext" to "xalan25.jar". Same specifications for Saxon: rename "saxon653.jar.ext" to "saxon653.jar". You can only use one group of extensions at a time.

Samples on how to use extensions can be found at:

- for Xalan - http://xml.apache.org/xalan-j/extensions.html
- for Saxon 6.5.5 - http://saxon.sourceforge.net/saxon6.5.5/extensions.html
- for Saxon 8.7.1 - http://www.saxonica.com/documentation/extensions/intro.html

In order to ease the configuration of XSLT processor extension path, you can use the Extensions button of the scenario edit dialog.

As alternative the manual configuration must be performed with the following steps in order to find and use successfully the Java extension classes:

- Set the property "com.oxygenxml.additional.classpath" to contain the additional paths to the directories containing the used Java extension classes or jars.

Example of setting a directory called "test1" containing extension classes and a jar "test2/ext.jar" located in the directory C:\work\ext\ :

- For users who use a script (bat or sh) to start <oXygen/> add the following parameter "-Dcom.oxygenxml.additional.classpath=C:/work/ext/test1;C:/work/ext/test2/ext.jar" to the java command line in your script file (`oxygen.bat` or `oxygen.sh`). Example: "java -Xmx256m -Dcom.oxygenxml.additional.classpath=C:/work/ext/test1;C:/work/ext/test2/ext.jar -cp %CP% ro.sync.exml.Oxygen %1 %2 %3 %4 %5" .
- For users who use an executable (exe) to start <oXygen/> add the following parameter "com.oxygenxml.additional.classpath=C:/work/ext/test1;C:/work/ext/test2/ext.jar" to the `oxygen7.2.ini` file situated in the <oXygen/> root directory.

After the parameter is set, Java classes and jars from the extension paths are dynamically loaded by <oXygen/>

Chapter 6. Querying documents

Running XPath expressions

What is XPath

XPath is a language for addressing specific parts of an XML document. XPath, like the Document Object Model (DOM), models an XML document as a tree of nodes. An XPath expression is a mechanism for navigating through and selecting nodes from the XML document. An XPath expression is in a way analogous to a Structured Query Language (SQL) query used to select records from a database.

XPath models an XML document as a tree of nodes. There are different types of nodes, including element nodes, attribute nodes and text nodes. XPath defines a way to compute a string-value for each type of node.

XPath defines a library of standard functions for working with strings, numbers and Boolean expressions.

Examples:

child: : * Select all children of the root node.

.//name Select all elements having the name "name", descendants of the current node.

/catalog/cd[price>10.80]Selects all the cd elements that have a price element with a value larger than 10.80

To find out more about XPath, the following URL is recommended: http://www.w3.org/TR/xpath

<oXygen/>'s XPath toolbar

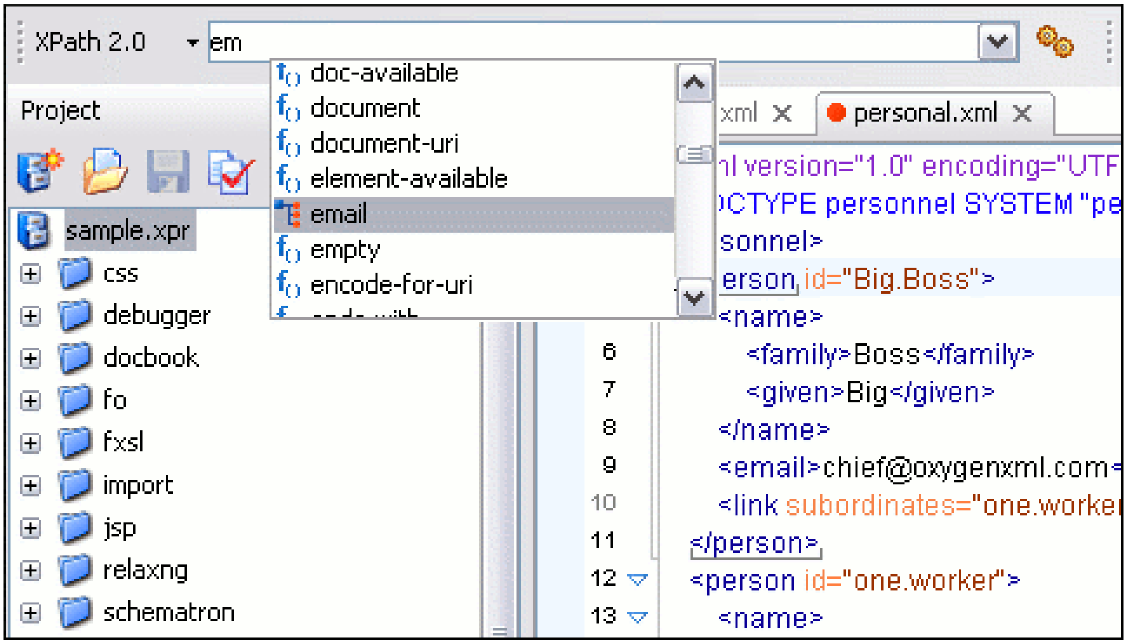
To use XPath effectively requires at least an understanding of the XPath Core Function Library [http://www.w3.org/TR/xpath#corelib]. If you have this knowledge the <oXygen/> XPath expression field part of the current editor toolbar can be used to aid you in XML document development.

In <oXygen/> a XPath 1.0 or XPath 2.0 expression is typed and executed on the current document from the XPath console available on the XPath toolbar of every open XML document.

The content completion assistant that helps in entering XPath expressions in attributes of XSLT stylesheets elements is also available in the XPath console and offers always proposals dependent of the current context of the cursor inside the edited document. The set of XPath functions proposed by the assistant depends on the XPath version selected from the drop-down menu of the XPath button (1.0 or 2.0).

In the following example the cursor is on a *person* element and the content completion assistant offers all the child elements of the *person* element and all XPath 2.0 functions:

Figure 6.1. Content Completion in the XPath console



```
ıl version="1.0" encoding="UTF
ɔCTYPE personnel SYSTEM "pe
sonnel>
erson id="Big.Boss">
<name>
  <family>Boss</family>
  <given>Big</given>
</name>
<email>chief@oxygenxml.com<
<link subordinates="one.worke
</person>
<person id="one.worker">
  <name>
```

The evaluation of the XPath expression tries to resolve the locations of documents referred in the expression through the XML catalogs which are configured in Preferences and the current XInclude preferences, for example when evaluating the *collection(URIofCollection)* function (XPath 2.0).

The results of an XPath query are returned in the Message Panel. Clicking a record in the result list highlights the nodes within the editing panel. Results are returned in a format that is a valid XPath expression:

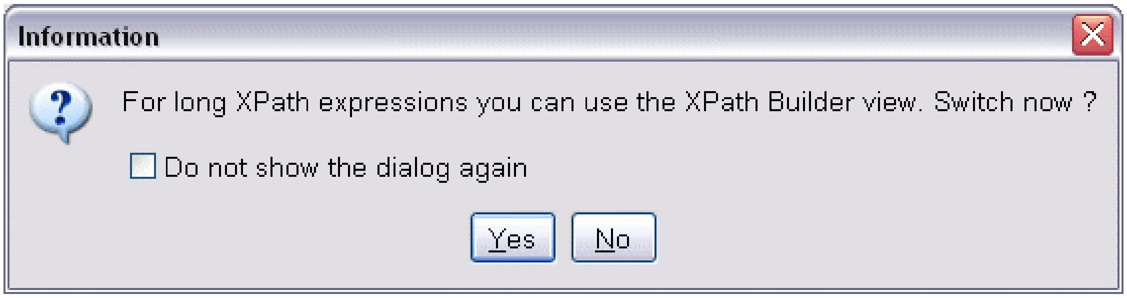
- [FileName.xml] /node[value]/node[value]/node[value] -

Note

XPath 2.0 queries are executed using Saxon 8 B transformation engine and they are not schema aware. If you try to impose type restrictions in a XPath 2.0 query they are ignored.

When the limit of long expressions is reached (60 characters) a dialog pops up and offers to switch the focus to the XPath builder view. This is a view specially designed to assist you with typing and testing complex XPath 1.0 / 2.0 expressions.

Figure 6.2. Popup dialog to switch to the XPath Builder view



Information

For long XPath expressions you can use the XPath Builder view. Switch now ?

□ Do not show the dialog again

Example 6.1. XPath Utilization with DocBook DTD

Our example is taken from a DocBook book based on the DocBook XML DTD. The book contains a number of chapters. DocBook defines that chapters as have a <chapter> start tag and matching </chapter> end tag to close the element. To return all the chapter nodes of the book enter **//chapter** into the XPath expression field, then **Enter**. This will return all the chapter nodes of the DocBook book, in the Message Panel. If your book has six chapters, their will be six records in the result list. Each record when clicked will locate and highlight the chapter and all sibling nodes contained between the start and end tags of the chapter.

If we used XPath to query for all example nodes contained in the section 2 node of a DocBook XML document we would use the following XPath expression **//chapter/sect1/sect2/example**. If an example node is found in any section 2 node, a result will be returned to the message panel. For each occurrence of the element node a record will be created in the result list.

In our example an XPath query on the file `oxygen.xml` determined that:

```
- [oxygen.xml] /chapter[1]/sect1[3]/sect2[7]/example[1]
```

Which means:

In the file `oxygen.xml`, first chapter, third section level 1, seventh section level 2, the example node found is the first in the section.

Note

If your project is comprised of a main file with ENTITY references to other files, you can use XPath to return all the name elements of a certain type by querying the main file. The result list will query all referenced files.

Note

When the edited document is of type XSL the XPath expression typed in the XPath console is applied over the XML document specified in the transformation scenario associated with the XSL document. <oXygen/> provides a user preference to be set if you want to apply the XPath expression over the XSL document itself.

Important

If the document defines a default namespace then <oXygen/> will bind this namespace to the first free prefix from the list: default, default1, default2, etc. For example if the document defines the default namespace *xmlns="something"* and the prefix *default* is not associated with a namespace then you can match tags without prefix in a XPath expression typed in the XPath console by using the prefix *default*. For example to find all the *level* elements when the root element defines a default namespace you should execute in the XPath console the expression:

```
//default:level
```

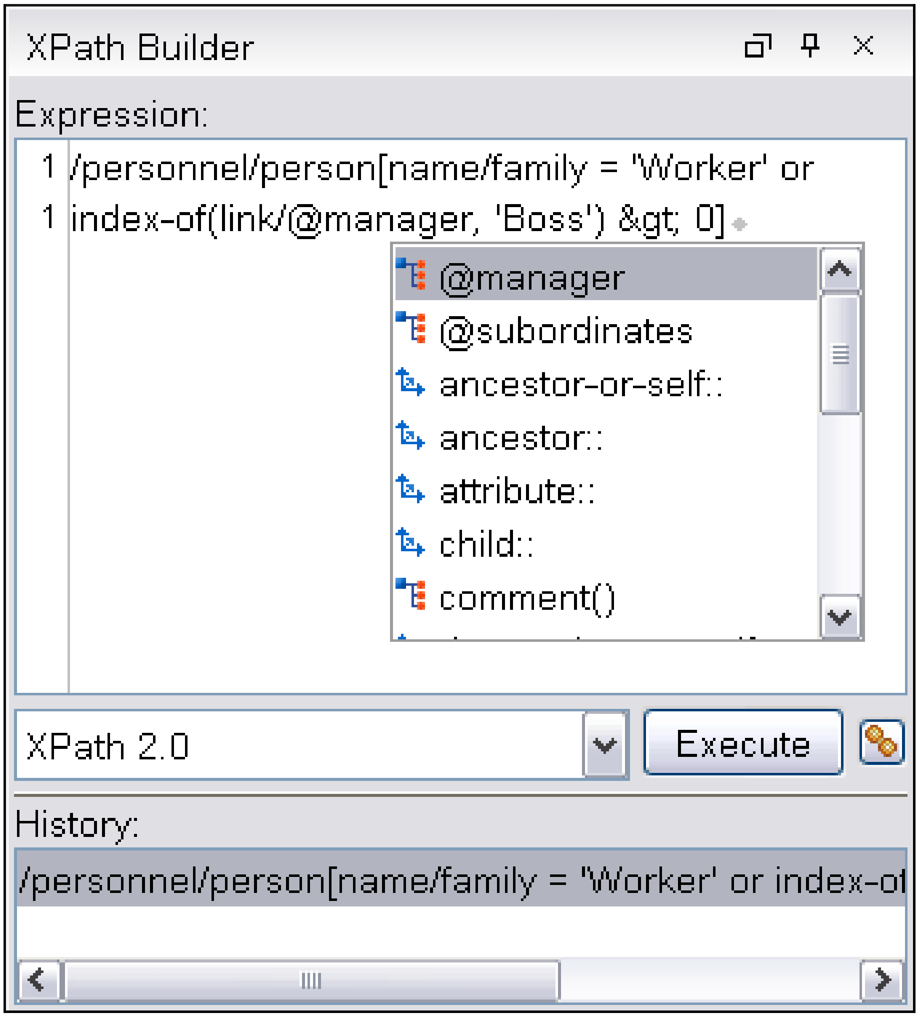
To define default mappings between prefixes that can be used in the XPath console and namespace URIs go to the XPath Options user preferences panel and enter the mappings in the *Default prefix-namespace mappings* table. The same preferences panel allows also the configuration of the default namespace used in XPath 2.0 expressions entered into the XPath toolbar and the creation of different results panels for XPath queries executed on different XML documents.

To apply a XPath expression relative to the element on which the caret is positioned use the action Document → XML Document → Copy XPath (**Ctrl+Alt+.**) (also available on the context menu of the main editor panel) to copy the XPath expression of the element to the clipboard and the Paste action of the contextual menu of the XPath console to paste this expression in the console. Then add your relative expression and execute the resulting complete expression.

The XPath Builder view

Complex XPath expressions can be composed with the help of the content completion assistant available for XPath expressions in a special view called *XPath Builder*. Also the expressions can be tested in the view by execution on the edited document. The view is opened from menu Perspective -> Show View.

Figure 6.3. The XPath Builder view



```
/personnel/person[name/family = 'Worker' or
index-of(link/@manager, 'Boss') &gt; 0]
```

/personnel/person[name/family = 'Worker' or index-of

The *Execute* button runs the expression on the edited document and takes into account the value selected in the combo box with the XPath version number: 1.0 or 2.0. The XPath preferences panel is accessible from the ⚙ XPath Options shortcut button near the *Execute* button. A history list with the XPath expressions evaluated in the past on all documents opened in the current <oXygen/> session is also available in the bottom area of the view so that new expressions can be composed based on old ones without re-entering the whole expression.

The evaluation of the XPath expression tries to resolve the locations of documents referred in the expression through the XML catalogs which are configured in Preferences and the current XInclude preferences, for example when evaluating the *collection(URIofCollection)* function (XPath 2.0).

The usual edit actions (Cut, Copy, Paste, Select All, Undo, Redo) are available in the popup menu of the top part of the view, where XPath expressions are entered. For the history list area of the view the popup menu contains two actions:

- Execute - to execute again the expression selected in the list.
- Remove - to remove the selected expression from the list.

Working with XQuery

What is XQuery

XQuery is the query language for XML and is currently under development at the W3C. The many benefits of XQuery include:

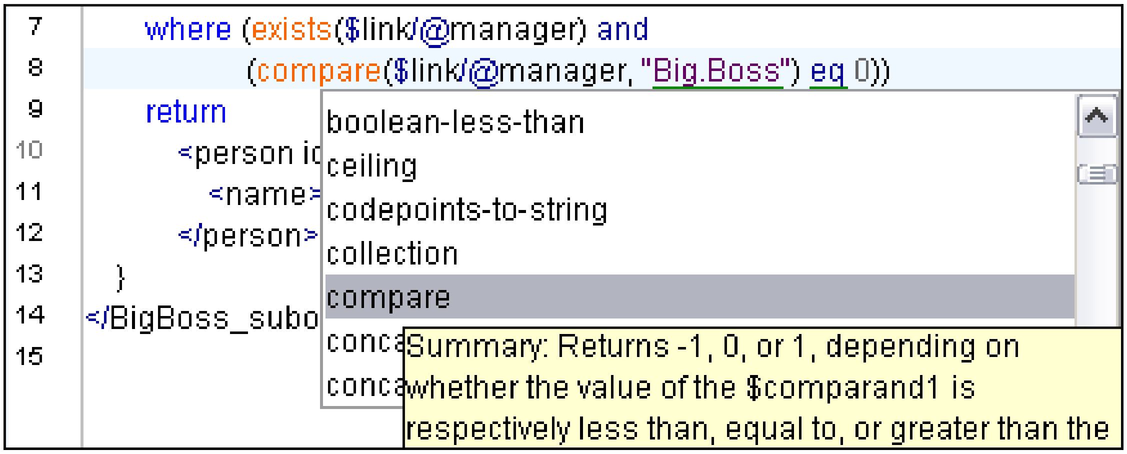
- XQuery allows you to work in one common model no matter what type of data you're working with: relational, XML, or object data.
- XQuery is ideal for queries that must represent results as XML, to query XML stored inside or outside the database, and to span relational and XML sources.
- XQuery allows you to create many different types of XML representations of the same data.
- XQuery allows you to query both relational sources and XML sources, and create one XML result.

Syntax Highlight and Content Completion

To create a new XQuery document select File → New (**Ctrl+N**) and when the New Document dialog appears select XQuery entry.

Once you created the new document <oXygen/> provides syntax highlight for keywords and all known XQuery functions and operators. Also for these there is available a content completion component that can be activated by pressing Ctrl+Space keys. The functions and operators are presented together with a comment about parameters and functionality.

Figure 6.4. XQuery Content Completion



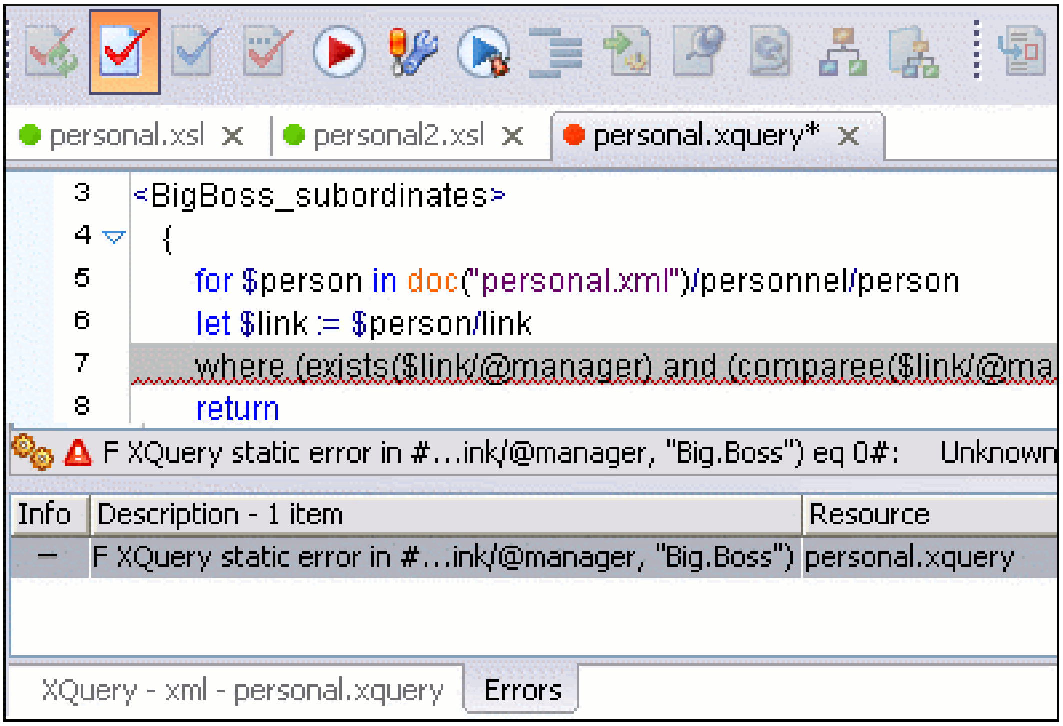
```
    where (exists($link/@manager) and
           (compare($link/@manager, "Big.Boss") eq 0))
    return
      <person ic
        <name>
      </person>
  }
</BigBoss_subo
```

Summary: Returns -1, 0, or 1, depending on whether the value of the $comparand1 is respectively less than, equal to, or greater than the

XQuery Validation

With <oXygen/> you can validate your documents before using them in your transformation scenarios. The validation uses the Saxon 8.7.1 B processor or the 8.7.1 SA, eXist, Berkeley DB XML or X-Hive/DB if you installed them. This is in conformance with the XQuery Working Draft http://www.w3.org/TR/xquery/. The processor is used in two cases: validation of the expression and execution. Although the execution implies a validation, it is faster to syntactically check the expression without executing it. The errors that occurred in the document are presented in the messages view at the bottom of editor window, with a full description message. As with all error messages, if you click on one entry, the line where the error appeared is highlighted.

Figure 6.5. XQuery Validation



```
<BigBoss_subordinates>
 {
    for $person in doc("personal.xml")/personnel/person
    let $link := $person/link
    where (exists($link/@manager) and (comparee($link/@ma
    return
```

F XQuery static error in #...ink/@manager, "Big.Boss") eq 0#:   Unknown

Info	Description - 1 item	Resource
–	F XQuery static error in #...ink/@manager, "Big.Boss")	personal.xquery

Please note that if you choose a processor that doesn't support XQuery validation you will receive a warning when trying to validate.

The *Validate* toolbar provides a button ⚙ Validation options for quick access to the XQuery options in the <oXygen/> user preferences.

Other XQuery editing actions

The XQuery editor type offers a reduced version of the popup menu available in the XML editor type, that means only the split actions,the folding actions,the edit actions a part of the source actions (only the actions *To lower case*, *To upper case*, *Capitalize lines*) and *Open file at cursor*, *Open in system application*.

Transforming XML Documents Using XQuery

XQueries are very similar to the XSL stylesheets in the sense they both are capable of transforming an XML input into another format. You can define transformation scenarios that specify the input URL, the preview mode, XML or XHTML. The result can be saved and opened in the associated application. You can even run a FO processor on the output of an XQuery. The transformation scenarios may be shared between many XQuery files, and are exported at the same time with the XSLT scenarios. The transformation performed can be based on the XML document specified in the Input field, or, if this field is empty, the documents referred from the query expression are used instead. The parameters of XQuery transforms must be set in the *Parameters* dialog. Parameters that are in a namespace must be specified using the qualified name, for example a *param* parameter in the *http://www.oxygenxml.com/ns* namespace must be set with the name *{http://www.oxygenxml.com/ns}param*.

The transformation uses the processor Saxon 8.7.1 B or Saxon 8.7.1 SA, eXist, Berkeley DB XML, X-Hive/DB, MarkLogic or TigerLogic if you installed them. In order to use the transformation engines you have to enable the appropriate preferences here: Saxon 8.7.1 SA, eXist, Berkeley DB XML, X-Hive/DB, MarkLogic, TigerLogic preference pages.

How to configure eXist support in <oXygen/>

The latest instructions on how to configure eXist support in <oXygen/> can be found on our website [http://www.oxygenxml.com/doc/ug-standalone/working-with-XQuery.html#how-to-configure-exist-support].

1. *Copy eXist database jar resources.* You have to copy the following eXist specific files in the [oXygen-install-folder]/lib directory

   - exist.jar (check for it into your eXist installation root directory)
   - xmldb.jar (check for it into /lib/core subdirectory of your eXist installation root directory)
   - xmlrpc-1.2-patched.jar (check for it into /lib/core subdirectory of your eXist installation root directory)

   If you skip this step the application will display an error message when you try to validate or run the query.

2. *Restart the <oXygen/> application.*

3. *Configure the eXist connection.*

Go to Preferences -> XML -> XSLT/FO/XQuery -> XQuery -> eXist and configure the XML DB URI, user and password. If you like to set a default collection you have to first press the Refresh button in order for the list to be populated.

4. *Configure eXist as main validator for XQuery files.*

   Go to Preferences -> XML -> XSLT/FO/XQuery -> XQuery and set eXist for XQuery validation. Additionally you can set the other options.

5. *Validate XQuery.*

   After step 4, you will benefit of the automatic validation feature and you can use Validate button to get a list of validation errors.

6. *Execute XQuery.*

   Go to associated scenario configuration and select eXist as the transformation engine.

Note

Validation (points 4 and 5) works only with the development snapshot of eXist database. In order to take advantage of it, you should check-out the current SVN sources (http://svn.sourceforge.net/viewcvs.cgi/exist/trunk/eXist-1.0/ [http://svn.sourceforge.net/viewcvs.cgi/exist/trunk/eXist-1.0/]) and make your own build (after check-out just run ant). For previous versions (eXist-1.0b2 or the current eXist-snapshot-20060316.jar kit available on eXist site) you will get a warning that the validation operation is not available.

Collection/resource management can be done using WebDAV (see http://wiki.exist-db.org/space/WebDAV, oxygenXML section).

How to configure Berkeley DB XML support in <oXygen/>

The latest instructions on how to configure Berkeley DB XML support in <oXygen/> can be found on our website [http://www.oxygenxml.com/doc/ug-standalone/working-with-XQuery.html#how-to-configure-berkeley-support].

The following directory definitions shall apply:

- OXY_DIR - oXygen installation root directory. (for example on Windows C:\Program Files\Oxygen 7.0)
- DBXML_DIR - Berkeley DB XML database root directory. (for example on Windows C:\Program Files\Sleepycat Software\Berkeley DB XML 2.2.13)
- DBXML_LIBRARY_DIR (usually on Mac and Unix is DBXML_DIR/lib and on Windows is DBXML_DIR/bin)

1. *You should have Berkeley DB XML database installed on your machine.*

   http://www.sleepycat.com/products/bdbxml.html

2. *Copy Berkeley DB XML jar resources*

   You have to copy the following Berkeley DB specific files in the [oXygen-install-folder]/lib directory

   - db.jar (check for it into DBXML_DIR/lib or DBXML_DIR/jar)
   - dbxml.jar (check for it into DBXML_DIR/lib or DBXML_DIR/jar)

   In case the needed jars are not found you should use --*enable-java* switch when you build the libraries (more info on http://www.sleepycat.com/xmldocs/ref_xml/xml_unix/intro.html). If you skip this step the application will display an error message when you try to validate or run the query.

3. Restart the <oXygen/> application.

4. *Add Berkeley DB XML libraries directory to your PATH environment variables.*

   When running the application, each of the Berkeley DB XML DLLs must be available in a directory in the PATH. You can achieve this by adding the library directory to the LD_LIBRARY_PATH (linux), DYLD_LIBRARY_PATH (OS X), or PATH (windows) environment variable. On Windows the PATH might be already changed properly by the Berkeley DB XML installation. A common example is PATH=C:\Program Files\Sleepycat Software\Berkeley DB XML 2.2.13\bin

   An alternative way is to modify the following:

   - On UNIX: Create a file called oxygen7.0.vmoptions (in case it is not already created) in the OXY_DIR. The content of the file must be: -Djava.library.path=DBXML_LIBRARY_DIR
   - On Mac: Right-click on the <oXygen/> application icon and in the pop-up menu select Show Package Contents, then in the Contents directory you edit the file Info.plist: in the key VMOptions add -Djava.library.path=DBXML_LIBRARY_DIR

5. *Configure the Berkeley DB environment.*

   Go to Oxygen and open Preferences -> XML -> XSLT/FO/XQuery -> XQuery -> Berkeley DB XML to configure the environment home directory. This is the directory where your databases are stored (the DB_HOME setting). You can also set a verbosity level for the messages to be provided during execution.

6. *Configure Berkeley DB XML as main validator for XQuery files.*

   Go to Preferences -> XML -> XSLT/FO/XQuery -> XQuery and set Berkeley DBXML for XQuery validation.

7. *Execute XQuery.*

   Go to associated scenario configuration and select Berkeley DBXML as the transformation engine. The collections from your XQuery are automatically opened if they are available in the environment home directory you set. For example in the below Query

```
<clients> {
    for $client in collection("invoices.dbxml")
        /e5Notification/OrderNotification/Purchase/CustomerData
    let $bc := $client//BillingContact
    return
    <client id="{$bc/Email/text()}">
        <name>{$bc/LastName/text()," ",$bc/FirstName/text()}</name>
        <company>{$bc/Company/text()}</company>
    </client>
} </clients>
```

How to configure TigerLogic support in <oXygen/>

The latest instructions on how to configure TigerLogic support in <oXygen/> can be found on our website [http://www.oxygenxml.com/doc/ug-standalone/working-with-XQuery.html#how-to-configure-tigerlogic-support].

1. *Copy jar resources.* Check your TigerLogic JDK lib directory from the server side (for example C:\Program Files\rainingdata\tigerlogic\tljdk\lib) and copy the following files to [oXygen-install-folder]/lib directory

   - connector.jar
   - jca-connector.jar
   - tlapi.jar
   - tlerror.jar
   - utility.jar
   - xmlparser.jar
   - xmltypes.jar

   If you skip this step the application will display an error message when you try to run the query.

2. *Restart the <oXygen/> application.*

3. *Configure the TigerLogic connection.*

   Go to Preferences -> XML -> XSLT/FO/XQuery -> XQuery -> TigerLogic and configure the server host, port, user, password and the database name.

4. *Execute XQuery.*

   Go to associated scenario configuration and select TigerLogic as the transformation engine.

How to configure X-Hive/DB support in <oXygen/>

The latest instructions on how to configure X-Hive/DB support in <oXygen/> can be found on our website [http://www.oxygenxml.com/doc/ug-standalone/working-with-XQuery.html#how-to-configure-xhive-support].

1. *Copy jar resources.* Check your X-Hive/DB lib directory from the server side (for example C:\Program Files\xhive-7.2\lib on Windows or /usr/local/X-Hive_7_2_2/lib on Linux) and copy the following files to [oXygen-install-folder]/lib directory

   - icu4j.jar
   - retroweaver-rt.jar
   - xhive.jar

   If you skip this step the application will display an error message when you try to run the query.

2. *Restart the <oXygen/> application.*

3. *Configure the X-Hive/DB connection.*

   Go to Preferences -> XML -> XSLT/FO/XQuery -> XQuery -> X-Hive/DB and configure the xhive.bootstrap, user, password and the database name.

4. *Configure X-Hive/DB as main validator for XQuery files.*

   Go to Preferences -> XML -> XSLT/FO/XQuery -> XQuery and set X-Hive/DB for XQuery validation.

5. *Validate XQuery.*

   After step 4, you will benefit of the automatic validation feature and you can use Validate button to get a list of validation errors.

6. *Execute XQuery.*

   Go to associated scenario configuration and select X-Hive/DB as the transformation engine.

How to configure MarkLogic support in <oXygen/>

The latest instructions on how to configure MarkLogic support in <oXygen/> can be found on our website [http://www.oxygenxml.com/doc/ug-standalone/working-with-XQuery.html#how-to-configure-marklogic-support].

1. *Copy jar resources.* Go to http://xqzone.marklogic.com/download/ and download Java and .NET XDBC distributions (XDBC Connectivity Packages) http://xqzone.marklogic.com/svn/xdbc/releases/MarkXDBC.Java-3.0-6.zip. Extract the following files to [oXygen-install-folder]/lib directory

- xdbc.jar
- xdmp.jar

If you skip this step the application will display an error message when you try to run the query.

2. *Restart the <oXygen/> application.*

3. Create an XDBC server in order to connect to it from <oXygen/>. You can create and configure an XDBC Server using the Admin interface: start the XDBCServer Administration page, browse through Configure->Default->App Servers and press the "Create XDBC" tab from the right side panel. Choose a server name, a library path (on Linux choose /opt/MarkLogic/etc) a port number (for example 8002) and other details like database or modules. Leave the address set to 0.0.0.0 in order to permit access to the XDBC server from anywhere.

   For a detailed description of XDBC server creation see chapter 6 of the MarkLogic admin manual http://xqzone.marklogic.com/pubs/3.1/books/admin.pdf.

4. *Configure the MarkLogic connection.*

   Go to Preferences -> XML -> XSLT/FO/XQuery -> XQuery -> MarkLogic and configure the server host, port, user and password.

5. *Execute XQuery.*

   Go to associated scenario configuration and select MarkLogic as the transformation engine.

Chapter 7. Debugging XSLT stylesheets and XQuery documents

Overview

The Debugger perspectives enables you to test and debug XSLT 1.0 /2.0 stylesheets and XQuery 1.0 documents. The interface presents simultaneous views of the source XML document, the XSLT/XQuery document and the result document. As you go step by step through the XSLT/XQuery document the corresponding output is generated step by step, and the corresponding position in the XML file is highlighted for each step. At the same time, special views in the interface provide various types of debugging information and events useful for understanding the transformation process.

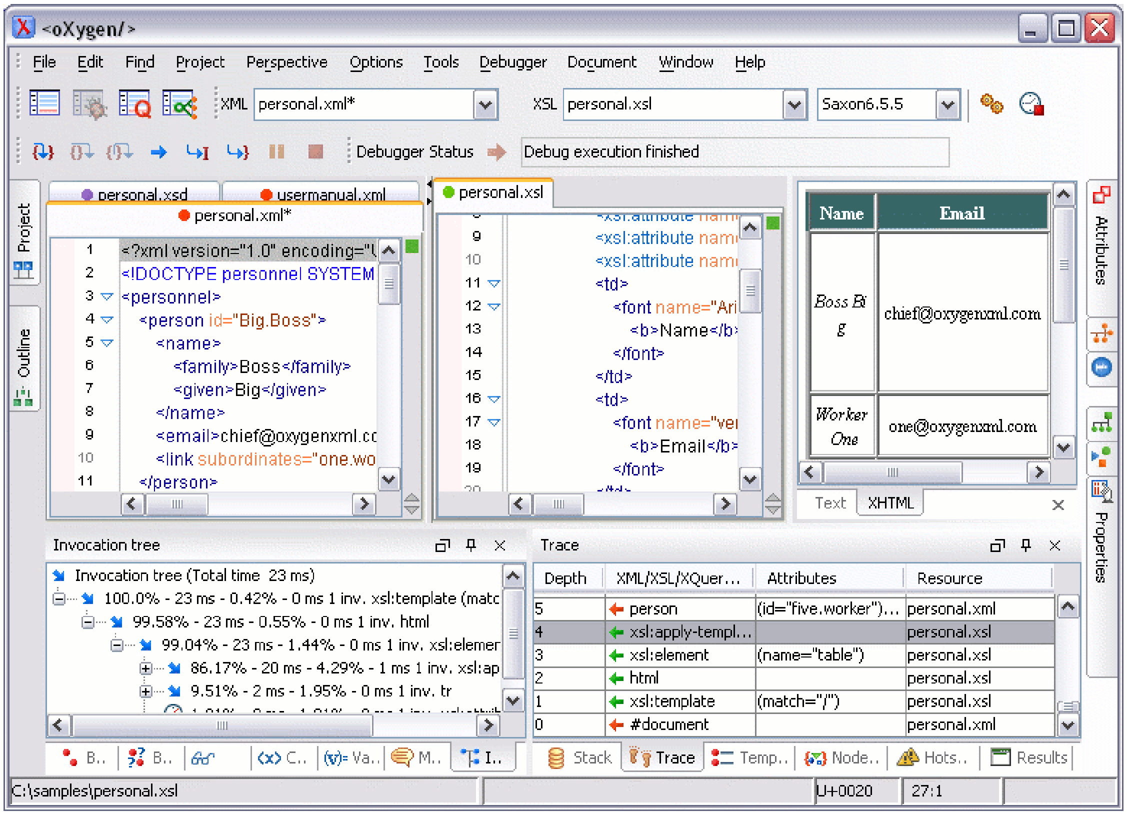
The user benefits of a rich set of features for testing and solving XSLT/XQuery problems:

- Support for XSLT 1.0 stylesheets (through the Saxon 6.5.5 and Xalan XSLT engines) , XSLT 2.0 stylesheets (through the Saxon 8B XSLT engine) and XQuery 1.0 (through the Saxon 8B XQuery engine).
- Stepping capabilities: step in, step over, step out, run, run to cursor, run to end, pause, stop.
- Back mapping between every piece of output and instruction element /source context who generate it .
- Breakpoints on both source and XSLT/XQuery documents.
- Call stack view on both source and XSLT/XQuery documents.
- Trace history on both source and XSLT/XQuery documents.
- Support for XPath expression evaluation during debugging.
- Step into imported/included stylesheets as well as included source entities.
- Available templates and hits count.
- Variables view.
- Dynamic output generation.

Layout

The Debugger perspective interface looks like below. This interface is comprised of 4 panes as follows:

Figure 7.1. Debugger Mode Interface



Debug execution finished

```
<?xml version="1.0" encoding="U
<!DOCTYPE personnel SYSTEM
<personnel>
  <person id="Big.Boss">
    <name>
      <family>Boss</family>
      <given>Big</given>
    </name>
    <email>chief@oxygenxml.cc
    <link subordinates="one.wo
  </person>
```

```
<xsl:attribute nam
<xsl:attribute nam
<td>
  <font name="Ari
    <b>Name</b>
  </font>
</td>
<td>
  <font name="ve
    <b>Email</b>
  </font>
```

Name	Email
Boss Big	chief@oxygenxml.com
Worker One	one@oxygenxml.com

```
Invocation tree (Total time  23 ms)
  100.0% - 23 ms - 0.42% - 0 ms 1 inv. xsl:template (matc
    99.58% - 23 ms - 0.55% - 0 ms 1 inv. html
      99.04% - 23 ms - 1.44% - 0 ms 1 inv. xsl:elemer
        86.17% - 20 ms - 4.29% - 1 ms 1 inv. xsl:ap
        9.51% - 2 ms - 1.95% - 0 ms 1 inv. tr
```

Depth	XML/XSL/XQuer...	Attributes	Resource
5	person	(id="five.worker")...	personal.xml
4	xsl:apply-templ...		personal.xsl
3	xsl:element	(name="table")	personal.xsl
2	html		personal.xsl
1	xsl:template	(match="/")	personal.xsl
0	#document		personal.xml

C:\samples\personal.xsl U+0020 27:1

Source document view (XML)

Displays and allows editing of data or document oriented XML files (documents).

XSL/XQuery document view (XSL/XQuery)

Displays and allows editing of XSL files(stylesheets) or XQuery documents.

Output document view

Displays the transformed output that results from the input of a selected document (XML) and selected stylesheet (XSL) or XQuery document to the transformer. The result of transformation is dynamically written as the transformation is processed.

There are two views for the output: a text view (with XML syntax highlight) and an XHTML view. For large output the XHTML view can be can disabled (see Debugger Settings).

Control view

The control view provides functionality for configuration and control of debugging operations. It also provides a series of Information views types. This pane is comprised of two parts:

- Control Toolbar
- Information views

XML documents and XSL stylesheets or XQuery documents that were opened in Editor perspective are automatically sorted into the first two panes. When multiple files of each type are opened, the individual documents and stylesheets are separated using the familiar tab management system of the Editor perspective. Selecting a tab brings the document or stylesheet into focus and enables editing without toggling back to the Editor perspective.

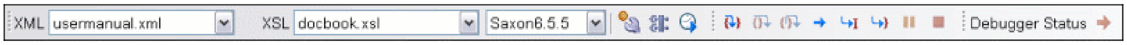
When editing in the Editor perspective the editor toolbar is displayed. In Debugger mode this toolbar is not available, however the functions are still accessible from the Document menu same as the context menus that are activated by a right click of the mouse. Bookmarks are replaced by breakpoints in Debugger perspective.

During debugging the current execution node is highlighted on both document (XML) and XSL/XQuery views.

Control Toolbar

The toolbar contains all actions needed in order to configure and control the debug process. Items are described below from left to right as they appear in the toolbar.

Figure 7.2. Control Toolbar



XML usermanual.xml XSL docbook.xsl Saxon6.5.5 Debugger Status

XML source selector

The selection represents the source document to be used as input by the transformation engine. The selection list is filled-in with all opened files (the XML ones being emphasized). This gives you the possibility to use other file types as source. In case of XQuery debugging session this selection field can be set to default value NONE, as usually XQuery documents do not require an input source.

XSL/XQuery selector

The selection represents the stylesheet or XQuery document to be used by the transformation engine. The selection list is filled-in with all opened files (the XSL/XQuery ones being emphasized).

XSLT/XQuery engine selector

Lists the available XSLT/XQuery processors

XSLT/XQuery parameters

XSLT/XQuery parameters to be used by the transformation.

Edit extensions

Add and remove the Java classes and jars used as XSLT extensions.

Enable profiling

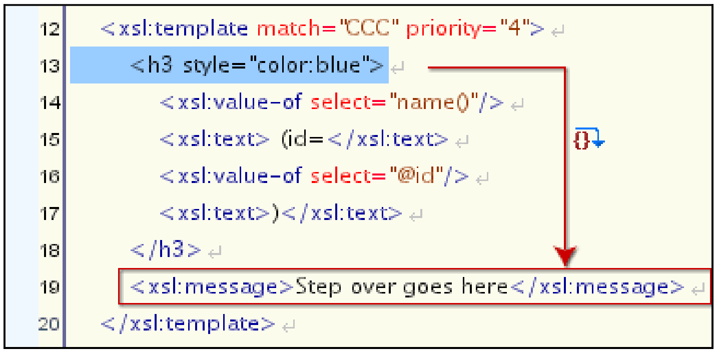
Enable/Disable current transformation profiling.

Step into

Starts the debugging process and runs until the next stylesheet node (next step in transformation).

Step over

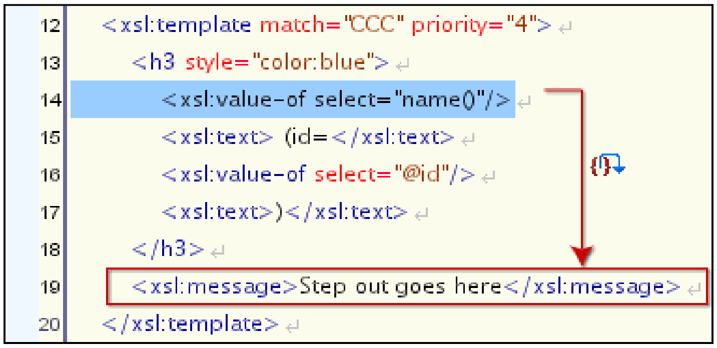
Executes the current stylesheet node (including its sub-elements) and goes to next node in document order (usually the next sibling of the current node).



```
<xsl:template match="CCC" priority="4">
    <h3 style="color:blue">
        <xsl:value-of select="name()"/>
        <xsl:text> (id=</xsl:text>
        <xsl:value-of select="@id"/>
        <xsl:text>)</xsl:text>
    </h3>
    <xsl:message>Step over goes here</xsl:message>
</xsl:template>
```

Step out

Steps out to the parent node (equivalent to the Step over on the parent).



```
<xsl:template match="CCC" priority="4">
    <h3 style="color:blue">
        <xsl:value-of select="name()"/>
        <xsl:text> (id=</xsl:text>
        <xsl:value-of select="@id"/>
        <xsl:text>)</xsl:text>
    </h3>
    <xsl:message>Step out goes here</xsl:message>
</xsl:template>
```

Run

Starts the debugging process and runs until the first breakpoint is encountered or until the end of transformation occurs, if no breakpoints are encountered (see the section called “Breakpoints view”).

Run to cursor

Starts the debugging process and runs until one of the following conditions occur: the line of cursor is reached, a valid breakpoint is reached or end of execution.

Run to end

Runs the transformation until the end, without taking into account any enabled breakpoints that might be set.

Pause

Interrupts the current transformation. This is useful for long transformations (Docbook for instance) when you want to find out what point the transformation has reached. The transformation can be resumed after.

Stop

Ends the transformation process.

Note

Accelerator key combinations can be associated with debugger actions in the <oXygen/> preference dialog called Menu Shortcut Keys .

Information views

The information view is comprised of two panes that are used to display various types of information used to understand the transformation process. For each information type there is a corresponding tab.

While running a transformation, relevant events are displayed in the various information views. This enables the developer to obtain a clear view of the transformation progress. Using the Debug controls developers can easily isolate parts of stylesheet therefore they may be understood and modified. The information types include (for a more detailed discussion on each information type see Viewing processing information):

Left side information views

- Context Node View
- XWatch View
- Breakpoints View
- Break Conditions View
- Messages View (XSLT only)
- Variables View

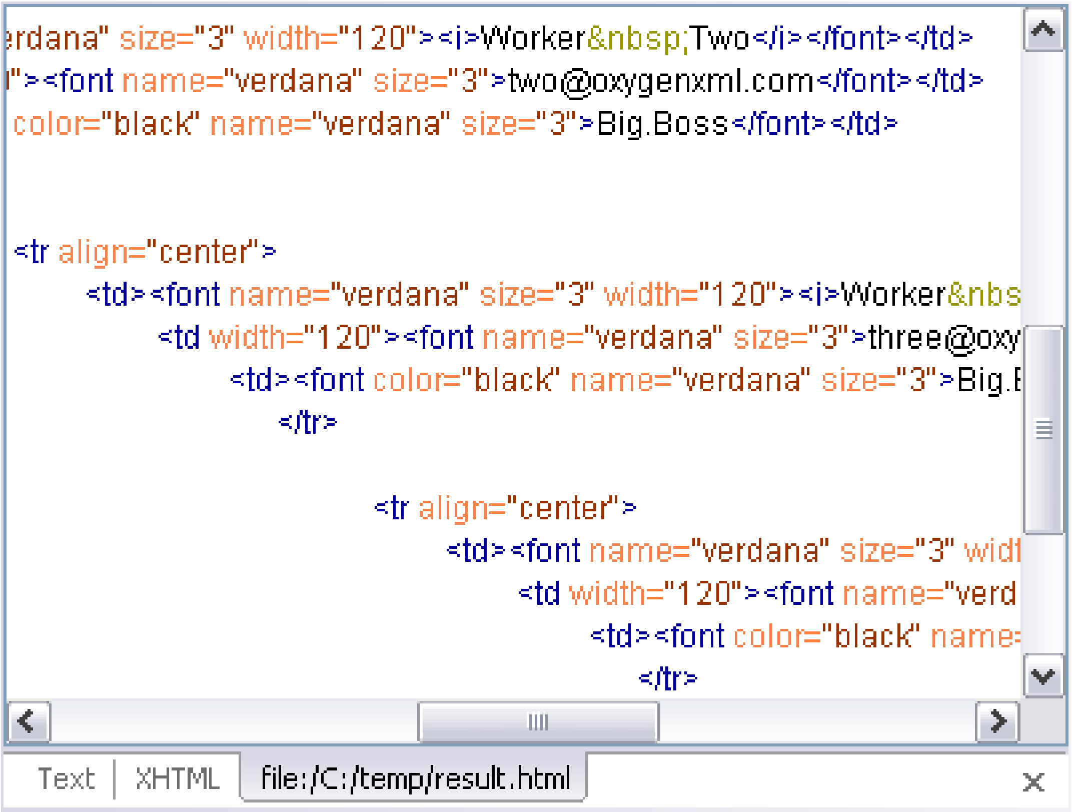
Right side information views

- Stack View
- Trace View
- Templates View (XSLT only)
- Nodeset View

Multiple output documents in XSLT 2.0

For XSLT 2.0 stylesheets that store the output in more than one file by using the *xsl:result-document* instruction the content of the file created in this way is displayed dynamically while the transformation is running in an output view. There is one view for each *xsl:result-document* instruction so that the output of different instructions is not mixed but is presented in different views.

Figure 7.3. Multiple output documents in XSLT 2.0



```
rdana" size="3" width="120"><i>Worker&nbsp;Two</i></font></td>
"><font name="verdana" size="3">two@oxygenxml.com</font></td>
 color="black" name="verdana" size="3">Big.Boss</font></td>


 <tr align="center">
       <td><font name="verdana" size="3" width="120"><i>Worker&nbs
             <td width="120"><font name="verdana" size="3">three@oxy
                   <td><font color="black" name="verdana" size="3">Big.E
                       </tr>

                             <tr align="center">
                                   <td><font name="verdana" size="3" widt
                                         <td width="120"><font name="verd
                                               <td><font color="black" name=
                                                   </tr>
```

Working with the XSLT/XQuery Debugger

The following topics are present about how to follow XSLT/XQuery processing and detect errors in your stylesheets or XQuery documents:

- Steps in a typical debug process
- Using breakpoints
- Viewing processing information
- Determining what XSL/XQuery expression generated particular output

Steps in a typical debug process

To debug a stylesheet or XQuery document follow the procedure:

1. Open the source XML document and the XSLT/XQuery document.
2. If you are in the Editor perspective switch to the desired Debugger perspective (XSLT or XQuery) with one of the actions (here explained for XSLT):

   - Menu Perspective → Debugger or the toolbar button Debugger

- Menu Document → XML Document → Debug scenario or the toolbar button Debug scenario

3. Select the source XML document in the XML source selector of the Control toolbar In case of XQuery debugging if your XQuery document has no implicit source set the source selector value to NONE.
4. Select the XSL/XQuery document in the XSL/XQuery selector of the Control toolbar.
5. Set XSLT/XQuery parameters from the button available on the Control toolbar.
6. Set one or more breakpoints.
7. Step through the stylesheet using the buttons available on the Control toolbar: Step into, Step over, Step out, Run, Run to cursor, Run to end, Pause, Stop
8. Examine the information in the Information Views to find the bug in the transformation process.

Using breakpoints

The <oXygen/> XSLT/XQuery Debugger allows you to interrupt XSLT/XQuery processing to gather information about variables and processor execution at particular points.

Inserting breakpoints

To insert a breakpoint:

1. In the XML source document or the XSLT/XQuery document that you want to set a breakpoint, place your cursor on the line where you want the breakpoint to be. You can set breakpoints on XML source only for XSLT debugging sessions.
2. Select Edit → Breakpoints → Create or directly click with the mouse the left side stripe of the editor window on the line where you want the breakpoint to be.

Removing breakpoints

To remove a breakpoint:

- Click with the mouse the left side stripe of the editor window on the line with the breakpoint or select Edit → Breakpoints → Remove all

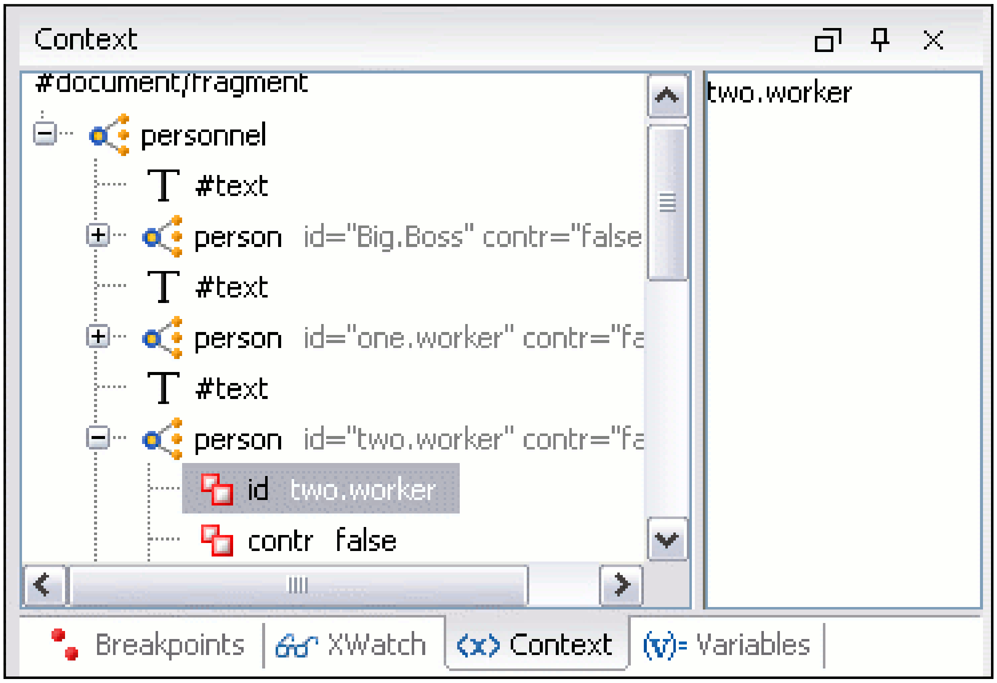
Viewing processing information

Detailed information about the debugger status are provided using the information views.

Context node view

The context node is valid only for XSLT debugging session and is a source node corresponding to the XSL expression being evaluated. It is also called the context of execution. The context node implicitly changes as the processor hits various steps (at the point where XPath expressions are evaluated). This node has the same value as evaluating '.' (dot) XPath expression on XWatch View. The value of the context node is presented as a tree in the view.

Figure 7.4. The Context node view

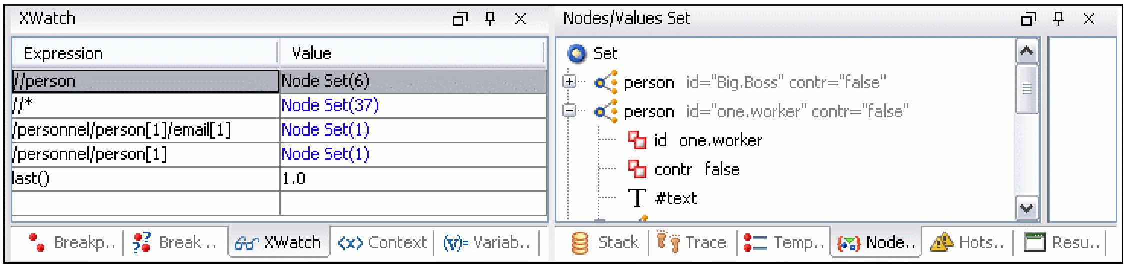


The context node is presented in a tree-like fashion. The value of the selected attribute or node are shown in the right side panel.

XPath watch view

Shows XPath expressions to be evaluated during debugging. Expressions are evaluated dynamically as the processor changes its source context.

Figure 7.5. The XPath watch view



Expression	Value
//person	Node Set(6)
//*	Node Set(37)
/personnel/person[1]/email[1]	Node Set(1)
/personnel/person[1]	Node Set(1)
last()	1.0

```
Set
  person  id="Big.Boss" contr="false"
  person  id="one.worker" contr="false"
    id  one.worker
    contr  false
    #text
```

Table 7.1. XWatch details

Column	Description
Expression	XPath expression to be evaluated (should be XPath 1.0 or 2.0 compliant).
Value	Result of XPath expression evaluation. Value has a type (see Possible Values in the section the section called “Variables view”). For *Node Set* results the number of nodes in the set is shown in parenthesis.

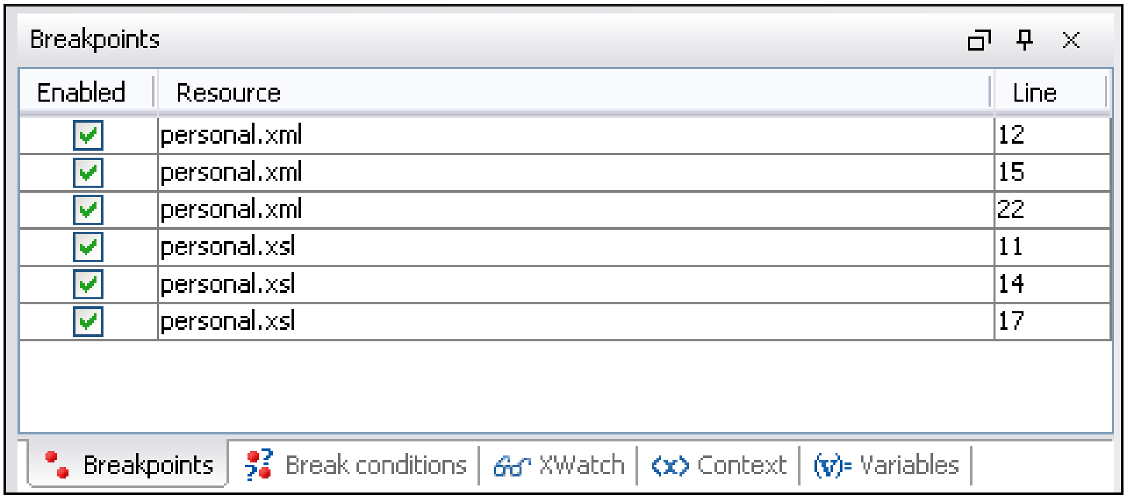
Remarks

- Expressions referring to variables names are not evaluated. In case of an XPath error, you get an Error line.
- The expression list is not deleted at the end of transformation (it is preserved during sessions).
- To insert a new expression click the last line on the expression column and enter it or right click and select the *Add* action. Press enter on cell to add and evaluate.
- To delete an expression click on its Expression column and delete its content or right click and select the *Remove* action. Press enter on cell to commit changes.
- If the expression result type is a Node Set you can click on it (Value column) and you will see on the right side its value. (see Nodeset View).
- Copy, Add, Remove and Remove All actions are offered in every row's contextual menu.

Breakpoints view

Lists all breakpoints set on opened documents. Once you set a breakpoint it is automatically added in this list. Breakpoints can be set on XSL/XQuery documents and in XML documents for XSLT debugging sessions.

Figure 7.6. The Breakpoints view



Breakpoints

Enabled	Resource	Line
☑	personal.xml	12
☑	personal.xml	15
☑	personal.xml	22
☑	personal.xsl	11
☑	personal.xsl	14
☑	personal.xsl	17

Table 7.2. Breakpoints details

Column	Description
Enabled	If checked, the current condition is evaluated and taken into account.
Resource	Resource file where the breakpoint is set. Entire path of resource file is available as tooltip.
Line	Line number inside resource where the breakpoint is set.

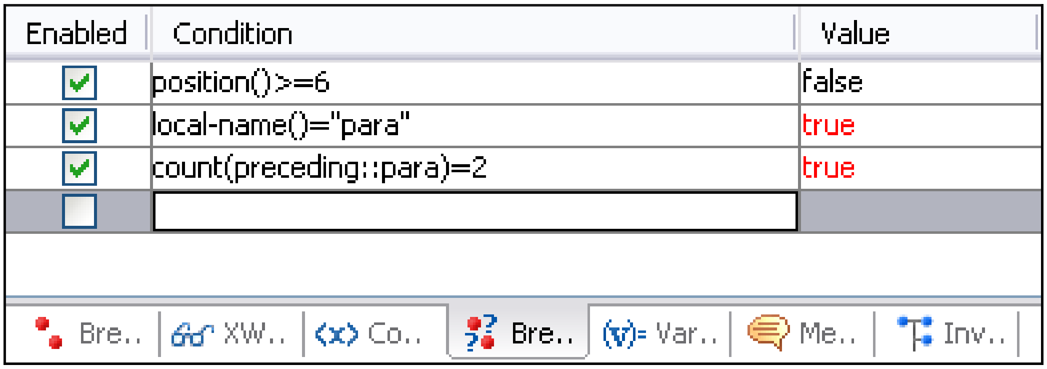
Valid Breakpoint

- Not all set breakpoints are valid. For example if the breakpoint is set on one empty or commented line or the line is not reached by the processor (no template to match it, line containing only an end tag), that breakpoint is invalid.
- The contextual menu on table has the Go to, Remove, Remove All, Enable All, Disable All options.
- Clicking a record highlights the breakpoint line into the document.

Break conditions view

Lists all defined break conditions. Unlike breakpoints, break conditions are not associated with a document, but they represent XPath expressions evaluated in the current debugger context. In order to be processed their evaluation result should be a boolean value.

Figure 7.7. The Break conditions view



Enabled	Condition	Value
☑	position()>=6	false
☑	local-name()="para"	true
☑	count(preceding::para)=2	true
□		

Table 7.3. Break conditions details

Column	Description
Enabled	If checked, the current condition is evaluated and taken into account.
Condition	XSLT/XQuery expression to be evaluated during debugging. The expression will be evaluated at every debug step.
Value	Boolean result of the evaluated condition or error message if the condition expression cannot be evaluated.

When the Debugger hits an active break condition it pauses the execution of the transformation and places a small marker on the left side of the line where the break condition occured. The tooltip of the marker explains the cause of the pause. To disable further pauses when the same condition occurs you have to uncheck the *Enabled* column of the corresponding line in the *Break conditions* view.

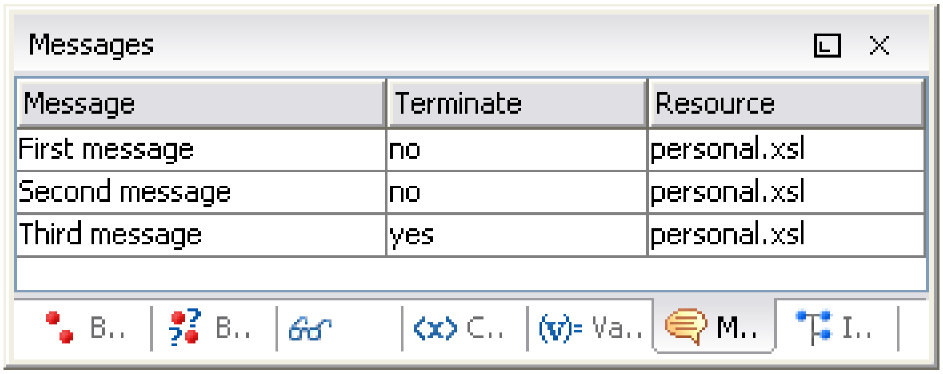
Important

- The contextual menu on table has the Add, Remove, Remove All, Enable All, Disable All options.

Messages view

`<xsl:message>` instructions are one way to signal special situations encountered during transformation as well as a raw way of doing the debugging. This view is available only for XSLT debugging sessions and shows all `<xsl:message>` calls executed by the XSLT processor during transformation.

Figure 7.8. The Messages view



Messages

Message	Terminate	Resource
First message	no	personal.xsl
Second message	no	personal.xsl
Third message	yes	personal.xsl

Table 7.4. Messages details

Column	Description
Message	Message content.
Terminate	Signals if processor will terminate the transformation or not once it encounters the message (true/false respectively)
Resource	Resource file where `<xsl:message>` instruction is defined. The complete path of the resource is available as tooltip.

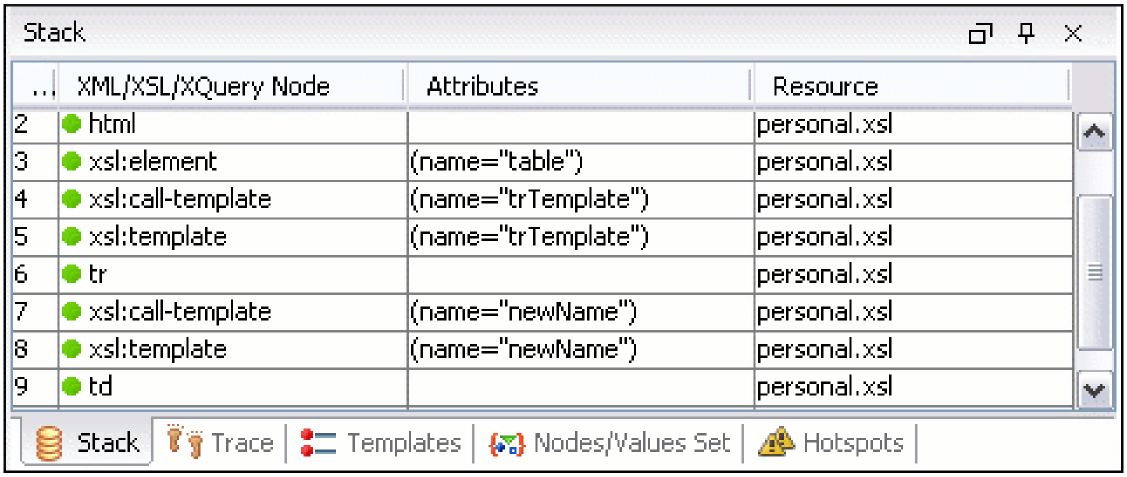
Remarks

- Clicking a record from the table highlights the `<xsl:message>` declaration line.
- Message table values can be sorted by clicking the corresponding column header (ascending, descending, no sort)

Stack view

Shows the current execution stack of both source and XSL/XQuery nodes. During transformation two stacks are managed: one of source nodes being processed and the other for XSL/XQuery nodes being processed. <oXygen/> shows both node types into one common stack. The source (XML) nodes are preceded by a red color icon while XSL/XQuery nodes are preceded by a green color icon. The advantage of this approach is that you can always see the source scope on which a XSL/XQuery instruction is executed (the last red color node on the stack). The stack is oriented upside down.

Figure 7.9. The Stack view



...	XML/XSL/XQuery Node	Attributes	Resource
2	● html		personal.xsl
3	● xsl:element	(name="table")	personal.xsl
4	● xsl:call-template	(name="trTemplate")	personal.xsl
5	● xsl:template	(name="trTemplate")	personal.xsl
6	● tr		personal.xsl
7	● xsl:call-template	(name="newName")	personal.xsl
8	● xsl:template	(name="newName")	personal.xsl
9	● td		personal.xsl

Table 7.5. Stack details

Column	Description
#	Order number, represents the depth of the node (0 is the stack base).
XML/XSL/XQuery Node	Node from source or stylesheet document currently being processed. One particular stack node is the document root, noted as #document.
Attributes	Attributes of the node (list of `id`="`value`" pairs).
Resource	Resource file where the node is located. Entire path is available as tooltip.

Remarks

- Clicking a record from the stack highlights that node's location inside resource.
- Using Saxon, the stylesheet elements are qualified with XSL proxy, while on Xalan you only see their names. (example `<xsl:template>` on Saxon and template on Xalan).
- Only Saxon processor shows element attributes.
- Xalan processor shows the "built-in" rules.

Trace history view

Usually the XSLT/XQuery processors signal the following events during transformation:

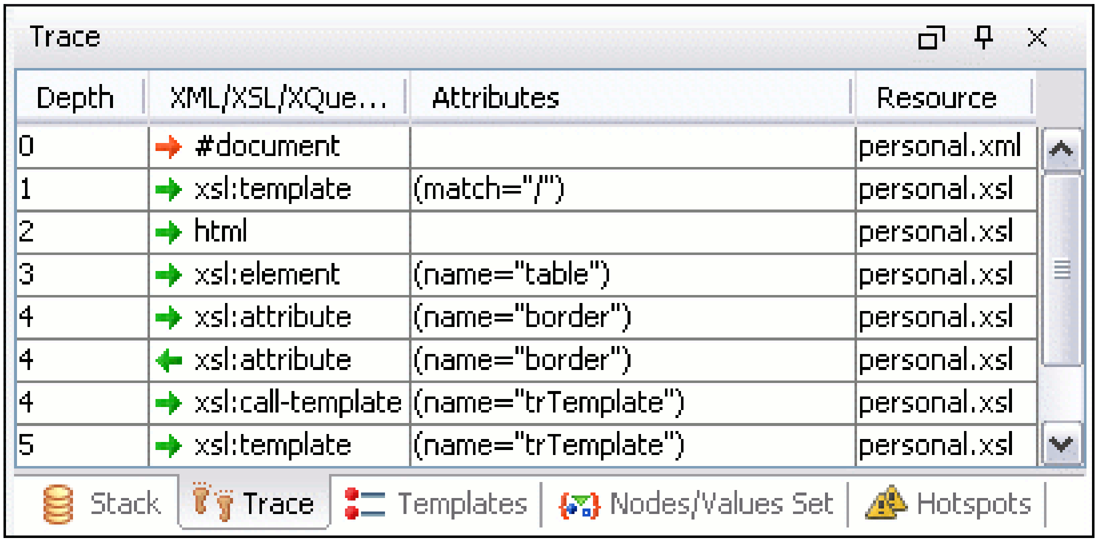
- → entering a source (XML) node.
- ← leaving a source (XML) node.
- → entering a XSL/XQuery node.

- ⬅ leaving a XSL/XQuery node.

The trace history catches all these events, so you can see how the process evolved. The red icon lines denote source nodes while the green icon lines denote XSL/XQuery nodes.

It is possible to save the element trace in a structured XML document. It is available on the context menu of the view. In this way you have the possibility to compare the trace results from different debug sessions.

Figure 7.10. The Trace History View



Depth	XML/XSL/XQue...	Attributes	Resource
0	➡ #document		personal.xml
1	➡ xsl:template	(match="/")	personal.xsl
2	➡ html		personal.xsl
3	➡ xsl:element	(name="table")	personal.xsl
4	➡ xsl:attribute	(name="border")	personal.xsl
4	⬅ xsl:attribute	(name="border")	personal.xsl
4	➡ xsl:call-template	(name="trTemplate")	personal.xsl
5	➡ xsl:template	(name="trTemplate")	personal.xsl

Table 7.6. Trace History details

Column	Description
Depth	Starts from 0 and represents the level of overlapping for that node. This is similar with the # order number from stack at the moment the node was processed.
XML/XSL/XQuery Node	Represents the node from the processed source or stylesheet document. One particular node is the document root, noted as #document. Every node has an arrow in front of it representing what action was performed on it (entering or leaving).
Attributes	Attributes of the node (list of `id="value"` pairs).
Resource	Resource file where the node is located. Complete path to resource file is provided as tooltip.

Remarks

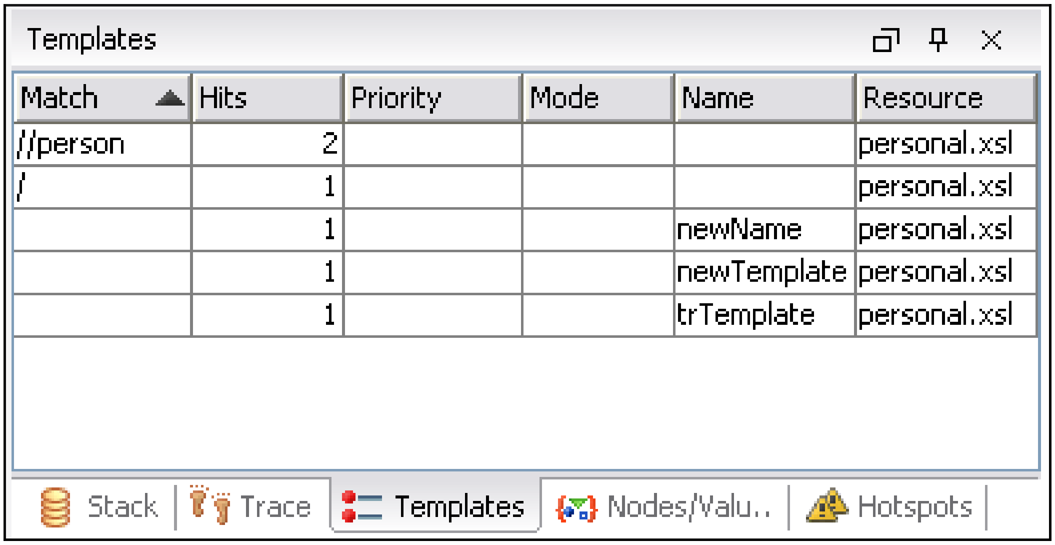
- Clicking a record highlights that node's location inside the resource.

- Only Saxon processor shows element attributes.
- Xalan processor shows the "built-in" rules.

Templates view

The `<xsl:template>` is the basic element for stylesheets transformation. This view is only available during XSLT debugging sessions and shows all `<xsl:template>` instructions used by the transformation. By seeing the number of hits for each of the templates you get an idea of the stylesheet coverage by template rules with respect to the input source.

Figure 7.11. The Templates view



Match ▲	Hits	Priority	Mode	Name	Resource
//person	2				personal.xsl
/	1				personal.xsl
	1			newName	personal.xsl
	1			newTemplate	personal.xsl
	1			trTemplate	personal.xsl

Table 7.7. Templates details

Column	Description
Match	Match attribute of the `<xsl:template>`.
Hits	Number of hits for the `<xsl:template>`. Shows how many times the XSLT processor used this particular template.
Priority	Template priority as established by XSLT processor.
Mode	Mode attribute of the `<xsl:template>`.
Name	Name attribute of the `<xsl:template>`.
Resource	Resource file where template is located. Complete path of resource file is available as tooltip.

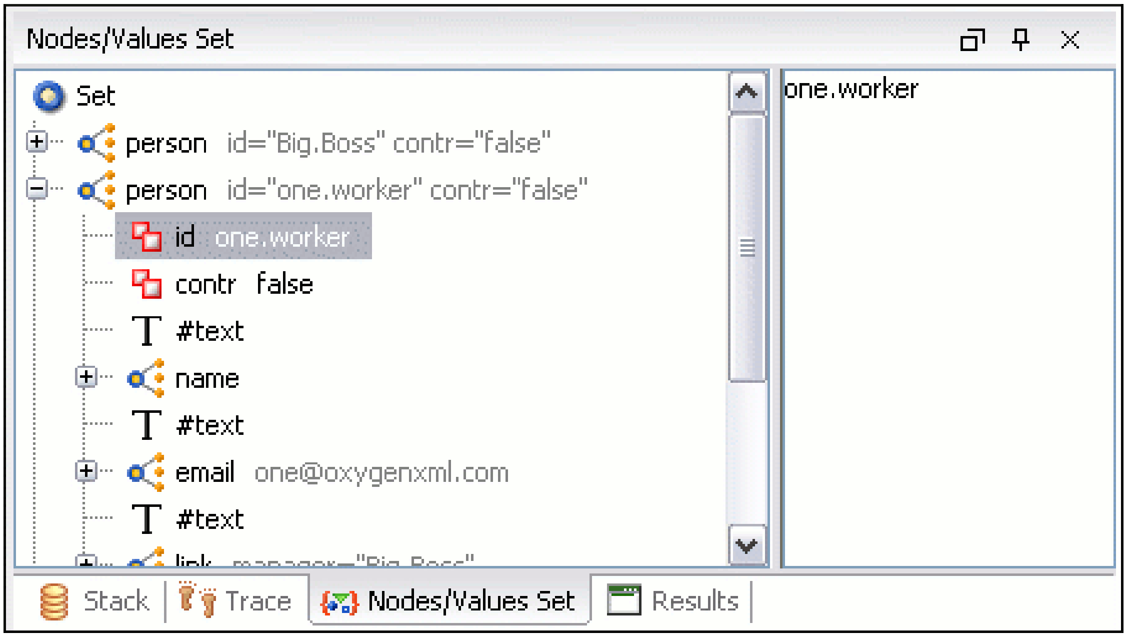
Remarks

- Clicking a record highlights that template definition inside resource.
- Saxon only shows the applied templates having at least one hit from the processor. Xalan shows all defined templates, with or without hits.
- Template table values can be sorted by clicking the corresponding column header (ascending, descending, no sort)
- Xalan shows the "built-in" rules.

Node set view

This view is always used in relation with Variables View and XWatch View and shows a nodeset value in a tree form. Once you click a variable having as value a nodeset or tree fragment or an XPath expression evaluated to a nodeset in the above views the node set view gets updated with the respective value.

Figure 7.12. The Node Set view



The nodes/values set is presented in a tree-like fashion. The value of the selected attribute or node are shown in the right side panel.

Remarks

- In case of longer values for Value/Attributes column content, the interface shows three suspension points (...) at the end. A more detailed value is available as tooltip.
- Clicking a record highlights the location of that node into the source or stylesheet view.

Variables view

During transformation variables and parameters play an important role.

<oXygen/> uses the following icons to differentiate variables/parameters:

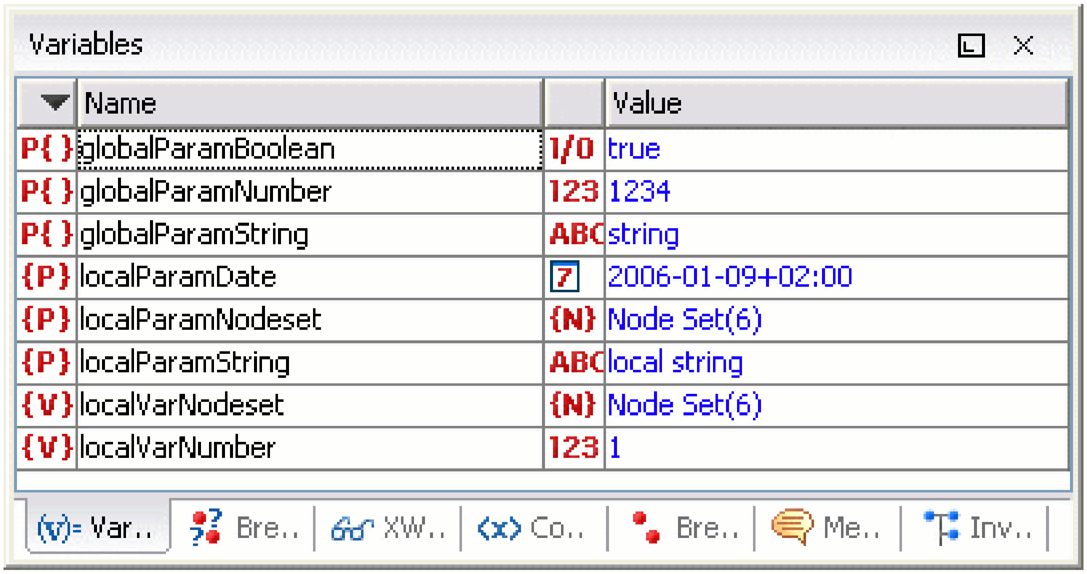
- V{ } Global variable.
- {V} Local variable.
- P{ } Global parameter.
- {P} Local parameter.

The values types of a variable are marked by icons explained below:

Possible Values

- 1/0 Boolean.
- ABC String.
- 123 Numeric.
- {N} Node set.
- {...} Tree fragment.
- 7 Date. (XSLT 2.0 only)
- □ Object.
- ? Any.

Figure 7.13. The Variables view



	Name		Value
P{ }	globalParamBoolean	1/0	true
P{ }	globalParamNumber	123	1234
P{ }	globalParamString	ABC	string
{P}	localParamDate	7	2006-01-09+02:00
{P}	localParamNodeset	{N}	Node Set(6)
{P}	localParamString	ABC	local string
{V}	localVarNodeset	{N}	Node Set(6)
{V}	localVarNumber	123	1

Table 7.8. Variables details

Column	Description
Name	Name of the variable/parameter.
Value	Current value for the variable/parameter.

Remarks

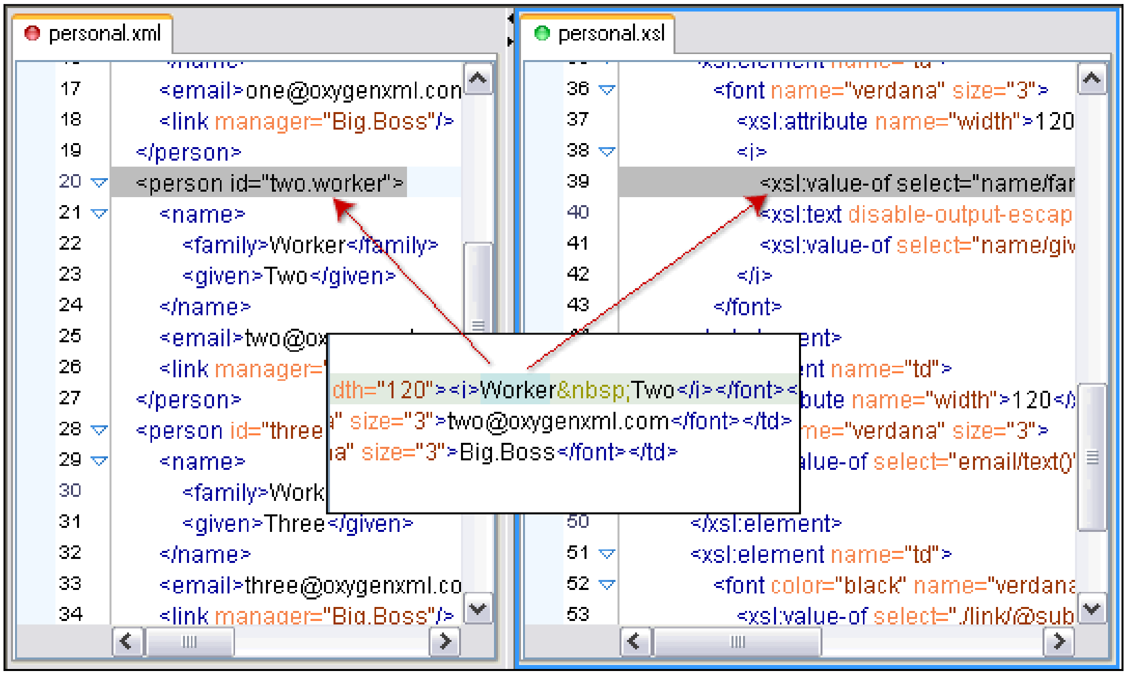
- Clicking a record highlights the variable definition line.
- Variable values could differ depending on the transformation engine used or stylesheet version set.
- If the value of the variable is a node-set or a tree-fragment, clicking on it causes the Node set view to be shown with corresponding set of values.
- Variable table values can be sorted by clicking the corresponding column header (ascending, descending, no sort)

Determining what XSL/XQuery expression generated particular output

In order to quickly spot the XSL templates or XQuery expressions with problems it is important to know what XSL template in the XSL stylesheet or XQuery expression in the XQuery document and what element in the source XML document generated a specified area in the output. Some of the debugging capabilities, for example "Step in" can be used for this purpose. Using "Step in" you can see how output is generated and link it with the XSL/XQuery element being executed in the current source context. However, this can become difficult on complex stylesheets or XQuery documents that generates a large output.

Output to source mapping is a powerful feature that makes this output to source mapping persistent that is you can click on the text from the Output document view and the editor will select the XML source context and the XSL/XQuery element that generated the text.

Figure 7.14. Output to Source Mapping



```
    <email>one@oxygenxml.con
    <link manager="Big.Boss"/>
  </person>
  <person id="two.worker">
    <name>
      <family>Worker</family>
      <given>Two</given>
    </name>
    <email>two@ox
    <link manager="
  </person>
  <person id="three
    <name>
      <family>Work
      <given>Three</given>
    </name>
    <email>three@oxygenxml.co
    <link manager="Big.Boss"/>
```

```
dth="120"><i>Worker&nbsp;Two</i></font><
" size="3">two@oxygenxml.com</font></td>
a" size="3">Big.Boss</font></td>
```

```
      <font name="verdana" size="3">
        <xsl:attribute name="width">120
        <i>
          <xsl:value-of select="name/far
          <xsl:text disable-output-escap
          <xsl:value-of select="name/giv
        </i>
      </font>
ent>
nt name="td">
bute name="width">120</
me="verdana" size="3">
alue-of select="email/text()'
    </xsl:element>
    <xsl:element name="td">
      <font color="black" name="verdana
        <xsl:value-of select="./link/@sub
```

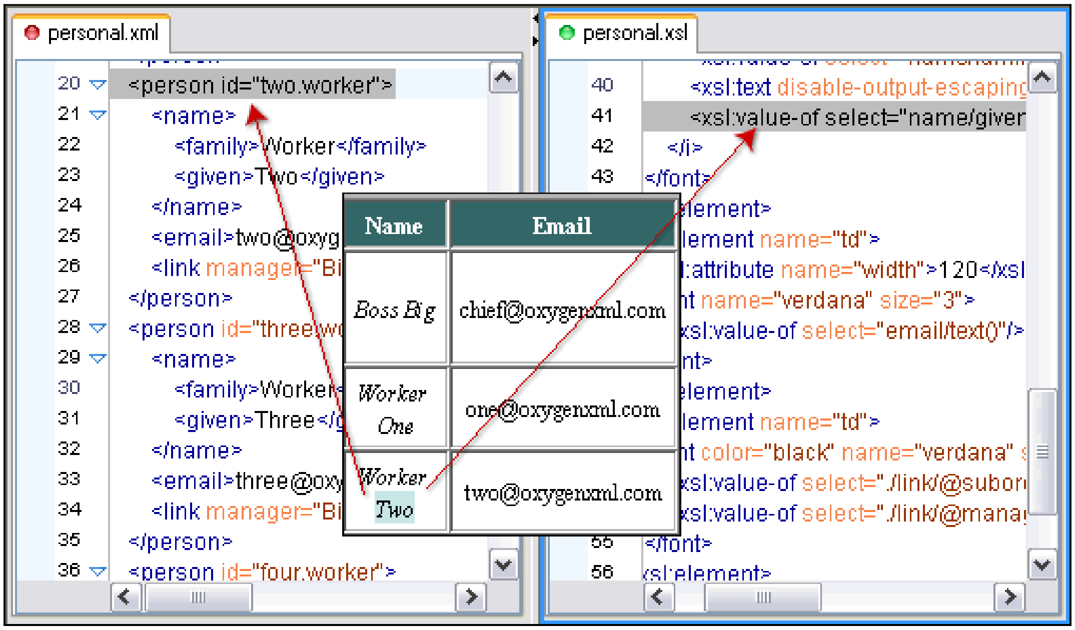
1. If you are in the Editor perspective switch to the XSLT or XQuery Debugger perspective with one of the actions (here explained for XSLT):

    - Perspective → Debugger or the toolbar button Debugger
    - Document → XML Document → Debug scenario or the toolbar button Debug scenario

2. Select the source XML document in the XML source selector of the Control toolbar. In case of XQuery debugging without an implicit source choose the NONE value.
3. Select the XSL/XQuery document in the XSL/XQuery selector of the Control toolbar
4. Select the XSLT/XQuery engine in the XSLT/XQuery engine selector of the Control toolbar
5. Set XSLT/XQuery parameters from the button available on the Control toolbar
6. Apply the stylesheet or XQuery transformation using the button Run to end available on the Control toolbar:
7. Inspect the mapping by clicking a section of the output from the Text view tab or from the XHTML

view tab of the Output document view to have the XSL/XQuery element and the source context highlighted.

Figure 7.15. XHTML Output Mapping



```
<person id="two.worker">
  <name>
    <family>Worker</family>
    <given>Two</given>
  </name>
  <email>two@oxyg
  <link manager="Bi
</person>
<person id="three.wo
  <name>
    <family>Worker<
    <given>Three</g
  </name>
  <email>three@oxy
  <link manager="Bi
</person>
<person id="four.worker">
```

```
    <xsl:text disable-output-escaping
    <xsl:value-of select="name/giver
  </i>
</font>
lement>
lement name="td">
:attribute name="width">120</xsl
t name="verdana" size="3">
xsl:value-of select="email/text()"/>
nt>
lement>
lement name="td">
t color="black" name="verdana" s
xsl:value-of select="./link/@subor
xsl:value-of select="./link/@manag
</font>
xsl:element>
```

Name	Email
Boss Big	chief@oxygenxml.com
Worker One	one@oxygenxml.com
Worker Two	two@oxygenxml.com

Chapter 8. Profiling XSLT stylesheets and XQuery documents

Overview

Whether you are trying to identify a performance issue that is causing your production XSLT/XQuery transformation to not meet customer expectations or you are trying to proactively identify issues prior to deploying your XSLT/XQuery transformation, using the XSLT/XQuery profiler feature is essential to helping you save time and ultimately ensure a better performing, more scalable XSLT/XQuery transformation.

The XSLT/XQuery profiling feature can use any available XSLT/XQuery processors that could be used for debugging and it is available from the editor debugging perspective.

Enabling/disabling the profiler is controlled by the Profiler button from the debugger control toolbar. The XSLT/XQuery profiler is off by default. This option is not available during a debugger session so you should set it before starting the transformation.

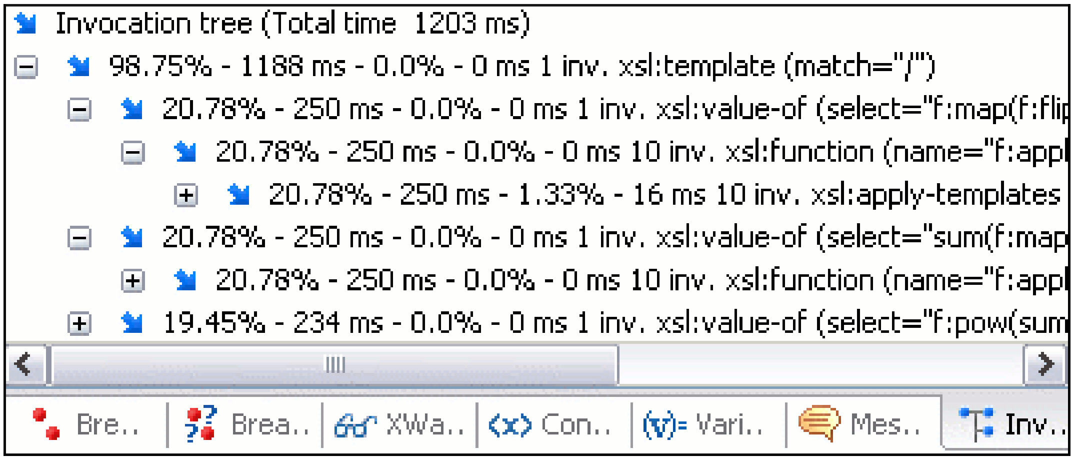
Viewing profiling information

Detailed profiling information for the current transformation is provided using the information views:

Invocation tree view

The invocation tree view shows a top-down call tree representing how XSLT instructions or XQuery expressions are processed.

Figure 8.1. Invocation tree view



```
Invocation tree (Total time  1203 ms)
⊟ 98.75% - 1188 ms - 0.0% - 0 ms 1 inv. xsl:template (match="/")
    ⊟ 20.78% - 250 ms - 0.0% - 0 ms 1 inv. xsl:value-of (select="f:map(f:flip
        ⊟ 20.78% - 250 ms - 0.0% - 0 ms 10 inv. xsl:function (name="f:appl
            ⊞ 20.78% - 250 ms - 1.33% - 16 ms 10 inv. xsl:apply-templates
    ⊟ 20.78% - 250 ms - 0.0% - 0 ms 1 inv. xsl:value-of (select="sum(f:map
        ⊞ 20.78% - 250 ms - 0.0% - 0 ms 10 inv. xsl:function (name="f:appl
    ⊞ 19.45% - 234 ms - 0.0% - 0 ms 1 inv. xsl:value-of (select="f:pow(sum
```

The entries in the invocation tree have different meanings which are indicated by the displayed icons:

- This points to a call whose inherent time is insignificant compared to its call tree time.

- This points to a call whose inherent time is significant compared to its call tree time. (greater than 1/3rd of its call tree time).

Every entry in the invocation tree has textual information attached which depends on the XSLT/XQuery profiler settings

- a percentage number of total time which is calculated with respect to either the root of the tree or the calling instruction;
- a total time measurement in ms or µs. This is the total execution time that includes calls into other instructions;
- a percentage number of inherent time which is calculated with respect to either the root of the tree or the calling instruction;
- an inherent time measurement in ms or µs. This is the inherent execution time of the instruction;
- an invocation count which shows how often the instruction has been invoked on this path;
- an instruction name which contains also the attributes description.

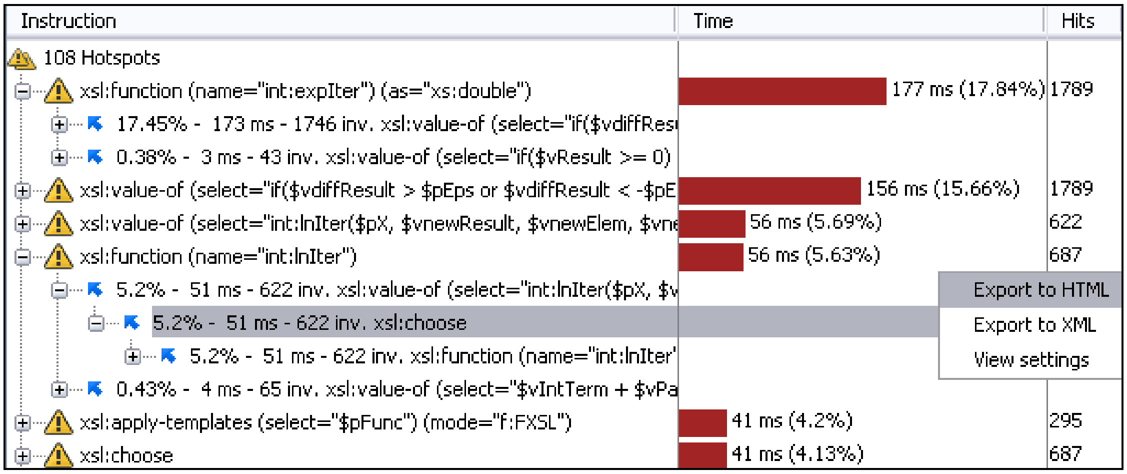
Note

All nodes having their call tree time less than the one specified in the XSLT/XQuery profiler settings are cumulated and shown as *Others* node.

Hotspots view

The hotspots view shows a list of all instruction calls which lie above the threshold defined in the XSLT/XQuery profiler settings .

Figure 8.2. Hotspots view



Instruction	Time	Hits
108 Hotspots		
xsl:function (name="int:expIter") (as="xs:double")	177 ms (17.84%)	1789
17.45% - 173 ms - 1746 inv. xsl:value-of (select="if($vdiffResu		
0.38% - 3 ms - 43 inv. xsl:value-of (select="if($vResult >= 0)		
xsl:value-of (select="if($vdiffResult > $pEps or $vdiffResult < -$pE	156 ms (15.66%)	1789
xsl:value-of (select="int:lnIter($pX, $vnewResult, $vnewElem, $vne	56 ms (5.69%)	622
xsl:function (name="int:lnIter")	56 ms (5.63%)	687
5.2% - 51 ms - 622 inv. xsl:value-of (select="int:lnIter($pX, $v		
5.2% - 51 ms - 622 inv. xsl:choose		
5.2% - 51 ms - 622 inv. xsl:function (name="int:lnIter"		
0.43% - 4 ms - 65 inv. xsl:value-of (select="$vIntTerm + $vPa		
xsl:apply-templates (select="$pFunc") (mode="f:FXSL")	41 ms (4.2%)	295
xsl:choose	41 ms (4.13%)	687

By opening a hotspot instruction entry, the tree of back-traces leading to that instruction call are calculated and shown.

Every hotspot is described in several columns:

- the instruction name;
- the inherent time in ms or µs of how much time has been spent in the hotspot together with a bar whose length is proportional to this value. All calls into this instruction are summed up regardless of the particular call sequence;
- the invocation count of the hotspot.

If you click on the ⚠ handle on the left side of a hotspot, a tree of back-traces will be shown.

Every entry in the backtrace tree has textual information attached to it which depends on the XSLT/XQuery profiler settings .

- a percentage number which is calculated with respect either to the total time or the called instruction;
- a time measured in ms or µs of how much time has been contributed to the parent hotspot on this path;
- an invocation count which shows how often the hotspot has been invoked on this path;

  Note

  This is not the number of invocations of this instruction.

- an instruction name which contains also its attributes.

Working with XSLT/XQuery profiler

Profiling activity is linked with Debugging activity, so the first step in order to profile is to switch to debugging perspective and follow the corresponding procedure (see Working with XSLT Debugger).

Immediately after turning the profiler on two new information views are added to the current debugger information views (Invocation tree view on left side, Hotspots view on right side). Profiling data is available only when the transformation ends successfully.

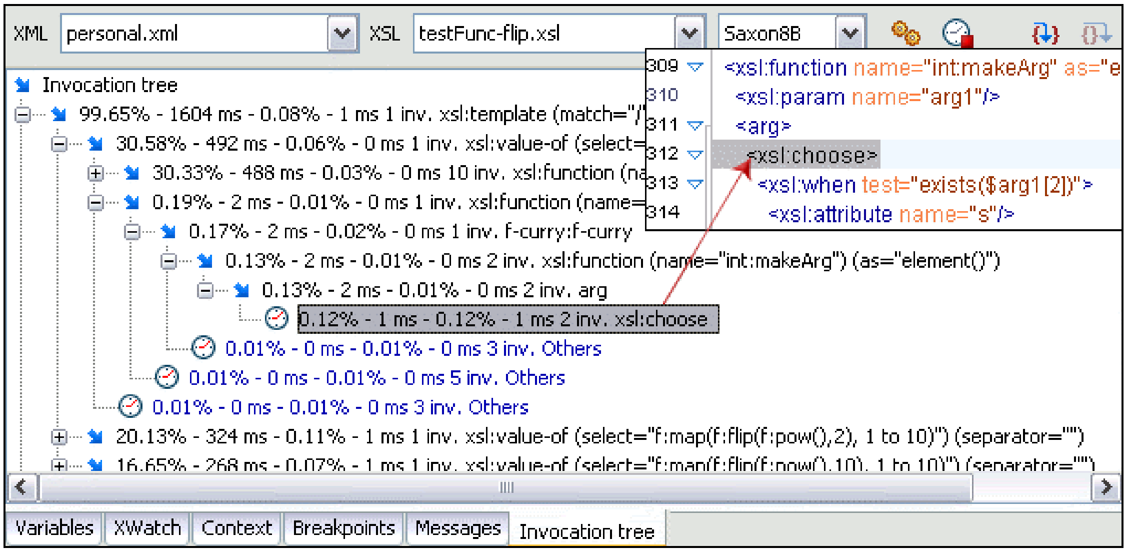
Note

Breakpoints/step capabilities may influence the result of profiling so their usage should be restricted to minimum.

Looking to right side (Hotspots view), you can immediately spot the time the processor spent in each instruction. As instruction usually calls other instructions the used time of the called instruction is extracted from the duration time of the caller (the hotspot only presents the inherent time of the instruction).

Looking at left side (Invocation tree view), you can examine how style instructions are processed. This result view is also named call-tree, as it represents the order of style processing. The profiling result shows the duration time for each of the style-instruction including the time needed for its called children.

Figure 8.3. Source backmapping



```
<xsl:function name="int:makeArg" as="e
  <xsl:param name="arg1"/>
  <arg>
    <xsl:choose>
      <xsl:when test="exists($arg1[2])">
        <xsl:attribute name="s"/>
```

```
Invocation tree
99.65% - 1604 ms - 0.08% - 1 ms 1 inv. xsl:template (match="/
  30.58% - 492 ms - 0.06% - 0 ms 1 inv. xsl:value-of (select=
    30.33% - 488 ms - 0.03% - 0 ms 10 inv. xsl:function (na
    0.19% - 2 ms - 0.01% - 0 ms 1 inv. xsl:function (name=
      0.17% - 2 ms - 0.02% - 0 ms 1 inv. f-curry:f-curry
        0.13% - 2 ms - 0.01% - 0 ms 2 inv. xsl:function (name="int:makeArg") (as="element()")
          0.13% - 2 ms - 0.01% - 0 ms 2 inv. arg
            0.12% - 1 ms - 0.12% - 1 ms 2 inv. xsl:choose
          0.01% - 0 ms - 0.01% - 0 ms 3 inv. Others
        0.01% - 0 ms - 0.01% - 0 ms 5 inv. Others
      0.01% - 0 ms - 0.01% - 0 ms 3 inv. Others
  20.13% - 324 ms - 0.11% - 1 ms 1 inv. xsl:value-of (select="f:map(f:flip(f:pow(),2), 1 to 10)") (separator="")
  16.65% - 268 ms - 0.07% - 1 ms 1 inv. xsl:value-of (select="f:map(f:flip(f:pow(),10), 1 to 10)") (separator="")
```

In any of the above views you can use the backmapping feature in order to find the XSLT stylesheet or XQuery expression definition. Clicking on the selected item cause oXygen to highlight the XSLT stylesheet or XQuery expression source line where the instruction is defined.

When navigating through the trees by opening instruction calls, oXygen automatically expands instructions which are only called by one other instruction themselves.

The profiling data can be saved into XML and HTML format. On any view you should right click , use the pop-up menu and select the corresponding choice. Basically saving HTML means saving XML and applying an XSLT stylesheet to render the report as XML. These stylesheets are also available on distribution (see the subdirectory `frameworks/profiler/` of the <oXygen/> installation directory) so you can make your own report based on the profiling raw data.

If you like to change the XSLT/XQuery profiler settings you should right click on view, use the pop-up menu and choose the corresponding "View settings" entry.

Note

Precision: For Java virtual machine versions less than 1.4 we provide a time measurement in milliseconds while for greater versions (1.5) the time resolution is provided in microseconds.

Caution

Profiling exhaustive transformation may run into an OutOfMemoryException due to the large amount of information being collected. If this is the case you can close unused projects when running the profiling or use high values for Java VM options -Xms and -Xmx. If this does not help you can shorten your source xml file and try again.

Chapter 9. Comparing and merging documents

In large teams composed either of developers or technical writers, the usage of a shared repository for the source or document files is a must. Often many authors are changing the same file at the same time.

Finding what has been modified in your files and folders can be hard. If your data is changing, you can benefit from accurate identification and processing of changes in your files and folders with <oXygen/>'s new features: Compare files and Compare directories. These are powerful and easy to use tools that will do the job fast and thoroughly. With the new possibilities of differencing and merging, it is now easy to manage multiple changes.

<oXygen/> provides a simple means of performing file and folder comparisons. You can see the differences in your files and folders and also you can merge the changes.

There are two levels on which the comparison can be done, namely comparing directories or comparing individual files. These two operations are available from the Tools menu.

Also the comparison tool can be started using command line arguments. In the Oxygen installation folder there are 2 executable shells (diffFiles.bat and diffDirs.bat if running on Windows). You can give one or two command line arguments to each of these shells.

For example, to start the comparison between 2 directories on Windows use:

```
diffDirs.bat "c:\Program Files" "c:\ant"
```

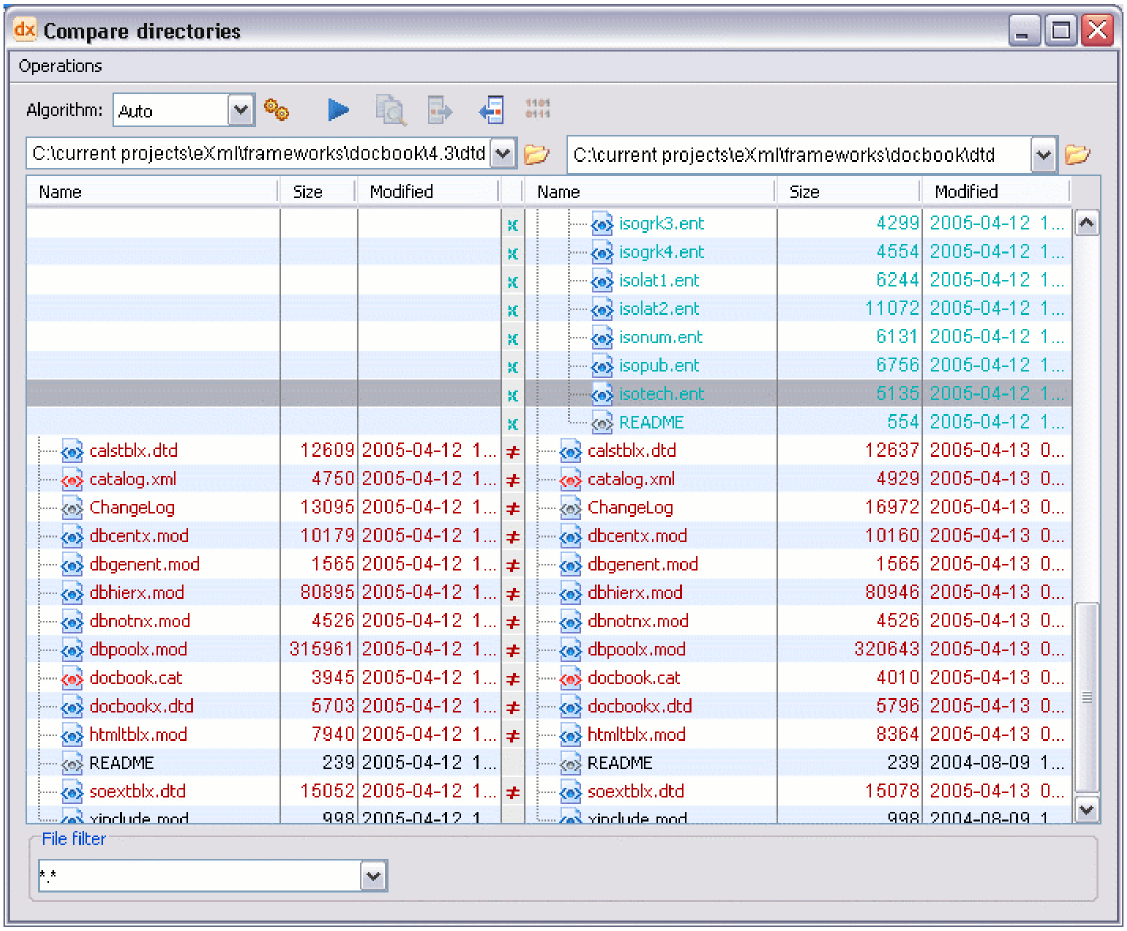
Note that if there are spaces in the path names, the paths need to be surrounded by quotes. Also one argument can be missing in which case the second directory will be chosen manually by the user.

The same goes for the files diff utility as well.

Directories Comparison

The directories comparison result is presented as a tree of files and directories.The directories that contain different files are expanded automatically, so you can focus directly on the differences. You can merge the directories' contents using the copy actions or you can compare and merge the different files by double-clicking on them.

Figure 9.1. The Compare directories window



Algorithm: Auto

C:\current projects\eXml\frameworks\docbook\4.3\dtd

C:\current projects\eXml\frameworks\docbook\dtd

Name	Size	Modified		Name	Size	Modified
			x	isogrk3.ent	4299	2005-04-12 1...
			x	isogrk4.ent	4554	2005-04-12 1...
			x	isolat1.ent	6244	2005-04-12 1...
			x	isolat2.ent	11072	2005-04-12 1...
			x	isonum.ent	6131	2005-04-12 1...
			x	isopub.ent	6756	2005-04-12 1...
			x	isotech.ent	5135	2005-04-12 1...
			x	README	554	2005-04-12 1...
calstblx.dtd	12609	2005-04-12 1...	≠	calstblx.dtd	12637	2005-04-13 0...
catalog.xml	4750	2005-04-12 1...	≠	catalog.xml	4929	2005-04-13 0...
ChangeLog	13095	2005-04-12 1...	≠	ChangeLog	16972	2005-04-13 0...
dbcentx.mod	10179	2005-04-12 1...	≠	dbcentx.mod	10160	2005-04-13 0...
dbgenent.mod	1565	2005-04-12 1...	≠	dbgenent.mod	1565	2005-04-13 0...
dbhierx.mod	80895	2005-04-12 1...	≠	dbhierx.mod	80946	2005-04-13 0...
dbnotnx.mod	4526	2005-04-12 1...	≠	dbnotnx.mod	4526	2005-04-13 0...
dbpoolx.mod	315961	2005-04-12 1...	≠	dbpoolx.mod	320643	2005-04-13 0...
docbook.cat	3945	2005-04-12 1...	≠	docbook.cat	4010	2005-04-13 0...
docbookx.dtd	5703	2005-04-12 1...	≠	docbookx.dtd	5796	2005-04-13 0...
htmltblx.mod	7940	2005-04-12 1...	≠	htmltblx.mod	8364	2005-04-13 0...
README	239	2005-04-12 1...		README	239	2004-08-09 1...
soextblx.dtd	15052	2005-04-12 1...	≠	soextblx.dtd	15078	2005-04-13 0...
xinclude.mod	998	2005-04-12 1...		xinclude.mod	998	2004-08-09 1...

File filter: *.*

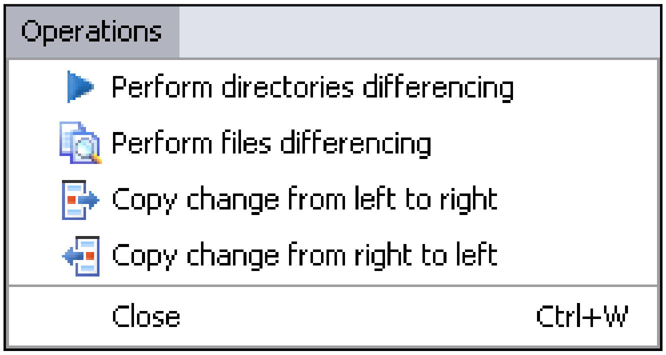
The directories comparison user interface

The directory comparison user interface is comprised of the following components:

The Operations Menu

This menu contains the functions available for directories comparison:

Figure 9.2. The Operations Menu


Operations
Perform directories differencing
Perform files differencing
Copy change from left to right
Copy change from right to left
Close
Ctrl+W

Operations → Perform directories differencing : Performs the comparison of the directories.

Operations → Perform files differencing : Performs the comparison of the files.

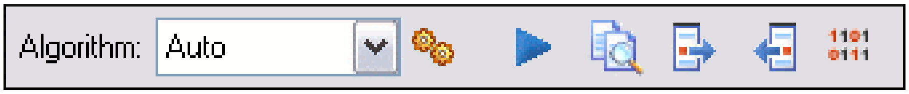
Operations → Copy change from left to right : Copies the selected file or folder to the corresponding directory from the right (only available if the file or folder to be copied exists in the left directory)

Operations → Copy change from right to left : Copies the selected file or folder to the corresponding directory from the left (only available if the file or folder to be copied exists in the right directory)

Operations → Close (**Ctrl+W**) : Closes the Compare directories window.

Compare Toolbar

Figure 9.3. The Compare toolbar



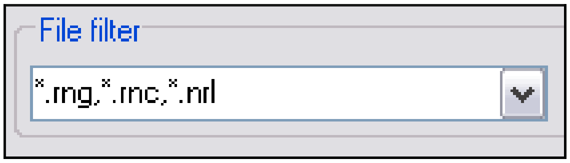
The available functions are presented in the Operations menu.

For the Algorithm and Diff Options buttons look below at File Comparison / Compare Toolbar

File Filter options

File filters are available; you can choose to see the differences only for XML files, or XSL files for instance.

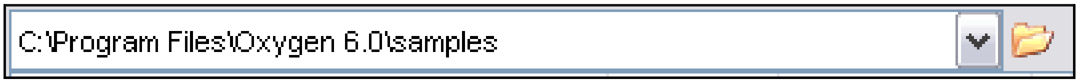
Figure 9.4. File filter



.rng,.rnc,*.nrl

Directories Selector

Figure 9.5. The Directories Selector



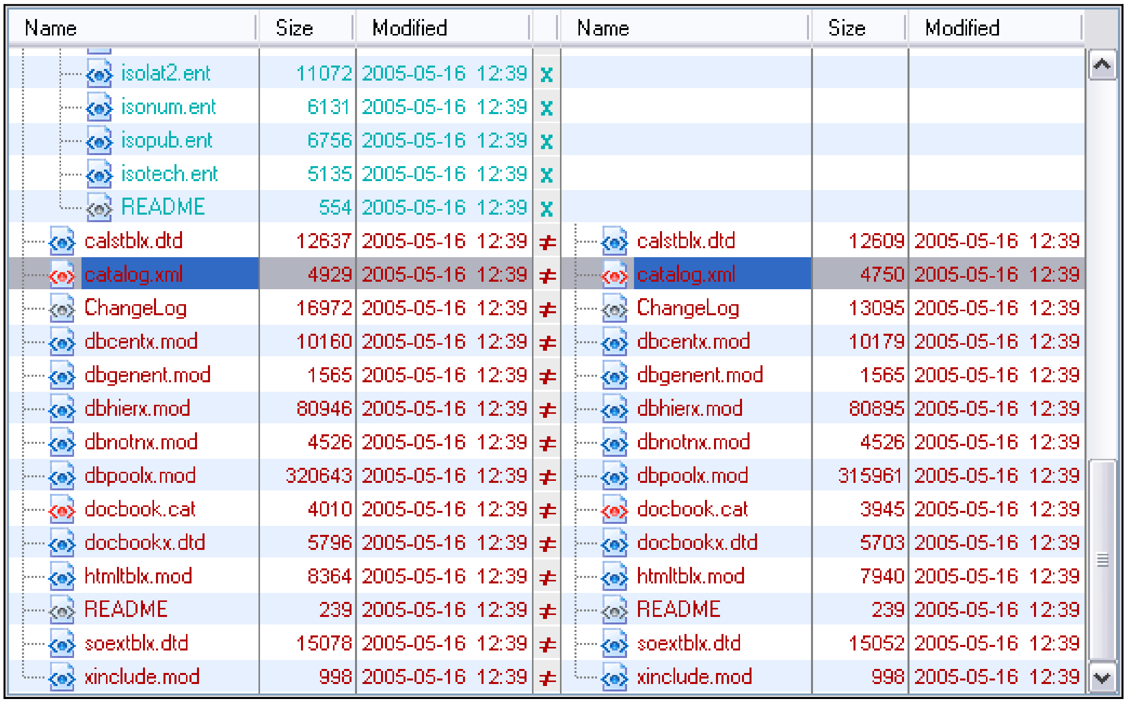
C:\Program Files\Oxygen 6.0\samples

To open the directories you want to compare, select a folder from each "Browse for local file" button. <oXygen/> keeps track of the folders you are currently working with and those you opened in this window. You can see and select them from the two combo-boxes.

The comparison result

The directory comparison result is presented using a tree of files and directories.

Figure 9.6. Comparison result



Name	Size	Modified		Name	Size	Modified
isolat2.ent	11072	2005-05-16 12:39	X			
isonum.ent	6131	2005-05-16 12:39	X			
isopub.ent	6756	2005-05-16 12:39	X			
isotech.ent	5135	2005-05-16 12:39	X			
README	554	2005-05-16 12:39	X			
calstblx.dtd	12637	2005-05-16 12:39	≠	calstblx.dtd	12609	2005-05-16 12:39
catalog.xml	4929	2005-05-16 12:39	≠	catalog.xml	4750	2005-05-16 12:39
ChangeLog	16972	2005-05-16 12:39	≠	ChangeLog	13095	2005-05-16 12:39
dbcentx.mod	10160	2005-05-16 12:39	≠	dbcentx.mod	10179	2005-05-16 12:39
dbgenent.mod	1565	2005-05-16 12:39	≠	dbgenent.mod	1565	2005-05-16 12:39
dbhierx.mod	80946	2005-05-16 12:39	≠	dbhierx.mod	80895	2005-05-16 12:39
dbnotnx.mod	4526	2005-05-16 12:39	≠	dbnotnx.mod	4526	2005-05-16 12:39
dbpoolx.mod	320643	2005-05-16 12:39	≠	dbpoolx.mod	315961	2005-05-16 12:39
docbook.cat	4010	2005-05-16 12:39	≠	docbook.cat	3945	2005-05-16 12:39
docbookx.dtd	5796	2005-05-16 12:39	≠	docbookx.dtd	5703	2005-05-16 12:39
htmltblx.mod	8364	2005-05-16 12:39	≠	htmltblx.mod	7940	2005-05-16 12:39
README	239	2005-05-16 12:39	≠	README	239	2005-05-16 12:39
soextblx.dtd	15078	2005-05-16 12:39	≠	soextblx.dtd	15052	2005-05-16 12:39
xinclude.mod	998	2005-05-16 12:39	≠	xinclude.mod	998	2005-05-16 12:39

For the files and folders from the compared directories you can see their name, size and their modification date.

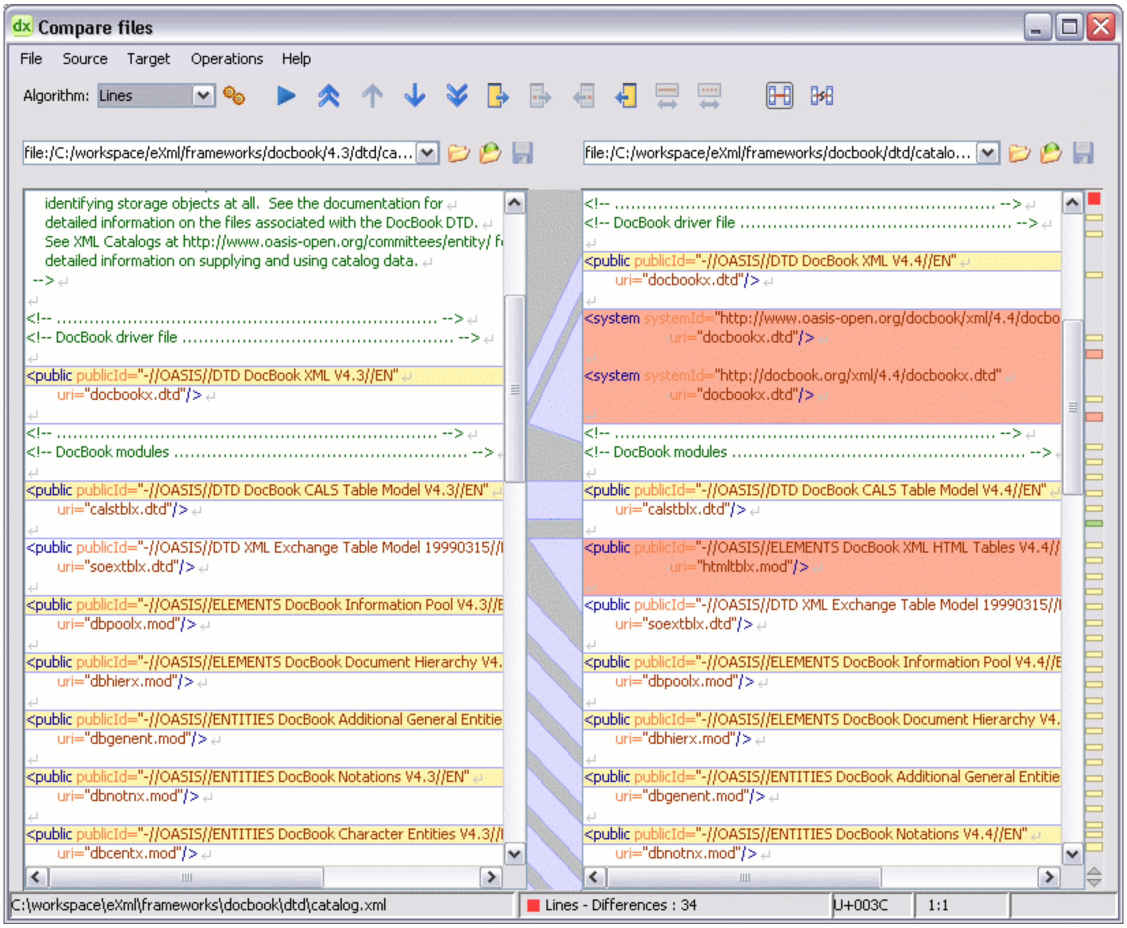
If a file or a folder exists only in one of the compared directories, the name of the file or folder will be blue and marked with an "X".

If a file exists in both directories but the content is different, the name of the file will be red and marked with a "not-equal" sign. <oXygen/> offers an useful option here: you can double-click the line marked with the "not-equal" sign and a new "File Content Comparison" Window will be opened, showing the differences between the two files.

File Comparison

The comparison of a pair of files is done by opening them in two editors arranged in a side-by-side layout. You can edit either the source or the target file. The differences are refreshed when you save the modified document.

Figure 9.7. The Compare Files Window



file:/C:/workspace/eXml/frameworks/docbook/4.3/dtd/ca...

```
   identifying storage objects at all.  See the documentation for
   detailed information on the files associated with the DocBook DTD.
   See XML Catalogs at http://www.oasis-open.org/committees/entity/ f
   detailed information on supplying and using catalog data.
 -->

<!-- ............................................................. -->
<!-- DocBook driver file ....................................... -->

<public publicId="-//OASIS//DTD DocBook XML V4.3//EN"
     uri="docbookx.dtd"/>

<!-- ............................................................. -->
<!-- DocBook modules ........................................... -->

<public publicId="-//OASIS//DTD DocBook CALS Table Model V4.3//EN"
     uri="calstblx.dtd"/>

<public publicId="-//OASIS//DTD XML Exchange Table Model 19990315//I
     uri="soextblx.dtd"/>

<public publicId="-//OASIS//ELEMENTS DocBook Information Pool V4.3//E
     uri="dbpoolx.mod"/>

<public publicId="-//OASIS//ELEMENTS DocBook Document Hierarchy V4.
     uri="dbhierx.mod"/>

<public publicId="-//OASIS//ENTITIES DocBook Additional General Entitie
     uri="dbgenent.mod"/>

<public publicId="-//OASIS//ENTITIES DocBook Notations V4.3//EN"
     uri="dbnotnx.mod"/>

<public publicId="-//OASIS//ENTITIES DocBook Character Entities V4.3//I
     uri="dbcentx.mod"/>
```

file:/C:/workspace/eXml/frameworks/docbook/dtd/catalo...

```
<!-- ............................................................. -->
<!-- DocBook driver file ....................................... -->

<public publicId="-//OASIS//DTD DocBook XML V4.4//EN"
     uri="docbookx.dtd"/>

<system systemId="http://www.oasis-open.org/docbook/xml/4.4/docbo
          uri="docbookx.dtd"/>

<system systemId="http://docbook.org/xml/4.4/docbookx.dtd"
          uri="docbookx.dtd"/>

<!-- ............................................................. -->
<!-- DocBook modules ........................................... -->

<public publicId="-//OASIS//DTD DocBook CALS Table Model V4.4//EN"
     uri="calstblx.dtd"/>

<public publicId="-//OASIS//ELEMENTS DocBook XML HTML Tables V4.4//
          uri="htmltblx.mod"/>

<public publicId="-//OASIS//DTD XML Exchange Table Model 19990315//I
     uri="soextblx.dtd"/>

<public publicId="-//OASIS//ELEMENTS DocBook Information Pool V4.4//E
     uri="dbpoolx.mod"/>

<public publicId="-//OASIS//ELEMENTS DocBook Document Hierarchy V4.
     uri="dbhierx.mod"/>

<public publicId="-//OASIS//ENTITIES DocBook Additional General Entitie
     uri="dbgenent.mod"/>

<public publicId="-//OASIS//ENTITIES DocBook Notations V4.4//EN"
     uri="dbnotnx.mod"/>
```

C:\workspace\eXml\frameworks\docbook\dtd\catalog.xml | 🟥 Lines - Differences : 34 | U+003C | 1:1

The window is comprised of the following components:

The Main Menu

The Main Menu provides access to all the functions and features available in this window:

The Source Menu

Here you can select the source file to be compared.

Source → Open : Browses for a file (the source file).

Source → Open URL : Opens URL to be used as a source file. See Open URL for details.

Source → Save : Saves the changes made in the source file.

The Target Menu

Here you can select the target file to be compared.

Target → Open : Browses for a file (the target file).

Target → Open URL : Opens URL to be used as a target file. See Open URL for details.

Target → Save : Saves the changes made in the target file.

Operations Menu

Operations → Perform files differencing : Performs the comparison of the source and the target files.

Operations → Go to first modification : Selects the first difference in the files. (The button becomes available if the selection is not on the first modification)

Operations → Go to previous modification : Selects the previous difference in the files. (The button becomes available if the selection is not on the first modification)

Operations → Go to next modification : Selects the next difference in the files. (The button becomes available if the selection is not on the last modification)

Operations → Go to last modification : Selects the last difference in the files. (The button becomes available if the selection is not on the last modification)

Operations → Copy all non-conflicting changes from left to right : Copies the non-conflicting changes from the source to the target.

Operations → Copy all non-conflicting changes from right to left : Copies the non-conflicting changes from the target to the source.

Operations → Copy change from left to right : Copies the selected difference from the source to the target.

Operations → Copy changes from right to left : Copies the selected difference from the target to the source.

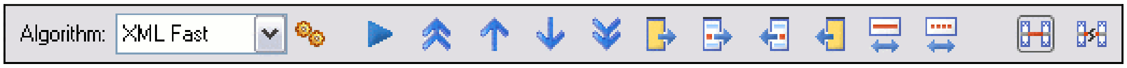
Operations → Show modification details at word level : Provides Word Level Comparison

Operations → Show modification details at char level : Provides Character Level Comparison

Compare Toolbar

This is where you'll find the operations that can be performed on the source and target files.

Figure 9.8. The Compare Toolbar



Algorithm: XML Fast

The available functions are presented at the Operations menu.

Perform files differencing	Run the diff algorithm selected in the Algorithm combo box on the two selected files.
Diff Options	Opens the Diff Options page [preferences-diff].
Go to first modification	Scroll the two-way comparison panel to the first difference marked in the two-way comparison panel.
Go to previous modification	Scroll the two-way comparison panel to the previous difference marked in the two-way comparison panel.

Go to next modification	Scroll the two-way comparison panel and select the next difference marked in the two-way comparison panel.
Go to last modification	Scroll the two-way comparison panel and select the last difference marked in the two-way comparison panel.
Copy all non-conflicting changes from left to right	All the nodes present in the left side file and not present in the right side file are copied to the right side file.
Copy change from left to right	Copy the current difference marked in the two-way comparison panel from the left side file to the right side file.
Copy change from right to left	Copy the current difference marked in the two-way comparison panel from the right side file to the left side file.
Copy all non-conflicting changes from right to left	All the nodes present in the right side file and not present in the left side file are copied to the left side file.
Show modification details at word level	The Word algorithm is applied to the current difference marked in the two-way comparison panel and the result is displayed in a separate dialog.
Show modification details at char level	The Characters algorithm is applied to the current difference marked in the two-way comparison panel and the result is displayed in a separate dialog.
Enable scrolling synchronization	When one of the two panels is scrolled up or down the other panel is scrolled in the same direction so that corresponding match of the current difference from the other panel is displayed at the same time as in the scrolled panel.
Disable scrolling synchronization	When one of the two panels is scrolled up or down the other panel is not scrolled. The effect is that the corresponding match of the current difference from the other panel is not displayed at the same time as in the scrolled panel.

Also, <oXygen/> offers you the complete diff solution:

- two XML diff algorithms
  - *XML Accurate* works on small files and it is very precise.
  - *XML Fast* works on larger files but it is less precise than XML Accurate.
- *Syntax Aware* for the file types known by <oXygen/>, it computes the differences taking into consideration the syntax of the documents.
- three all-purpose algorithms:
  - *Lines* algorithm computes the differences at line level
  - *Words* algorithm computes the differences at word level
  - *Characters* algorithm computes the differences at character level
- an automatic selection of the algorithm:

- *Auto* selects the most appropriate algorithm, based on the files' content and size.

Diff Options button — It provides quick access to the Diff preferences pane where you set Diff parameters that will be saved for the next time when you open the Compare Files dialog.

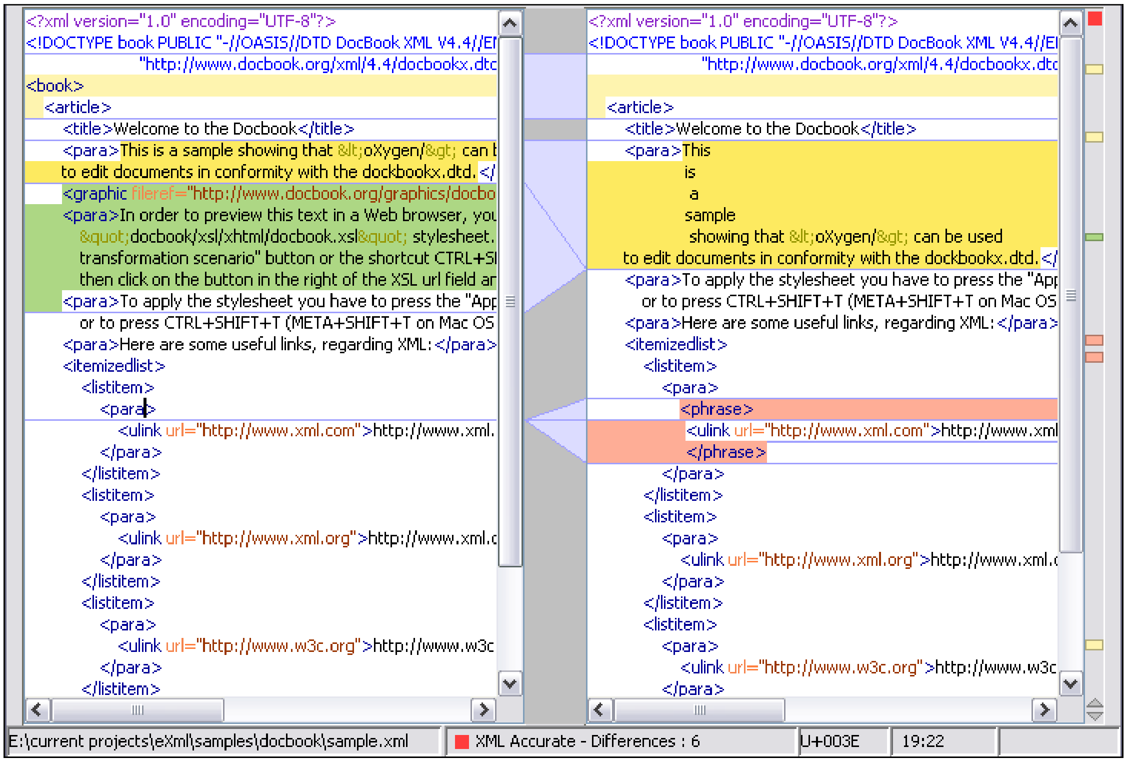
Files Selector

To open the source and target files where you want to see the differences, select a file from the "Open" or "Open URL" button. <oXygen/> keeps track of the files you are currently working with and those you opened in this window. You can see and select them from the two combo-boxes.

You can also save the changes in the source file or the target file by clicking the corresponding "Save" button.

File contents panel

Figure 9.9. Files contents panel



```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE book PUBLIC "-//OASIS//DTD DocBook XML V4.4//EI
                "http://www.docbook.org/xml/4.4/docbookx.dtc
<book>
  <article>
    <title>Welcome to the Docbook</title>
    <para>This is a sample showing that &lt;oXygen/&gt; can b
    to edit documents in conformity with the dockbookx.dtd.</
    <graphic fileref="http://www.docbook.org/graphics/docbo
    <para>In order to preview this text in a Web browser, you
      &quot;docbook/xsl/xhtml/docbook.xsl&quot; stylesheet.
      transformation scenario" button or the shortcut CTRL+SI
      then click on the button in the right of the XSL url field ar
    <para>To apply the stylesheet you have to press the "App
      or to press CTRL+SHIFT+T (META+SHIFT+T on Mac OS
    <para>Here are some useful links, regarding XML:</para>
    <itemizedlist>
      <listitem>
        <para>
          <ulink url="http://www.xml.com">http://www.xml.
        </para>
      </listitem>
      <listitem>
        <para>
          <ulink url="http://www.xml.org">http://www.xml.c
        </para>
      </listitem>
      <listitem>
        <para>
          <ulink url="http://www.w3c.org">http://www.w3c
        </para>
      </listitem>
```

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE book PUBLIC "-//OASIS//DTD DocBook XML V4.4//EI
                "http://www.docbook.org/xml/4.4/docbookx.dtc

  <article>
    <title>Welcome to the Docbook</title>
    <para>This
              is
               a
              sample
               showing that &lt;oXygen/&gt; can be used
    to edit documents in conformity with the dockbookx.dtd.</
    <para>To apply the stylesheet you have to press the "App
      or to press CTRL+SHIFT+T (META+SHIFT+T on Mac OS
    <para>Here are some useful links, regarding XML:</para>
    <itemizedlist>
      <listitem>
        <para>
          <phrase>
           <ulink url="http://www.xml.com">http://www.xml
           </phrase>
        </para>
      </listitem>
      <listitem>
        <para>
          <ulink url="http://www.xml.org">http://www.xml.c
        </para>
      </listitem>
      <listitem>
        <para>
          <ulink url="http://www.w3c.org">http://www.w3c
        </para>
```

E:\current projects\eXml\samples\docbook\sample.xml | XML Accurate - Differences : 6 | U+003E | 19:22

The files are opened in two side-by-side editors. The text view is used, offering a better view of the changes.

The two editors are kept in sync, if you scroll the text in one of them, the other will also scroll to show the difference. The differences are indicated using highlights connected through colored areas. You can use the "Go to modification" buttons to navigate between differences or simply select a change by clicking on it in the overview ruler located in the right-most part of the window. Also the overview ruler contains a success indicator in its upper part that will turn green in case the are no differences and red if differences are found. You can also do this by clicking on a colored area between the text editors.

You can edit either the source or the target file. The differences are refreshed when you save the modified document.

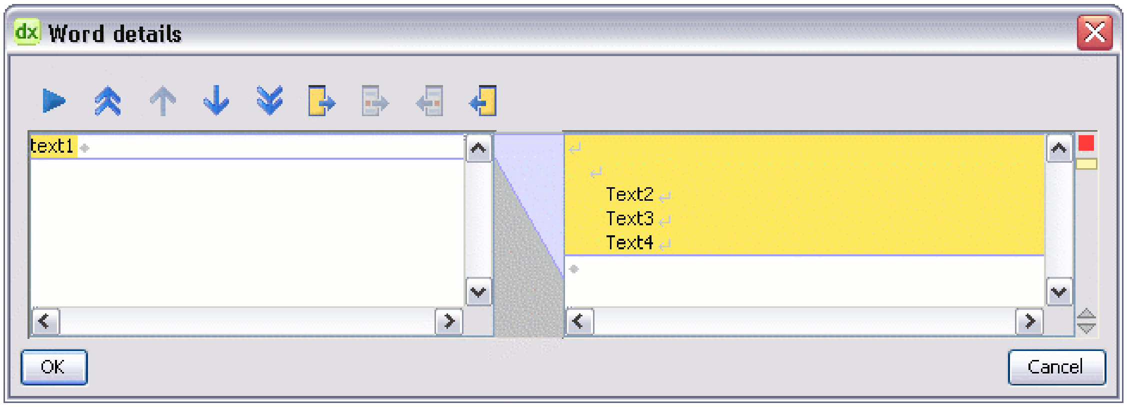
You can right-click the text editors for the "Cut", "Copy", "Paste" and "Select all" actions. The Find/Replace dialog is displayed by pressing the (**Ctrl+F (Cmd+F on Mac**)) Also there are available the Find/Replace options: (**F3**) used to perform another search using the last search configuration, and (**Shift+F3**) to perform another search in backward direction using the last search configuration.

If the compared blocks of text are too large and you want to see the differences at a finer level, you can use the comparison at "Word" or "Character" level.

Word Level Comparison

This option is only available if modifications(yellow-colored differences) exist between the source and the target file. You can go to Word Level Comparison by clicking the "Show modification details at word level" button from the Compare Panel or from the Operations menu.

Figure 9.10. Word Level Comparison



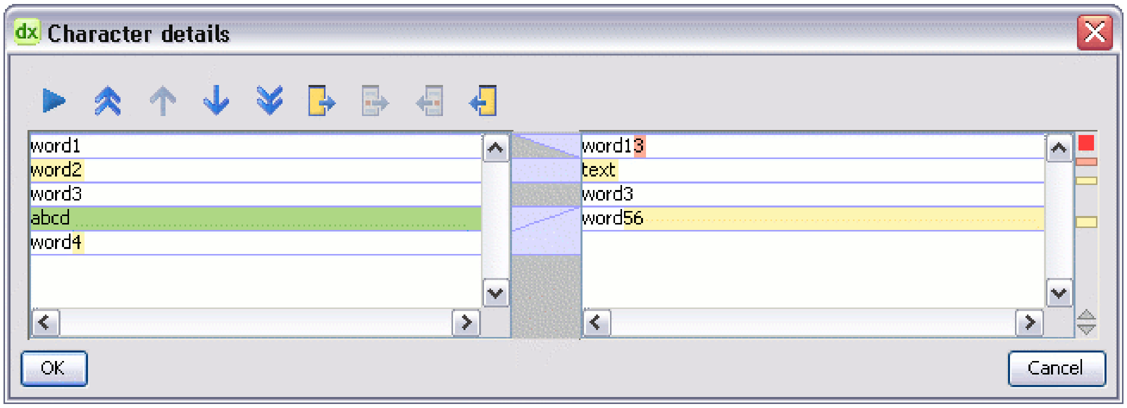
```
text1
```

```

	Text2
	Text3
	Text4
```

Character Level Comparison

This option is only available if modifications(yellow-colored differences) exist between the source and the target file. You can go to Character Level Comparison by clicking the "Show modification details at char level" button from the Compare Panel or from the Operations menu.

Figure 9.11. Character Level Comparison



```
word1
word2
word3
abcd
word4
```

```
word13
text
word3
word56
```

Chapter 10. Importing data

Introduction

XML was designed to describe data. Computer systems and databases contain data in incompatible formats and one of the most time-consuming activities has been to exchange data between these systems. Converting the data to XML can greatly reduce complexity and create data that can be read by many different types of applications.

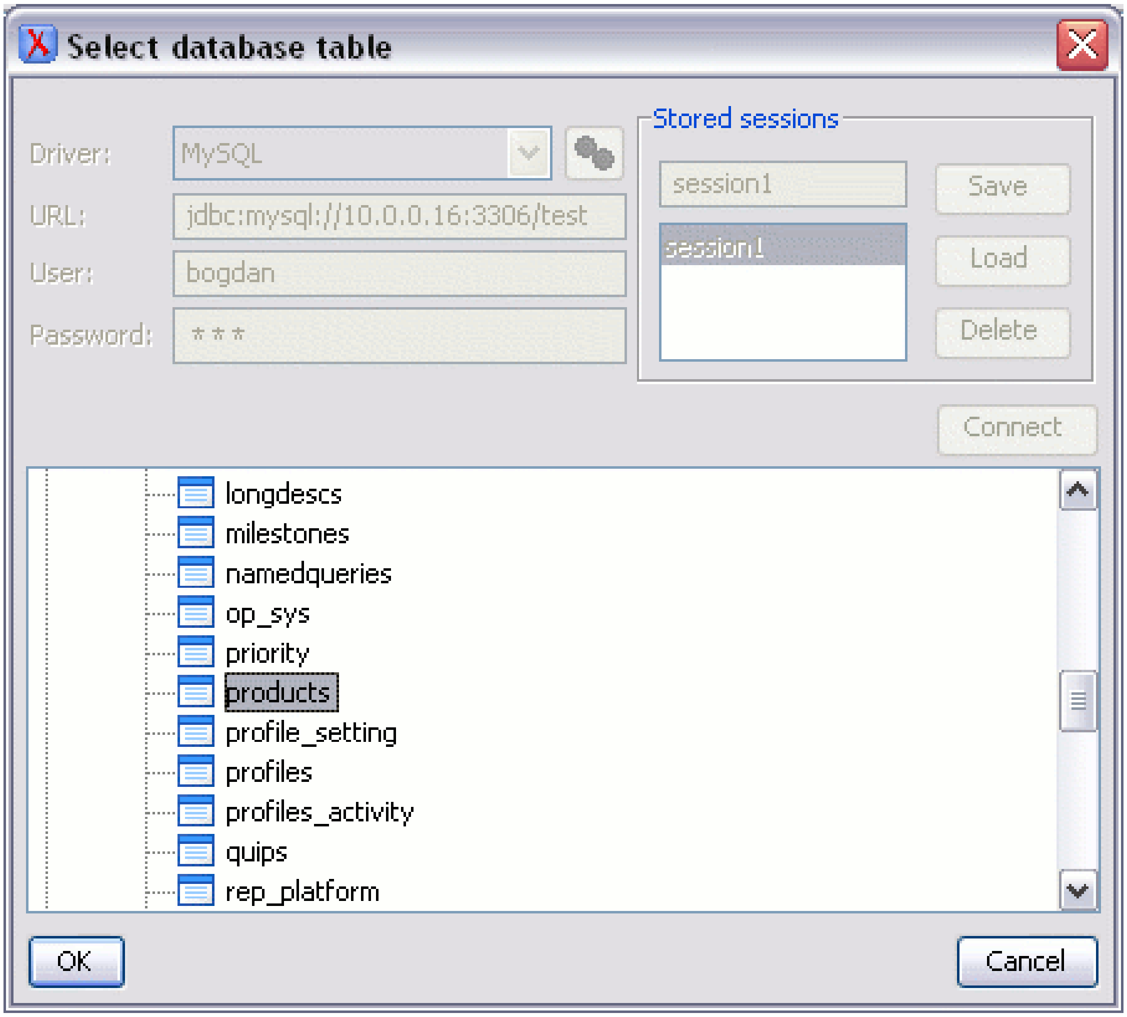
This is why <oXygen/> now offers you support for importing text files, MS Excel files, Database Data and HTML files into XML documents, that can be further converted into other formats using the Transform features.

Import from database

Import table content as XML document

To import the content of a database table, select File → Import → Database Data… Next, in the "Select database table" choose the driver and the URL for the database. You can edit, delete or add a new JDBC driver: click on the "Configure JDBC Driver" button (next to the Driver combo box) and the "Preferences" dialog will open at Database/JDBC Drivers. You'll also have to provide a username and a password. Click Connect.

Figure 10.1. Select database table Dialog



Select database table

Driver: MySQL

URL: jdbc:mysql://10.0.0.16:3306/test

User: bogdan

Password: ***

Stored sessions: session1

Driver

Choose a driver from the list. To configure an existing driver or adding a new driver for accessing your database server go to the related Preferences panel.

URL

Specify the URL of the database table.

User

Provide a user for the database

Password

Provide a password

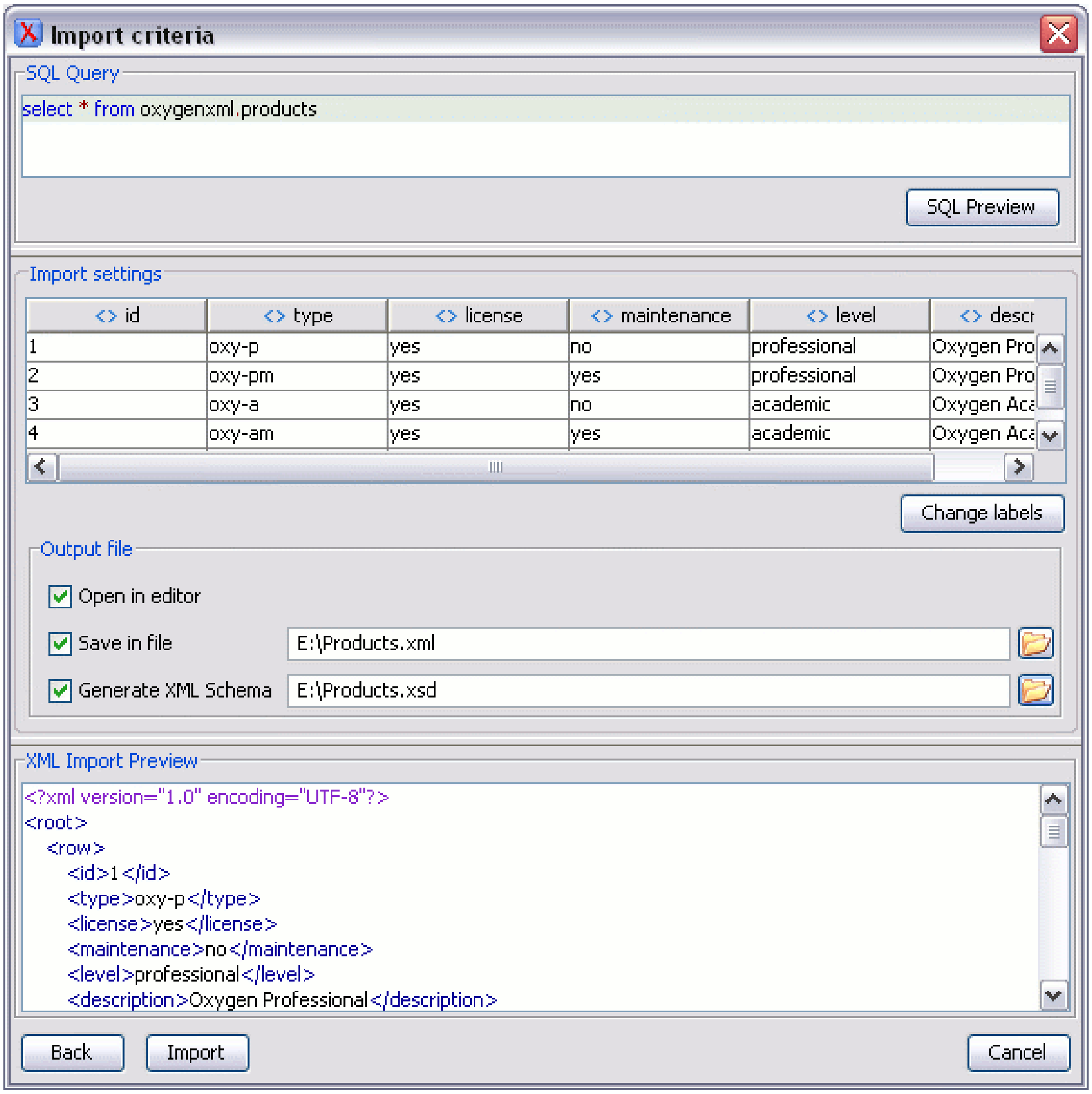
Stored sessions

If you want to save the current session (Driver, URL, User and Password) type a name in the text field and click Save. To load the data of a saved session select its name from the list and click on Load. A saved session can be removed from the list by selecting it and clicking on Delete.

From the catalogs list click on a schema and choose the required table. Click Ok.

The "Import criteria" Dialog will open next, showing a default Query string like "select * from table" in SQL Query. You can click the "SQL Preview" button to see the input data displayed in a tabular form and the XML Import Preview containing an example of what the generated XML will look like. The SQL Query message is editable: "*" selects all the fields from the chosen table. You can specify what fields should be taken into consideration: just replace "*" with the required fields, separated by comma.

Figure 10.2. Import from Database Criteria Dialog



```
select * from oxygenxml.products
```

<> id	<> type	<> license	<> maintenance	<> level	<> descr
1	oxy-p	yes	no	professional	Oxygen Pro
2	oxy-pm	yes	yes	professional	Oxygen Pro
3	oxy-a	yes	no	academic	Oxygen Aca
4	oxy-am	yes	yes	academic	Oxygen Aca

☑ Open in editor

☑ Save in file E:\Products.xml

☑ Generate XML Schema E:\Products.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<root>
  <row>
    <id>1</id>
    <type>oxy-p</type>
    <license>yes</license>
    <maintenance>no</maintenance>
    <level>professional</level>
    <description>Oxygen Professional</description>
```

If you edit the query string so that the query does a join of two or more tables and selects columns with the same name from different tables you should use an alias for the columns like in the following example. That will avoid a confusion of two columns mapped to the same name in the result document of the importing operation.

```
select s.subcat_id,
                      s.nr as s_nr,
                      s.name,
                      q.q_id,
                      q.nr as q_nr,
                      q.q_text
              from faq.subcategory s,
                      faq.question q
              where  ...
```

SQL Preview

Displays the labels that will be used in the XML document and its preview. Import setting: If the "SQL Preview" button is pressed, it shows the labels that will be used in the XML document and the first 5 lines from the database. All data items in the input will be converted by default to element content, but this can be over-ridden by clicking on the individual column headers. Clicking once on a column header (ex Heading0) will cause the data from this column to be used as attribute values on the row elements. Clicking a second time - the column's data will be ignored when generating the XML file. You can cycle through these three options by continuing to click on the column header. If the data column will be converted to element content, the header will contain the "<>" symbol. If the data column will be converted to attribute content, the header will contain the "=" symbol, and if it will be skipped, the header will contain "x".

Change labels

This button opens a new dialog, allowing you to edit the names of the root and row elements, change the XML name and the conversion criterion.

The XML names can be edited by double-clicking on the desired item and entering the required label. The conversion criterion can also be modified by selecting from the drop-down list ELEMENT, ATTRIBUTE or SKIPPED.

Open in editor

If checked, the new XML document created from the imported text file will be opened in the editor.

Save in file

If checked, the new XML document will be saved at the specified path.

Note

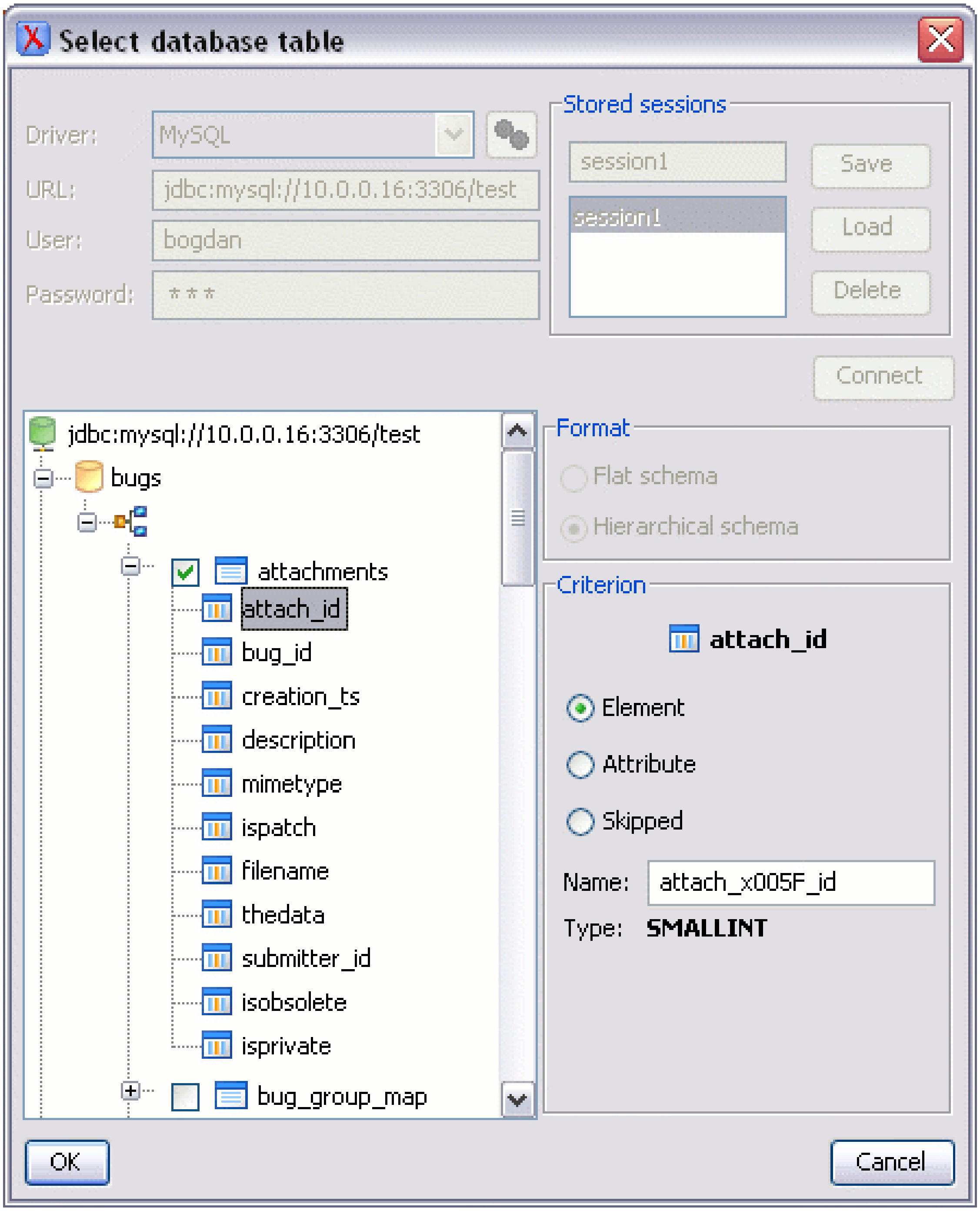
If only Open in editor is checked, the newly created document will be opened in the editor, but as an unsaved file.

Generate XML Schema

Allows you to specify the path of the generated XML Schema file.

Convert table structure to XML Schema

Figure 10.3. Select database table



Select database table

Driver: MySQL

URL: jdbc:mysql://10.0.0.16:3306/test

User: bogdan

Password: ***

Stored sessions: session1

Format: ○ Flat schema ● Hierarchical schema

Criterion: attach_id

● Element ○ Attribute ○ Skipped

Name: attach_x005F_id

Type: SMALLINT

Next, in the "Select database table" choose the driver and the URL for the database. You can edit, delete or add a new JDBC driver: click on the "Configure JDBC Driver" button (next to the Driver combo box) and the "Preferences" dialog will open at Database/JDBC Drivers. You'll also have to provide a username and a password.

Driver — Choose a driver from the list.

URL — Specify the URL of the database table.

User

Provide a user for the database

Password

Provide a password

Stored sessions

If you want to save the current session (Driver, URL, User and Password) type a name in the text field and click Save. To load the data of a saved session select its name from the list and click on Load. A saved session can be removed from the list by selecting it and clicking on Delete.

Format

Enables you to choose a format for the structure.

- Flat - Generates an XML Schema according to the ISO-ANSI Working draft (Part 14: XML Related Specifications SQL/XML).
- Hierarchical - Represents the database structure as a tree hierarchy taking into account the relationship between tables.

Criterion

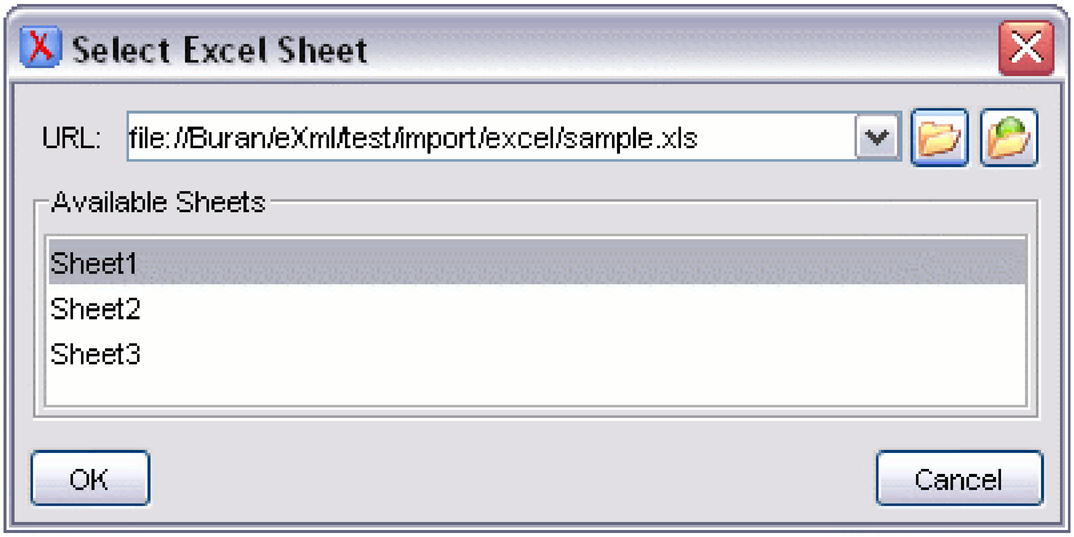
The Criterion options allow the user to specify the name of the selected database column and also how it should be converted into XML. The following options are available:

- Element: When checked the selected column will be converted into an XML element.
- Attribute: If checked the selected column will be converted into an XML attribute.
- Skipped: Is to be selected if the intention is to skip that column from being imported.
- Name: Allows you to specify the name of the column to be imported. Implicitly <oXygen/> suggests an import name that is according to SQL/XML Specification.
- Type: Displays the data type of the imported column.

Import from MS Excel files

<oXygen/> can also import MS (Microsoft) Excel files into XML format documents. To do this, select File → Import → MS Excel File... In the "Select Excel Sheet" dialog provide the URL of the Excel document, choose one of the available sheets and click Ok.

Figure 10.4. Select Excel Sheet



URL: file://Buran/eXml/test/import/excel/sample.xls

Sheet1
Sheet2
Sheet3

The input data is displayed next in the "Import Criteria" Dialog in a tabular form and the XML Import Preview contains an example of what the generated XML will look like.

The Import Criteria Dialog has a similar behaviour with the one shown in case of "Import from text files".

Note

Please note that Excel sheets saved with versions later that Excel 2002 may not be handled correctly by the Import operation.

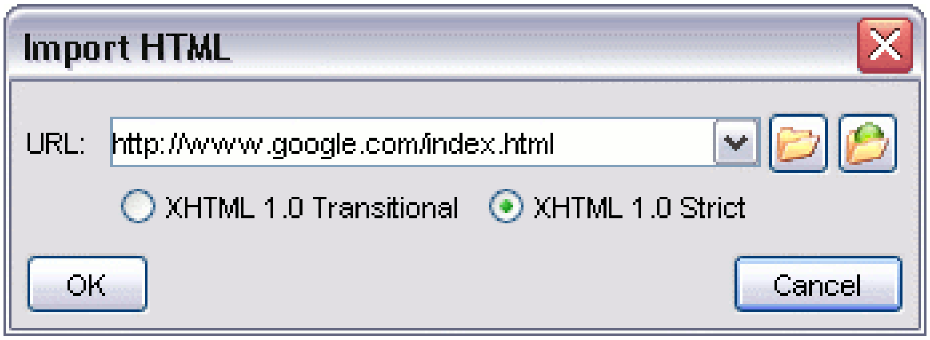
Import from HTML files

Another format that can be imported in an XML document is HTML.

Procedure 10.1. Import from HTML

1. Select File → Import → Import HTML ... The Import HTML dialog is displayed.

Figure 10.5. The Import HTML dialog



URL: http://www.google.com/index.html

○ XHTML 1.0 Transitional ● XHTML 1.0 Strict

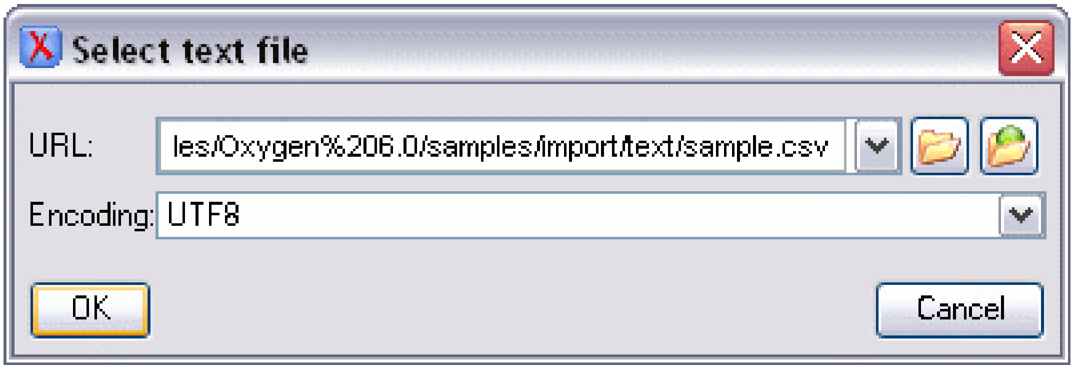
2. Complete the HTML document name, select the type of the result document - XHTML 1.0 Transitional or XHTML 1.0 Strict, then click the OK button.

The resulted document will be an XHTML file containing a DOCTYPE declaration referring to the XHTML DTD definition on the Web and the parsed content of the imported file as XHTML Transitional or Strict depending on what radio button the user chose when performing the import operation.

Import from text files

To import from a text file you'll have to select File → Import → Text File... In the "Select text file" dialog choose the URL and the encoding to be used and click OK.

Figure 10.6. Select text file Dialog



Select text file

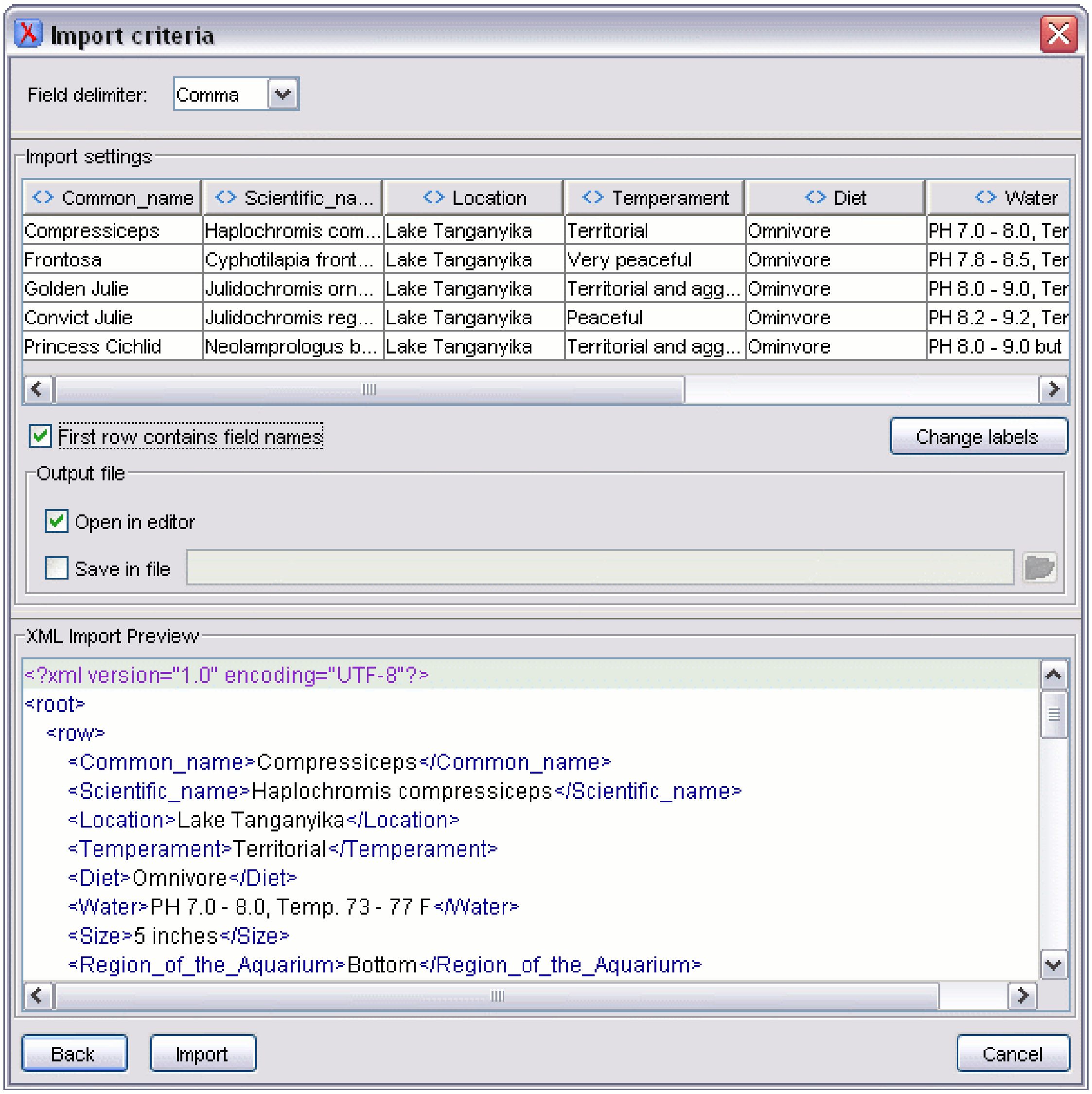
URL: les/Oxygen%206.0/samples/import/text/sample.csv

Encoding: UTF8

- *URL*: Specifies the location of the text file to be imported.
- *Encoding*: Specifies the encoding (Unicode character encoding)

Next, in the "Import Criteria" Dialog select the field delimiter for the import settings. The input data is displayed here in a tabular form and the XML Import Preview contains an example of what the generated XML will look like.

Figure 10.7. Import Text Criteria Dialog



Field delimiter: Comma

Import settings

<> Common_name	<> Scientific_na...	<> Location	<> Temperament	<> Diet	<> Water
Compressiceps	Haplochromis com...	Lake Tanganyika	Territorial	Omnivore	PH 7.0 - 8.0, Ter
Frontosa	Cyphotilapia front...	Lake Tanganyika	Very peaceful	Omnivore	PH 7.8 - 8.5, Ter
Golden Julie	Julidochromis orn...	Lake Tanganyika	Territorial and agg...	Ominvore	PH 8.0 - 9.0, Ter
Convict Julie	Julidochromis reg...	Lake Tanganyika	Peaceful	Ominvore	PH 8.2 - 9.2, Ter
Princess Cichlid	Neolamprologus b...	Lake Tanganyika	Territorial and agg...	Ominvore	PH 8.0 - 9.0 but

☑ First row contains field names

Output file

☑ Open in editor

☐ Save in file

XML Import Preview

```
<?xml version="1.0" encoding="UTF-8"?>
<root>
  <row>
    <Common_name>Compressiceps</Common_name>
    <Scientific_name>Haplochromis compressiceps</Scientific_name>
    <Location>Lake Tanganyika</Location>
    <Temperament>Territorial</Temperament>
    <Diet>Omnivore</Diet>
    <Water>PH 7.0 - 8.0, Temp. 73 - 77 F</Water>
    <Size>5 inches</Size>
    <Region_of_the_Aquarium>Bottom</Region_of_the_Aquarium>
```

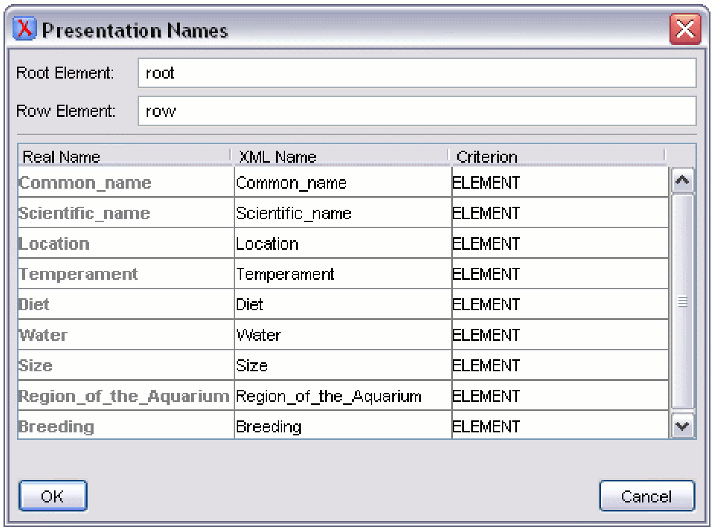
The above table shows the labels that will be used in the XML document and the first 5 lines from the text file in a tabular form. All data items in the input will be converted by default to element content, but this can be over-ridden by clicking on the individual column headers. Clicking once on a column header will cause the data from this column to be used as attribute values on the row elements. Clicking a second time - the column's data will be ignored when generating the XML file. You can cycle through these three options by continuing to click on the column header. If the data column will be converted to element content, the header will contain the "<>" symbol. If the data column will be converted to attribute content, the header will contain the "=" symbol, and if it will be skipped, the header will contain "x".

First row contains field names	If the option is checked, you'll notice that the table has moved up; the default column headers are replaced (where there is information) by the content of the first row. In other words, the first row is interpreted as containing the field names. The changes are also visible in the preview of the XML document. To return to default (where the first row is interpreted as not containing field names), simply uncheck the option.

Change labels

If the above option is set, the first row of the input file contains presentation names and these will be used as tokens in the created XML files, otherwise some generic heading names will be used. This button opens a new dialog, allowing you to edit the names of the root and row elements, change the XML name and the conversion criterion.

Figure 10.8. Presentation Names



Root Element: root

Row Element: row

Real Name	XML Name	Criterion
Common_name	Common_name	ELEMENT
Scientific_name	Scientific_name	ELEMENT
Location	Location	ELEMENT
Temperament	Temperament	ELEMENT
Diet	Diet	ELEMENT
Water	Water	ELEMENT
Size	Size	ELEMENT
Region_of_the_Aquarium	Region_of_the_Aquarium	ELEMENT
Breeding	Breeding	ELEMENT

The XML names can be edited by double-clicking on the desired item and entering the required label. The conversion criterion can also be modified by selecting from the drop-down list ELEMENT, ATTRIBUTE or SKIPPED.

Open in editor

If checked, the new XML document created from the imported text file will be opened in the editor.

Save in file

If checked, the new XML document will be saved at the specified path.

Note

If only Open in editor is checked, the newly created document will be opened in the editor, but as an unsaved file.

Note

Click Back to return to Select text file Dialog.

Chapter 11. Composing Web Service calls

Overview

Web Services Description Language (WSDL) is an XML format for describing network services as a set of endpoints operating on messages containing either document-oriented or procedure-oriented information.

The WSDL files contain information about the published services, like the name, the message types and the bindings. The editor is offering a way to edit the WSDL files that is similar to editing XML, the content completion being driven by a mix of the WSDL and SOAP schemas.

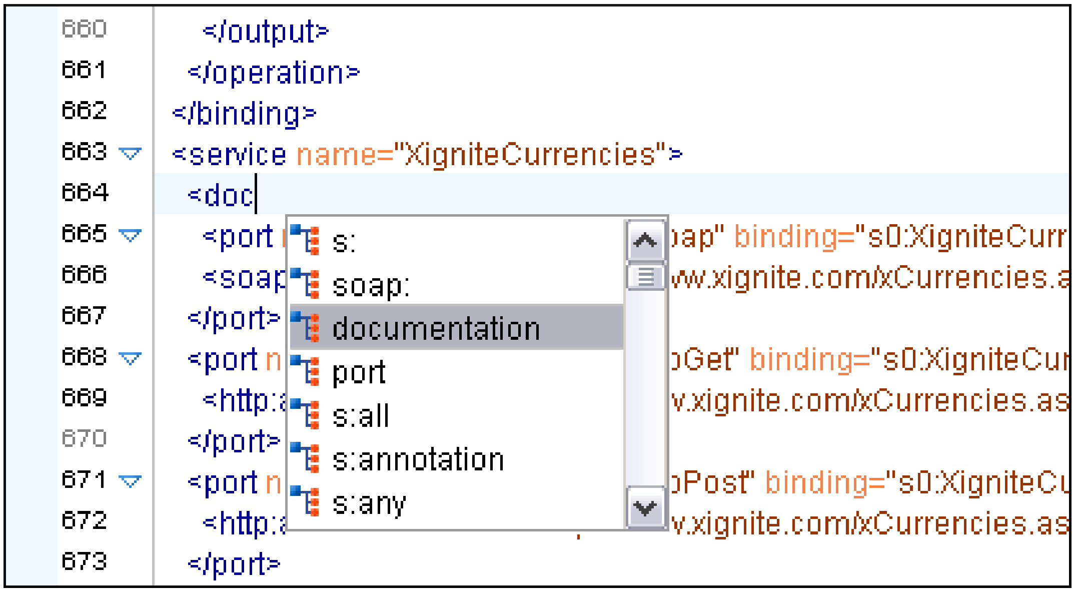
After you edit and validate your Web service descriptor against a mix of the XML Schemas for WSDL and SOAP it is very easy to check if the defined SOAP messages are accepted by the remote Web Services server using <oXygen/>'s WSDL SOAP Analyser integrated tool.

Composing a SOAP request

To design, compose, and test Web service calls in <oXygen/> follow the procedure:

1. Create a new document or open an existing document of type WSDL.
2. Design the Web Service descriptor in the WSDL editor pane where the content completion is driven by a mix of the WSDL and SOAP schemas. You do not need to specify the schema location for the WSDL standard namespaces because <oXygen/> comes with these schemas and uses them by default to assist the user in editing Web Service descriptors.

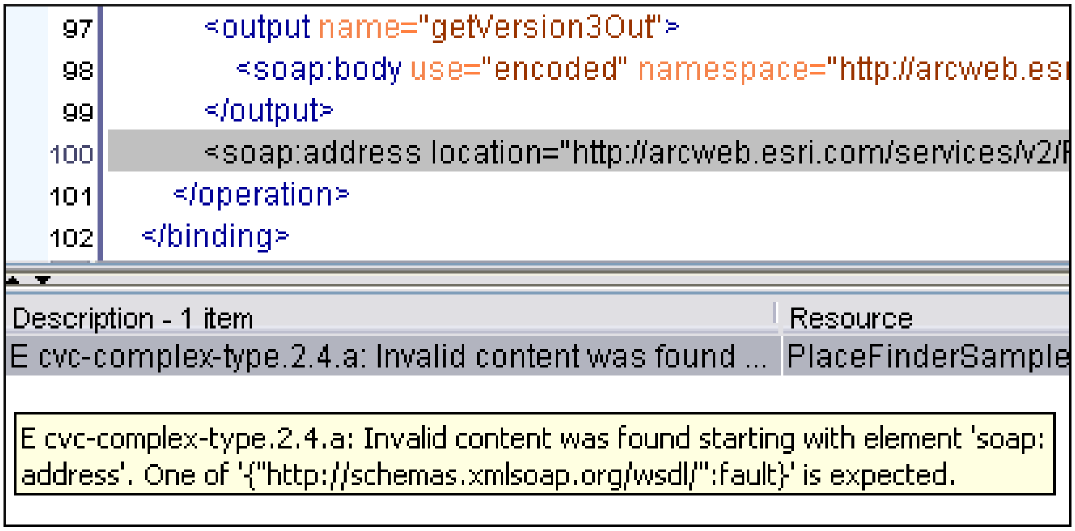
Figure 11.1. Content completion for WSDL documents



```
    </output>
  </operation>
</binding>
<service name="XigniteCurrencies">
  <doc
    <port                      ap" binding="s0:XigniteCurr
    <soap                      ww.xignite.com/xCurrencies.a
  </port>
  <port n                      pGet" binding="s0:XigniteCu
    <http:a                    v.xignite.com/xCurrencies.as
  </port>
  <port n                      pPost" binding="s0:XigniteCu
    <http:a                    v.xignite.com/xCurrencies.as
  </port>
```

3. While editing the Web-Services descriptors check their conformance to the WSDL and SOAP schemas. In the following example you can see how the errors are reported.

Figure 11.2. Validating a WSDL file



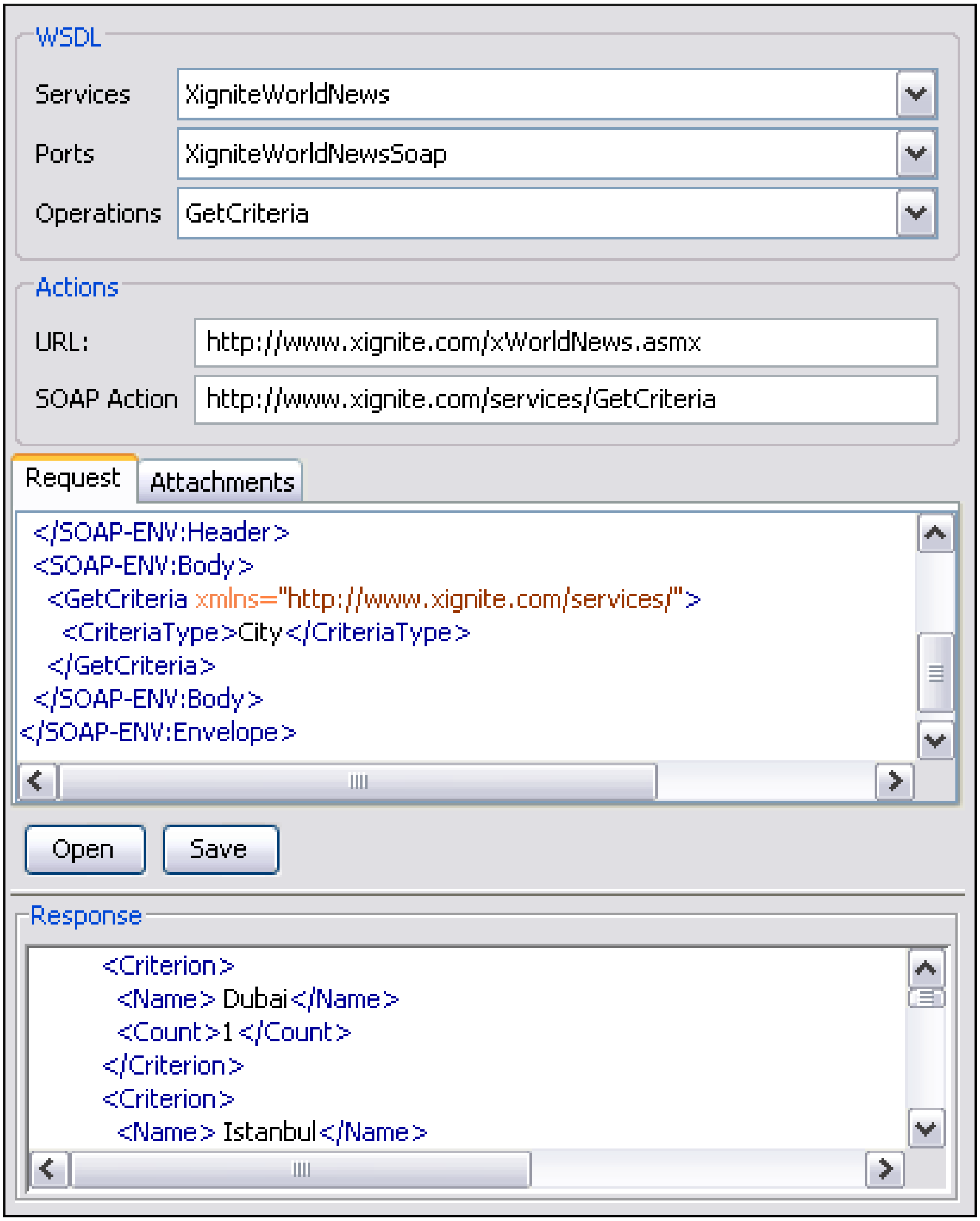
```
        <output name="getVersion3Out">
          <soap:body use="encoded" namespace="http://arcweb.esr
        </output>
        <soap:address location="http://arcweb.esri.com/services/v2/F
      </operation>
    </binding>
```

Description - 1 item	Resource
E cvc-complex-type.2.4.a: Invalid content was found ...	PlaceFinderSample

E cvc-complex-type.2.4.a: Invalid content was found starting with element 'soap:address'. One of '{"http://schemas.xmlsoap.org/wsdl/":fault}' is expected.

4. Check if the defined messages are accepted by the Web Services server. <oXygen/> is providing two ways of testing, one for the currently edited WSDL file and other for the remote WSDL files that are published on a web server.For the currently edited WSDL file open the WSDL SOAP Analyser tool by pressing the toolbar button WSDL SOAP Analyser or use the menu item Document → Tools → WSDL SOAP Analyser or from the Project view contextual menu select Open with → WSDL SOAP Analyser

Figure 11.3. WSDL SOAP Analyser



Services: XigniteWorldNews

Ports: XigniteWorldNewsSoap

Operations: GetCriteria

URL: http://www.xignite.com/xWorldNews.asmx

SOAP Action: http://www.xignite.com/services/GetCriteria

```
 </SOAP-ENV:Header>
 <SOAP-ENV:Body>
  <GetCriteria xmlns="http://www.xignite.com/services/">
   <CriteriaType>City</CriteriaType>
  </GetCriteria>
 </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

```
      <Criterion>
       <Name> Dubai</Name>
       <Count>1</Count>
      </Criterion>
      <Criterion>
       <Name> Istanbul</Name>
```

It contains a SOAP analyser and sender for Web Services Description Language file types.The analyser fields are:

- The List of Services. The list of services defined by the WSDL file.
- The List of Ports. The ports for the selected service.
- The List of Operations. The list of available operations for the selected service.
- The Action URL. Shows the script that serves the operation.

- The SOAP Action. Identifies the action performed by the script.
- The Request Editor. It allows you to compose the web service request. When an action is selected, <oXygen/> tries to generate as much content as possible for the call skeleton. Usually you just have to change few values in order for the request to be valid. The content completion is available for this editor and is driven by the schema that defines the type of the current message.
- The Attachments List. You can define a list of file's URLs to be attached to the request.
- The Response Area. Initially it displays an auto generated server sample response so you can have an idea about how the response will look like. After pressing the *Send* button it will present the message received from the server in response to the Web Service request. It may show also error messages. In case the response message contains attachments, <oXygen/> will prompt you to save them, then will try to open them with the associated system application.
- The Errors List. There may be situations in which the WSDL file is respecting the WSDL XML Schema, but it fails to be valid for example in the case of a message that is defined by means of an element that is not found in the types section of the WSDL. In such a case, the errors will be listed here. This list is presented only when there are errors.
- The Send Button. Executes the request. A status dialog is shown when <oXygen/> is connecting to the server.

The testing of a WSDL file is straight-forward, you just have to click on the WSDL analysis button, then select the service, the port and the operation. The editor will generate the skeleton for the request. You can edit the request, eventually attach files to it and send it to the server. Watch the server response in the response area. For testing remote WSDL files see the next section.

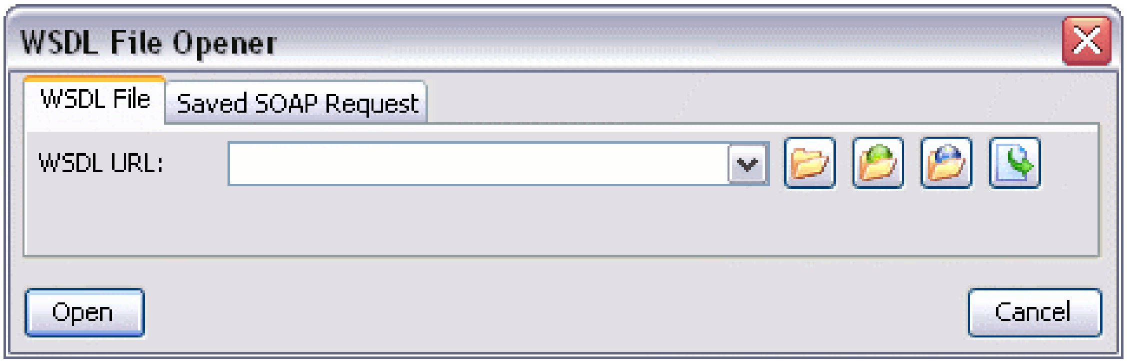
5. Once defined, a request derived from a Web Service descriptor can be saved with the Save button to a Web Service SOAP Call(WSSC) file for later reuse. In this way you will save time in configuring the URLs and parameters.

6. You can open the result of a Web Service call in an editing view. In this way you can save it or process it further.

Testing remote WSDL files

To open and test a remote WSDL file use the menu item Tools → WSDL SOAP Analyser ...

Figure 11.4. WSDL File Opener



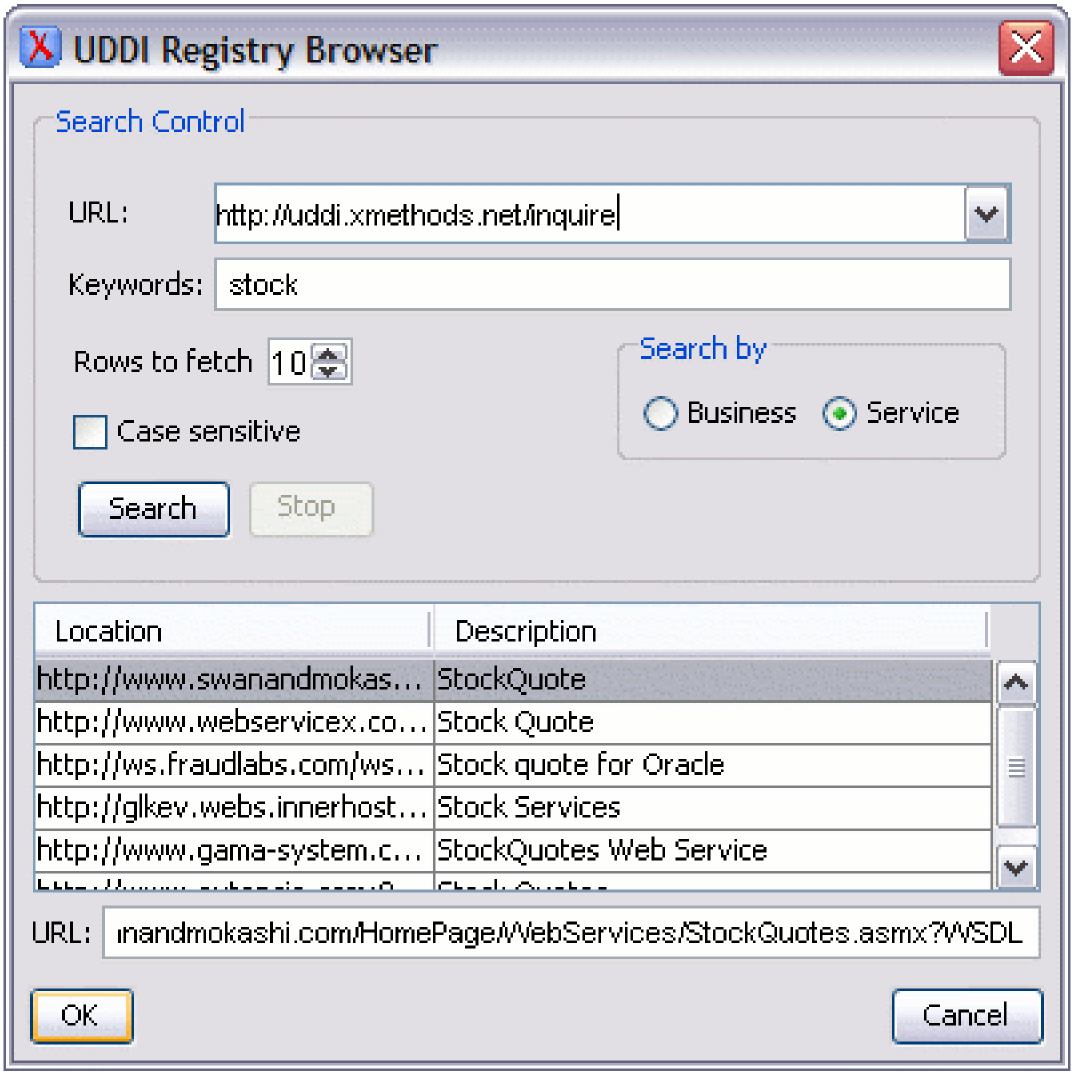
and in the WSDL File tab enter the URL of the remote WSDL file by typing or by browsing the local filesystem, a remote filesystem or even a UDDI Registry. Pressing OK will open the WSDL SOAP Analyser tool.

In the Saved SOAP Request tab you can open directly a previously saved Web Service SOAP Call(WSSC) file thus skipping the analysis phase.

The UDDI Registry browser

Pressing the button opens the UDDI Registry Browser dialog.

Figure 11.5. UDDI Registry Browser dialog



URL: http://uddi.xmethods.net/inquire

Keywords: stock

Rows to fetch 10

□ Case sensitive

○ Business ● Service

Location	Description
http://www.swanandmokas...	StockQuote
http://www.webservicex.co...	Stock Quote
http://ws.fraudlabs.com/ws...	Stock quote for Oracle
http://glkev.webs.innerhost...	Stock Services
http://www.gama-system.c...	StockQuotes Web Service

URL: ınandmokashi.com/HomePage/WebServices/StockQuotes.asmx?WSDL

- In the URL combo box type the URL of an UDDI registry or choose one list.

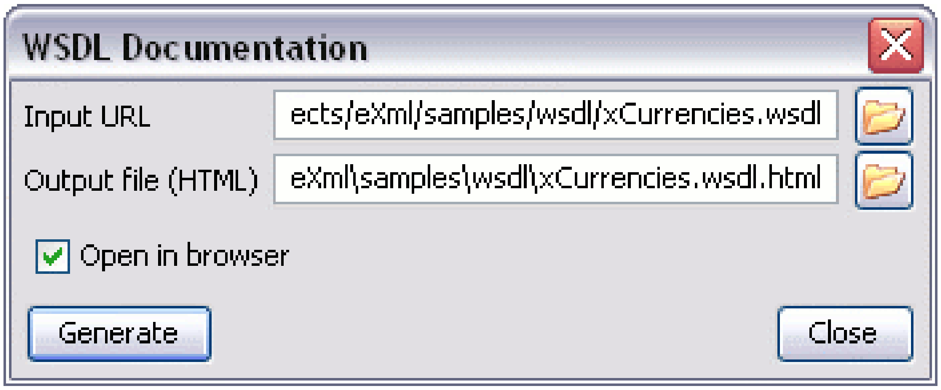
- In the Keywords field enter the string you want to be used when searching the selected UDDI registry for available Web services.
- Optionally, you may change:
  - Rows to fetch - The maximum number of rows to be displayed in the result list.
  - Search by - you can choose to search whether by company or by provided service.
  - Case sensitive - When checked, the search will take into account the Keywords' case.
- Click the Search button. WSDLs that matched the search criteria are added in the result list.
- Select a WSDL from the list and click OK. The UDDI Registry Browser dialog is closed and you are returned to the WSDL File Opener dialog.

Generate WSDL documentation

To generate documentation for a WSDL document use the action Tools → Generate Documentation → WSDL Documentation.

The WSDL documentation dialog can be also opened from the Project Tree contextual menu: Generate Documentation → WSDL Documentation...

Figure 11.6. WSDL Documentation dialog



WSDL Documentation

Input URL: ects/eXml/samples/wsdl/xCurrencies.wsdl

Output file (HTML): eXml\samples\wsdl\xCurrencies.wsdl.html

☑ Open in browser

- In the Input URL field type the URL of the file or click on the browse button and select it from the file system.
- In the Output file(HTML) field you will have to enter the path and the filename where the documentation will be generated.
- If you want the result to be opened in a browser, select the corresponding checkbox.
- Click the Generate button and the documentation for the WSDL file will be generated.

Chapter 12. Digital signature

Overview

Digital signatures are widely used as security tokens, not just in XML.

A digital signature provides a mechanism for assuring integrity of data, the authentication of its signer, and the nonrepudiation of the entire signature to an external party.

- a digital signature must provide a way to verify that the data has not been modified or replaced to ensure integrity.
- the signature must provide a way to establish the identity of the data's signer for authentication.
- the signature must provide the ability for the data's integrity and authentication to be provable to a third party for nonrepudiation.

A public key system is used to create the digital signature and it's also used for verification. The signature binds the signer to the document because digitally signing a document requires the originator to create a hash of the message and then encrypt that hash value with his own private key. Only the originator has that private key and he is the only one can encrypt the hash so that it can be unencrypted using his public key.The recipient, upon receiving both the message and the encrypted hash value, can decrypt the hash value, knowing the originator's public key.The recipient must also try to generate the hash value of the message and compare the newly generated hash value with the unencrypted hash value received from the originator. If the hash values are identical, it proves that the originator created the message, because only the actual originator could encrypt the hash value correctly.

XML Signatures can be applied to any digital content (data object), including XML (see W3C Recommendation, XML-Signature Syntax and Processing [http://www.w3.org/TR/xmldsig-core/]). An XML Signature may be applied to the content of one or more resources.

- Enveloped or enveloping signatures are over data within the same XML document as the signature.
- Detached signatures are over data external to the signature element; the signature is "detached" from the content it signs. This definition typically applies to separate data objects, but it also includes the instance where the Signature and data object reside within the same XML document but are sibling elements.

The XML Signature is a method of associating a key with referenced data; it does not normatively specify how keys are associated with persons or institutions, nor the meaning of the data being referenced and signed.

The original data is not actually signed; instead, the signature is applied to the output of a chain of canonicalization and transformation algorithms, which are applied to the data in a designated sequence. This system provides the flexibility to accommodate whatever "normalization" or desired preprocessing of the data that might be required or desired before subjecting it to being signed.

To canonicalize something means to put it in a standard format that everyone generally uses. Because the signature is dependent on the content it is signing, a signature produced from a not canonicalized document could possibly be different from one produced from a canonicalized document. The canonical form of an XML document is physical representation of the document produced by the method described in this specification. The term canonical XML refers to XML that is in canonical form. The

XML canonicalization method is the algorithm defined by this specification that generates the canonical form of a given XML document or document subset. The term XML canonicalization refers to the process of applying the XML canonicalization method to an XML document or document subset. XML canonicalization is designed to be useful to applications that require the ability to test whether the information content of a document or document subset has been changed. This is done by comparing the canonical form of the original document before application processing with the canonical form of the document result of the application processing.

A digital signature over the canonical form of an XML document or document subset would allows the signature digest calculations to be oblivious to changes in the original document's physical representation. During signature generation, the digest is computed over the canonical form of the document. The document is then transferred to the relying party, which validates the signature by reading the document and computing a digest of the canonical form of the received document. The equivalence of the digests computed by the signing and relying parties (and hence the equivalence of the canonical forms over which they were computed) ensures that the information content of the document has not been altered since it was signed.

The following canonicalization algorithms are used in <oXygen/>: Canonical XML (or Inclusive XML Canonicalization)(XMLC14N [http://www.w3.org/TR/2001/REC-xml-c14n-20010315]) and Exclusive XML Canonicalization(EXCC14N [http://www.w3.org/TR/2002/REC-xml-exc-c14n-20020718/]). The first is used for XML where the context doesn't change while the second was designed for canonicalization where the context might change.

Inclusive Canonicalization copies all the declarations, even if they are defined outside of the scope of the signature. In this way all the declarations you might use will be unambiguously specified. A problem appears when the signed XML is moved into another XML document which has other declarations because the Inclusive Canonicalization will copy then and the signature will be invalid.

Exclusive Canonicalization finds out what namespaces you are actually using (the ones that are a part of the XML syntax) and just copies those. It does not look into attribute values or element content, so the namespace declarations required to process these are not copied.

This type of canonicalization is useful when you have a signed XML document that you wish to insert into other XML documents and it will insure the signature verifies correctly every time, so it is required when you need self-signed structures that support placement within different XML contexts.

Inclusive Canonicalization is useful when it is less likely that the signed data will be inserted in other XML document and it's the safer method from the security perspective because it requires no knowledge of the data that are to be secured in order to safely sign them.

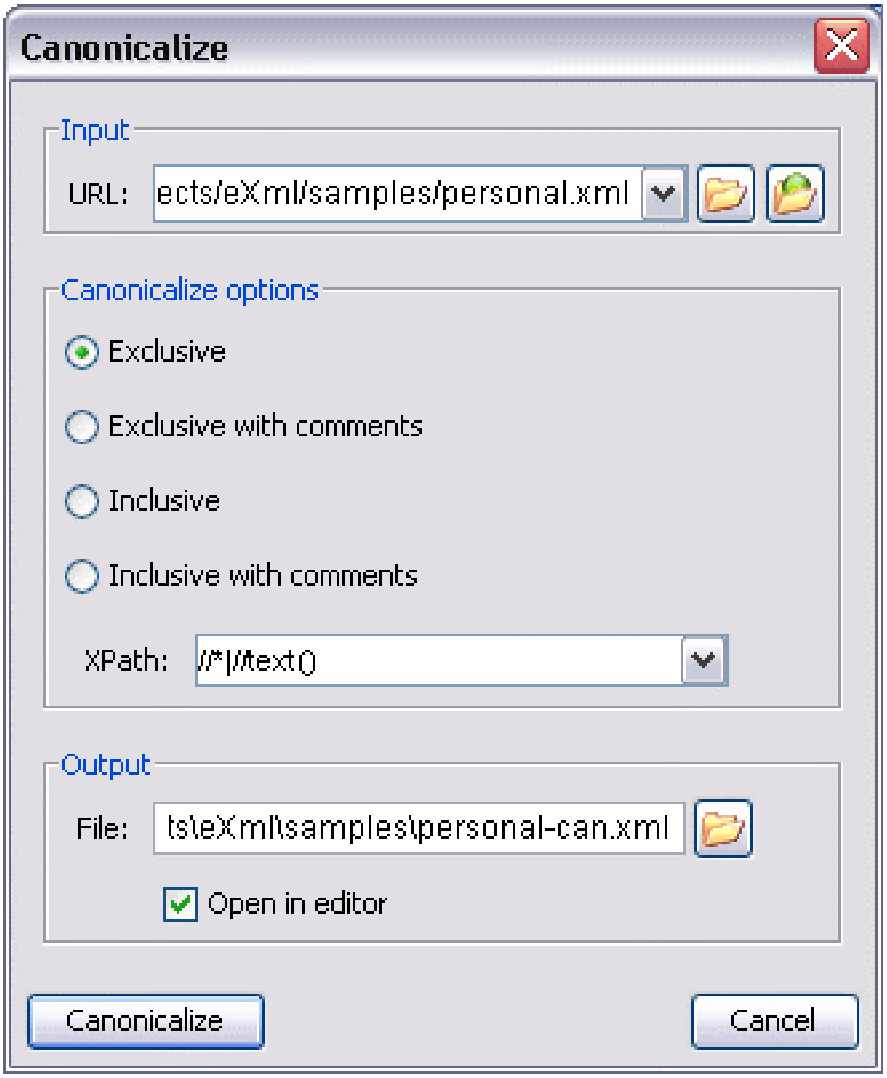
The canonicalization method can specify whether or not comments should be included in the canonical form output by the XML canonicalization method. If a canonical form contains comments corresponding to the comment nodes in the input node-set, the result is called canonical XML with comments. In an uncommented canonical form comments are removed, including delimiter for comments outside document element.

These three operations: Digital Signing, Canonicalization and Verification of the signature are available from the Tools menu or from the Editor contextual menu->Source.

Canonicalizing files

The user can select the canonicalization algorithm to be used for his document from the following dialog.

Figure 12.1. Canonicalization settings dialog



URL: ects/eXml/samples/personal.xml

● Exclusive

○ Exclusive with comments

○ Inclusive

○ Inclusive with comments

XPath: //*|//text()

File: ts\eXml\samples\personal-can.xml

☑ Open in editor

URL — Specifies the location of the input URL

Exclusive — If selected, the exclusive (uncommented) canonicalization method is used.

Exclusive with comments — If selected, the exclusive with comments canonicalization method is used.

Inclusive — If selected, the inclusive (uncommented) canonicalization method is used.

Inclusive with comments — If selected, the inclusive with comments canonicalization method is used.

XPath — The XPath expression provides the fragments of the XML document to be signed.

Output — Specifies the output file path where the signed XML document will be saved.

Open in editor If checked, the output file will be opened in the editor.

Certificates

A certificate is a digitally signed statement from the issuer (an individual, an organization, a website or a firm), saying that the public key (and some other information) of some other entity has a particular value. When data is digitally signed, the signature can be verified to check the data integrity and authenticity. Integrity means that the data has not been modified. Authenticity means the data comes indeed from the entity that claims to have created and signed it. Certificates are kept in special repositories called Keystores.

A Keystore is an encrypted file that contains private keys and certificates. All keystore entries (key and trusted certificate entries) are accessed via unique aliases. An alias must be assigned for every new entry of either a key or certificate as a reference for that entity. No Keystore can store an entity if it's "alias" already exists in that Keystore and no KeyStore can store trusted certificates generated with keys in it's KeyStore.

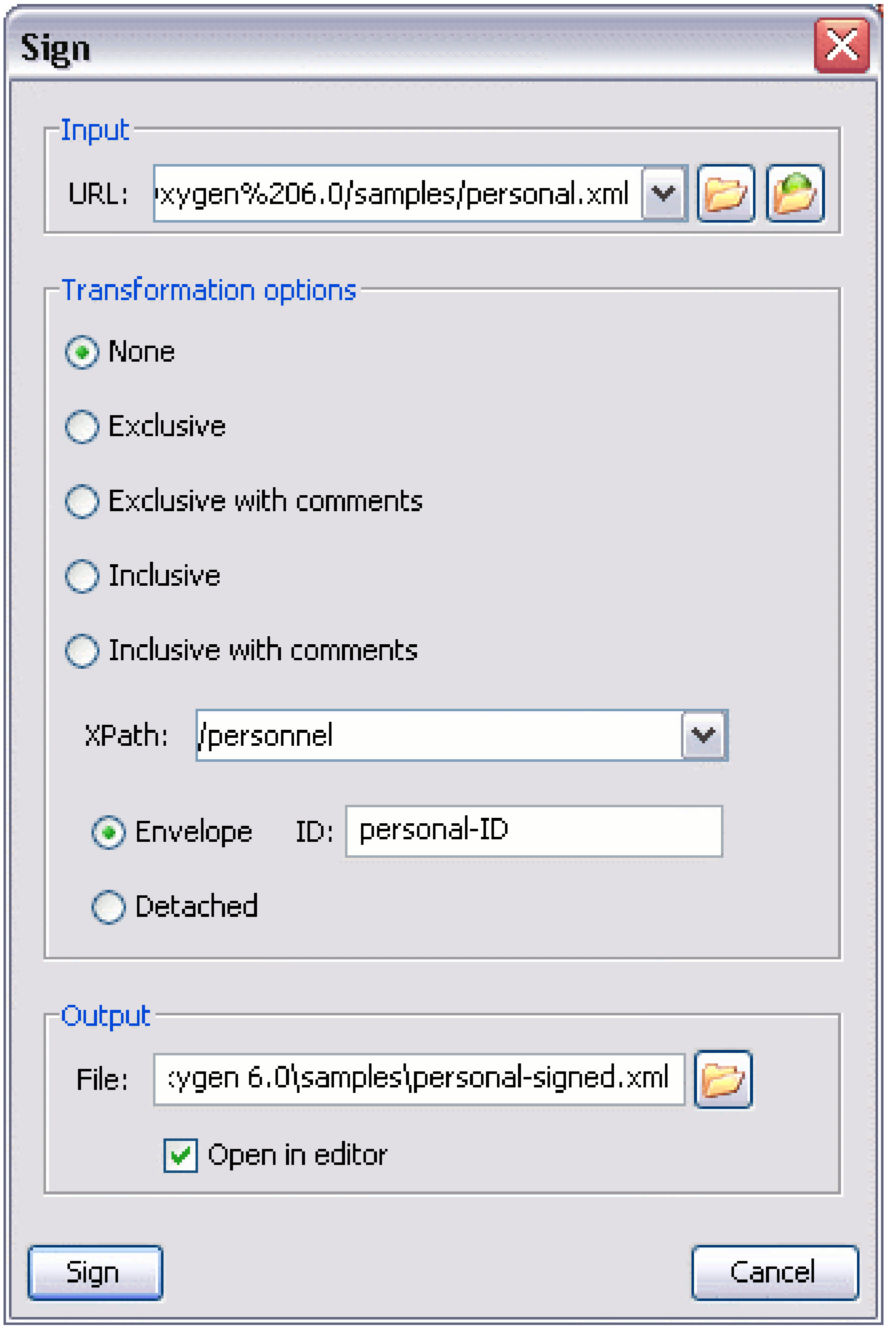
In <oXygen/> there are provided two types of Keystores: Java KeyStore (JKS) and Public-Key Cryptography Standards version 12 (PKCS-12). A keystore file is protected by a password.

To set the options for a certificate or to validate it, go to Options → Preferences → Certificates .

Signing files

The user can select the type of signature to be used for his document from the following dialog.

Figure 12.2. Signature settings dialog



Input

URL: xygen%206.0/samples/personal.xml

Transformation options

● None

○ Exclusive

○ Exclusive with comments

○ Inclusive

○ Inclusive with comments

XPath: /personnel

● Envelope ID: personal-ID

○ Detached

Output

File: ygen 6.0\samples\personal-signed.xml

☑ Open in editor

URL

Specifies the location of the input URL

None

If selected, no canonicalization algorithm is used.

Exclusive

If selected, the exclusive (uncommented) canonicalization method is used.

Exclusive with comments

If selected, the exclusive with comments canonicalization method is used.

Inclusive

If selected, the inclusive (uncommented) canonicalization method is used.

Inclusive with comments — If selected, the inclusive with comments canonicalization method is used.

XPath — The XPath expression provides the fragments of the XML document to be signed.

ID — Provides ID of the XML element to be signed.

Envelope — If selected, the enveloping signature is used.

Detached — If selected, the detached signature is used. The canonicalization methods, XPath and ID are not available.

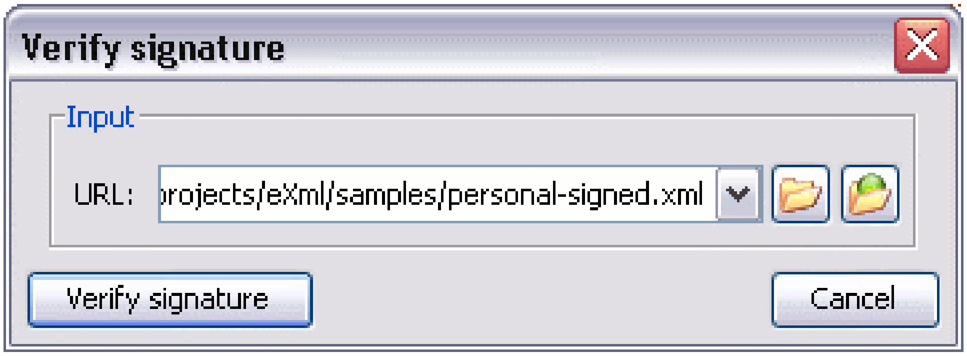
Output — Specifies the output file path where the signed XML document will be saved.

Open in editor — If checked, the output file will be opened in the editor.

Verifying the signature

The user can select a file to verify its signature.

Figure 12.3. Verifying signature dialog



URL: projects/eXml/samples/personal-signed.xml

URL — Specifies the location of the document for which to verify the signature.

If the signature is valid, a dialog displaying the name of the signer will be opened.

Chapter 13. The <oXygen/> SVN Client

Introduction

What is <oXygen/> SVN Client

<oXygen/> SVN is a client for the Subversion version control system. It manages files and directories that change over time and are stored in a central repository. The version control repository is much like an ordinary file server, except that it remembers every change ever made to your files and directories. This allows you to access older versions of your files and examine the history of how and when your data changed.

Quick start guide and reference

The *Main window* section will provide a short description of the application main window layout, general functions, views and menus.

A *Getting started* chapter will take you through the basic operations, such as:

- Define a repository location
- Define a working copy
- Manage working copy resources
- Synchronize with a repository
- Obtain information for a resource
- Using the log history of a resource
- Adding and changing the properties of a resource
- Creating and maintaining branches and tags
- Some more advanced repository operations

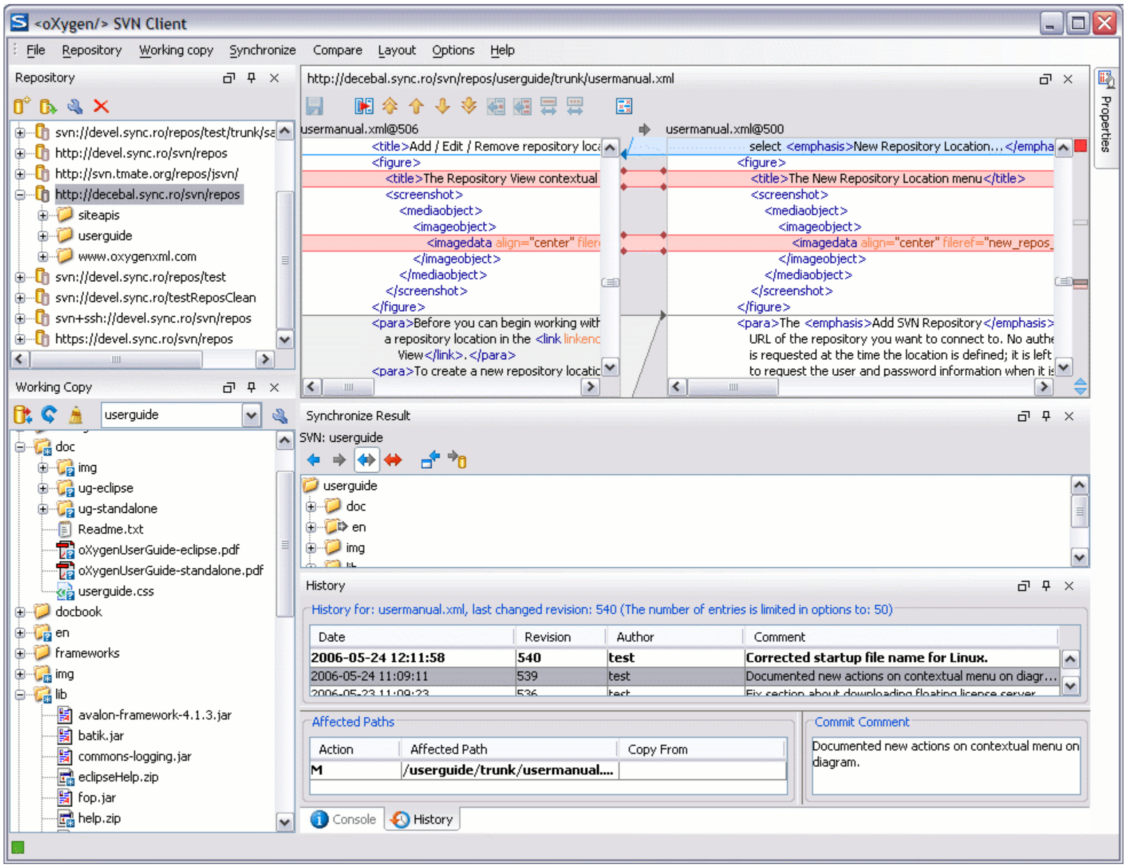
The next few chapters refer to the views of the application:

- Repository view
- Working copy view
- Synchronize view
- Compare resources view
- Editor
- History view
- Properties view

- Console view
- Help view
- Preferences dialog

Main window

Figure 13.1. The <oXygen/> Subversion client main window



<oXygen/> SVN Client
File
Repository
Working copy
Synchronize
Compare
Layout
Options
Help
Repository
svn://devel.sync.ro/repos/test/trunk/sa
http://devel.sync.ro/svn/repos
http://svn.tmate.org/repos/jsvn/
http://decebal.sync.ro/svn/repos
siteapis
userguide
www.oxygenxml.com
svn://devel.sync.ro/repos/test
svn://devel.sync.ro/testReposClean
svn+ssh://devel.sync.ro/svn/repos
https://devel.sync.ro/svn/repos
Working Copy
userguide
doc
img
ug-eclipse
ug-standalone
Readme.txt
oXygenUserGuide-eclipse.pdf
oXygenUserGuide-standalone.pdf
userguide.css
docbook
en
frameworks
img
lib
avalon-framework-4.1.3.jar
batik.jar
commons-logging.jar
eclipseHelp.zip
fop.jar
help.zip
http://decebal.sync.ro/svn/repos/userguide/trunk/usermanual.xml
usermanual.xml@506
usermanual.xml@500
Properties
Synchronize Result
SVN: userguide
userguide
doc
en
img
lib
History
Console
History

```
<title>Add / Edit / Remove repository loca
<figure>
  <title>The Repository View contextual
  <screenshot>
    <mediaobject>
      <imageobject>
        <imagedata align="center" filere
      </imageobject>
    </mediaobject>
  </screenshot>
</figure>
<para>Before you can begin working with
  a repository location in the <link linkenc
    View</link>.</para>
<para>To create a new repository locatic
```

```
    select <emphasis>New Repository Location...</empha
<figure>
  <title>The New Repository Location menu</title>
  <screenshot>
    <mediaobject>
      <imageobject>
        <imagedata align="center" fileref="new_repos_
      </imageobject>
    </mediaobject>
  </screenshot>
</figure>
<para>The <emphasis>Add SVN Repository</emphasis>
  URL of the repository you want to connect to. No authe
  is requested at the time the location is defined; it is left
  to request the user and password information when it is
```

History for: usermanual.xml, last changed revision: 540 (The number of entries is limited in options to: 50)

Date	Revision	Author	Comment
2006-05-24 12:11:58	**540**	**test**	**Corrected startup file name for Linux.**
2006-05-24 11:09:11	539	test	Documented new actions on contextual menu on diagr...
2006-05-23 11:09:23	536	test	Fix section about downloading floating license server

Affected Paths

Action	Affected Path	Copy From
M	**/userguide/trunk/usermanual....**	

Commit Comment

Documented new actions on contextual menu on diagram.

Starting <oXygen/> Subversion client

The <oXygen/> Subversion client can be used as a standalone application. To start the client follow the instructions for the installed package:

Procedure 13.1. Windows

- From the Windows Explorer double-click svnClient.exe.

Procedure 13.2. Linux

- At the prompt type: sh svnClient.sh.

Procedure 13.3. Mac OS X

- Double-click svnClient.

Procedure 13.4. All Platforms

- On Windows run svnClient.bat. On Mac OS X run svnClientMac.sh. On Linux/Unix run svnClient.sh.

The client can be started from inside the <oXygen/> XML Editor by using Tools → SVN Client action or the Project viewcontextual menu → Team → Open in SVN Client action. When the action from the *Project view* is performed, if the selected resource is under version control, its working copy root will be determined and opened in the SVN client Working copy view.

Views

The main window consists of the following views:

- Repository view allows you to define and manage Subversion repository locations.
- Working copy view allows you to manage with ease the content of the working copy.
- Synchronize view displays the modified resources from your working copy (outgoing) and from the repository (incoming).
- Compare view displays the differences between two revisions of a text file.
- Editor view allows you to modify and save a file from the working copy.
- History view displays the log messages for a given resource.
- Properties view displays the SVN properties for the currently selected resource from the *Synchronize view* or from the *Working copy view*.
- Console view shows the start and progress of an operation as if a Subversion command was run from the shell.
- Help view dynamically shows the help for the currently selected view.

The main window's *Status bar* presents in the left side the operation in progress or the final result of the last performed action. In the right side there is a progress bar for the running operation and a stop button to cancel the operation.

Main menu

The main menu of the <oXygen/> Subversion client is composed of the following submenus:

- File
  - Save - Saves the local file currently opened in the *Editor view* or the *Compare view*.
  - Exit - Exits the Subversion client.
- Repository - operations from the *Repository view*:
  - New Repository Location - allows you to enter a new repository location by means of the *Add SVN Repository* dialog.
  - Edit Repository Location - context dependent, allows you to edit the selected repository location by means of the *Edit SVN Repository* dialog. It is active only when a repository location root is selected.
  - Remove Repository Location - allows you to remove the selected repository location from the view. It shows you a confirmation dialog before removal. It is active only when a repository location root is selected.
- Working copy - operations from the *Working copy view*:
  - Add/Remove Working Copy - opens the *Working copies list* dialog which displays the working copies the Subversion client is aware of. In this dialog you can add existing or remove no longer needed working copies.
  - Synchronize - contacts the repository and determines the changes made by you to the working copy and by others to the repository. The synchronize result will be displayed in the Synchronize view. The action performs a synchronize operation on the root of the working copy.
  - Refresh - refreshes (rescans) the content of the working copy. The action performs a refresh operation on the root of the working copy.
  - Cleanup - performs a maintenance cleanup operation on the working copy.
- Synchronize - operations from the *Synchronize view*:
  - Update all - updates all resources with incoming changes. It is disabled when *Outgoing* mode is selected or the synchronization result does not contain resources with incoming changes. It will perform a recursive update on the synchronized resources.
  - Commit all - commits all resources with outgoing changes. It is disabled when *Incoming* mode is selected or the synchronization result does not contain resources with outgoing changes. It will perform a recursive commit on the synchronized resources.

- Compare - operations from the *Compare view*:
  - Perform files differencing - used to perform file differencing on request.
  - Go to first modification - used to navigate to the first difference.
  - Go to previous modification - used to navigate to the previous difference.
  - Go to next modification - used to navigate to the next difference.
  - Go to last modification - used to navigate to the last difference.
  - Copy change from right to left - this action copies the selected change from the right editor to the left editor.
  - Copy all non-conflicting changes from right to left - this action copies all non-conflicting changes from the right editor to the left editor. A non-conflicting change from the right editor is a change that does not overlap with a left editor change.
  - Show modification details at word level - because the differences are computed using a line differencing algorithm sometimes is useful to see exactly what words are different in a changed section.
  - Show modification details at character level - useful when you want to find out exactly what characters are different between the two analyzed sections.
  - Ignore whitespaces - Enables or disables the whitespace ignoring feature.
- Layout - layout control actions:
  - Reset Layout - resets all the views to their default position.
  - Show View - Brings to front the specified view.
- Options
  - Preferences - opens the preferences dialog.
  - Reset Options - resets all your options to the default ones.
  - Import Options - allows you to import options you have previously exported.
  - Export Options - allows you to export the current options to a file.
  - Reset Authentication - resets the Subversion authentication information.
- Help
  - Help - opens the Help dialog.
  - About - opens the About dialog.

Note

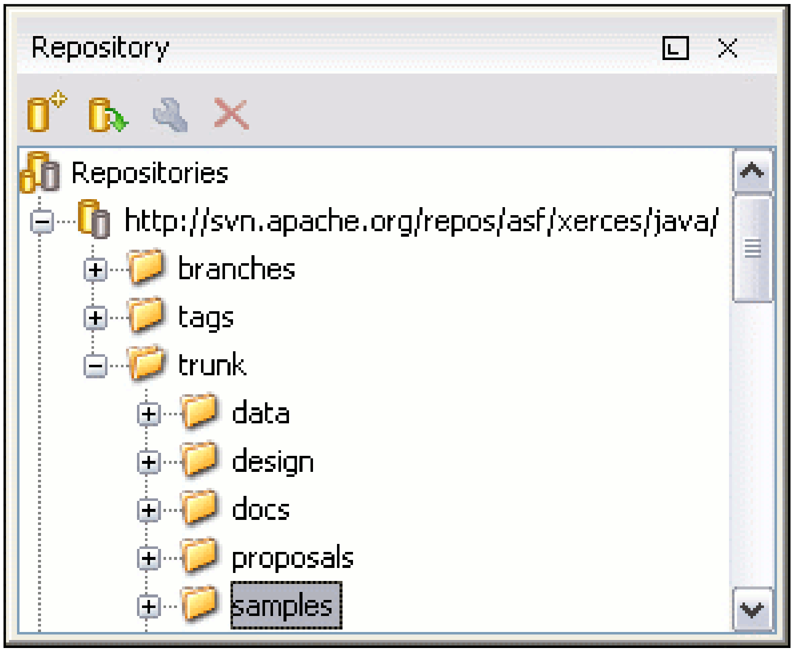
In order to avoid unusual situations you can currently execute only one action that involves operations with the working copy or with the repository at a time.

Getting started

Define a repository location

Usually team members do all of their work separately, in their own working copies and need to share their work. This is done via a Subversion repository.

Figure 13.2. Repository View



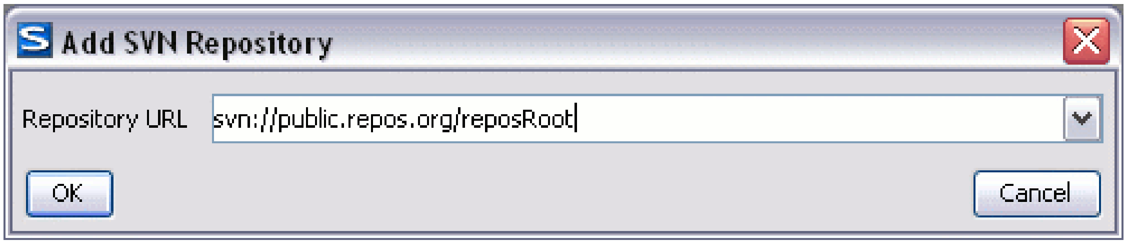
Add / Edit / Remove repository locations

Before you can begin working with a Subversion repository, you must define a repository location in the Repository View.

To create a new repository location, click the *New Repository Location* toolbar button or right click inside the view and select *New Repository Location...* from the popup menu.

The *Add SVN Repository* dialog will prompt you for the URL of the repository you want to connect to. No authentication information is requested at the time the location is defined; it is left to the Subversion client to request the user and password information when it is needed. The main benefit of allowing Subversion to manage your password in this way is that it will prompt you for a new password only when your password changes.

Figure 13.3. The Add SVN Repository dialog



Repository URL svn://public.repos.org/reposRoot

To edit a repository location, click the *Edit Repository Location* toolbar button or right click inside the view on a repository entry and select *Edit Repository Location...* from the popup menu.

The *Edit SVN Repository* dialog works in the same way as the *Add SVN Repository* dialog. It will show the previously defined repositories URL and it will allow you to change them.

To remove a repository location, click the *Remove Repository Location* toolbar button or right click inside the view on a repository entry and select *Remove Repository Location...* from the popup menu. A confirmation dialog will appear in order to make sure you don't accidentally remove locations.

Authentication

Four protocols are supported: *HTTP*, *SVN*, *HTTPS* and *SVN + SSH*. If the repository that you are trying to access is password protected, the *Enter authentication data* dialog will request a username and a password. If the *Store authentication data* checkbox is checked the credentials will be stored in Subversion's default directory:

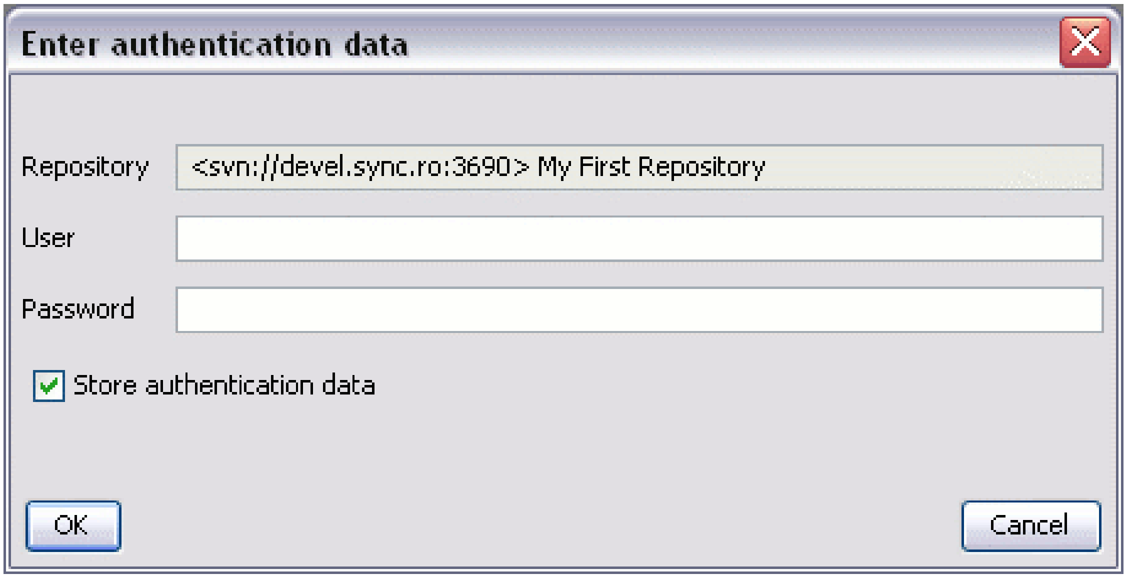
- Windows - %HOME%\Application Data\Subversion\auth. Example: C:\Documents and Settings\John\Application Data\Subversion\auth
- Linux & Mac OS X - $HOME/.subversion/auth. Example: /home/John/.subversion/auth

There will be one file for each server that you access. If you want to make Subversion forget your credentials, you can use the *Reset authentication* command from the Options menu. This will cause Subversion to forget all your credentials.

Note

When you reset the authentication data, you will have to restart the application in order for the change to take effect.

Figure 13.4. User & Password authentication dialog



Enter authentication data

Repository: <svn://devel.sync.ro:3690> My First Repository

User:

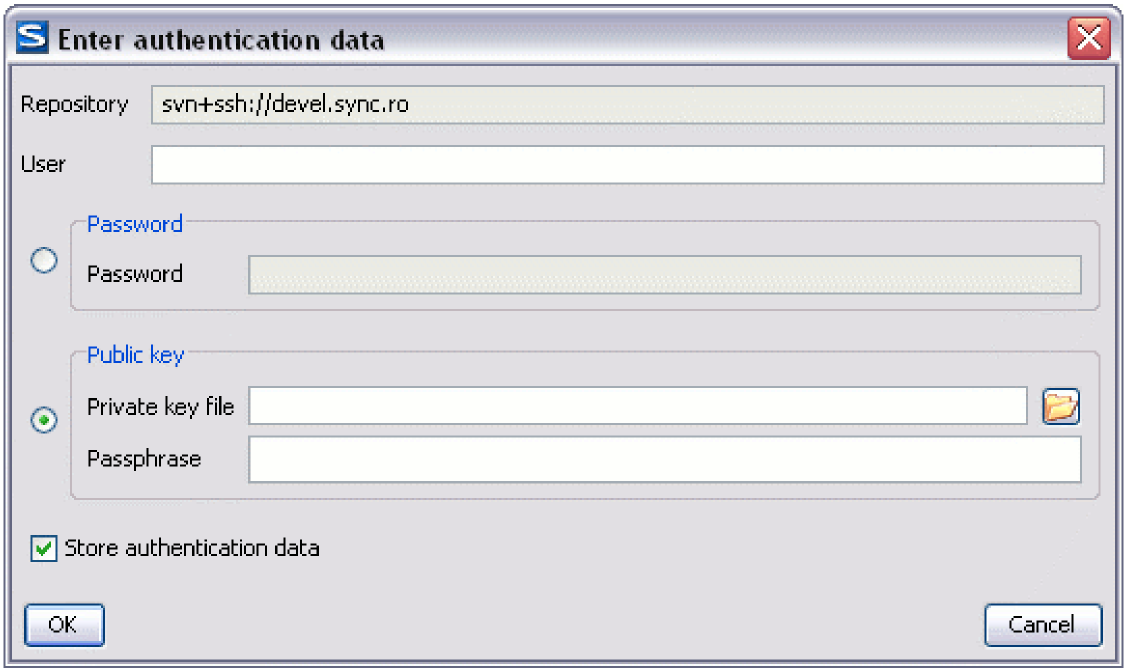
Password:

☑ Store authentication data

When using a secure http (https) protocol for accessing a repository, a *Certificate information* dialog will pop up and ask you whether you accept the certificate permanently, temporarily or simply deny it.

If the repository used has svn+ssh protocol the authentication can also be made with a private key and a pass phrase.

Figure 13.5. User & Private key authentication dialog



Enter authentication data

Repository: svn+ssh://devel.sync.ro

User:

○ Password

Password:

● Public key

Private key file:

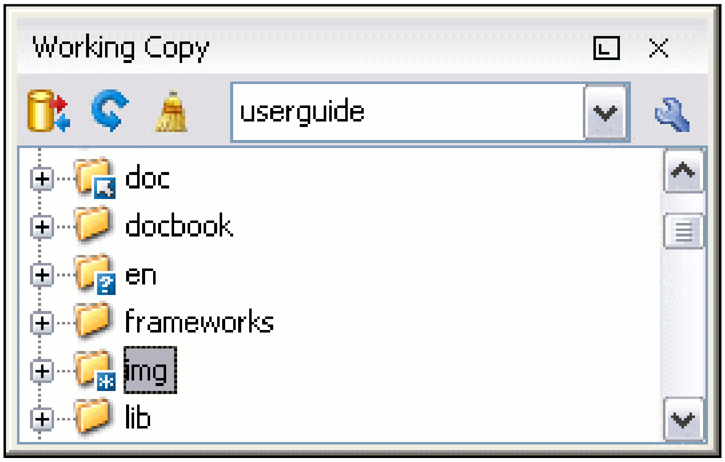
Passphrase:

☑ Store authentication data

Defining a working copy

A Subversion working copy is an ordinary directory tree on your local system, containing a collection of files. You can edit these files however you wish, your working copy being your private work area. In order to make your own changes available to others or incorporate other people's changes, you must explicitly tell Subversion to do so. You can even have multiple working copies of the same project.

Figure 13.6. Working Copy View



A Subversion working copy also contains some extra files, created and maintained by Subversion, to help it keep track of your files. In particular, each directory in your working copy contains a subdirectory named *.svn*, also known as the working copy *administrative directory*. This administrative directory contains an unaltered copy of the last updated files from the repository. This copy is usually referred to as the *pristine copy* or the *BASE revision* of the working copy. These files help Subversion recognize which files contain unpublished changes, and which files are out-of-date with respect to others' work.

A typical Subversion repository often holds the files (or source code) for several projects; usually, each project is a subdirectory in the repository's filesystem tree. In this arrangement, a user's working copy will usually correspond to a particular subtree of the repository.

Check out a working copy

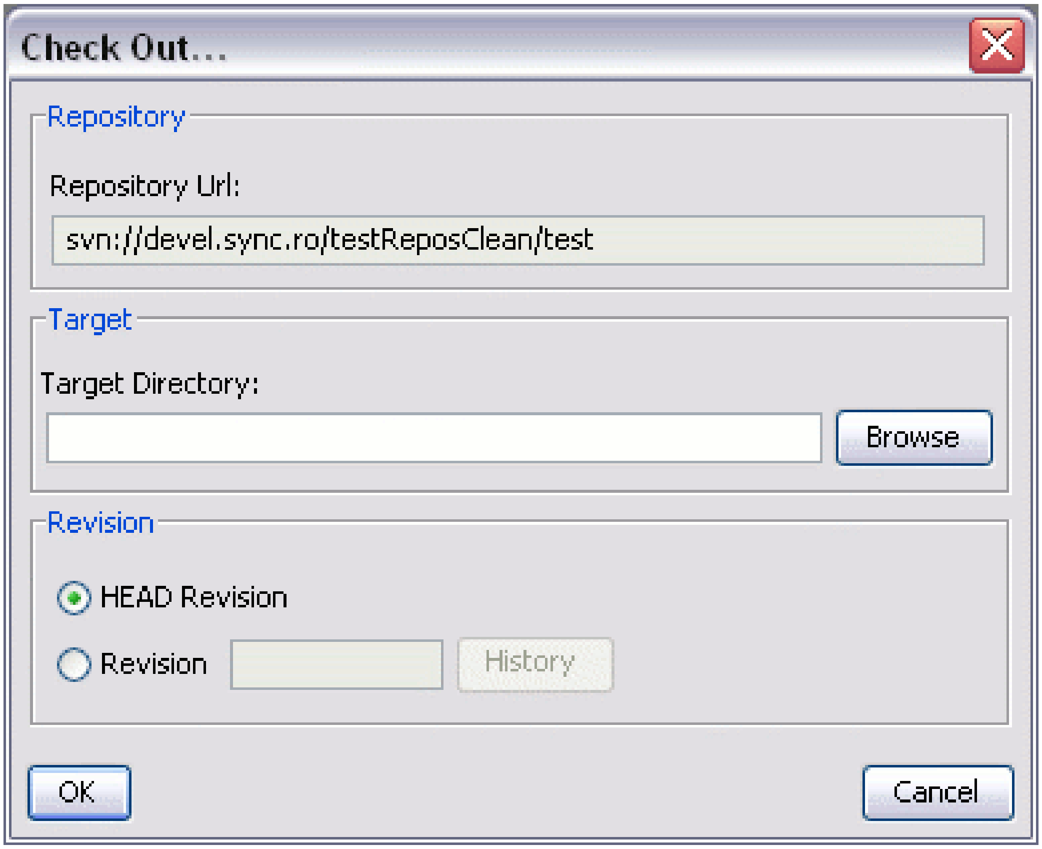
Check out is the term used to describe the process of making a copy of a project from a repository into your local filesystem. This checked out copy is called a working copy. A Subversion working copy is a specially formatted folder structure which contains additional *.svn* folders that store Subversion information, as well as a pristine copy of each item that is checked out.

You check out a working copy from the Repository View. If you have not yet defined a connection to your repository, you will need to add a new repository location.

To check out a new working copy, navigate inside the repository to the desired directory, right click on it and select *Check Out...* from the popup menu.

In the *Check out* dialog click on the *Browse* button and choose the location where the working copy will be checked out.

Figure 13.7. Check out dialog



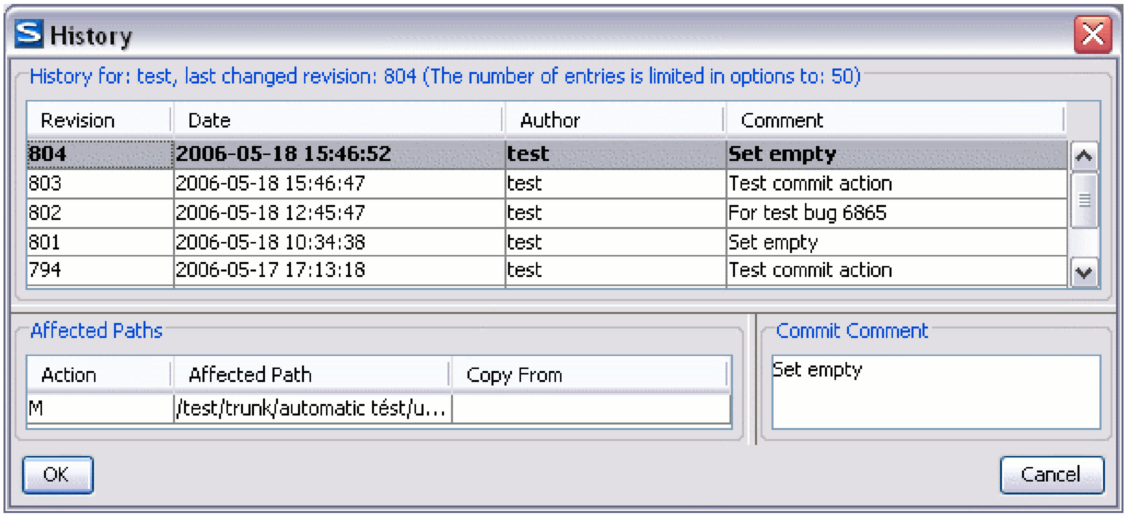
Repository Url:
svn://devel.sync.ro/testReposClean/test

Target Directory:

● HEAD Revision
○ Revision

By default the last (HEAD) revision will be checked out. If you need another revision you can select the *Revision* radio button and then click on the History button and choose a desired revision from the new dialog. Or you can simply type the revision number in the corresponding text field.

Figure 13.8. History dialog



History for: test, last changed revision: 804 (The number of entries is limited in options to: 50)

Revision	Date	Author	Comment
804	**2006-05-18 15:46:52**	**test**	**Set empty**
803	2006-05-18 15:46:47	test	Test commit action
802	2006-05-18 12:45:47	test	For test bug 6865
801	2006-05-18 10:34:38	test	Set empty
794	2006-05-17 17:13:18	test	Test commit action

Action	Affected Path	Copy From
M	/test/trunk/automatic tést/u...	

Set empty

The *History dialog* presents a list of revisions for a resource. There are presented information about revision, commit date, author and commit comment. The number of entries in the list is limited by default to

50. This can be adjusted in application's options page. The *Affected Paths* area displays all paths affected by the commit of that revision.

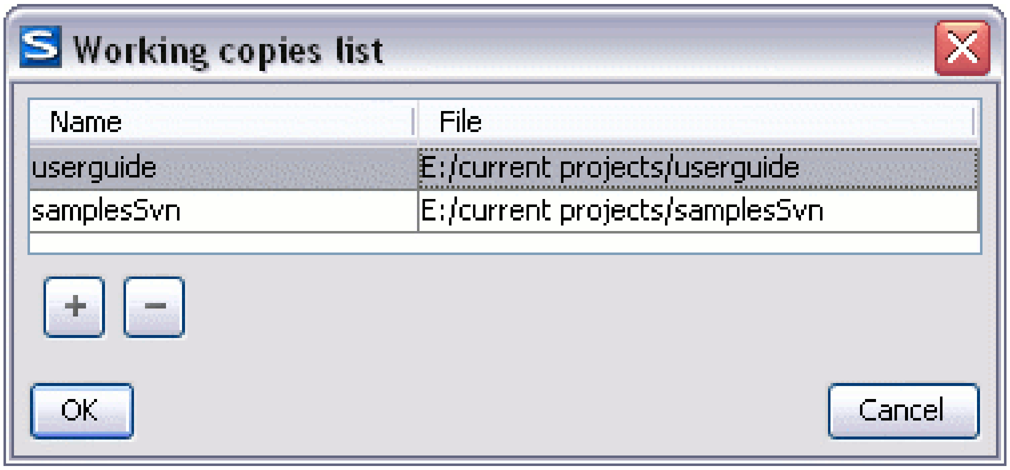
After a check out, the new working copy will be added to the list in the Working Copy view and its content will be displayed in that view.

Use an existing working copy

This is the process of taking an working copy that exists on your filesystem and connecting it to Subversion. If you have a brand new project that you want to import into your repository, then see the section Import resources into the repository

This assumes that you have an existing valid working copy on your filesystem. In the Working Copy View click on the *Add/Remove Working Copy* toolbar button.

Figure 13.9. Add/Remove Working Copy dialog



Name	File
userguide	E:/current projects/userguide
samplesSvn	E:/current projects/samplesSvn

In the *Working copies list* dialog press the add button(+) and choose the working folder copy from the filesystem.

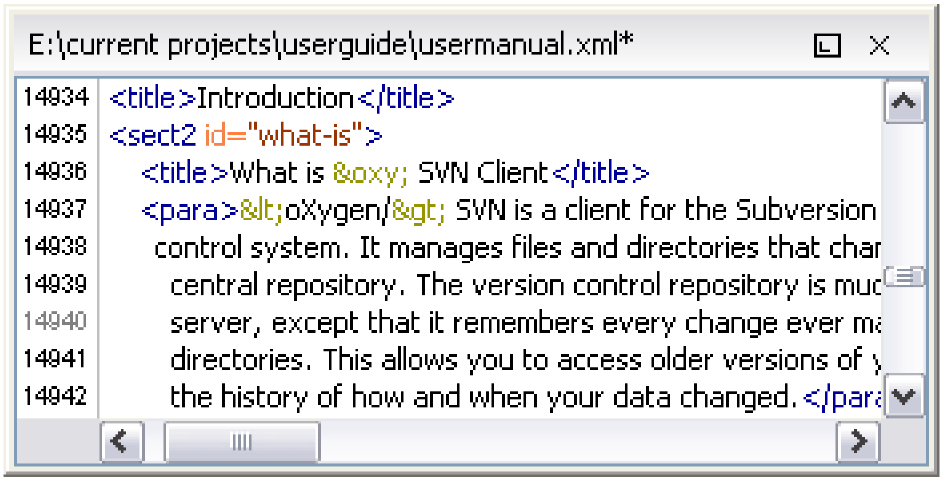
Select the new working copy from the list and press the OK button. The selected working copy will be loaded and presented in the Working Copy View.

Manage working copy resources

Edit files

You can edit files from the Working Copy View by double clicking them or by right clicking them and choosing *Open* from the popup menu, or from the Synchronize View by using *Open* from the popup menu. Please note that only one file can be edited at a time; if you try to open another file it will be opened in the same editor window. The editor has syntax highlighting for known file types, meaning that a different color will be used for each type of recognized token in the file.

Figure 13.10. Editor view



```
<title>Introduction</title>
<sect2 id="what-is">
  <title>What is &oxy; SVN Client</title>
  <para>&lt;oXygen/&gt; SVN is a client for the Subversion
   control system. It manages files and directories that char
    central repository. The version control repository is muc
    server, except that it remembers every change ever ma
    directories. This allows you to access older versions of y
    the history of how and when your data changed.</para
```

When you edit a file from your working copy, you will notice that after modifying and saving it, a modified marker - an asterisk(*) - will appear on the file's icon in the Working Copy View.

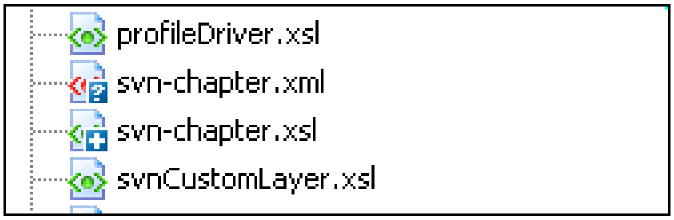
Add resources to version control

The new file(s) or folder(s) you create during your development process must be added to Version Control, using the *Add* command from the context menu in Working Copy View or Synchronize View. If you do not do this, the resource will be marked with a question mark (?), meaning that it is unversioned (unknown). After you have added it to version control, the resource will be marked as added(+) which means you first have to commit your working copy to make those resources available to other developers. Adding a resource to version control does not affect the repository.

If you try to add to version control an unversioned directory the entire subtree starting with that directory will be added.

When you commit your changes, if you forgot to add a resource, it will still be presented in the commit dialog, but will be de-selected by default. When you commit the unversioned resource, it will be automatically added to version control before being committed and the marking will also be removed.

Figure 13.11. Unversioned / Added



Ignore resources not under version control

Sometimes you will have files and folders inside your working copy that should not be subject to version control. These might include files created by the compiler, *.obj, *.class, *.lst, maybe an output directory used to store the executable. Whenever you commit changes, Subversion shows your modified files but also the unversioned files, which fills up the file list in the commit dialog. Though the unversioned files will not be committed unless otherwise specified, it is difficult to see exactly what you are committing.

The best way to avoid these problems is to add the derived files to the Subversion's ignore list. That way they will never show up in the commit dialog and only genuine unversioned files which must be committed will be shown.

You can choose to ignore a resource by using the *Add to svn:ignore* action in the context menu from Working Copy View or Synchronize View.

In the *Add to svn:ignore* dialog you can specify the resource to be ignored by name or by a custom pattern. The custom pattern can contain wildcard characters such as:

- * - Matches any string of characters of any size, including the empty string.
- ? - Matches any single character.

For example you may choose to ignore all text documents by using the pattern: **.txt*

The action adds a predefined Subversion property called *svn:ignore* to the parent directory of the specified resource. In this property there are specified all the child resources of that directory that must be ignored. The result will be visible in the *Working Copy view*. The ignored resources will be represented with grayed icons.

Delete resources

The delete command can be found in the context menu from the Working Copy View.

When you delete a resource from the Subversion working copy it will be removed from the filesystem and it will be also marked as deleted. If unversioned, added or modified resources will be encountered, a dialog will prompt you to confirm their deletion.

The delete command will not delete from the filesystem the directories under version control, it will only mark them as deleted. This is because the directories also contain the pristine copy of that directory content. In the Working Copy View this is transparent as all resources will have the deleted mark(-). The directories will be removed from the filesystem when you commit them to the repository. You can also change your mind completely and revert the deleted files to their initial, pristine state.

If a resource is deleted from the filesystem without Subversion's knowledge, your working copy will be in an inconsistent state. The resource will be considered and marked as missing (!). If a file was deleted, it will be treated in the same way as if it was deleted by Subversion. However if a directory is missing you will be unable to commit. If you update your working copy, Subversion will replace the missing directory with the latest version from the repository and you can then delete it the correct way using the *Delete* command. The *Delete* action is not enabled when the selection contains *missing* resources.

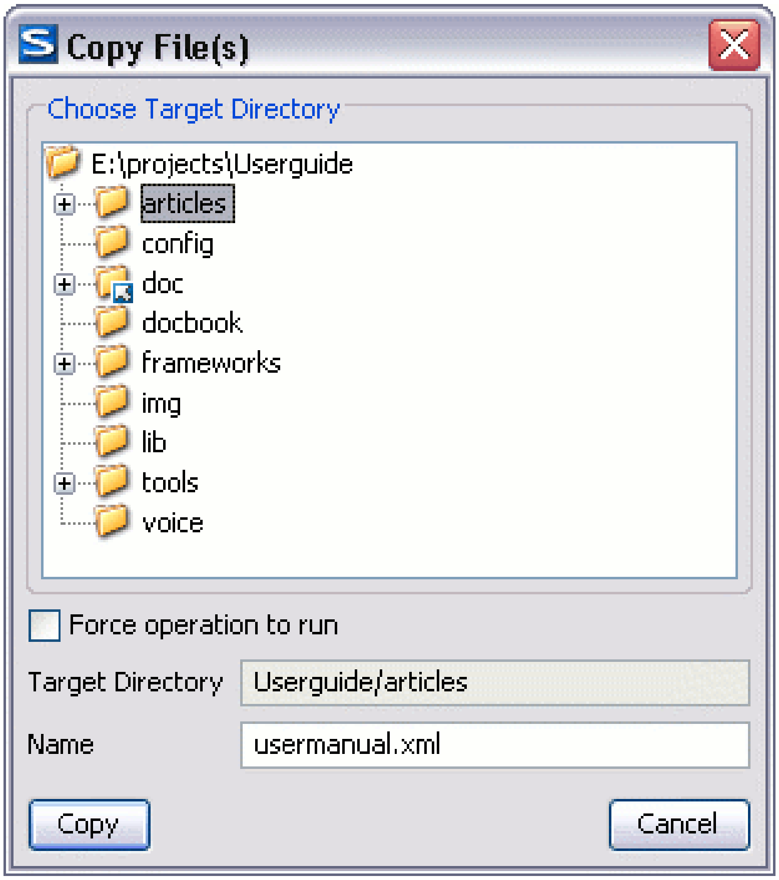
Copy / Move / Rename resources

Copy resources

You can copy several resources from different locations of the working copy. You select them in the Working Copy View and then you initiate the copy command from the context menu. This is not a simple file system copy but a Subversion command. It will copy the resource and the copy will also have the original resource's history. This is one of Subversion's very important features, as you can keep track of where the copied resources originated.

Please note that you can only copy resources that are under version control and are committed to the repository. You cannot copy resources that are unversioned or added, you must commit them first.

Figure 13.12. Copy files dialog



□ Force operation to run

Target Directory: Userguide/articles

Name: usermanual.xml

In the *Copy File(s)* dialog you can navigate through the working copy directories in order to choose a target directory. If you try to copy a single resource you are also able to change that resource's name in the corresponding text field.

If an entire directory is copied the *Override and update* action will be enabled only for it and not for its descendants. In the Synchronize view and the *Commit dialog* will appear only the directory in question without its children.

Move resources

As in the case of the copy command you can perform the operation on several resources at once. Just select the resources in the Working Copy View and choose the *Move* command from the context menu. The move command actually behaves as if a copy followed by a delete command were issued. You will find the moved resources at the desired destination and also at their original location but marked as deleted. If you try to move a directory that contains unversioned resources you will need to force the move operation by selecting the appropriate checkbox in the dialog.

Rename a resource

The rename action can be found in the context menu in the Working Copy View. This action can only be performed on a single resource. The rename command acts as a move command with the destination being the same as the original location of the resource. A copy of the original resource will be made with the new name and the original will be marked as deleted. As in the case of the move command, if you try to rename a directory that contains unversioned resources, you will need to force the operation by selecting the appropriate checkbox in the dialog.

Note

Because the rename and move commands act as a copy followed by delete, when you want to commit a renamed or moved resource you must also commit the deleted original. It is also recommended that you commit the renamed or moved resources before changing their contents in order to avoid difficulties in resolving conflicts.

Lock / Unlock resources

The idea of version control is based on the copy-modify-merge model of file sharing. This model states that each user contacts the repository and creates a local working copy(check out). Users can then work independently and make modifications to their working copies as they please. When their goal has been accomplished it is time for the users to share their work with the others, to send them to the repository(commit). When a user has modified a file that has been also modified on the repository the two files will have to be merged. The version control system assists the user with the merging as much as it can, but in the end the user is the one that must make sure it is done correctly.

The copy-modify-merge model only works when files are contextually mergeable: this is usually the case of line-based text files (such as source code). However this is not always possible with binary formats, such as images or sounds. In these situations, the users must each have exclusive access to the file, ending up with a lock-modify-unlock model. Without this, one or more users could end up wasting time on changes that cannot be merged.

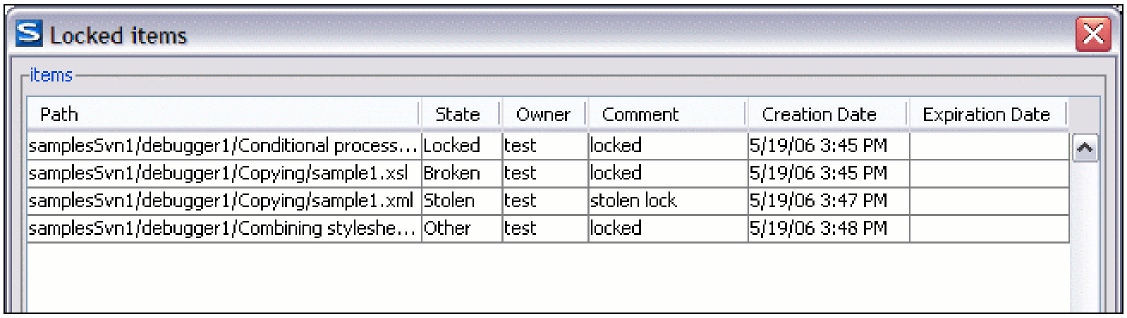
A Subversion lock is a piece of metadata which grants exclusive access to a user. This user is called the lock owner. A lock is uniquely identified by a lock token (a string of characters). If someone else attempts to commit the file (or delete a parent of the file), the repository will demand two pieces of information:

- User authentication. The user performing the commit must be the lock owner.
- Software authorization. The user's working copy must have the same lock token as the one from the repository, proving that it is the same working copy where the lock originated from.

Scanning for locks

When starting to work on a file that is not contextually mergeable (usually a binary file), it is better to verify if someone else isn't already working on that file. You can do this in the Working Copy View by selecting one or more resources, then right clicking on them and choosing the *Scan for locks* action from the context menu.

Figure 13.13. The locked items dialog



Path	State	Owner	Comment	Creation Date	Expiration Date
samplesSvn1/debugger1/Conditional process...	Locked	test	locked	5/19/06 3:45 PM	
samplesSvn1/debugger1/Copying/sample1.xsl	Broken	test	locked	5/19/06 3:45 PM	
samplesSvn1/debugger1/Copying/sample1.xml	Stolen	test	stolen lock	5/19/06 3:47 PM	
samplesSvn1/debugger1/Combining styleshe...	Other	test	locked	5/19/06 3:48 PM	

The *Locked items* dialog contains a table with all the resources that were found locked on the repository. For each resource there are specified: resource path, state of the lock, owner of the lock, lock comment, creation and expiration date for the lock (if any).

The state of the lock can be one of:

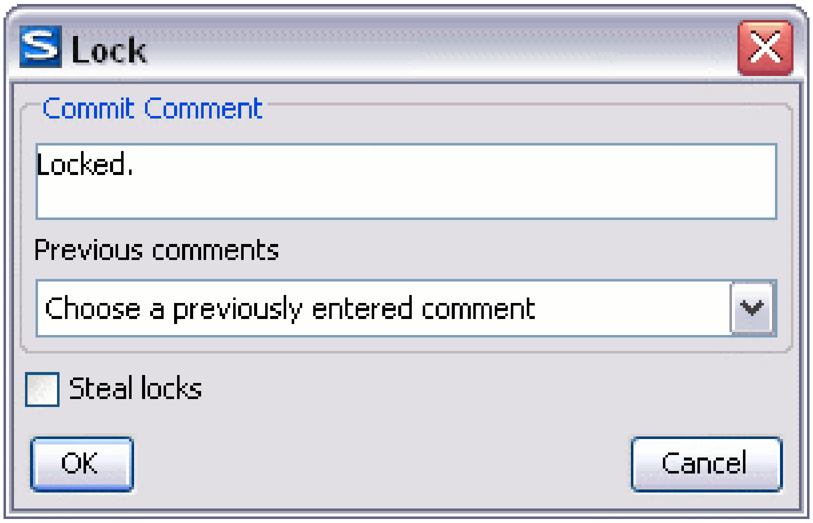
- Other - if someone else locked the file.
- Locked - if you locked the file.
- Broken - if you locked the file but it was forcefully unlocked by someone else afterwards.
- Stolen - if you locked the file but it was forcefully locked by someone else afterwards.

Locking a file

A locked file allows you exclusive write access to a file from the repository, meaning that you are the only one who can modify and commit the file to the repository.

You can lock a file from the context menu in Working Copy View. Note that you can only lock several files at once but no directories. This is a restriction of Subversion which is used to discourage the use of the lock-modify-unlock model at large scale or when unnecessary.

Figure 13.14. The lock dialog



Commit Comment

Locked.

Previous comments

Choose a previously entered comment

□ Steal locks

In the *Lock* dialog you can write a comment for the lock and if necessary steal (force) the lock. Note that you should only steal a lock after you made sure that the previous owner no longer needs it, otherwise you may cause an unsolvable conflict which is exactly why the lock was put there in the first place. The Subversion server can have a policy concerning lock stealing, it may not allow you to steal a lock if a certain condition is not satisfied.

The lock will stay in place until you commit the locked file or until someone unlocks it. There is also the possibility that the lock will expire after a period of time specified in the Subversion server policy.

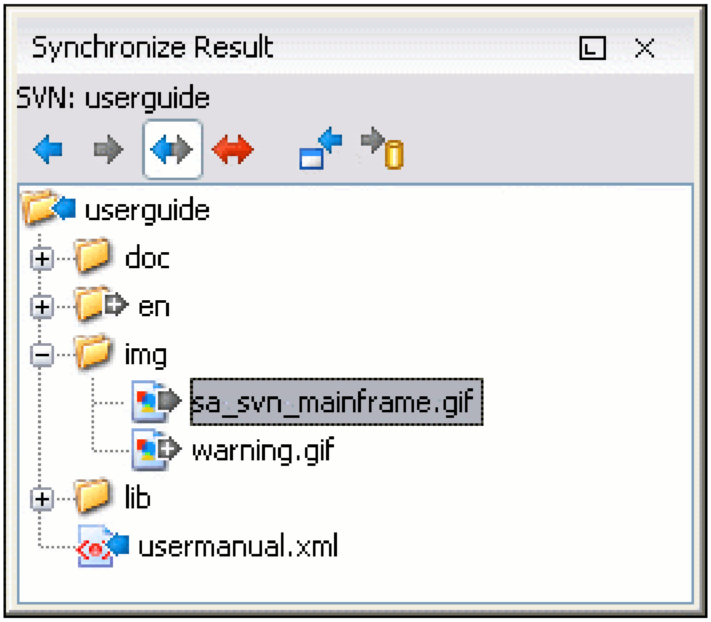
Unlocking a file

A file can be unlocked from the context menu in the Working Copy View. A dialog will prompt you to confirm the unlocking and it will also allow you to break the lock (unlock it by force).

Synchronize with the repository

In the work cycle you will need to incorporate other people's changes(update) and to make your own work available to others(commit). This is what the Synchronize View was designed for, to help you send and receive modifications from the repository.

Figure 13.15. Synchronize View



In the synchronize view you can see the overall status of your working copy resources when compared to the repository resources. The view focuses on incoming and outgoing changes, where incoming changes are the changes that other users have committed since you last updated your working copy. The outgoing changes are the modifications you made to your working copy as a result of editing, removing or adding resources.

The view presents the status of the working copy resources against the BASE revision after a *Refresh* operation. You can view the state of the resources versus a repository HEAD revision by using the *Synchronize* actions from the Working Copy view.

View differences

One of the most common requirements in project development is to see what changes have been made to the files from your Working Copy or to the files from the repository. You can examine these changes after a synchronize operation with the repository, by using the *Open in compare editor* action from the contextual menu. There are two types of files that can be compared: text files and binary files.

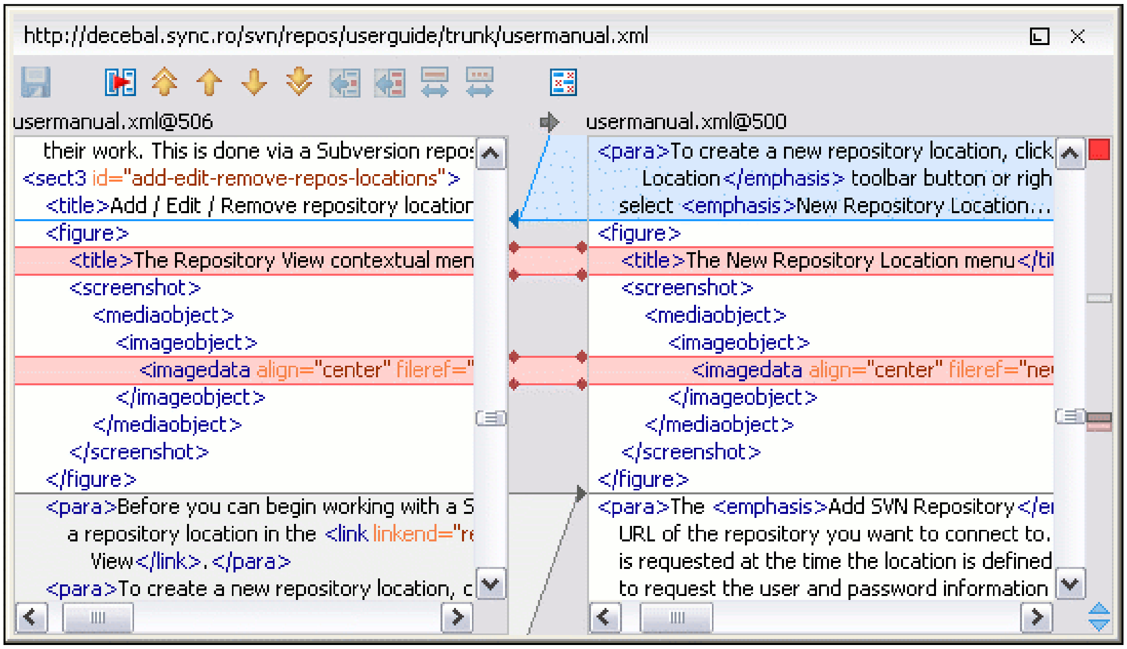
The text files are compared using a built-in Compare View which uses a line differencing algorithm. When a file with outgoing status is involved, the compare is performed between the file from the working copy and the BASE revision of the file. When a file with incoming or conflict status is involved, the differences are computed using a three-way algorithm which means that the local file and the repository file are each compared with the BASE revision of the file. The results are displayed in the same view.

The differences obtained from the local file comparison are considered outgoing changes and the ones obtained from the repository file comparison are considered incoming changes. If any of the incoming changes overlap outgoing changes then they are in conflict.

A special case of difference is a *diff pseudo-conflict*. This is the case when the left and the right sections are identical but the BASE revision does not contain the changes in that section. By default this type of changes are ignored. If you want to change this you can go to SVN Preferences and change the corresponding option.

The right editor presents either the BASE revision or a revision from the repository of the file so its content cannot be modified. By default when opening a synchronized file in the Compare View, a compare is automatically performed. After modifying and saving the content of the local file presented in the left editor, another compare is performed. You will also see the new refreshed status in the Working copy view.

Figure 13.16. Compare View



http://decebal.sync.ro/svn/repos/userguide/trunk/usermanual.xml

usermanual.xml@506

```
  their work. This is done via a Subversion repo:
<sect3 id="add-edit-remove-repos-locations">
  <title>Add / Edit / Remove repository locatior
  <figure>
    <title>The Repository View contextual men
    <screenshot>
      <mediaobject>
        <imageobject>
          <imagedata align="center" fileref="
        </imageobject>
      </mediaobject>
    </screenshot>
  </figure>
  <para>Before you can begin working with a S
    a repository location in the <link linkend="re
      View</link>.</para>
  <para>To create a new repository location, c
```

usermanual.xml@500

```
<para>To create a new repository location, click
    Location</emphasis> toolbar button or righ
  select <emphasis>New Repository Location...
<figure>
  <title>The New Repository Location menu</ti
  <screenshot>
    <mediaobject>
      <imageobject>
        <imagedata align="center" fileref="ne
      </imageobject>
    </mediaobject>
  </screenshot>
</figure>
<para>The <emphasis>Add SVN Repository</e
  URL of the repository you want to connect to.
  is requested at the time the location is defined
  to request the user and password information
```

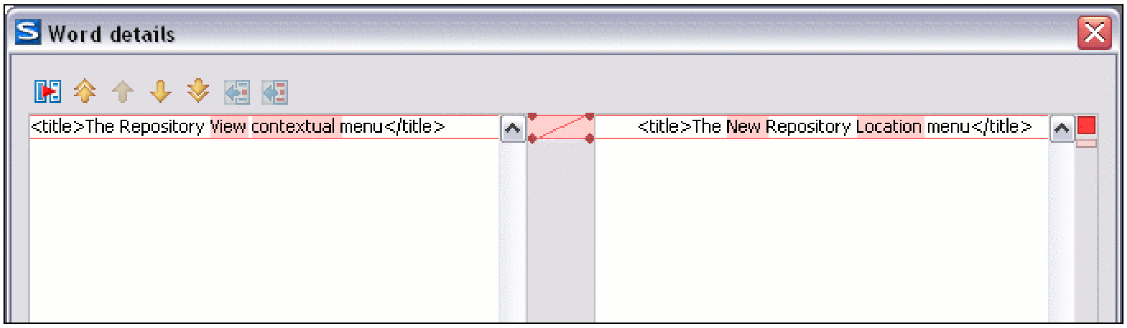
There are three types of differences:

- incoming changes - changes committed by other users and not present yet in your working copy file. They are marked with a blue highlight and on the middle divider the arrows point from right to left.
- outgoing changes - changes you have done in the content of the working copy file. They are marked with a gray highlight and the arrows on the divider are pointing from left to right.
- conflicting changes - this is the case when the same section of text which you already modified in the local file has been modified and committed by some other person. They are marked with a red highlight and red diamonds on the divider.

There are numerous actions and options available in the Compare View toolbar or in the Compare menu from the main menu. You can decide that some changes need adjusting or that new ones must be made. After you perform the adjustments, you may want to perform a new compare between the files. For this case there is an action called *Perform files differencing*. After each files differencing operation the first found change will be selected. You can navigate from one change to another by using the actions *Go to first / Go to previous / Go to next / Go to last modification*. If you decide that some incoming change needs to be present in your working file you can use the action *Copy change from right to left*. This is useful also when you want to override the outgoing modifications contained in a conflicting section. The *Copy all non-conflicting changes from right to left* copies all incoming changes which are not contained inside a conflicting section in your local file.

Let us assume that only a few words or letters are changed, considering that the differences are performed taking into account whole lines of text, the change will contain all the lines involved. For finding exactly what words or letters have changed there are available two dialogs which present a more detailed compare result: *Word Details* and *Character Details*.

Figure 13.17. Word details dialog



```
<title>The Repository View contextual menu</title>
```

```
<title>The New Repository Location menu</title>
```

When you want to examine only the changes in the real text content of the files disregarding the changes in the number of white spaces between words or lines there is available an option which allows you to enable or disable the white space ignoring feature of the compare algorithm.

The binary files are always compared two way (working file and HEAD revision file) byte to byte and the location of the first different byte is reported.

Resolve conflicts

Once in a while, you will get a conflict when you update your files from the repository. A conflict occurs when two or more developers have changed the same few lines of a file or the properties of the same file. As Subversion knows nothing of your project, it leaves resolving the conflicts to the developers. Whenever a conflict is reported, you should open the file in question, and try to analyse and resolve the conflicting situation.

Real conflicts vs Pseudo conflicts

There are two types of conflicts. The real conflict(conflicted state) is obtained when a resource in the working copy has incoming and outgoing changes in the same section. When updated the differences cannot be merged automatically so the file is marked as conflicted. A file can be in real conflict state when its content or its properties are in conflict. A folder can be in real conflict only when its properties are in conflict.

A resource is in a pseudo conflict state when it contains both incoming and outgoing changes not necessarily in the same sections. A file can be in pseudo conflict when its content has both incoming and outgoing changes and before an update operation is performed. A folder can be in pseudo conflict when it contains files in pseudo conflict and / or real conflict themselves. After an update it is possible that the state of conflict can be resolved automatically by merging the incoming changes into the working copy resource. A conflicting resource cannot be committed. In the conflict case the resource will be marked with a conflict icon and will appear in all the Synchronization trees.

Content conflicts vs Property conflicts

On the other hand depending on the situation the conflicts are separated in two categories: Content conflicts and Properties conflicts. *Content conflicts* - this type refers to the fact that the conflict appears in the content of a file. A merge occurs for every inbound change to a file which is also modified in the working copy. In some cases, if the local change and the incoming change intersect each other, Subversion cannot merge these changes without intervention. So if the conflict is real when updating the file in question the conflicting area is marked like this:

```
<<<<<<< filename
your changes
=======
code merged from repository
>>>>>>> revision
```

Also, for every conflicted file Subversion places three additional temporary files in your directory:

- filename.ext.mine - This is your file as it existed in your working copy before you updated your working copy - that is, without conflict markers. This file has your latest changes in it and nothing else.
- filename.ext.rOLDREV - This is the file that was the BASE revision before you updated your working copy. That is, the file revision that you updated before you made your latest edits.
- filename.ext.rNEWREV - This is the file that Subversion client just received from the server when you updated your working copy. This file corresponds to the last synchronized revision of the repository.

OLDREV and NEWREV are revision numbers. If you have conflicts with binary files, Subversion does not attempt to merge the files by itself. The local file remains unchanged (exactly as you last changed it) and you will get filename.ext.r* files also. *Properties conflicts* - refer to the conflicts that are obtained when two people modify the same property of the same file or folder. When updating such a resource a file named filename.ext.prej is created in your working copy containing the nature of the conflict. Your local file property that is in conflict will not be changed. After resolving the conflict one should use the *Mark resolved* action in order to be able to commit the file. Note that the *Mark resolved* action does not really resolve the conflict. It just removes the conflicted flag of the file and deletes the temporary files.

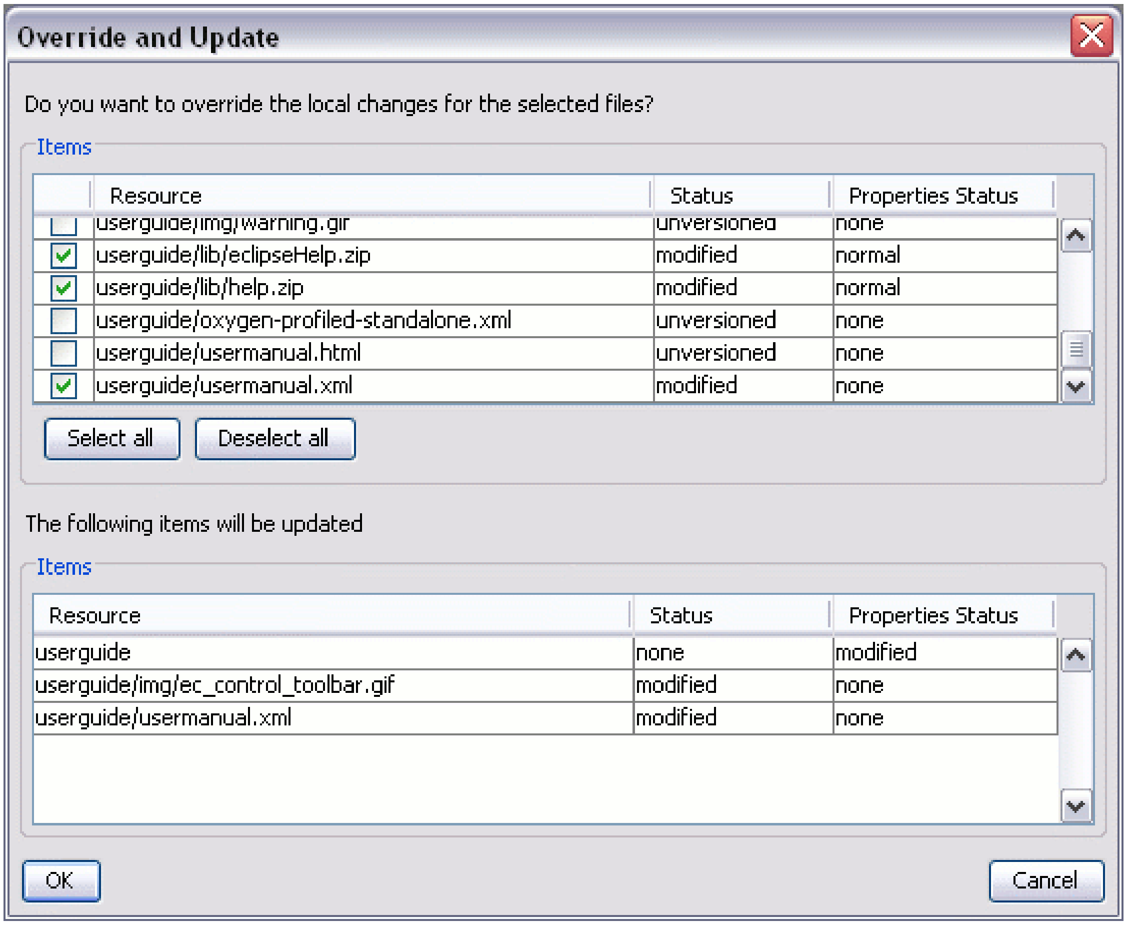
Revert your changes

If you want to undo all changes you made in a file since the last update you need to select the file, right click to pop up the context menu and then select Revert. A dialog will pop up showing you the files that you have changed and can be reverted. Select those you want to revert and click the OK button. Revert will only undo your local changes. It does not undo any changes which have already been committed. If you choose to revert the file to the pristine copy which resides in the administration folders then the eventual conflict is solved by losing your outgoing modifications. If you try to revert a resource not under version control, the resource will be deleted from the file system.

If you want some of your outgoing changes to be overridden you must first open the file in Compare view and choose the sections to be replaced with ones from repository file. This can be achieved either by editing directly the file or by using the action *Copy change from right to left* from Compare view toolbar. After editing the conflicting file you have to use *Mark as merged* before committing it.

If you want to drop all local changes and in the same time bring all incoming changes into your working copy resource you can use the *Override and update* action which discards the changes in the local file and updates it from the repository. A dialog will show you the files that will be affected.

Figure 13.18. Override and update dialog



Do you want to override the local changes for the selected files?

	Resource	Status	Properties Status
□	userguide/img/warning.gif	unversioned	none
☑	userguide/lib/eclipseHelp.zip	modified	normal
☑	userguide/lib/help.zip	modified	normal
□	userguide/oxygen-profiled-standalone.xml	unversioned	none
□	userguide/usermanual.html	unversioned	none
☑	userguide/usermanual.xml	modified	none

The following items will be updated

Resource	Status	Properties Status
userguide	none	modified
userguide/img/ec_control_toolbar.gif	modified	none
userguide/usermanual.xml	modified	none

In the first table in the dialog you will be able to see the resources that will be overridden. You can also select or deselect them as you wish. In the second table you will find the list of resources that will be updated. Only resources that have an incoming status in the *Synchronize view* will be updated.

Merge conflicted resources

Before you can safely commit your changes to the repository you must first resolve all conflicts. In the case of pseudo-conflicts they can be resolved in most cases with an Update operation which will merge the incoming modifications into your working copy resource. In the case of real conflicts, conflicts that persist after an update operation, it is necessary to resolve the conflict using the built-in compare view and editor or, in the case of properties conflict, the Properties view. Before you can commit you must *mark as resolved* the affected files. Both pseudo and real conflicts can be resolved without an update. You can:

- open the file in the compare editor
- analyze the changes
- edit the changes
- decide which incoming changes need to be copied locally

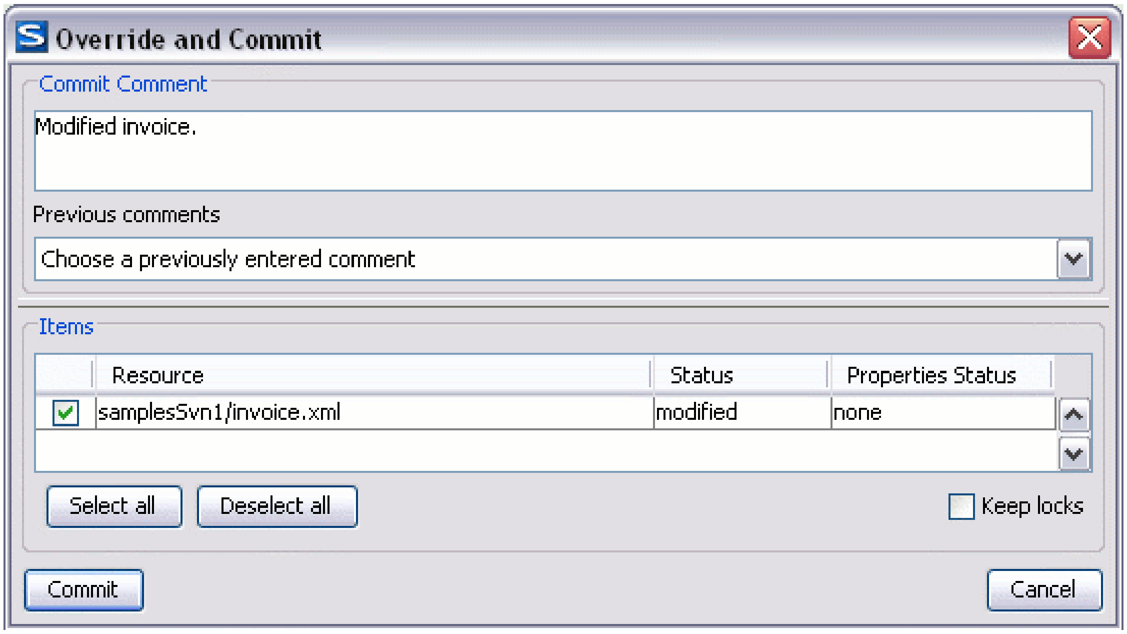
- decide which outgoing changes must be overridden or modified

After saving your local file you have to use the *Mark as merged* action from the contextual menu before committing.

Drop incoming modifications

In the situation when your file is in conflict but you decide that your working copy file and its content is the correct one, you can decide to drop some or all of the incoming changes and commit afterwards. The action *Mark as merged* proves to be useful in this case too. After opening the conflicting files with Compare view, Editor or editing their properties in the *Properties view* and deciding that your file can be committed in the repository replacing the existing one, you should first use *Mark as merged* action. When you want to override completely the remote file with the local file you can use *Override and commit* which drops any remote changes and commits your file.

Figure 13.19. Override and commit dialog



Modified invoice.

Choose a previously entered comment

	Resource	Status	Properties Status
☑	samplesSvn1/invoice.xml	modified	none

□ Keep locks

In general it is much safer to analyze all incoming and outgoing changes using Compare view and only after to update and commit.

Update the working copy

While you are working on a project, other members of your team may be committing changes to the project repository. To get these changes, you have to update your working copy. Updating may be done on single files, a set of selected files, or recursively on entire directory hierarchies The update operation can be performed either from Working Copy view or Synchronize view. The Update action in the Working Copy view is different from the Update action in the Synchronize view. The Update action from the Working Copy view updates the selected resources to the HEAD revision on the repository. The Synchronize view action updates the selected resources to the revision against which the *Synchronize* operation was performed.

There are three different kinds of incoming changes:

- Non-conflicting - A non-conflicting change occurs when a file has been changed remotely but has not been modified locally.

- Conflicting, but auto-mergeable - An auto-mergeable conflicting change occurs when a text file has been changed both remotely and locally (i.e. has non-committed local changes) but the changes are on different lines.

- Conflicting - A conflicting change occurs when one or more of the same lines of a text file have been changed both remotely and locally. Binary files are never auto-mergeable and are conflicting by default.

If the resource contains only incoming changes or the outgoing changes do not intersect with incoming ones then the update will end normally, the Subversion system merging incoming changes into the local file. In the case of conflicting situation the update will have as result a file with conflict status.

The <oXygen/> Subversion client allows you to update your working copy files to a specific revision, not only the most recent one. This can be done by using *Update to revision* action from the History view contextual menu.

If you select multiple files and folders and then you perform an *Update*, all of those files/folders are updated one by one. The Subversion client makes sure that all files/folders belonging to the same repository are updated to the exact same revision, even if between those updates another commit occurred.

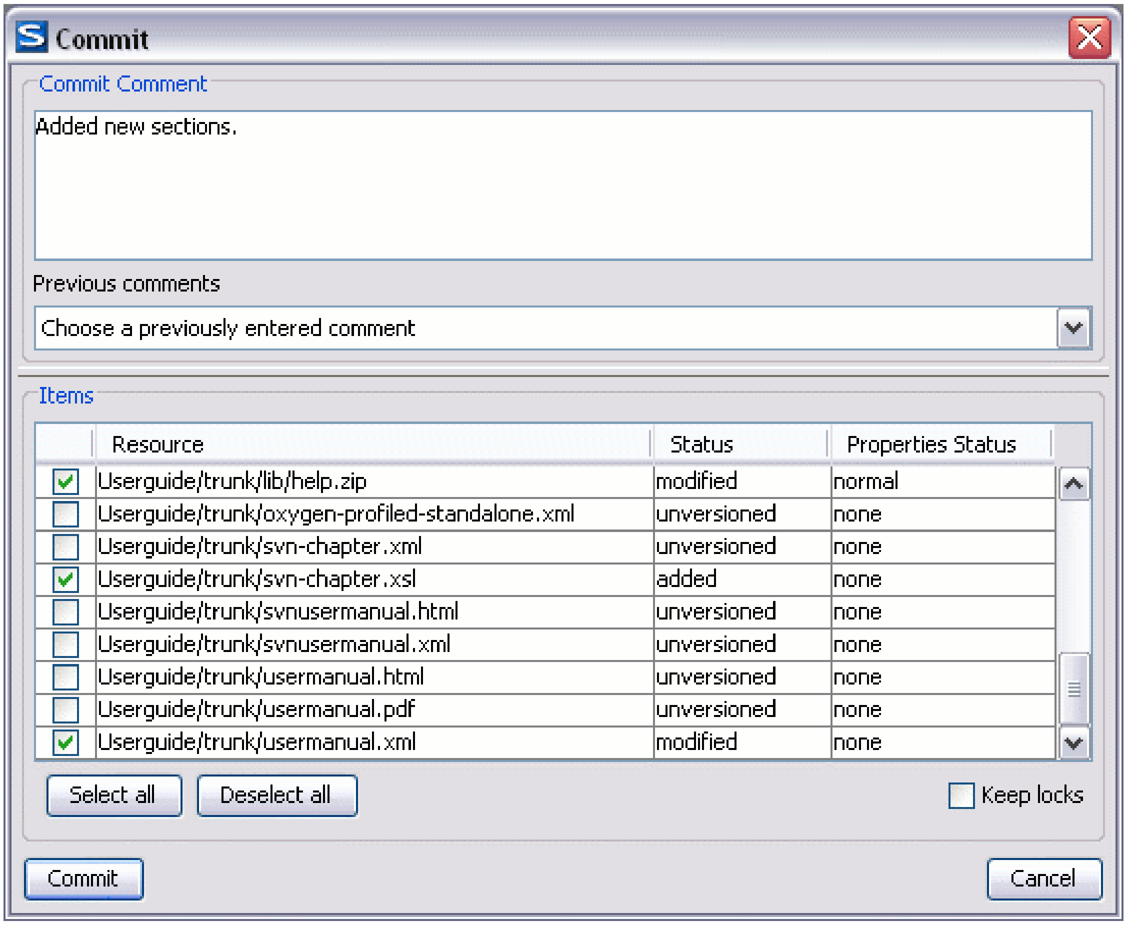
When the update fails with a message saying that there is already a local file with the same name Subversion tried to checkout a newly versioned file, and found that an unversioned file with the same name already existed in your working folder. Subversion will never overwrite an unversioned file unless you specifically do this with *Override and update*. If you get this error message, the solution is simply to rename the local unversioned file. After completing the update, you can check whether the renamed file is still needed.

Send your changes to the repository

Sending the changes you made to your working copy is known as committing the changes. If your working copy is up to date and there are no conflicts, you are ready to commit your changes.

The *Commit* action sends the changes in your local working copy to the repository. After selecting the action from the contextual menu you will see a dialog displaying the resources that can be committed.

Figure 13.20. Commit dialog



Commit Comment

Added new sections.

Previous comments: Choose a previously entered comment

Items

	Resource	Status	Properties Status
☑	Userguide/trunk/lib/help.zip	modified	normal
□	Userguide/trunk/oxygen-profiled-standalone.xml	unversioned	none
□	Userguide/trunk/svn-chapter.xml	unversioned	none
☑	Userguide/trunk/svn-chapter.xsl	added	none
□	Userguide/trunk/svnusermanual.html	unversioned	none
□	Userguide/trunk/svnusermanual.xml	unversioned	none
□	Userguide/trunk/usermanual.html	unversioned	none
□	Userguide/trunk/usermanual.pdf	unversioned	none
☑	Userguide/trunk/usermanual.xml	modified	none

□ Keep locks

Enter a comment to associate with the commit or choose a previously entered comment from the list. The dialog will list modified, added, deleted and unversioned resources. All modified, added and deleted resources will be selected by default. If you don't want a changed file to be committed, just uncheck that file. The unversioned items are not selected by default unless you have selected them specifically before issuing the commit command. To select all resources, click *Select All*. To deselect all resources, click *Deselect All*. Checking the *Keep locks* option will preserve any locks you have on repository resources. Your working copy must be up-to-date with respect to the resources you are committing. This is ensured by using the *Update* action prior to committing, resolving conflicts and re-testing as needed. If your working copy resources you are trying to commit are *out of date* you will get an appropriate error message.

If you have modified files which have been included from a different repository using *svn:externals*, those changes cannot be included in the same commit operation.

Obtain information for a resource

Request status information for a resource

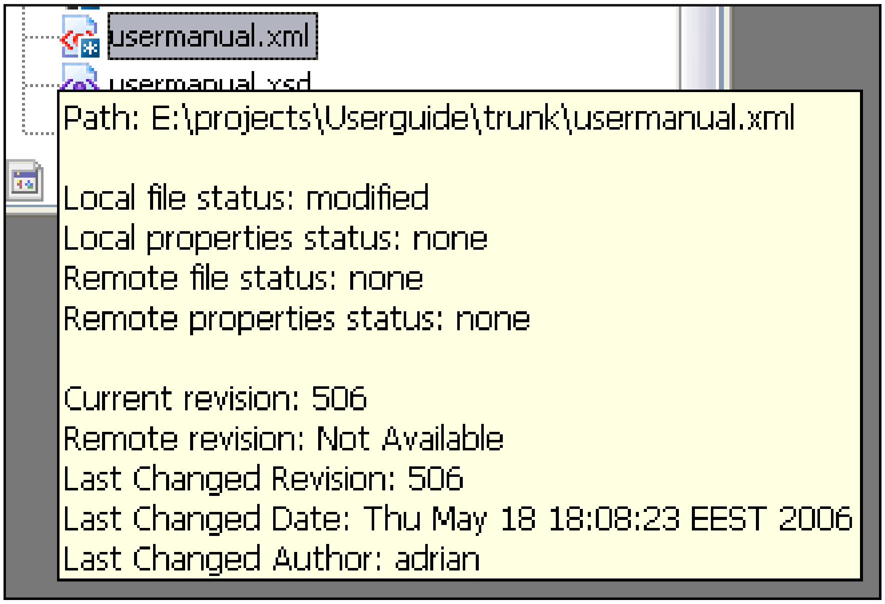
While you are working you often need to know which files you have changed, added, removed or renamed, or even which files got changed and committed by others. That's where the *Synchronize* action from Working Copy view comes in handy. The *Working Copy View* will show you every file that has changed in any way in your working copy, as well as any unversioned files you may have. If you use Synchronize view then you can also look for changes in the repository. That way you can check before an update if there's a possible conflict.

If you want more detailed information about a given resource you can use *Information* action from the *Working copy view*contextual menu or the *Synchronize view*contextual menu. A dialog will pop up showing remote and local information regarding the resource, such as:

- local path and repository location
- revision number
- last change author, revision and date
- commit comment
- information about locks, etc.

A less detailed list of information is also presented when you hover with the mouse pointer over a resource and the tooltip window is displayed.

Figure 13.21. Tooltip for a resource



Path: E:\projects\Userguide\trunk\usermanual.xml

Local file status: modified
Local properties status: none
Remote file status: none
Remote properties status: none

Current revision: 506
Remote revision: Not Available
Last Changed Revision: 506
Last Changed Date: Thu May 18 18:08:23 EEST 2006
Last Changed Author: adrian

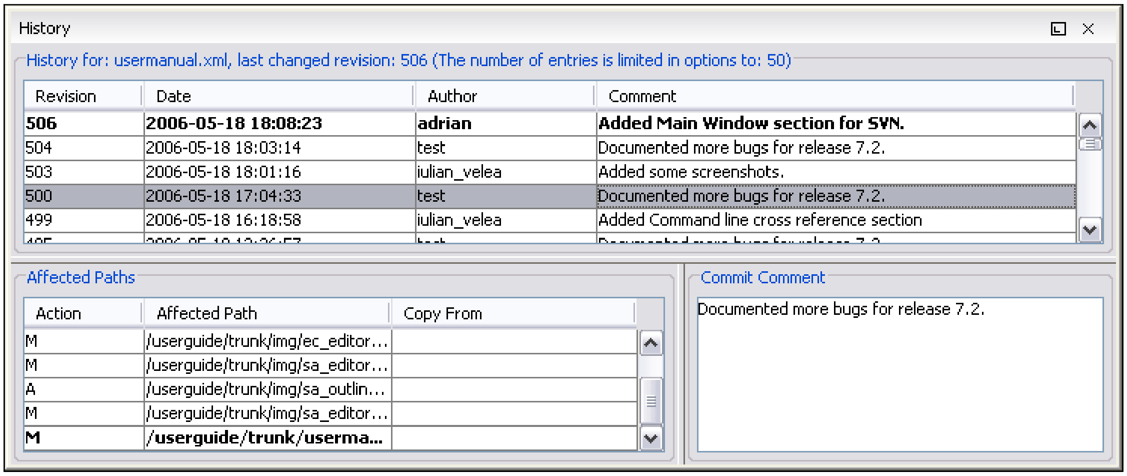
Request history for a resource

In Subversion, both files and directories are versioned and have a history. If you want to examine the history for a selected resource and find out what happened at a certain revision, what has been changed regarding that resource and who did the changes, drop the modifications made in a certain revision, check out / update the resource to a selected revision, compare two revisions of the same file and other actions, you have to use the *Show history action*. This is available from any of the three views: Repository view menu, Working copy view menu or Synchronize view menu. From the *Repository view* you can display the log history regarding any remote resource residing in repository. From the *Working copy view* you can display the history of local versioned resources. From the *Synchronize view* you can show the history of any incoming or outgoing resources.

The view itself consists of three distinct areas:

- The revision table showing revision numbers, date/time of revision, name of the author, as well as the first line of the commit message. You can click on any revision to show its full details.
- The list of resources affected by this revision (modified, added, deleted or changed properties).
- The commit message for the selected revision.

Figure 13.22. History view



History for: usermanual.xml, last changed revision: 506 (The number of entries is limited in options to: 50)

Revision	Date	Author	Comment
506	**2006-05-18 18:08:23**	**adrian**	**Added Main Window section for SVN.**
504	2006-05-18 18:03:14	test	Documented more bugs for release 7.2.
503	2006-05-18 18:01:16	iulian_velea	Added some screenshots.
500	2006-05-18 17:04:33	test	Documented more bugs for release 7.2.
499	2006-05-18 16:18:58	iulian_velea	Added Command line cross reference section

Affected Paths

Action	Affected Path	Copy From
M	/userguide/trunk/img/ec_editor…	
M	/userguide/trunk/img/sa_editor…	
A	/userguide/trunk/img/sa_outlin…	
M	/userguide/trunk/img/sa_editor…	
M	**/userguide/trunk/userma…**	

Commit Comment

Documented more bugs for release 7.2.

The *Resource history view* does not always show all the changes ever made to a resource because for a large repository there may be thousands of changes and retrieving the entire list can take a long time. Normally you are interested in the more recent ones and that is why the number of revisions is limited by default from the options to 50. This can be changed by accessing the Preferences->SVN page.

Note

When using Subversion servers older than version 1.2, a history request may take a very long time because the server will reply with the entire history even if you limited the number of entries to a smaller number.

Using the resource history view

The *History view* provides a set of actions you can use to get even more information about the project history and make changes to your working copy related with older revisions.

History actions available for single selection

- *Open* - opens the selected revision of the file into the Editor. This is enabled only for files.
- *Save revision as* - saves the selected revision to a file so you have an older version of that file. This option is only available when you access the history of a file, and it saves a version of that one file only.
- *Compare with working copy* - compares the selected revision with your working copy file. It is enabled only when you select a file.

- *Update to revision* - updates your working copy resource to the selected revision. Useful if you want to have your working copy reflect a time in the past. It is best to update a whole directory in your working copy, not just one file, otherwise your working copy will be inconsistent and you will be unable to commit your changes.
- *Check out from revision* - gets the content of the selected revision for the resource into local file system.
- *Revert changes from this revision* - reverts changes which were made in the selected revision. The changes are reverted in your working copy so this operation does not affect the repository file! The action will undo the changes made only in selected revision. It does not replace your working copy file with the entire file at the earlier revision. This is useful for undoing an earlier change when other unrelated changes have been made since the date of the revision. This option is enabled when the resource history was launched for a local working copy resource.

History actions available for double selection

- *Compare revisions* - compares the two selected revisions using the Compare view. It is enabled when the resource is a file.
- *Revert changes from these revisions* - similar to the svn-merge command, it merges two selected revisions into the working copy resource. This action is only enabled when the resource history was requested for a working copy item.

Management of SVN properties

In the Properties view you can read and set the Subversion properties of a file or folder. There is a set of predefined properties with special meaning to Subversion. For more information about properties in Subversion see the SVN Subversion specification. Subversion properties are revision dependent. After you change, add or delete a property for a resource, you have to commit your changes to the repository.

Add / Edit / Remove SVN properties

If you want to change the properties of a given resource you need to select that resource from the Working copy view or the Synchronize view and access the *Show properties* action from the contextual menu. The properties view will show the local properties for the resource in the working copy. Once the *Properties View* is visible, it will always present the properties of the currently selected resource.

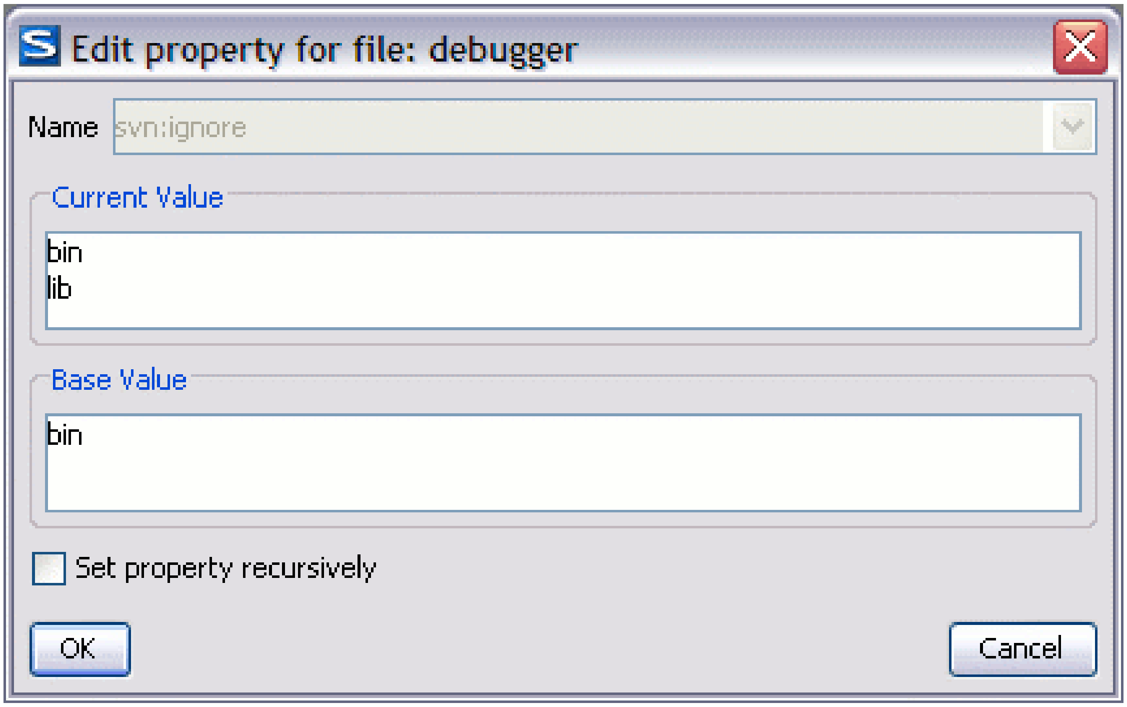
In the Properties view toolbar there are available actions which allow you to add, change and delete the properties.

If you choose the *Add a new property* action, a new dialog will pop-up. The sections in the dialog are:

- Name - it is a combo box which allows you to enter the name of the property. The drop down list of the combo box presents the predefined Subversion properties such as svn:ignore, svn:externals, svn:needs-lock, etc.
- Current value - it is a text area which allows you to enter the value of the new property.

If the selected item is a directory, you can also set the property recursively on its children by checking the *Set property recursively* checkbox.

Figure 13.23. Edit property dialog



Edit property for file: debugger

Name: svn:ignore

Current Value:

```
bin
lib
```

Base Value:

```
bin
```

□ Set property recursively

If you want to change the value for a previously set property you can use *Edit property* action which will display a dialog where you can set:

- Name - the property name. It cannot be changed; only its value can.
- Current value - presents the current value and allows you to change it.
- Base value - the value of the property, if any, from the resource in the pristine copy. It cannot be modified.

If you want to completely remove a property previously set you can choose *Remove property* action. It will display a confirmation dialog in which you can choose also if the property will be removed recursively.

In the Properties view there is a *Refresh* action which can be used when the properties have been changed from outside the view. This can happen, for example, when the view was already presenting the properties of a resource and they have been changed after an *Update* operation.

Creation and management of Branches/Tags

One of the fundamental features of version control systems is the ability to create a new line of development from the main one. This new line of development will always share a common history with the main line if you look far enough back in time. This line is known as a branch. Branches are mostly used to try out features or fixes. When the feature or fix is finished, the branch can be merged back into the main branch (trunk).

Another feature of version control systems is the ability to take a snapshot of a particular revision, so you can at any time recreate a certain build or environment. This is known as tagging. Tagging is especially useful when making release versions.

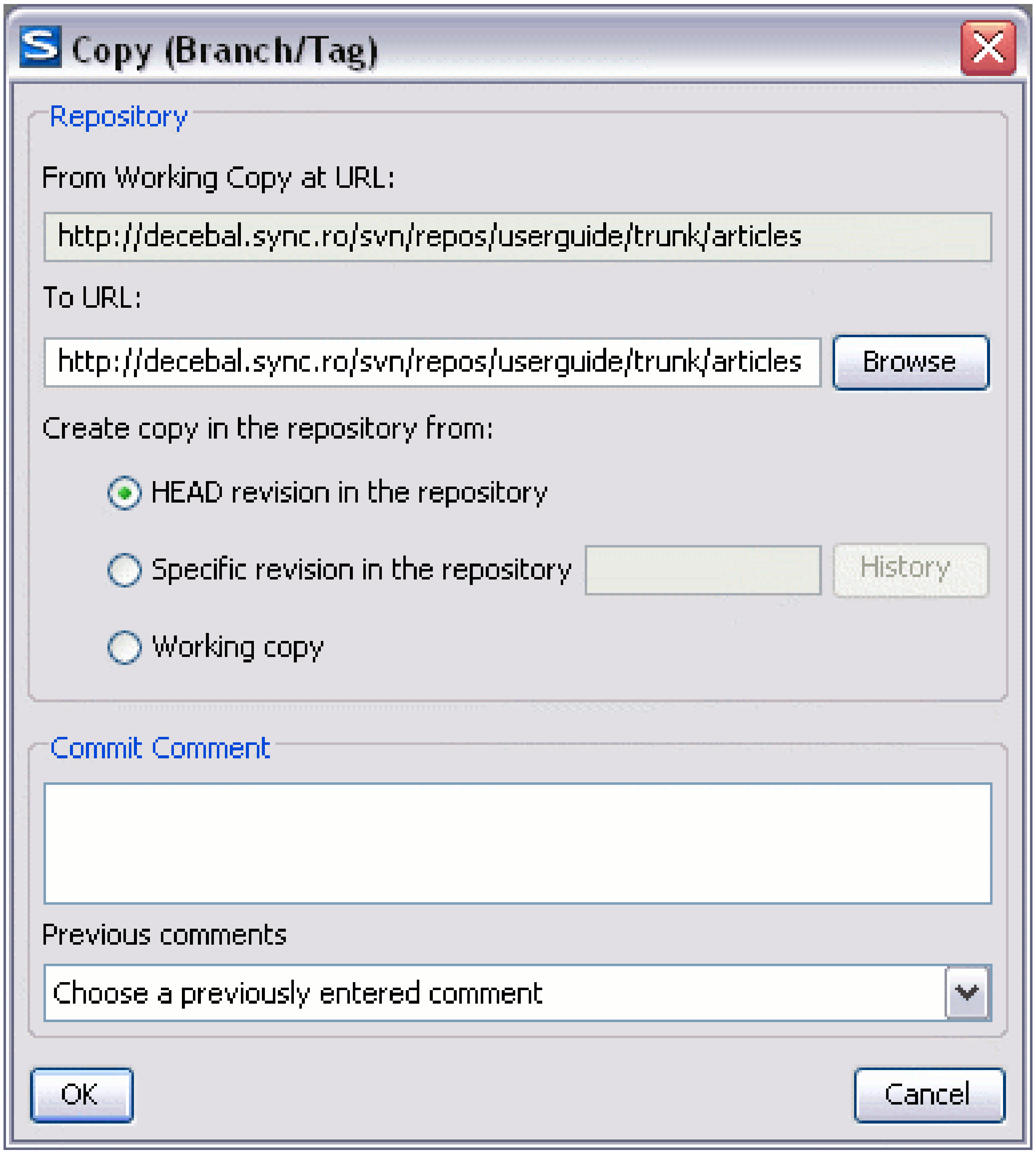
In Subversion there is no difference between a tag and a branch. On the repository both are ordinary directories that are created by copying. The trick is that they are cheap copies instead of physical copies. Cheap copies are similar to hard links in Unix, which means that they merely link to a specific tree and revision without making a physical copy. As a result branches and tags occupy little space on the repository and are created very quickly.

As long as nobody ever commits to the directory in question, it remains a tag. If people start committing to it, it becomes a branch.

Create a Branch/Tag

In the Working Copy view, select the resource which you want to copy to a branch or tag, then select the command *Branch/Tag...*.

Figure 13.24. The Branch/Tag dialog



Copy (Branch/Tag)

Repository

From Working Copy at URL: http://decebal.sync.ro/svn/repos/userguide/trunk/articles

To URL: http://decebal.sync.ro/svn/repos/userguide/trunk/articles

Create copy in the repository from:

● HEAD revision in the repository

○ Specific revision in the repository

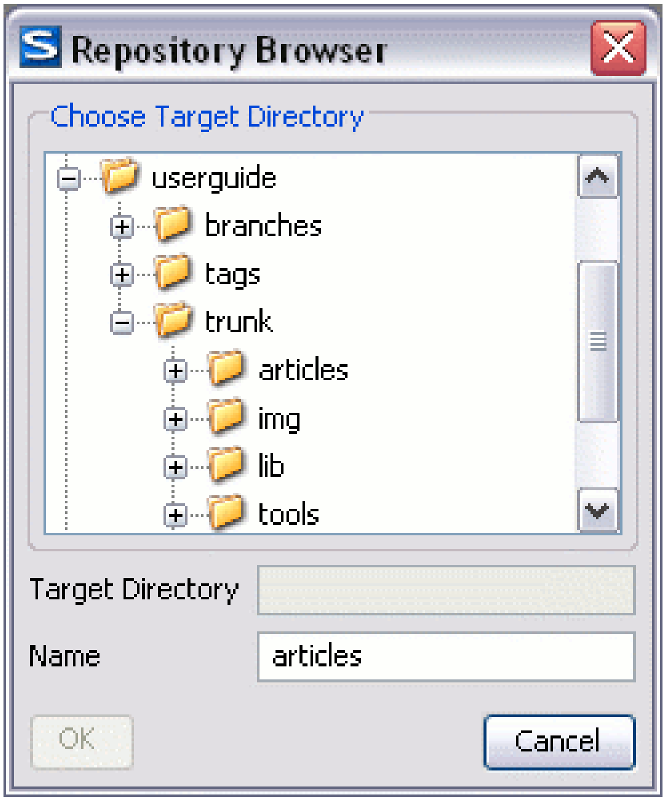
○ Working copy

Commit Comment

Previous comments: Choose a previously entered comment

The default target URL for the new branch/tag will be the repository URL of the selected resource from your working copy. You will need to change that URL to the new path for your branch/tag. To do this, click on the Browse button and choose a repository target directory for your resource.

Figure 13.25. Repository Browser dialog



Target Directory

Name: articles

You can also specify the source of the copy. There are three options:

- HEAD revision in the repository
  The new branch/tag will be copied in the repository from the HEAD revision. The branch will be created very quickly as the repository will make a cheap copy.
- Specific revision in the repository
  The new branch will be copied in the repository but you can specify exactly the desired revision. This is useful for example if you forgot to make a branch/tag when you released your application. If you click on the History button on the right you can select the revision number from the History dialog. This type of branch will also be created very quickly.
- Working copy
  The new branch will be a copy of your local working copy. If you have updated some files to an older revision in your working copy, or if you have made local changes, that is exactly what goes into the copy. This involves transferring some data from your working copy back to the repository, more exactly the locally modified files.

When you are ready to create the new branch/tag, write a commit comment in the corresponding field and press the OK button.

Merge branches

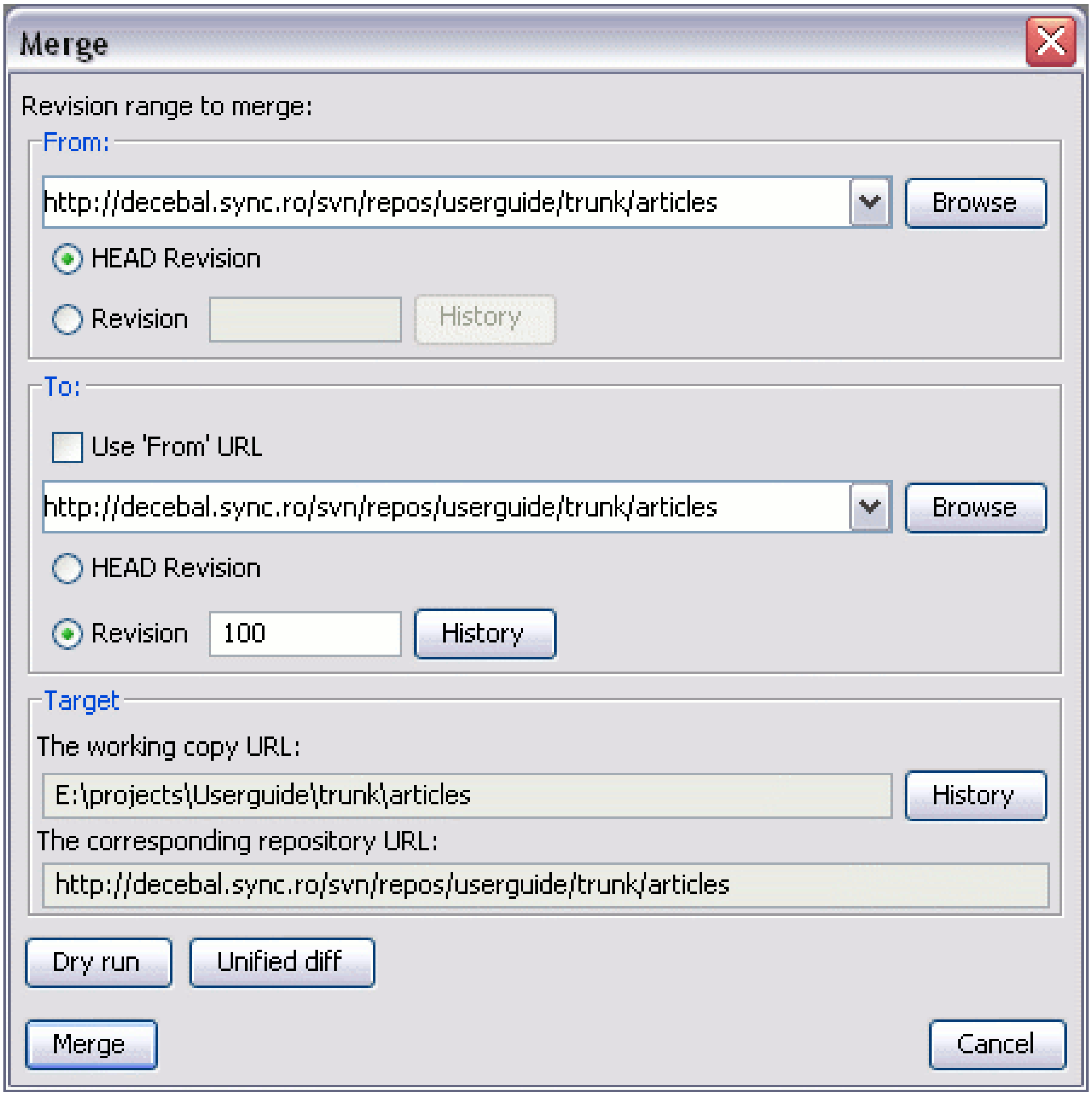
At some stage during the development you will want to merge the changes made on one branch back into the trunk, or vice versa.

Merge is closely related to Diff. The merge is accomplished by comparing two points (branches or revisions) in the repository and applying the obtained differences to your working copy.

It is a good idea to perform a merge into an unmodified working copy. If you have made changes to your working copy, commit them first. If the merge does not go as you expect, you may want to revert the changes and Revert cannot recover your uncommitted modifications.

The *Merge* command can be found in the context menu in the Working Copy view. The directory selected when you issued the command will be the result directory of the merge operation.

Figure 13.26. The Merge dialog



Merge

Revision range to merge:

From:

http://decebal.sync.ro/svn/repos/userguide/trunk/articles

● HEAD Revision

○ Revision

To:

□ Use 'From' URL

http://decebal.sync.ro/svn/repos/userguide/trunk/articles

○ HEAD Revision

● Revision 100

Target

The working copy URL:

E:\projects\Userguide\trunk\articles

The corresponding repository URL:

http://decebal.sync.ro/svn/repos/userguide/trunk/articles

By default the start URL will be the URL of the selected file in the working copy. You can browse the repository and select a start URL and then choose a revision.

If you want to merge a range of revisions, leave the *Use 'From' URL* checkbox checked and simply choose the end revision. Be careful when using the HEAD revision. It may not refer to the revision you think it does if someone else committed changes.

If you want to merge a different branch uncheck the *Use 'From' URL* checkbox, browse the repository for the desired branch, and choose a revision.

You can choose to do a Dry run of the *Merge operation* in order to see what files are affected and how, without modifying the working copy at all. This is very helpful in detecting where conflicts will occur.

You can also perform a Unified diff and obtain the diff patch file without doing a merge in the working copy. The diff file is not always easy to read out of context, but for small scale changes it is sometimes useful.

The target panel of the dialog reminds you the URL of the target resource from the working copy where the merge result will be saved and its corresponding repository URL.

Press the Merge button in order for the operation to take place. You will obtain the result in the selected resource from the working copy.

When the merge is completed it's a good idea to look at the result of the merge and see if it meets your expectations. Because merging is sometimes complicated, when there are major changes, conflicts may appear.

Working with repositories

Import / Export resources

Import resources into the repository

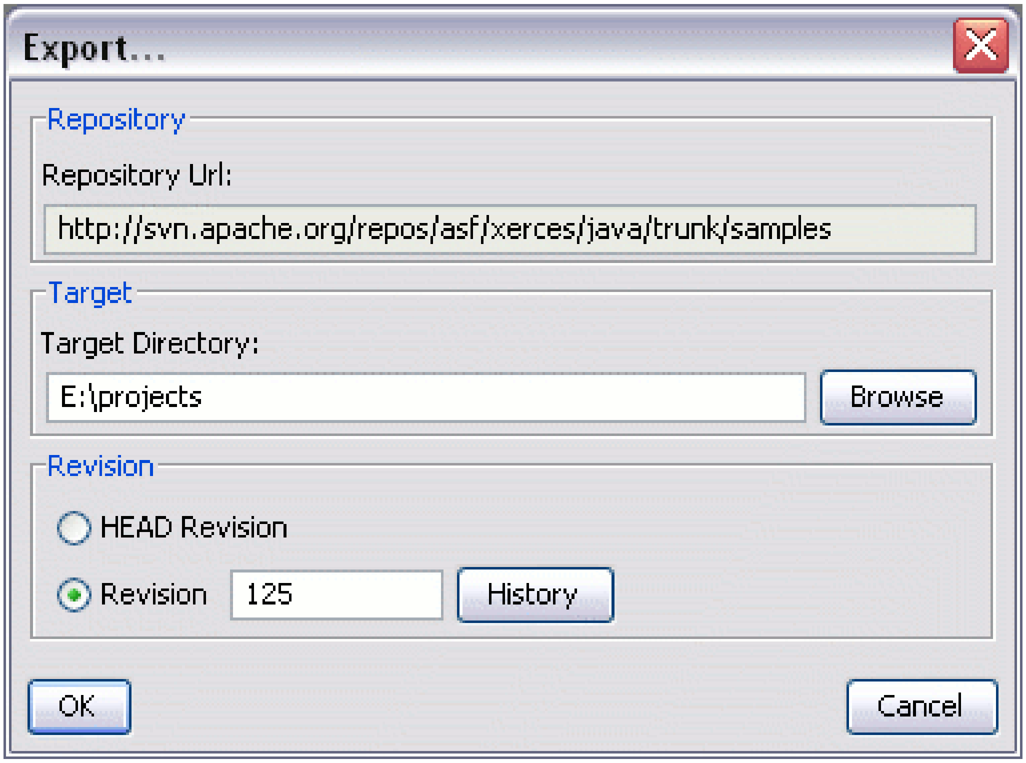
This is the process of taking a project and importing it into a repository so that it can be managed by Subversion. If you have already been using Subversion and you have an existing working copy you want to use, then you will likely want to follow the procedure for Use an existing working copy.

A dialog will ask you to select a directory that will be imported into the selected repository location. The complete directory tree will be imported into the repository including all files. The name of the imported folder will not appear in the repository, but only the contents of the folder will.

Export resources from the repository

This is the process of taking a resource from the repository and saving it locally in a clean form, with no version control information. This is very useful when you need a clean build for an installation kit.

Figure 13.27. The export dialog



Export...

Repository Url: http://svn.apache.org/repos/asf/xerces/java/trunk/samples

Target Directory: E:\projects

○ HEAD Revision

● Revision 125

The export dialog is very similar to the check out dialog. You can choose the target directory from the file system by pressing the *Browse* button. If you need to export a specific revision, you can select the *Revision* radio button and then click on the History button and choose a revision from the new dialog. Or you could simply type the revision number in the corresponding text field.

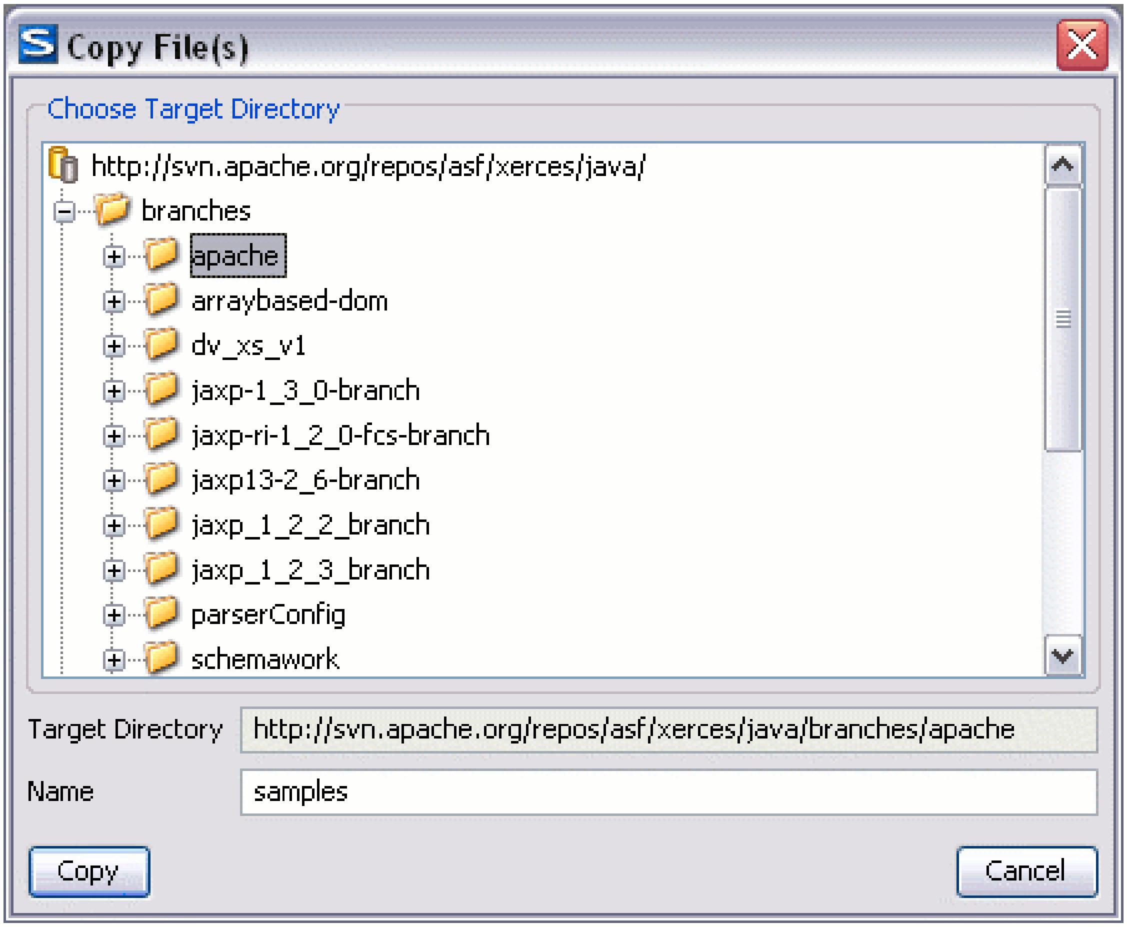
Please note that the content of the selected directory from the repository and not the directory itself will be exported to the file system.

Copy / Move / Delete resources from the repository

Once you have a location defined in the Repository view you can execute commands like copy, move and delete directly on the repository. The commands correspond to the following actions in the contextual menu.

The *Copy* action allows you to copy individual or multiple resources. After invoking the action the *Copy file* dialog will pop up.

Figure 13.28. Copy files dialog



Target Directory: http://svn.apache.org/repos/asf/xerces/java/branches/apache

Name: samples

The dialog displays the tree structure of the repository allowing you to choose the destination directory. The path of this target directory will be presented in the text field *Target directory*. If you choose to copy a single resource then an additional text field allows you to choose the new name of the copied resource.

The *Move action* will display a similar dialog allowing you to move the selected resources to a different folder. If you choose to move a single resource you can also change its name. This will allow you to *rename* a resource by moving it into the same parent directory but choosing a different name. The move operation is basically a *copy operation* followed by a *delete operation*. If you select a directory, any other selected descendants will be ignored when you have issued the move command.

Another useful action is *Delete*. This action allows you to delete resources directly from the repository. After choosing the action from the Repository view contextual menu a confirmation dialog will be displayed.

All three actions are commit operations and you will be prompted with the *Commit message* dialog.

Repository view

General description

The repository view allows you to define and manage Subversion repository locations. Repository files and folders are presented in a tree view with the repository locations at the first level, where each location represents a connection to a specific Subversion Repository. When hovering with the mouse over a repository resource a tooltip window will display more detailed information regarding: URL, last change revision, last change author, last change date.

Toolbar

The toolbar for the repository view contains the following buttons:

- New Repository Location - allows you to enter a new repository location by means of the *Add SVN Repository* dialog.
- Check Out - checks out a working copy from the selected directory in the repository. Displays the new working copy in the *Working Copy view*.
- Edit Repository Location - context dependent, allows you to edit the selected repository location by means of the *Edit SVN Repository* dialog. It is active only when a repository location root is selected.
- Remove Repository Location - allows you to remove the selected repository location from the view. It shows you a confirmation dialog before removal. It is active only when a repository location root is selected.

Contextual menu actions

The repository view has one contextual menu for the repository locations (roots) and another contextual menu for the repository resources. Besides the actions described above, the locations context menu from the repository view contains the following actions:

- Import - imports a directory from the file system into the selected directory from the repository.
- Export - exports a directory from the repository to the local file system.
- New Folder - allows you to create a new folder in the selected repository path.
- Information - provides additional information for the selected resource from the repository
- Show History - brings up the History view and displays the log history for the selected resource from the repository.
- Copy URL to Clipboard - copies the encoded URL for the selected resource from the repository.
- Refresh - refreshes the currently selected resources from the repository

The repository resources context menu from the view contains the following actions:

- Check Out - checks out a working copy from the selected directory in the repository.
- Import - imports a directory from the file system into the selected directory from the repository.
- Export - exports a directory from the repository to the local file system.

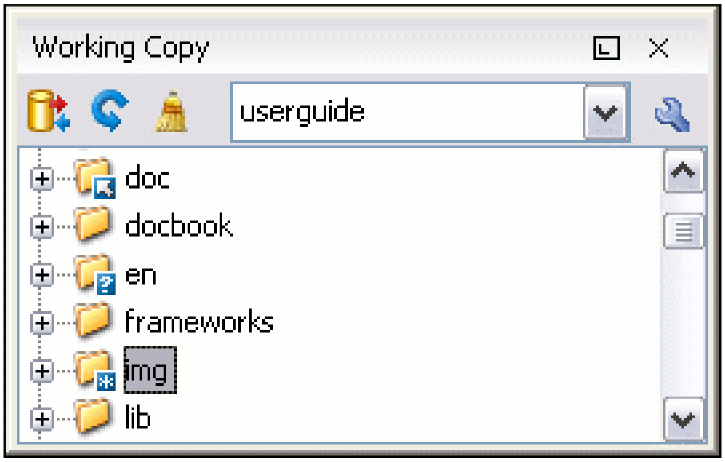
- Open - opens the selected file in the Editor view in read only mode.
- Copy - displays the *Copy files* dialog which allows you to select the location where the selected resources will be copied.
- Move - displays the *Move files* dialog which allows you to select the location where the selected resources will be moved.
- Delete - deletes the selected resources. It will ask for confirmation.
- Information - provides additional information for the selected resource from the repository
- Show History - brings up the History view and displays the log history for the selected resource from the repository.
- Copy URL to Clipboard - copies the encoded URL for the selected resource from the repository.
- Refresh - refreshes the currently selected resources from the repository

Working copy view

General description

The working copy view allows you to manage with ease the content of the working copy. Resources(files and folders) are presented in a tree view with the root of the tree representing the location of the working copy on the file system. Each resource has an icon representation which describes the type of resource and also depicts the state of that resource with a small overlay icon.

Figure 13.29.



Toolbar

The toolbar from the working copy view contains the following buttons:

- Synchronize - contacts the repository and determines the changes made by you to the working copy and by others to the repository. The synchronize result will be displayed in the Synchronize view. The actions performs a synchronize operation on the root of the working copy.

- Refresh - refreshes the content of the working copy. The content of the working copy is always scanned(refreshed) when starting the Subversion client or when changing the working copy from the combo box in the toolbar. However, if you make modifications from other applications outside the Subversion client, while the client is started, you will have to manually refresh the working copy. The action performs a refresh operation on the root of the working copy.

- Cleanup - performs a maintenance cleanup operation on the working copy. Sometimes, when an operation fails, the working copy will enter an inconsistent state in which some resources will remain locked by SVN. Cleanup removes those maintenance locks and allows you to continue your work. When the SVN client determines that an operation failed because the working copy is locked by SVN you will be asked if a *Cleanup* operation should be performed first.

- Combo box - The combo box list contains all the working copies the Subversion client is aware of. When you select another working copy from the combo, the newly selected working copy content will be scanned and displayed in the view.

- Add/Remove Working Copy - opens the *Working copies list* dialog which displays the working copies the Subversion client is aware of. In this dialog you can add existing or remove no longer needed working copies. If you try to add a directory which is not a valid Subversion working copy, a warning dialog will inform you that the selected directory is not under version control. Please note that removing a working copy from this dialog will NOT remove it from your file system; you will have to do that manually.

Contextual menu actions

The contextual menu in the Working Copy view contains the following actions:

- Open - This action will open the selected file in an editor where you can make modifications to it. The action is active only when a single file is selected.

- Synchronize - it contacts the repository and determines the working copy and the repository changes made to the selected resources. It displays the result of the operation in the *Synchronize view*. This is useful when you have a large working copy and you only want to verify the changes to a specific part you are currently working on.

- Update - This command updates your selected resources from the working copy to the HEAD revision from the repository (latest modifications). It differs from the update action from the *Synchronize view* in that it always brings you the HEAD revision from the repository. If a directory is involved it will be updated recursively. The action is active only on resources that are under version control.

- Commit - This action collects the outgoing changes from the selected resources in the working copy and presents them in a dialog. Then you can choose exactly what to commit by selecting or deselecting resources accordingly. A directory will always be committed recursively. The unversioned resources will be deselected by default. In the commit dialog you will also have to enter a commit comment before sending your changes to the repository.

- Add - This operation adds the selected resources to version control. A directory will be added recursively to version control. It is not mandatory to explicitly add resources to version control but it is recommended. At commit time unversioned resources will have to be manually selected in the commit dialog. It is only active on unversioned resources.

- Add to svn:ignore - This action can only be performed on resources not under version control. It allows you to keep inside your working copy, files that should not participate to the version control operations. The action actually modifies the value of the *svn:ignore* property of the resource's parent directory.
- New Folder - This operation creates a new folder and adds it to version control. If the selected path is not under version control, the newly created directory will not be added to version control.
- Delete - This action allows you to delete resources from the Subversion working copy. If unversioned, added or modified resources will be encountered, a dialog will prompt you to confirm their deletion. This is because their content cannot be recovered. The action it is not enabled when the selection contains *missing* resources.
- Copy - This action copies resources from the working copy. Each copy will also have the original resource's history. For more details please read the section Copy / Move / Rename resources
- Move - This command actually performs as if a copy and then a delete command were issued. You will find the moved resources at the desired destination and also at their original location but marked as deleted.
- Rename - You can only rename a resource at a time. As for the move command, a copy of the original resource will be made with the new name and the original will be marked as deleted.
- Mark resolved - This action is only enabled on *conflicted* resources and its function is to tell the Subversion system that you resolved the conflict. See the section Merge conflicts.
- Revert - Undoes all local changes for the selected resources. It does not contact the repository, the files will be obtained from Subversion's pristine copy. It is enabled only for modified resources. Read the Revert your changes section for more information.
- Cleanup - performs a maintenance cleanup operation to the selected resources from the working copy. This operation removes the Subversion maintenance locks that were left behind. Useful when you already know where the problem originated and want to fix it as quickly as possible. Only active for resources under version control.
- Information - provides additional information for the selected resource from the working copy. For more details please see the section Obtain information for a resource.
- Show history - It will display the *History view* where the log history for the selected resource will be presented. For more details about resource history see the sections Using the resource history view and Request history for a resource.
- Show properties - brings up the Properties view and displays the SVN properties for the selected resource.
- Branch/Tag - This action displays the Branch/Tag dialog where you can select the revision of the resource and the destination URL in the repository. For more details about creating branches and tags see the section Create a branch/tag.
- Merge - The selected resource will be considered the destination for the merge operation. From the displayed Merge dialog you will be able to specify the start URL and revision and also the end URL and revision. See section Merge branches for more details.
- Scan for locks - This action contacts the repository and recursively obtains the list of locks for the selected resources. A dialog containing the locked files and the lock description will be displayed. Only active for resources under version control. For more details see the section Scanning for locks.

- Lock - It allows you to lock certain files for which you need exclusive access. You can write a comment describing the reason for the lock and you can also force(steal) the lock. The action is active only on files under version control. For more details on the use of this action please read the section Locking a file.

- Unlock - This action releases(unlocks) the exclusive access to a file from the repository. You can also choose to unlock it by force(break the lock).

- Compare with:

  - Latest from Head - This action will perform a compare between the selected file and the HEAD revision from the repository and will display the result in the Compare view.

  - Base revision - This will compare the working copy file with the file from the pristine copy (BASE revision).

  - Revision - This command will bring to front the History view with the log history for that resource.

  These actions are enabled only if the selected resource is a file.

- Refresh - This action will rescan the selected resources recursively and refresh their status in the working copy view.

Icons

The icons in the working copy view have a small overlaid icon which describes the current state of the resource in the working copy. These state icons are:

- Unversioned - The resource marked with this symbol is not under version control. This is how new files are represented when they are created or copied from the file system.

- Added - This resource has been added to version control but has not been committed. This state is obtained after issuing an *Add* command on an unversioned resource.

- Added with history - This resource has been copied with history. This state is obtained by copying, moving or renaming a resource from the working copy.

- Modified - The resource has been locally modified since the last update. This is obtained after editing a file and making changes.

- Deleted - This resource has been deleted from the working copy. This state appears after deleting, moving or renaming files with Subversion.

- Missing/Incomplete - This resource is in an inconsistent state. If it's *missing*, it means it has been deleted from the file system without Subversion's knowledge. If it's *incomplete*, a check out or update action has probably failed or has been interrupted before finishing. A directory in such a state must be restored with an update action before any other action can be performed.

- Conflicted - This resource has conflicting changes. A resource can be in this state after an update, if it was modified both locally and on the repository and the modifications were overlapping.

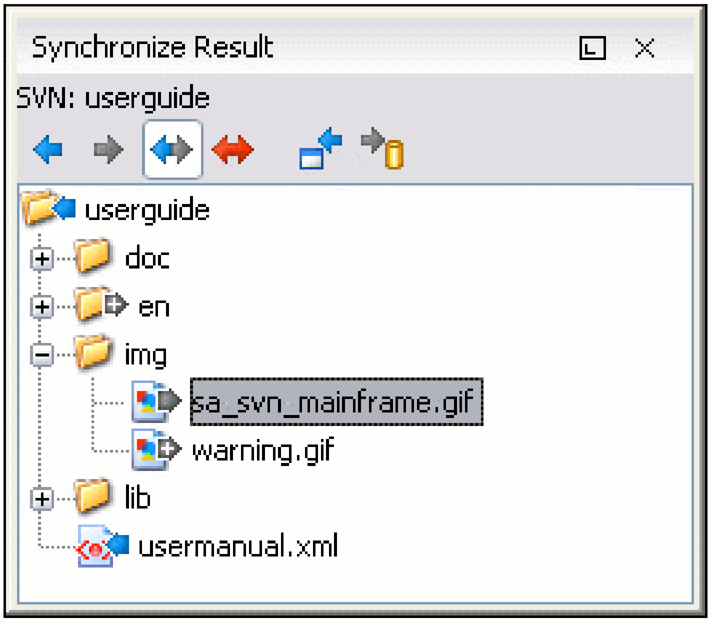
- External - This indicates a mapping of a local directory to the URL of a versioned resource. It is declared with a svn:externals property in the parent folder.
- Normal - A resource with no overlaid icon is an unmodified resource under version control.
- Grayed - A resource with a grayed icon but no overlaid icon is an ignored resource. It is obtained with the action *Add to svn:ignore*.

Synchronize View

General description

The synchronize view is visible in the default layout configuration. It displays the result of a *Refresh* or *Synchronize* operation in a hierarchical form. The nodes represent synchronized or refreshed resources and their status.

Figure 13.30. Synchronize view



Synchronize Result

SVN: userguide

userguide
doc
en
img
sa_svn_mainframe.gif
warning.gif
lib
usermanual.xml

Synchronize trees

The results are presented using four tree structures:

- Incoming changes tree - presents items which contain incoming changes. This includes resources modified and committed by others or resources newly added or newly deleted from the repository.

- Outgoing changes tree - presents resources with outgoing changes meaning that they have been modified locally or have been added or deleted from your working copy.
- Incoming - Outgoing tree - includes all the resources with incoming and outgoing changes
- Conflict tree - includes resources with conflicting state meaning they contain both incoming and outgoing changes (pseudo-conflicting state) or they are in a state of real conflict.

A resource which is in a real conflict state will not appear in the *Incoming tree*.

Toolbar

The *Synchronize view toolbar* consists of the following buttons:

- Incoming mode - filters synchronized resources displaying only the ones with incoming changes.
- Outgoing mode - filters synchronized resources displaying the ones with outgoing changes.
- In-Out mode - displays resources with incoming or outgoing changes, basically all resources with any type of change.
- Conflicts mode - filters synchronized resources displaying the ones in pseudo or real conflict state.
- Update all - updates all resources with incoming changes. It is disabled when *Outgoing* mode is selected or the synchronization result does not contain resources with incoming changes. It will perform a recursive update on the synchronized resources.
- Commit all - commits all resources with outgoing changes. It is disabled when *Incoming* mode is selected or the synchronization result does not contain resources with outgoing changes. It will perform a recursive commit on the synchronized resources.

Contextual menu actions

The contextual menu contains the following actions:

- Open in compare editor - if the selected file has a text content type it will be opened in the Compare view and a file differencing will be performed. If the file has a binary content type then the position of the first different byte will be displayed. It is disabled for directories. See also View differences section.
- Open - it is enabled only for existing local files and opens the selected one into the Editor. See also Edit files section.
- Update - it is enabled for resources with incoming changes. Updates all selected resources to the synchronized revision. If one of the selected resources is a directory then the update for that resource will be recursive.
- Commit - it is enabled for resources with outgoing changes. Commits all selected resources, recursively in the case of directories, to the repository. This action collects the outgoing changes from the

selected resources and presents them in a dialog. You can choose exactly what items will be committed by checking or unchecking them in the table. Also you will have to enter a commit comment. See also Sending your changes to the repository section.

- Add - it is enabled for unversioned resources. It performs a *svn add* command by adding the resources to version control. You can directly commit unversioned items because in this case the *Commit* action will perform first a *svn add* command.

- Add to svn:ignore - it is also enabled for unversioned resources. It is useful when you decide that some resources, for example some compiler generated Java classes, should be ignored by the Subversion system. The action modifies the value of the *svn:ignore* property of the parent directory. For more information read the section Ignore resources not under version control.

- Revert - it is useful when you want to undo all local changes made to a resource. It is enabled on resources which contain outgoing changes. Read the Revert your changes section for more information.

- Mark resolved - it is enabled on real conflicting resources. Its function is to tell the Subversion system that you resolved the conflict and the resource can be committed. See also Merge conflicts part.

- Mark as merged - the action is enabled on pseudo-conflicting resources. It is used after you resolved the pseudo-conflict by merging the changes and you want to commit the resource. Read the Merge conflicts section for more information on methods to solve the pseudo-conflicts.

- Override and update - it is enabled on resources with outgoing changes including the conflicting ones. It is used for dropping any outgoing change and replacing the local resource with the synchronized revision. See Revert your changes section.

- Override and commit - it is enabled on conflicting resources. The action will drop any incoming changes and will send your local version of the resource to the repository. See also Drop incoming modifications.

- Information - the action will display detailed information about the selected resource. See Show information section.

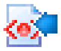
- Show history - the action will display into the History view the revision history of the selected resource. For more information read Request history for a resource and Using the resource history view sections.

- Show properties - displays the SVN properties for the selected resource into the Properties view.

- Expand all - expands the selected directories to leaf level.

Icons

The icons for the items displayed into the synchronized trees are the same icons used in the <oXygen/> XML Editor decorated with overlay images. The overlay icons correspond to the status of the resource as follows:

-  Incoming resource - resource with incoming changes.

- Remote added resource - resource that was added on the repository and is not present in your working copy.

- Remote deleted resource - resource that no longer exists in the repository.

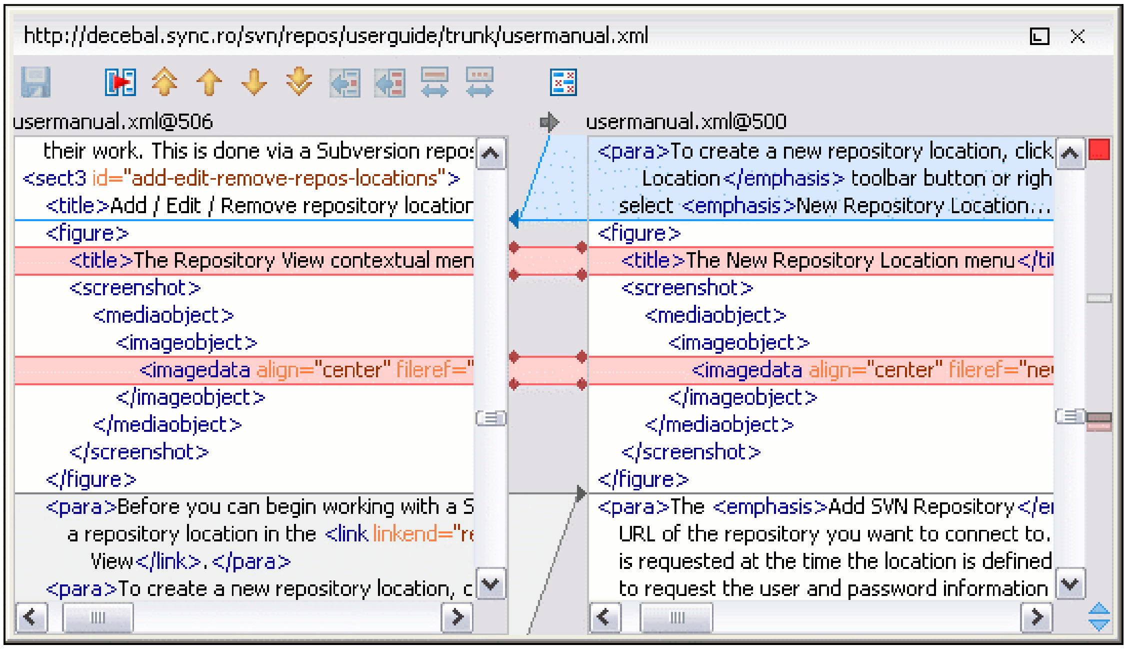
- Outgoing resource - resource with outgoing changes.
- Locally added or unversioned resource - resource added locally to version control or a resource not yet under version control.
- Locally deleted or missing resource - a resource that you deleted with *Delete* action or that was deleted from the file system in some other way.
- Conflicting resource - resource in a pseudo or real conflicting state.

Compare view

Description

In the <oXygen/> SVN client there are two types of files that can be checked for differences: text files and binary files. For the text files you can use the built-in *Compare view*.

Figure 13.31. Compare view



http://decebal.sync.ro/svn/repos/userguide/trunk/usermanual.xml

usermanual.xml@506

```
  their work. This is done via a Subversion repos
<sect3 id="add-edit-remove-repos-locations">
  <title>Add / Edit / Remove repository locatior
  <figure>
    <title>The Repository View contextual men
    <screenshot>
      <mediaobject>
        <imageobject>
          <imagedata align="center" fileref="
        </imageobject>
      </mediaobject>
    </screenshot>
  </figure>
  <para>Before you can begin working with a S
    a repository location in the <link linkend="re
      View</link>.</para>
  <para>To create a new repository location, c
```

usermanual.xml@500

```
<para>To create a new repository location, click
    Location</emphasis> toolbar button or righ
  select <emphasis>New Repository Location...
<figure>
  <title>The New Repository Location menu</til
  <screenshot>
    <mediaobject>
      <imageobject>
        <imagedata align="center" fileref="ne
      </imageobject>
    </mediaobject>
  </screenshot>
</figure>
<para>The <emphasis>Add SVN Repository</er
  URL of the repository you want to connect to.
  is requested at the time the location is defined
  to request the user and password information
```

The differences are computed using a line differencing algorithm. The view can be used to show the differences between two files in the following cases:

- After obtaining the outgoing status of a file with a Refresh operation, the view can be used to show the differences between your working file and the pristine copy. In this way you can find out what changes you will be committing.
- After obtaining the incoming and outgoing status of the file with the Synchronize operation, you can

examine the exact differences between your local file and the synchronized revision file.

- You can use the Compare view from the History view to compare the local file and a selected revision or compare two revisions of the same file.

If in any of the cases one of the involved files cannot be loaded then you will be prompted with a dialog informing you about the file that cannot be opened. The Compare view contains two editors. Edits are allowed only in the left editor and only when it contains the working copy file. To learn more about how the view can be used in the day by day work you can read the section View differences.

Toolbar

The list of actions available in the toolbar consists of:

- Save action - it allows you to save the content of the left editor when it can be edited.
- Perform files differencing - used to perform files differencing on request.
- Go to first modification - used to navigate to the first difference.
- Go to previous modification - used to navigate to the previous difference.
- Go to next modification - used to navigate to the next difference.
- Go to last modification - used to navigate to the last difference.
- Copy change from right to left - this action copies the selected change from the right editor to the left editor.
- Copy all non-conflicting changes from right to left - this action copies all non-conflicting changes from the right editor to the left editor. A non-conflicting change from the right editor is a change that does not overlap with a left editor change.
- Show modification details at word level - because the differences are computed using a line differencing algorithm sometimes is useful to see exactly what words are different in a changed section.
- Show modification details at character level - useful when you want to find out exactly what characters are different between the two analyzed sections.
- Ignore whitespaces - Enables or disables the whitespace ignoring feature.

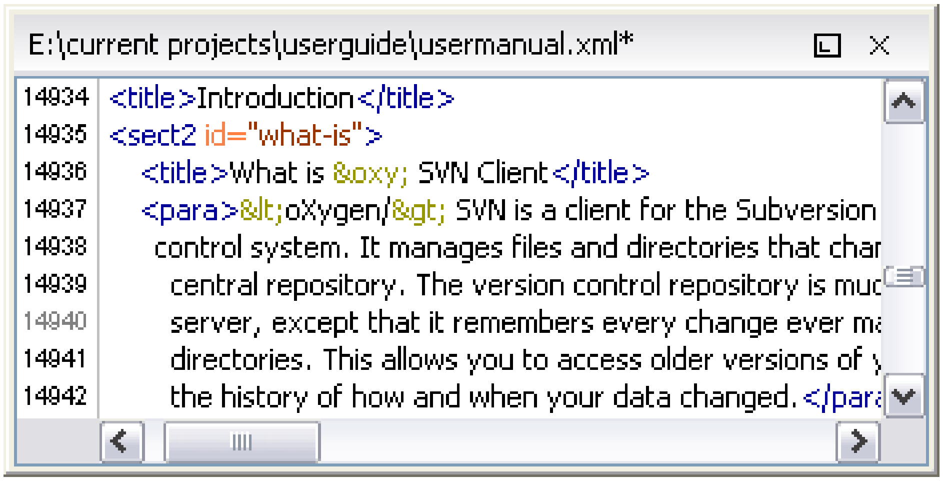
These actions are available also from the Compare menu.

Editor

Description

You can edit your local files by using the built-in *Editor*. The editor can be accessed either from the Working copy view or from the Synchronize view. The editor can also be used from the History view to view a selected revision of a file. In this case there are no edits allowed.

Figure 13.32. Editor view



```
<title>Introduction</title>
<sect2 id="what-is">
  <title>What is &oxy; SVN Client</title>
  <para>&lt;oXygen/&gt; SVN is a client for the Subversion
   control system. It manages files and directories that char
     central repository. The version control repository is muc
     server, except that it remembers every change ever ma
     directories. This allows you to access older versions of y
     the history of how and when your data changed.</para
```

Only one file can be edited at a time, if you try to open another file it will be opened in the same editor window. The editor has syntax highlighting for known file types. This means that a different color will be used for each type of recognized token in the file. If the content type of the file is unknown you will be prompted to choose the proper way the file should be opened.

After editing the content of the file you can save it to disk by using the *Save* action from the File menu or the Ctrl + S key shortcut. After saving your file you can see the file changed status into Working copy view and Synchronize view.

History view

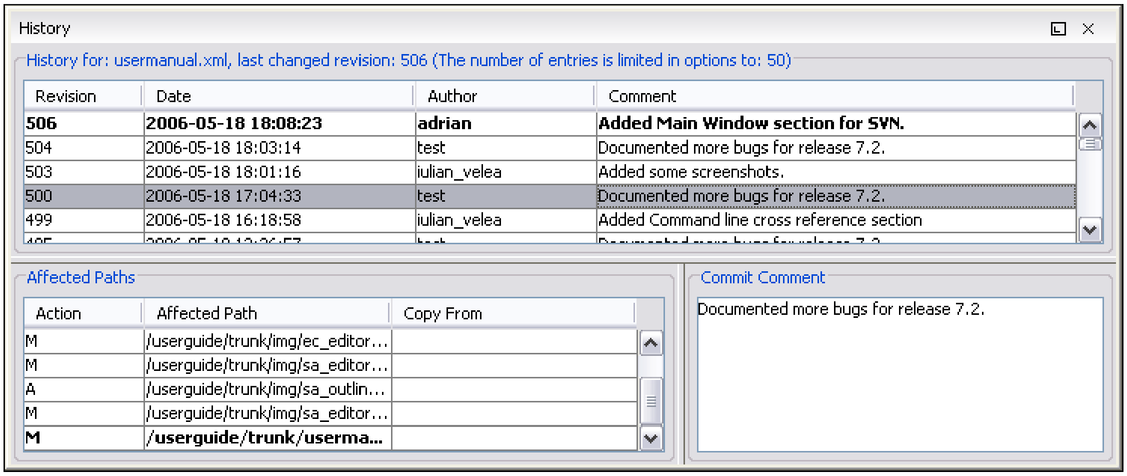
Description

In Subversion, both files and directories are versioned and have a history. If you want to examine the history for a selected resource and find out what happened at a certain revision you can use the *History view* that can be accessed from any of the three views: Repository view menu, Working copy view menu or Synchronize view menu. From the *Repository view* you can display the log history regarding any repository resource. From the *Working copy view* you can display the history of local versioned resources. From the *Synchronize view* you can show the history of any incoming or outgoing resources.

The view consists of three distinct areas:

- The revision table showing revision numbers, date/time of revision, the name of the author, as well as the first line of the commit message.
- The list of resources affected by this revision (modified, added, deleted or changed properties).
- The commit message for the selected revision.

Figure 13.33. History view



History for: usermanual.xml, last changed revision: 506 (The number of entries is limited in options to: 50)

Revision	Date	Author	Comment
506	**2006-05-18 18:08:23**	**adrian**	**Added Main Window section for SVN.**
504	2006-05-18 18:03:14	test	Documented more bugs for release 7.2.
503	2006-05-18 18:01:16	iulian_velea	Added some screenshots.
500	2006-05-18 17:04:33	test	Documented more bugs for release 7.2.
499	2006-05-18 16:18:58	iulian_velea	Added Command line cross reference section

Affected Paths

Action	Affected Path	Copy From
M	/userguide/trunk/img/ec_editor…	
M	/userguide/trunk/img/sa_editor…	
A	/userguide/trunk/img/sa_outlin…	
M	/userguide/trunk/img/sa_editor…	
M	**/userguide/trunk/userma…**	

Commit Comment

Documented more bugs for release 7.2.

The *Resource history view* does not always show all the changes ever made to a resource because there may be thousands of changes and retrieving the entire list can take a long time. Normally you are interested in the more recent ones and that is why the number of revisions is limited by default from the options to 50. This can be changed by accessing the Preferences->SVN page.

Note

When using Subversion servers older than version 1.2, a history request may take a very long time because the server will reply with the entire history even if you limited the number of entries to a smaller number.

Features

Single selection actions:

- Open - opens the selected revision of the file into the Editor. This is enabled only for files.
- Compare with working copy - compares the selected revision with your working copy file. It is enabled only when you select a file.
- Save revision as - saves the selected revision to a file so you have an older version of that file. This option is only available when you access the history of a file, and it saves a version of that one file only.
- Update to revision - updates your working copy resource to the selected revision.
- Check out from revision - gets the content of the selected revision for the resource into local file system.
- Revert changes from this revision - reverts changes made in the selected revision.

Double selection actions:

- Compare revisions - compares the two selected revisions using the Compare view. It is enabled when the resource is a file.
- Revert changes from these revisions - similar to the svn-merge command, it merges two selected revi-

sions into the working copy resource. This action is only enabled when the resource history was requested for a working copy item.

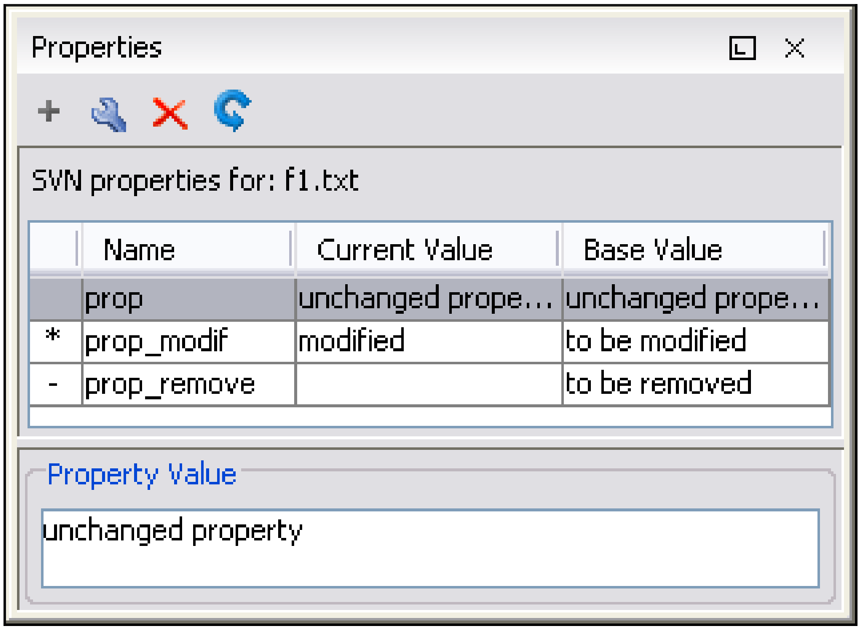
For more information about the *History view* and its features please read the sections Request history for a resource and Using the resource history view

Properties view

Description

The properties view presents the Subversion properties for the currently selected resource from either the *Working copy view* or the *Synchronize view*.

Figure 13.34. The properties view



Properties

SVN properties for: f1.txt

	Name	Current Value	Base Value
	prop	unchanged prope...	unchanged prope...
*	prop_modif	modified	to be modified
-	prop_remove		to be removed

Property Value

unchanged property

Above the table it is specified the currently active resource for which the properties are presented. Here you will also find a warning when an unversioned resource is selected.

The table in which the properties are presented has four columns:

- State - can be one of
  - (empty) - normal unmodified property, same current and base values.
  - *(asterisk) - modified property, current and base values are different.
  - +(plus) - new property.
  - -(minus) - removed property.
- Name - the property name.

- Current value - the current value of the property.
- Base value - the base(original) value of the property.

Toolbar / Contextual menu

The properties view toolbar and contextual menu contain the following actions:

- Add a new property - This button invokes the *Add property* dialog in which you can specify the property name and value.
- Edit property - This button invokes the *Edit property* dialog in which you can change the property value and also see its original(base) value.
- Remove property - This button will prompt a dialog to confirm the property deletion. You can also specify if you want to remove the property recursively.
- Refresh - This action will refresh the properties for the current resource.

Console view

Description

The *Console View* shows the communication between your client and the Subversion repository. The output is expressed as subcommands to the Subversion server and simulates the Subversion command line notation. For a detailed description of the Subversion console output read the *SVN User Manual*. In the right toolbar there is available a *Remove all* action which clears the content of the view.

The maximum number of lines displayed in the console (the length of the buffer) can be modified from Preferences. By default this is set to 100.

Help view

Description

The *Help view* is a dynamic help window. It changes its content displaying the help section referring to the currently selected view. As you change the focused view you will be able to read a short description of it and its functionality.

SVN Client Preferences

The options used in the SVN client are saved and loaded independently from the <oXygen/> XML Editor options. However if at the SVN Client's first startup it cannot be determined a set of SVN options to be loaded, some of the preferences are imported from the XML Editor options (e.g. License and HTTP Proxy settings).

The preferences dialog can be accessed from the Options -> Preferences. The preferences panels are called SVN and HTTP/FTP/Proxy Configuration.

Command line interface cross reference

This section specifies the equivalent Subversion commands for each action in the <oXygen/> Subversion client action.

Actions commands reference

Checkout

svn checkout [--revision rev] URL PATH

--revision rev specifies the desired revision(if necessary).

URL is the repository URL you want to check out from.

PATH is the location on the file system.

Update

svn update [--revision rev] PATH

--revision rev specifies the desired revision(if necessary).

PATH is the location on the file system of the resource to update.

There are two behaviours for the update action in <oXygen/> Subversion client. If invoked from the Synchronize View, it updates the resources to the synchronized revision. If invoked from the Working Copy view it always updates to the HEAD revision.

Commit

svn commit -m "log message" [--no-unlock] PATH...

-m "log message" specifies the commit comment.

--*no unlock* specifies that the resource should keep locks after commit if this is the case.

PATH is the location on the file system of the resource to commit. Can be more than one.

Diff

svn diff --revision rev1:rev2 PATH

--revision rev1:rev2 specifies the desired revisions to be compared.

PATH is the location on the file system of the resource to be compared.

If you use the *Compare with latest from HEAD* from the Working copy view you will be comparing the local file with the HEAD revision file. If you use *Compare with BASE revision* the local file will be compared with the pristine copy. From the Synchronize view you can compare the working copy file with the synchronized revision file. You can choose to compare the local file with an older revision or two revisions of the same file from the History view.

Show History

svn log [--revision rev1:rev2] [--limit N] --verbose PATH

--revision rev1:rev2 - specifies the range of revisions for which to obtain the log.

--limit N - limits the number of log messages to N.

--verbose - gives detailed information about the operation.

<oXygen/> Subversion client uses by default the *--limit* option in order to obtain only 50 log messages.

Refresh

svn status --verbose PATH

--verbose - specifies that the status of all files should be reported.

PATH - The location on the file system to get status for.

Synchronize

svn status --show-updates PATH

--show-updates - get the resource status by contacting the repository.

PATH - The location on the file system to get status for.

Import

svn import -m "log message" PATH URL

-m "log message" - specifies the commit log message

PATH - the local path to the resource on the file system.

URL - the URL on the repository where the resource will be imported.

Export

svn export [--revision rev] URL PATH

--revision rev specifies the desired revision(if necessary).

URL is the repository URL you want to export from.

PATH is the location on the file system where to export.

Information

svn info [--revision HEAD] PATH | URL

--revision HEAD - specifies that the information will be for the HEAD revision of the resource.

PATH - the local file system path to the resource.

URL - the repository URL for the resource.

This command can obtain information for a resource from a working copy or from a Subversion repository.

Add

svn add PATH...

PATH- the local file system path for the unversioned resources to be added to version control. More than one can be specified.

Add to svn:ignore

svn propset svn:ignore PATH PARENTPATH

svn:ignore - the predefined property name for ignoring resources.

PATH - the relative path from the working copy root for the resource to be ignored.

PARENTPATH - the path to the parent of the resource to be ignored.

Delete

svn delete --recursive PATH | URL

--recursive - specifies that he operation should be performed recursively.

PATH- the local file system path for the resource to delete.

URL- the repository URL for the resource to delete.

This command can delete resources from a working copy or from a Subversion repository.

Copy

svn copy (SRCPATH DSTPATH) | (SRCURL DSTURL)

SRCPATH - the working copy path of the resource to be copied.

DSTPATH - the working copy path to be copied to.

SRCURL - the repository path of the resource to be copied.

DSTURL - the repository path to be copied to.

Move / Rename

(SRCURL DSTURL)

SRCPATH - the working copy path of the resource to be moved.

DSTPATH - the working copy path to be moved to.

SRCURL - the repository path of the resource to be moved.

DSTURL - the repository path to be moved to.

Mark resolved

svn resolved --recursive PATH

--recursive - specifies that he operation should be performed recursively.

PATH - the path to the resource in the local working copy.

Revert

svn revert [--recursive] PATH

--recursive - specifies that he operation should be performed recursively.

PATH - the local working copy path to revert.

Cleanup

svn cleanup PATH

PATH - the working copy path to cleanup.

Show / Refresh Properties

svn proplist PATH & *svn propget PROPNAME PATH*

PATH - the local path for the resource

PROPNAME - the property name.

First you can discover the property names with *svn proplist*, then you can obtain their values with *svn propget*.

Branch / Tag

svn copy -m "log message" URL1 URL2 or *svn copy -m "log message" URL1@rev1 URL2* or *svn copy -m "log message" PATH URL*

-m "log message" - the commit comment

URL1 - the source repository URL.

rev1 - the revision of the source.

URL2 - the destination repository URL.

PATH - the source working copy path.

URL - the destination repository URL.

Merge

Merge - *svn merge [--dry-run] rev1:rev2 URL PATH* or *svn merge [--dry-run] URL1@rev1 URL2@rev2 PATH*

--dry-run - specifies that the operation will be simulated without making any modifications.

URL - the repository URL for the resource to merge.

URL1 - the repository URL for the start branch to merge.

rev1 - the start revision for the resource to merge.

URL2 - the repository URL for the end branch to merge.

rev2 - the end revision for the resource to merge.

PATH - the destination path in the working copy for the result of the merge

Scan for locks

svn status --show-updates --verbose PATH

--show-updates - get the resource status by contacting the repository.

--verbose - specifies that the status of all files should be reported.

PATH - The location on the file system to get status for.

The command will obtain the repository status for all the resources in the path.

Lock

svn lock [--force] [-m "log message"] PATH

--force - forces(steals) the lock

-m "log message" - the lock comment.

PATH - the path to the file from the working copy..

Unlock

svn unlock [--force] PATH

--force - forces(breaks) the lock

PATH - the path to the file from the working copy..

Mark as merged

Mark as merged - *rename FILE FILE.TMP*, *svn update FILE* and *rename FILE.TMP FILE*

FILE - the file to be marked as merged.

FILE.TMP - a temporary filename.

Override and update

svn revert PATH, svn update PATH

PATH - the path of the resource to be overridden.

Override and commit

If the resource is in conflict it performs first *mark resolved* and if the resource has incoming changes *mark as merged* and then *svn commit -m "log message" [--no-unlock] PATH*

-m "log message" specifies the commit comment.

--*no unlock* specifies that the resource should keep locks after commit if this is the case.

PATH is the location on the file system of the resource to be committed.

Add / Edit property

svn propset [--recursive] PROPNAME PROPVALUE PATH

--*recursive* - specifies that the property should be set recursively.

PROPNAME - the property name.

PROPVALUE - the property value.

PATH - the resource path.

Remove property

svn propdel [--recursive] PROPNAME PATH

--*recursive* - specifies that the property should be deleted recursively.

PROPNAME - the property name.

PATH - the resource path.

Revert changes from this revision

svn merge rev:rev-1 URL

rev - revision whose changes must be reverted.

URL - The SVN URL corresponding to the resource.

Revert changes from these revisions

svn merge rev1:rev2 URL

rev1 - first revision number.

rev2 - second revision number.

URL - The SVN URL corresponding to the resource.

Chapter 14. How to develop an <oXygen/> plugin

This chapter explains how to write and install a plugin for <oXygen/> XML Editor 7.2 or higher. It treats the standalone version, that is not the Eclipse plugin.

Introduction

<oXygen/> defines a couple of extension points to allow providing custom functionality via plugins. The plugin support is simple and rather limited at this time, it was developed at user requests, and includes four types of plugins

- General plugins
- Selection plugins
- Document plugins
- Custom protocol plugins

Requirements

In order to develop a plugin a Java development environment must be installed. Apart from any library that the specific plugin will require the file `oxygen.jar` is necessary for plugin compilation. Also an <oXygen/> installation will be helpful for testing the deployment and plugin the functionality.

Implementing plugins

On the <oXygen/> website there is a plugin development kit [http://www.oxygenxml.com/InstData/Plugins/OxygenPluginsDevelopmentKit.zip] with some sample plugins (source code and compiled code) and the Javadoc API necessary for developing custom plugins. On the Plugins page [http://www.oxygenxml.com/plugins.html] there is a developer manual [http://www.oxygenxml.com/doc/HowToDevelopOxygenPlugins.pdf] with instructions for developing custom plugins.

The minimal implementation of a plugin must provide two classes: one that extends the *Plugin* class and another that implements the plugin extension and a plugin descriptor file. There are four available extensions *SelectionPluginExtension*, *DocumentPluginExtension*, *GeneralPluginExtension* and *URLStreamHandlerPluginExtension*.

A *PluginDescriptor* object is passed to the plugin class on constructor containing information about the plugin

- *basedir* - *File* - the base directory of the plugin.
- *description* - *String* - the description of the plugin.
- *name* - *String* - the name of the plugin.
- *vendor* - *String* - the vendor name of the plugin.

- *version* - *String* - the plugin version.

The *PluginDescriptor* fields are filled with information from the plugin descriptor file.

The plugin descriptor defines how the plugin will be integrated in <oXygen/> and what libraries should be loaded. The structure of the plugin descriptor file is given below:

```
<!-- the document root -->
<!ELEMENT plugin (#PCDATA | runtime | extension)*>
<!-- the name of the plugin -->
<!ATTLIST plugin name CDATA #IMPLIED>
<!-- the description of the plugin -->
<!ATTLIST plugin description CDATA #IMPLIED>
<!-- the plugin version -->
<!ATTLIST plugin version CDATA #IMPLIED>
<!-- the plugin vendor -->
<!ATTLIST plugin vendor CDATA #IMPLIED>
<!-- the plugin class -->
<!ATTLIST plugin class CDATA #IMPLIED>

<!ELEMENT runtime (#PCDATA | library)*>

<!ELEMENT library (#PCDATA)>
<!-- the jar archive -->
<!ATTLIST library name CDATA #IMPLIED>

<!ELEMENT extension (#PCDATA)>
<!-- the extension type. Currently are available three types:
selectionProcessor, documentProcessor and generalExtension -->
<!ATTLIST extension type CDATA #IMPLIED>
<!-- the class that implements PluginExtension and
contains the method process -->
<!ATTLIST extension class CDATA #IMPLIED>
```

General plugins

GeneralPluginExtension - this interface is intended for general purpose plugins - kind of external tools but triggered from the *Plugins* main menu. The implementing classes must contain the method *process(GeneralPluginContext)* which should provide the plugin processing. This method takes as a parameter an *GeneralPluginContext* object.

GeneralPluginContext - represents the context in which the general plugin extension does its processing. The only method available is *getFrame()* which returns the currently editing frame (*java.awt.Frame*). It is useful if the plugin wants to display graphical components as they in general need a parent in order to appear properly on screen.

Selection plugins

SelectionPluginExtension - This interface is intended for selection processing plugins. It works as follows: the user makes a selection in the editor and then goes to the contextual menu and selects from the *Plugins* section the corresponding entry. The context containing the selection is passed to the extension and the processed result is going to replace the initial selection.

The context is represented by an *SelectionPluginContext* object, this provides two methods:

- *getSelection()* - *String* - returns the current selection of text.

- *getFrame() - Frame* - returns the currently editing frame.

The process method must return a *SelectionPluginResult* object which contains the result of the processing.

Document plugins

DocumentPluginExtension - This interface is intended for document processing plugins. This type of plugins can be started from the contextual menu, *Plugins* section, by selecting the corresponding entry. The context containing the current document is passed to the extension in order to be processed.

The context is represented by an *DocumentPluginContext* object, this provides two methods:

- *getDocument() - Document* - returns the current document.
- *getFrame() - Frame* - returns the currently editing frame.

The process method can return a *DocumentPluginResult* object containing a new document.

Custom protocol plugins

URLStreamHandlerPluginExtension allows the developer to work with a protocol that he designed for retrieving and storing files.There is one method that has to be implemented: *getURLStreamHandler()*. It takes as an argument the name of the protocol and returns the handler for it, or null if it wasn’t able to find it.

With the help of the *URLChooserPluginExtension* interface, it is possible to write your own dialog that will work with the custom protocol. This interface provides two methods:

- *chooseURL() - URL* - returns the URL with the custom protocol
- *getMenuName() - String* - returns the name of the entry that will be added in the File submenu of the editor

Example - *UppercasePlugin*

The following plugin is an example. It is used in <oXygen/> for capitalizing the characters in the current selection. This example consist of two classes and the plugin descriptor:

```
package ro.sync.sample.plugin.uppercase;

import ro.sync.exml.plugin.Plugin;
import ro.sync.exml.plugin.PluginDescriptor;

public class UppercasePlugin extends Plugin {
    /**
    * Plugin instance.
    */
    private static UppercasePlugin instance = null;

    /**
    * UppercasePlugin constructor.
    *
    * @param descriptor Plugin descriptor object.
    */
    public UppercasePlugin(PluginDescriptor descriptor) {
        super(descriptor);

        if (instance != null) {
            throw new IllegalStateException("Already instantiated !");
        }
        instance = this;
    }

    /**
    * Get the plugin instance.
    *
    * @return the shared plugin instance.
    */
    public static UppercasePlugin getInstance() {
        return instance;
    }
}
```

```
package ro.sync.sample.plugin.uppercase;

import ro.sync.exml.plugin.selection.SelectionPluginContext;
import ro.sync.exml.plugin.selection.SelectionPluginExtension;
import ro.sync.exml.plugin.selection.SelectionPluginResult;
import ro.sync.exml.plugin.selection.SelectionPluginResultImpl;

public class UppercasePluginExtension implements SelectionPluginExtension {
    /**
    * Convert the text to uppercase.
    *
    *@param  context  Selection context.
    *@return          Uppercase plugin result.
    */
    public SelectionPluginResult process(SelectionPluginContext context) {
        return new SelectionPluginResultImpl(
            context.getSelection().toUpperCase());
    }
}
```

```
<!DOCTYPE plugin SYSTEM "../plugin.dtd">
<plugin
    name="UpperCase"
    description="Convert the selection to uppercase"
    version="1.0.0"
    vendor="SyncRO"
    class="ro.sync.sample.plugin.uppercase.UppercasePlugin">
    <runtime>
        <library name="lib/uppercase.jar"/>
    </runtime>
    <extension type="selectionProcessor"
        class="ro.sync.sample.plugin.uppercase.UppercasePluginExtension"/>
</plugin>
```

Example - a custom protocol plugin

1. Write the handler class for your protocol (implement the *java.net.URLStreamHandler* interface)

   Note

   You must be carefull to provide ways to correct and uncorrect the URLs of your files.

2. Write the plugin class (the (*ro.sync.exml.plugin.*)*Plugin* class must be extended in order to create the new plugin)

3. Write the plugin extension class. It is necessary that the plugin extension for the custom protocol implements the *URLStreamHandlerPluginExtension* interface. Without it, you can’t use your plugin,because <oXygen/> will not be able to find the protocol handler.

   You can choose to implement also the *URLChooserPluginExtension* interface. It will allow you to write and use your own customized dialog for this protocol.

4. Write the plugin.xml file (remember to change the name of the plugin class to the one from the second step and the plugin extension class name with the one you’ve chosen at step 3)

5. Create a .jar archive and install your new plugin.

Installing the plugin

In the directory where <oXygen/> is installed there exists a directory called `plugins`. This contains all the available plugins. In order for <oXygen/> to use the new functionality you provided follow the next steps:

1. In the directory `plugins` create a new directory, generally named after your plugin. For instance in the uppercase plugin example this can be `Uppercase.`

2. Put in this new folder the plugin descriptor file, "plugin.xml" and the plugin files.

3. Restart <oXygen/> and try your plugin.

Chapter 15. Configuring the editor

Reset options

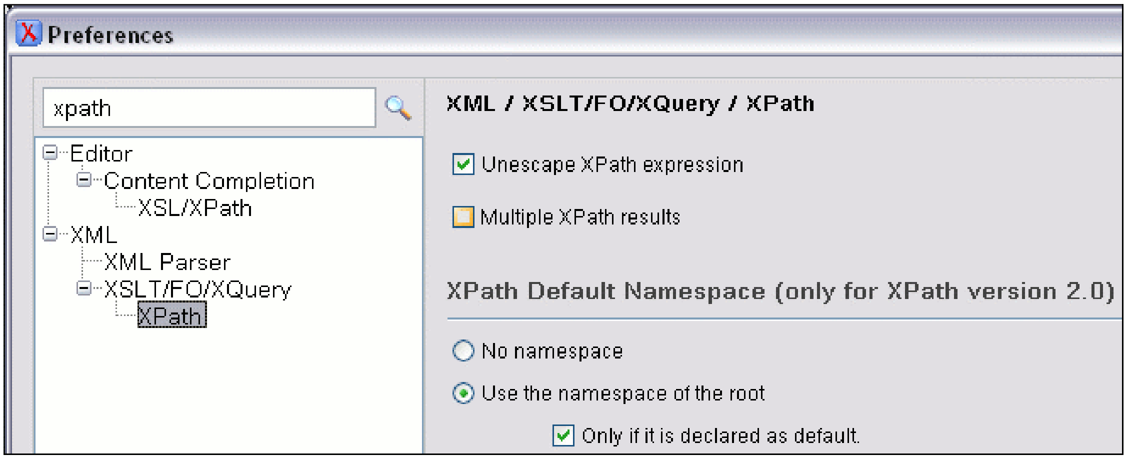
To reset all custom user settings of <oXygen/> to the installation defaults go to: Options+Window → Reset Options+oXygen+Reset Options The list of transformation scenarios will be reset to the default scenarios.

Preferences

Once <oXygen/> is installed you can use the Preferences dialog accessed from Options → Preferences to customize <oXygen/> for your requirements and network environment.

There is a search field available in the dialog for selecting only the preferences panels containing required words in the panel title or in the text of a label or a button contained in the panel.

Figure 15.1. The Search field from the Preferences dialog



Preferences

xpath

- Editor
  - Content Completion
    - XSL/XPath
- XML
  - XML Parser
  - XSLT/FO/XQuery
    - XPath

XML / XSLT/FO/XQuery / XPath

☑ Unescape XPath expression

□ Multiple XPath results

XPath Default Namespace (only for XPath version 2.0)

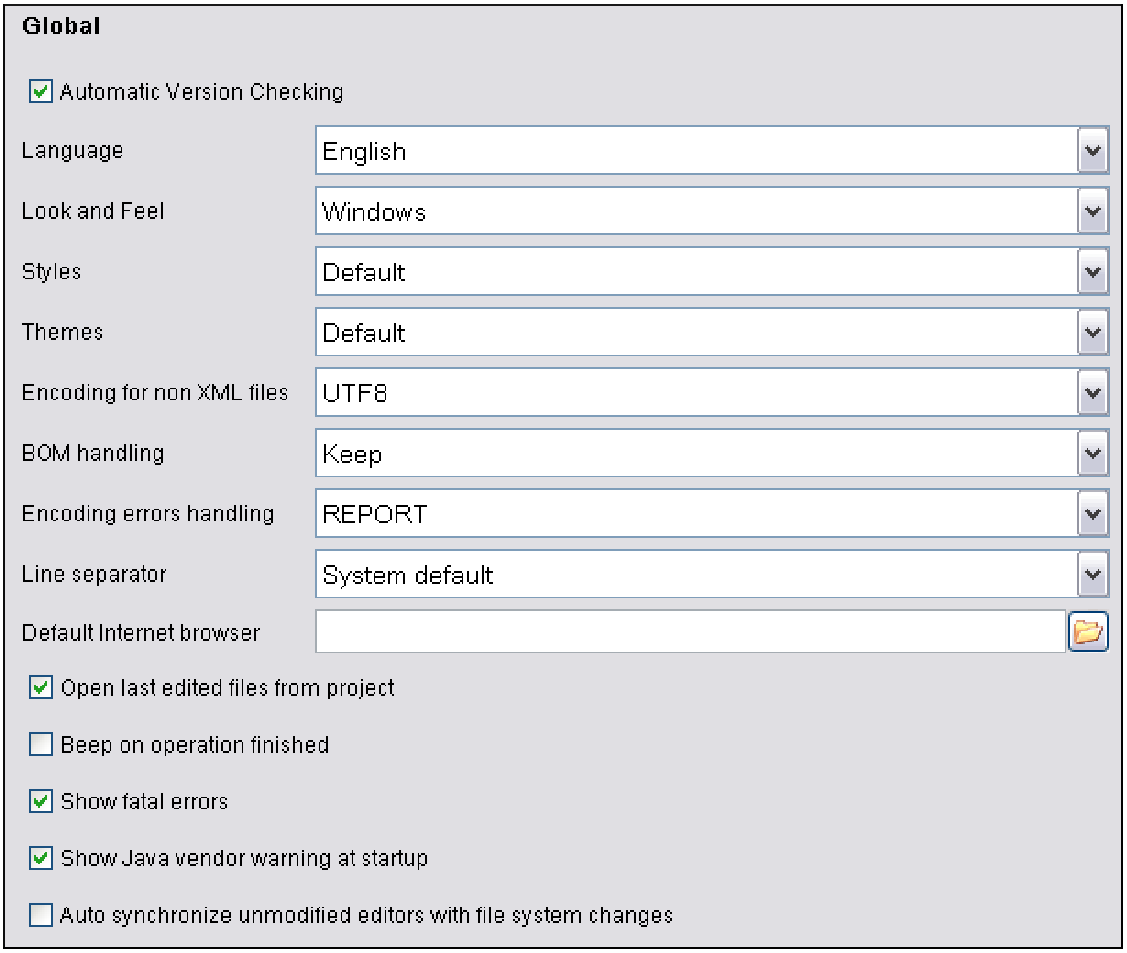
○ No namespace

● Use the namespace of the root

☑ Only if it is declared as default.

Global

Figure 15.2. The Global preferences panel



Global

☑ Automatic Version Checking

Language: English

Look and Feel: Windows

Styles: Default

Themes: Default

Encoding for non XML files: UTF8

BOM handling: Keep

Encoding errors handling: REPORT

Line separator: System default

Default Internet browser:

☑ Open last edited files from project

☐ Beep on operation finished

☑ Show fatal errors

☑ Show Java vendor warning at startup

☐ Auto synchronize unmodified editors with file system changes

Automatic Version Checking

When enabled, checks the availability of new <oXygen/> versions at http://www.oxygenxml.com.

Change Interface Language

<oXygen/> supports a number of languages for localization of the GUI. Select Options → Preferences → Global+Language drop-list to display the language choices.

Note

After restarting the application, if some GUI labels are not rendered correctly you will need to install the corresponding language pack from your OS installation kit.

Changing Look and Feel

Use this option to change graphic style (look and feel) of the GUI.

Changing Styles

On Windows there are available the following styles:

- Office 2003
- Vsnet
- Eclipse

- Xerto
- Default

Note

After changing the style one has to restart the application in order for the modification to take effect.

On Linux there are available the following styles:

- Eclipse
- Default

Note

After changing the style one has to restart the application in order for the modification to take effect.

On Mac OS X this option is not available.

Changing Themes

On Windows this option is enabled only if the Office 2003 or Default styles. In these cases, the following themes are available:

- NormalColor
- HomeStead
- Metallic
- Default
- Gray

On Linux this option is not available.
On Mac OS X this option is not available.

Encoding for non XML files

This option defines the default encoding to be used when opening non XML documents.

BOM handling

This option defines how to handle the BOM (Byte Order Mark) on document save.

The available options are:

- Don't Write - Don't write the BOM bytes, the loaded BOM bytes are ignored;
- Write - Write the BOM bytes accordingly with chosen encoding;
- Keep - If the loaded document has BOM then write them accordingly with chosen encoding. This is the default option.

Encoding errors handling

This option defines how to handle characters that cannot be represented in the specified encoding of the document when the document is opened. The available options are:

- REPORT - Show an error dialog with the character that cannot be represented in the specified encoding and allow the user to decide how to continue (ignore that character, replace it with a standard replacement character). This is the default option.
- IGNORE - The character is ignored and it will not be included in the document displayed in the editor panel.
- REPLACE - Replace the character with a standard replacement character. For example if the encoding is UTF-8 the replacement character has the Unicode code FFFD, and if the encoding is ASCII the character code is 63.

Line separator

This option defines line separator to be used.System Default choice sets the line separator from the platform.

Default Internet browser

The path to a web browser executable. The browser is used to open XSLT or PDF transformation results, to open the <oXygen/> home page or to point to specific paragraphs in the W3C recommendation of XML Schema on the W3C website in case of validation errors.

Open last edited files from project

When enabled, <oXygen/> will open the last edited files from project at start-up. Filer larger than 50 KB are not opened.

Beep on operation finished

If checked, it notifies the user through a beep that an action has ended. It will notify the user only at the end of validate, well-formed and transform actions.

Show fatal errors

When checked, all internal fatal errors are displayed in an error dialog.

Show Java vendor at startup

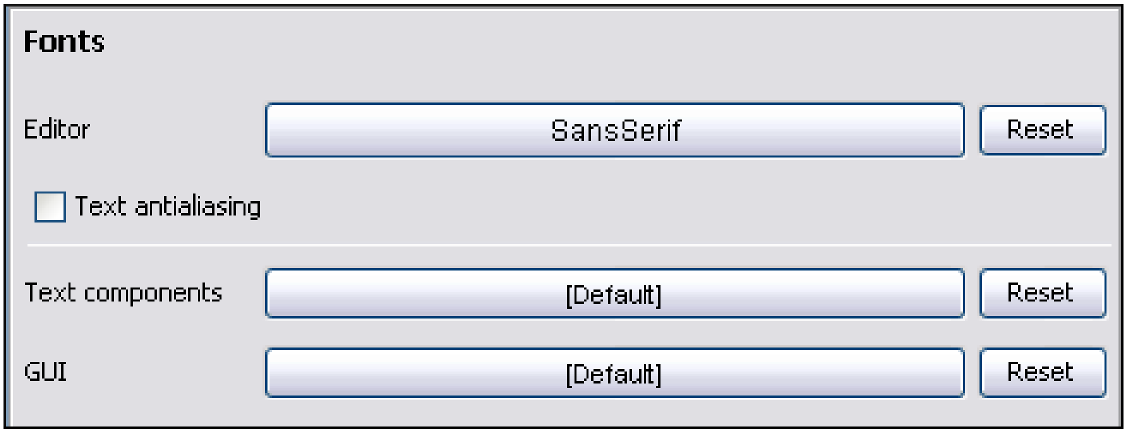
Sun Microsystems Java VM is required to run <oXygen/>. If a different VM is used, then a warning is generated. This options allows the user to choose whether the warning dialog is shown in this case or not.

Auto synchronize unmodified editors with file system changes

If checked, the synchronization of the unmodified editors with the system changes is done automatically, without the user's interaction.

Fonts

Figure 15.3. The Fonts preferences panel



Fonts

Editor: SansSerif

□ Text antialiasing

Text components: [Default]

GUI: [Default]

Editor — Use this option to select the font family and size used to display text in the editor.

Text antialiasing — Enable this option to draw text strings with anti-aliasing rendering.

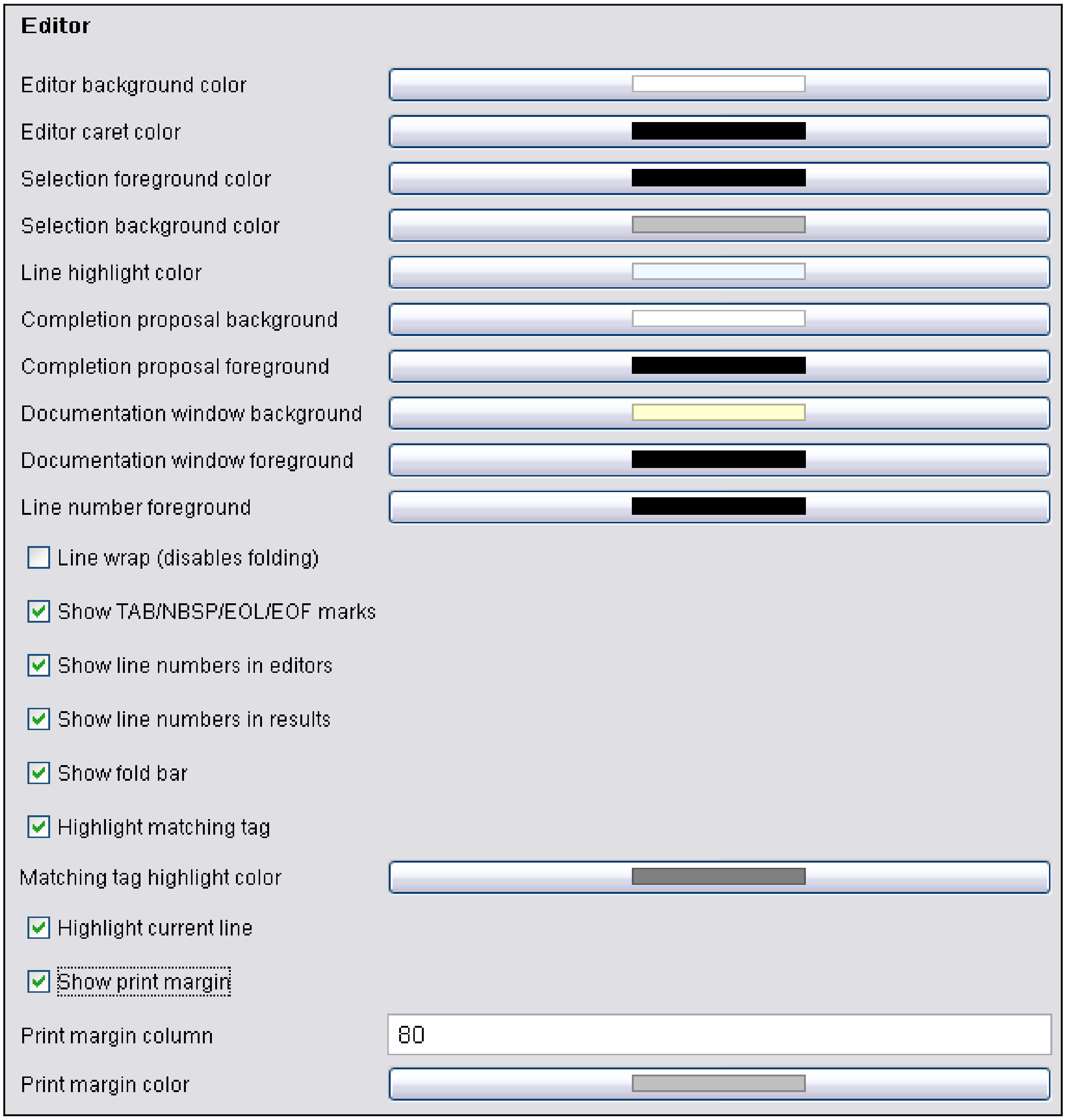
Text components — Use this option to select the font family and size used to display text in text components. After changing the font one has to restart the application.

GUI — Use this option to select the font family and size used to display GUI labels. After changing the font one has to restart the application.

Editor

Use these options to configure the visual aspect, formatting parameters, and behaviour of the content assistant.

Figure 15.4. The Editor preferences panel



Editor

Editor background color

Editor caret color

Selection foreground color

Selection background color

Line highlight color

Completion proposal background

Completion proposal foreground

Documentation window background

Documentation window foreground

Line number foreground

☐ Line wrap (disables folding)

☑ Show TAB/NBSP/EOL/EOF marks

☑ Show line numbers in editors

☑ Show line numbers in results

☑ Show fold bar

☑ Highlight matching tag

Matching tag highlight color

☑ Highlight current line

☑ Show print margin

Print margin column: 80

Print margin color

Editor background color — Use this option to set the background color of the editor.

Editor caret color — Use this option to set the background color of the editor.

Selection foreground color — Use this option to set the text color of selected text.

Selection background color — Use this option to set the background color of selected text.

Line highlight color — Use this option to set the highlight color for the line on which the caret is situated.

Completion proposal background — Use this option to set the background color for the content completion window.

Completion proposal foreground — Use this option to set the foreground color for the content completion window.

Documentation window background

Use this option to set the background color for the window containing documentation for the content completion elements.

Documentation window foreground

Use this option to set the foreground color for the window containing documentation for the content completion elements.

Line number foreground

Use this option to set the foreground color for the line numbers displayed at the right of editor panel.

Line Wrap (disables folding)

This option will do a soft wrap of long lines, that is automatically wrap lines in edited documents. When this option is checked line folding will be disabled.

Show TAB/NBSP/EOL/EOF marks

Marks the TAB/NBSP/EOL/EOF using small icons, for a better visualisation of the document.

Show line numbers in editor

This option enables the line numbers column located in the left part of the editing space. When unchecked, line numbers option is disabled.

Show line numbers in results

This option enables the line numbers column located in the left part of the Results panel in the Debugger perspective.

Show fold bar

This options enables the display of the document folding bar.

Highlight matching tag

This option enables highlight for the tag matching the one on which the caret is situated.

Matching tag highlight color

Use this option to set the color of the matching tag highlight.

Highlight current line

Enables highlight for the current line.

Show print margin

Enables displaying a vertical line in the editor panel representing the paper margin if the current content of the editor panel is printed with the action File → Print

Print margin column

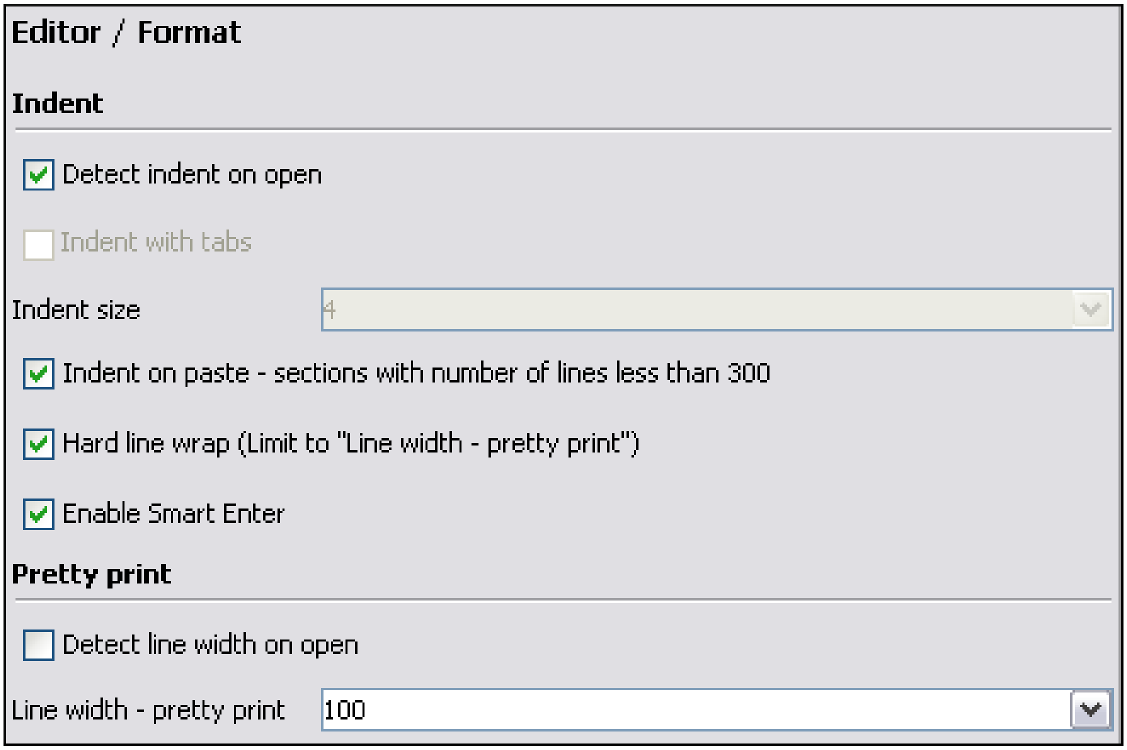
The number of characters included on a line which the print format allows.

Print margin color

The color used to paint the print margin line in the <oXygen/>'s editor panel.

Format

Figure 15.5. The Format preferences panel



Editor / Format

Indent

☑ Detect indent on open

□ Indent with tabs

Indent size: 4

☑ Indent on paste - sections with number of lines less than 300

☑ Hard line wrap (Limit to "Line width - pretty print")

☑ Enable Smart Enter

Pretty print

□ Detect line width on open

Line width - pretty print: 100

Detect indent on open

The editor tries to detect the indent settings of the opened XML document. In this way you can correctly format (pretty-print) files that were created with different settings, without changing your options. More than that you can activate the advanced option for detecting the maximum line width to be used for formatting and hard wrap. These features were designed to minimize the differences created by the pretty print operation when working with a versioning system, like CVS for example.

Indent with tabs

When checked enables 'Indent with tabs' to sets the indent to a tab unit. When unchecked, 'Indent with tabs' is disabled and the indent will measure as many spaces as defined by the 'Indent size' option.

Indent size

Sets the number of spaces or the tab size that will equal a single indent. The Indent can be spaces or a tab, select the preference using the Indent With Tabs option. If set to 4 one tab will equal 4 white spaces or 1 tab with size of 4 characters depending on which option was set in the Indent With Tabs option.

Indent on paste

Indent paste text corresponding to the indent settings set by the user. This is useful for keeping the indent style of text copied from other document.

Hard line wrap

This feature saves time when writing a reach text XML document. You can set a limit for the length of the lines in your document. When this limit is exceeded the editor will insert a new line before the word that breaks the limit, and indent the next line. This will minimize the need of reformatting the document.

Enable Smart Enter

If checked, it inserts a new indented line between start and end tag.

Detect line width on open

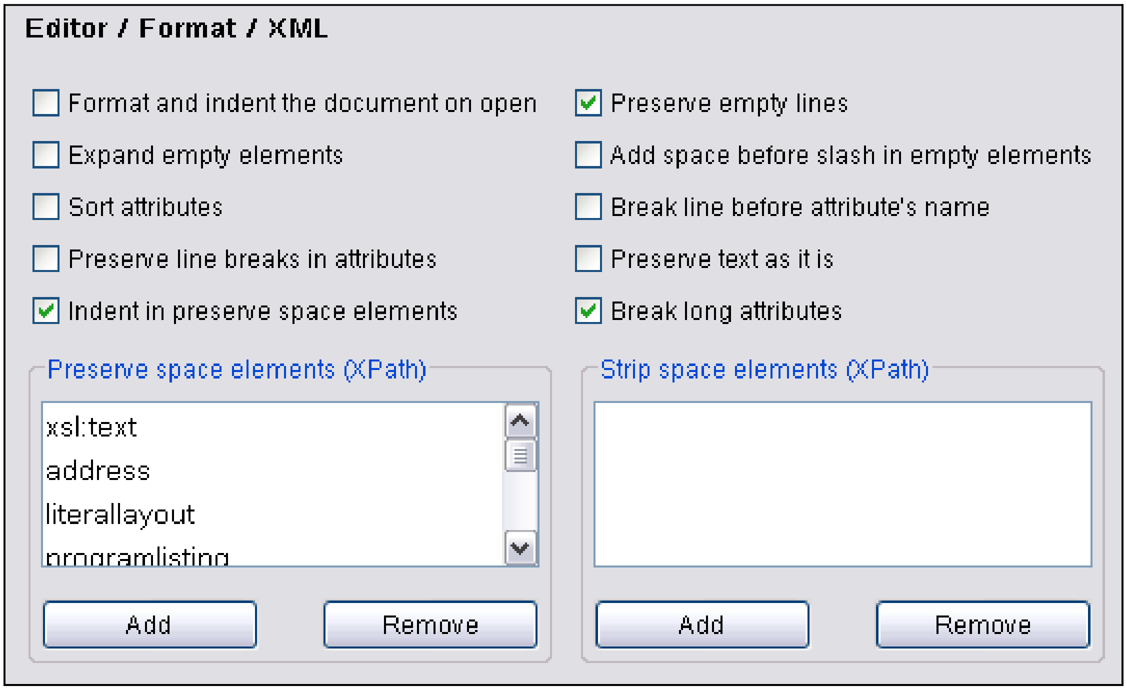
If checked, it detects the line width automatically when the document is opened.

Line width - pretty print

Defines the point at which the "Format and Indent" (Pretty-Print) function will perform hard line wrapping. So if set to 100 Pretty-Print will wrap lines at the 100th space inclusive of white spaces, tags and elements.

XML Format

Figure 15.6. The XML format preferences panel



Editor / Format / XML

☐ Format and indent the document on open
☑ Preserve empty lines
☐ Expand empty elements
☐ Add space before slash in empty elements
☐ Sort attributes
☐ Break line before attribute's name
☐ Preserve line breaks in attributes
☐ Preserve text as it is
☑ Indent in preserve space elements
☑ Break long attributes

Preserve space elements (XPath)

xsl:text
address
literallayout
programlisting

Strip space elements (XPath)

Format and indent the document on open

When checked, the *Format and indent the document on open* operation will format and indent the document before opening it in the editor panel.

Preserve empty lines

When checked the *Format and Indent* operation will preserve all empty lines found in the document on which the pretty-print operation os applied.

Expand empty elements

When checked the *Format and Indent* operation will output empty elements with a separate closing tag, ex. <a atr1="v1"></a>. When not checked the same operation will represent an empty element in a more compact form: <a atr1="v1"/>

Add space before slash in empty elements

When checked the *Format and Indent* operation will add a space before the closing slash of an empty element, for instance an empty *br* will appear as *<br />*.

Sort attributes

When checked the *Format and Indent* operation will sort the attributes of an element alphabetically. When not checked the same operation will leave them in the same order as before applying the operation.

Break line before attribute's name

If checked, the "Format and Indent" (Pretty-Print) function will break the line before the attribute's name.

Preserve line breaks in attributes

If checked, the "Format and Indent" (Pretty-Print) function will preserve the line breaks found in attributes. When this option is checked, *Break long lines* option will be disabled.

Preserve text as it is

If checked, the "Format and Indent" (Pretty-Print) function will preserve text nodes as they are without removing or adding any whitespace.

Break long attributes

If checked, the "Format and Indent" (Pretty-Print) function will break long attributes.

Preserve space elements (XPath)

This list contains simplified XPath expressions for the names of the elements for which the contained white spaces like blanks, tabs and newlines are preserved by the *Format and Indent* operation exactly as before applying the operation. The allowed XPath expressions are of one of the form:

- author
- //listing
- /chapter/abstract/title
- //xs:documentation

The namespace prefixes like *xs* in the previous example are treated as part of the element name without taking into account its binding to a namespace.

Strip space elements (XPath)

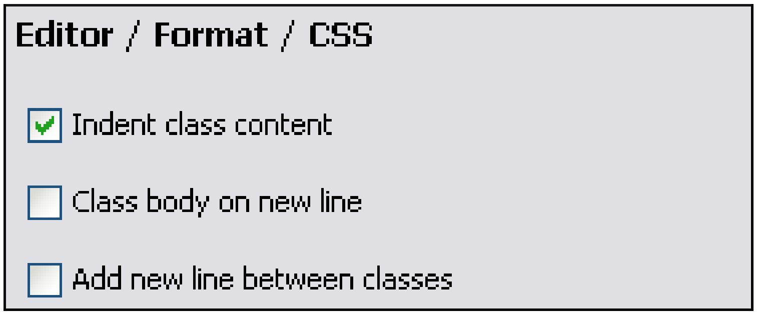
This list contains the names of the elements for which contiguous white spaces like blanks, tabs and newlines are merged by the *Format and Indent* operation into one blank.

Indent (when typing) in preserve space elements

If checked, automatic tags indentation while editing will take place for all elements including the ones that are excluded from Pretty Print (default behaviour). When unchecked, indentation while editing will not take place in elements that have the 'xml:space' attribute set on 'preserve' or are in the list of Preserve Space Elements.

CSS Format

Figure 15.7. The CSS format preferences panel



Editor / Format / CSS

☑ Indent class content

□ Class body on new line

□ Add new line between classes

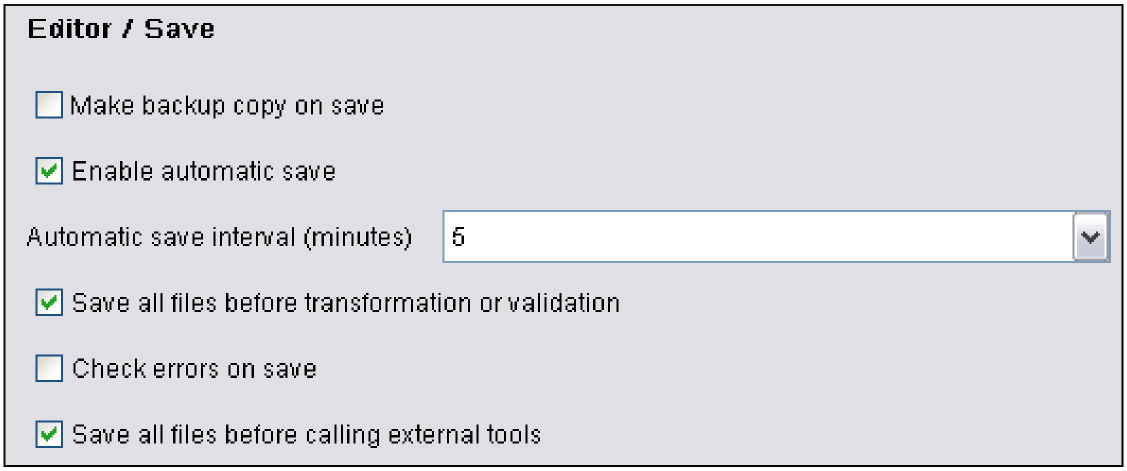
Indent class content
If checked, the class content is indented during a "Format and Indent" (Pretty-Print) operation.

Class body on new line
If checked, the class body (including the curly brackets) are placed on a new line after a Pretty-Print operation.

Add new line between classes
If checked, an empty line is added between two classes after a Pretty-Print operation is performed.

Save

Figure 15.8. The Save preferences panel



Editor / Save

□ Make backup copy on save

☑ Enable automatic save

Automatic save interval (minutes) 5

☑ Save all files before transformation or validation

□ Check errors on save

☑ Save all files before calling external tools

Make backup copy on save
If checked, a backup copy is made when saving the edited document.

Enable automatic save
Automatic save is a useful feature that ensures your work is being saved in the background. You can specify the time intervals between automatic saves. If checked it enables Automatic Save. When unchecked, Automatic Save is disabled.

Automatic save interval (minutes)
Selects the period in minutes for Auto Save intervals.

Save all files before transformation or validation
Save all opened files before validating or transforming an XML document. In this way the dependencies are resolved, for example

when modifying both the XML document and its XML Schema.

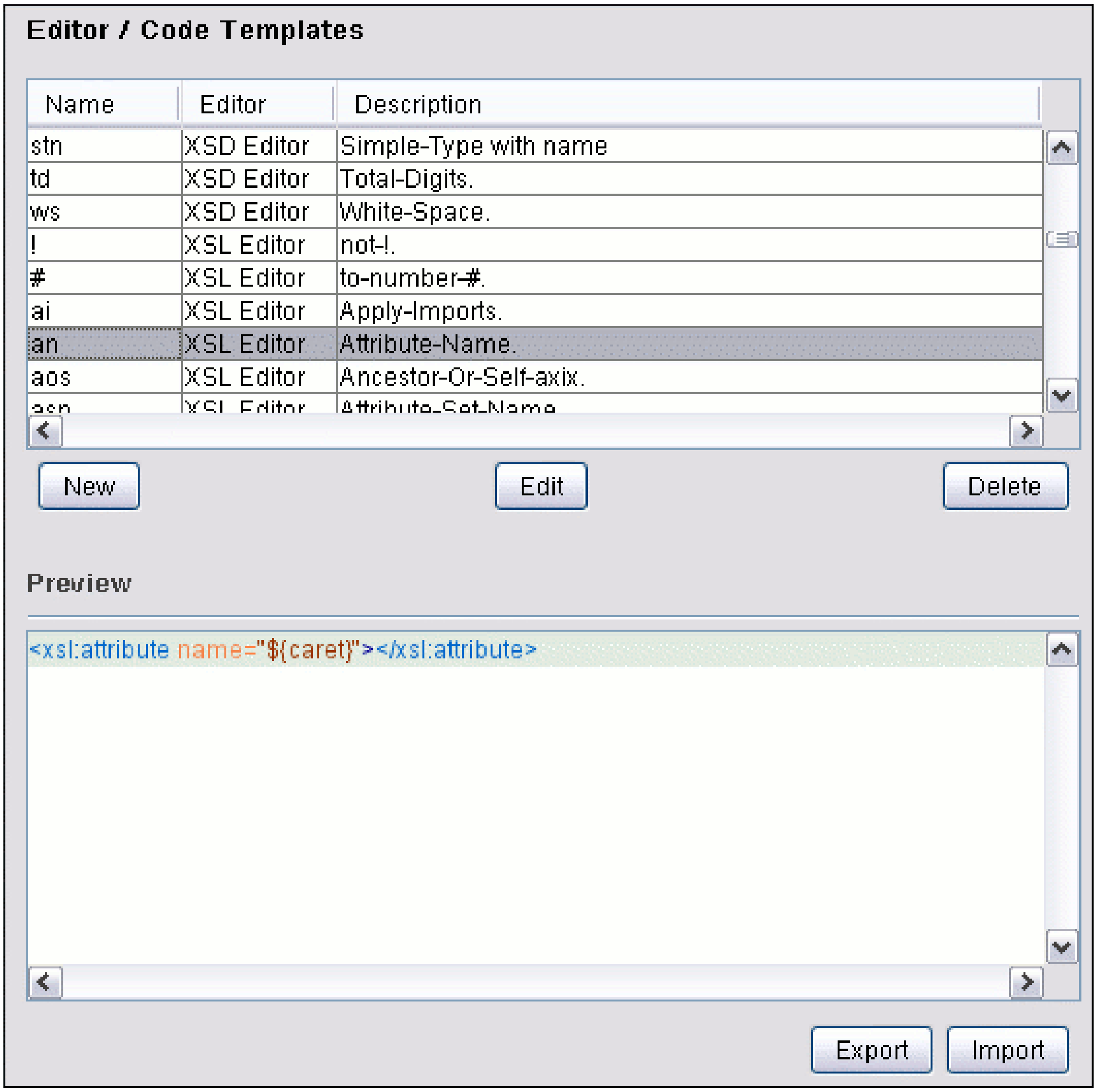
Check errors on save
If checked, a checking for errors is done when saving the edited document.

Save all files before calling external tools
If checked, all files will be saved before executing an external tool.

Code Templates

Code templates are small document fragments that can be reused in other editing sessions. We have defined a large set of ready-to use templates for XSL and XML Schema stored in a file named `code_templates.xml` located in the <oXygen/> Preferences folder (folder `Application Data\com.oxygenxml` on Windows / `.com.oxygenxml` on Linux of the user home directory). So you can even share the templates from this file with your colleagues using the import function. To obtain the template list you have use the Content Completion on request shortcut key (usually CTRL-SPACE).

Figure 15.9. The Code Templates preferences panel



Editor / Code Templates

Name	Editor	Description
stn	XSD Editor	Simple-Type with name
td	XSD Editor	Total-Digits.
ws	XSD Editor	White-Space.
!	XSL Editor	not-!.
#	XSL Editor	to-number-#.
ai	XSL Editor	Apply-Imports.
an	XSL Editor	Attribute-Name.
aos	XSL Editor	Ancestor-Or-Self-axix.
asn	XSL Editor	Attribute-Set-Name

Preview

```
<xsl:attribute name="${caret}"></xsl:attribute>
```

New Define a new code template.

Edit Edit the selected code template.

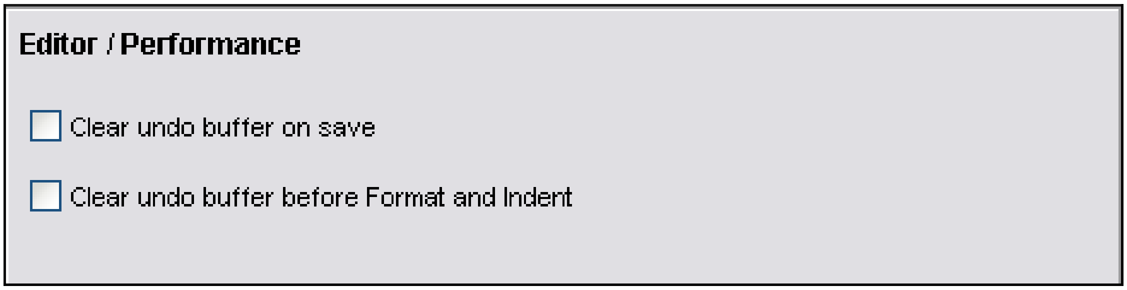
Delete Delete the selected code template.

Import Import a file with code templates.

Export Export a file with code templates.

Performance

Figure 15.10. The Performance preferences panel



Editor / Performance

□ Clear undo buffer on save

□ Clear undo buffer before Format and Indent

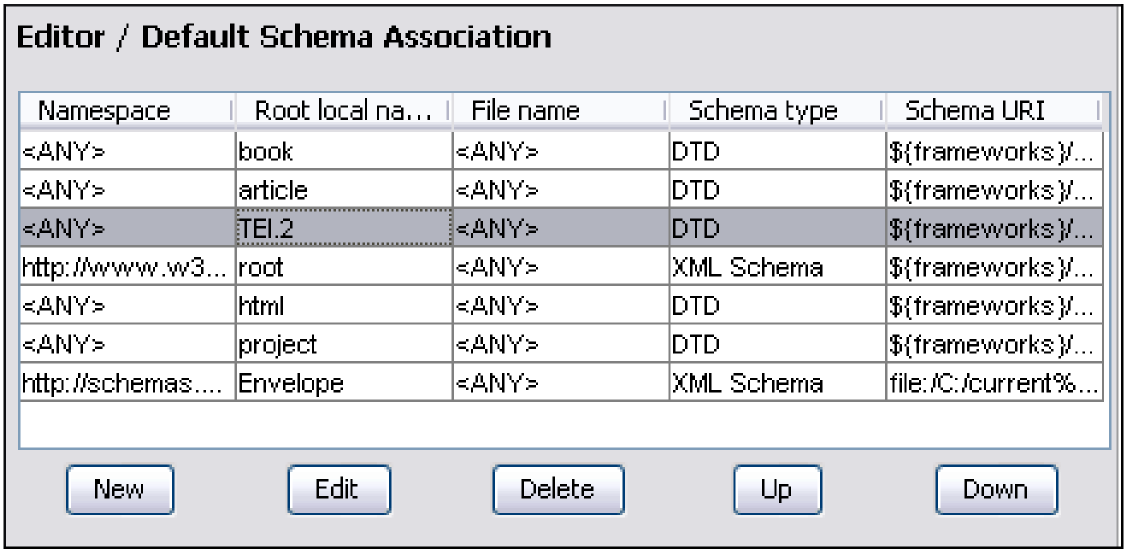
Clear undo buffer on save — If checked, the undo action has no effect after you've saved your document. You can only undo the modifications made after you've saved it.

Clear undo buffer before Format and Indent — If checked, the undo buffer is cleared. The undo action can now only undo the Format and Indent action

Default Schema Association

When no schema is specified in the edited document, <oXygen/> will try to use one of the default association rules set. It will try to use the association rules in the order presented in the Editor/Default Schema Association pane.

Figure 15.11. The Default Schema Association preferences panel



Editor / Default Schema Association

Namespace	Root local na...	File name	Schema type	Schema URI
<ANY>	book	<ANY>	DTD	${frameworks}/...
<ANY>	article	<ANY>	DTD	${frameworks}/...
<ANY>	TEI.2	<ANY>	DTD	${frameworks}/...
http://www.w3...	root	<ANY>	XML Schema	${frameworks}/...
<ANY>	html	<ANY>	DTD	${frameworks}/...
<ANY>	project	<ANY>	DTD	${frameworks}/...
http://schemas....	Envelope	<ANY>	XML Schema	file:/C:/current%...

Namespace — Specifies the namespace of the root element from the association rules set (any by default).

Root local name — Specifies the local name of the root element (any by default).

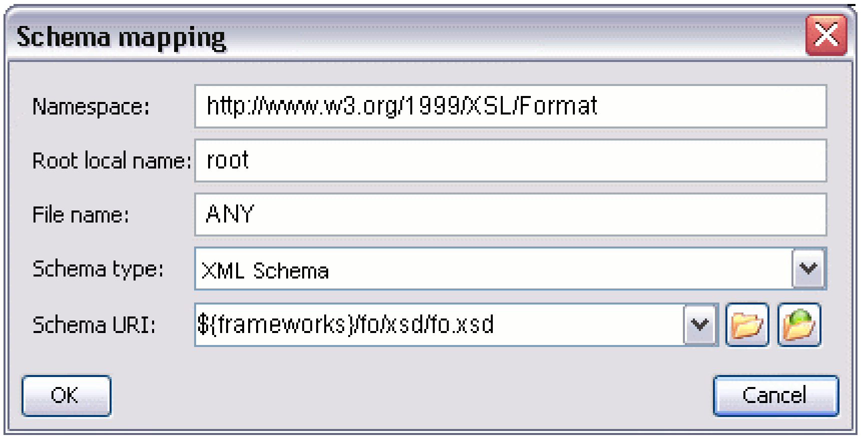
File name — Specifies the name of the file (any by default).

Schema type — Specifies the type of schema to be used in the association rules for the document.

Schema URI — Specifies the location from where to load the schema to be used in the current association rule. The macro ${frameworks} can be used and it will be expanded to the path of the subdirectory `frameworks` of the <oXygen/> installation directory.

New — Opens a new dialog allowing you to specify a new association rule.

Figure 15.12. The Schema mapping dialog



Schema mapping

Namespace: http://www.w3.org/1999/XSL/Format

Root local name: root

File name: ANY

Schema type: XML Schema

Schema URI: ${frameworks}/fo/xsd/fo.xsd

Edit — Opens a new dialog allowing you to edit an existing association rule.

Delete — Deletes one of the existing association rule.

Up — Moves the selected association rule one level up (the order is important because the first schema mapping in the list that can be associated with the document will be associated.

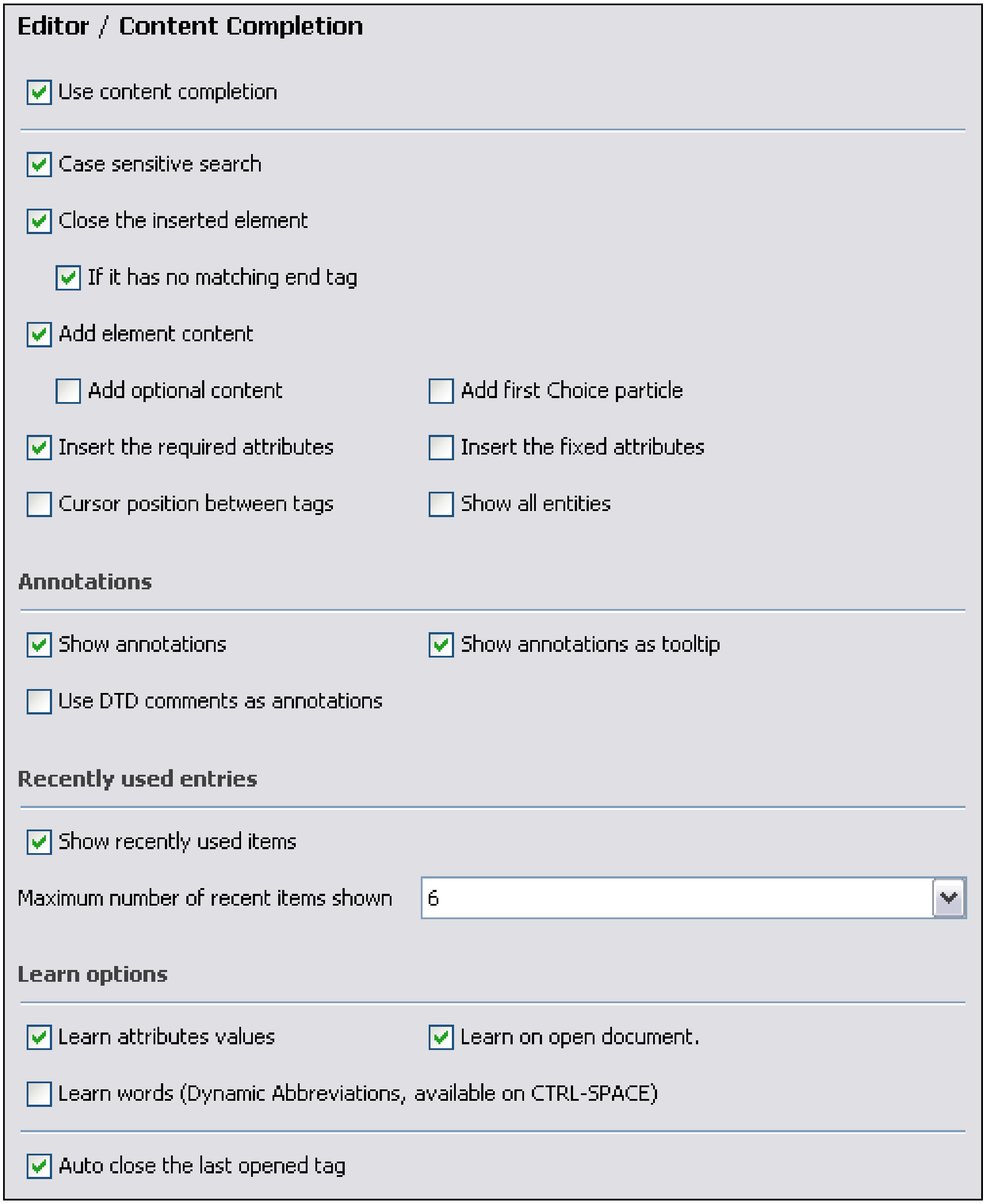
Down — Moves the selected association rule one level down.

Content Completion

The Content Completion feature enables inline syntax lookup and Auto Completion of mark-up elements and attributes to streamline mark-up and reduce errors while editing.

These settings define the operating mode of the content assistant.

Figure 15.13. The Content Completion Features preferences panel



Editor / Content Completion

☑ Use content completion

☑ Case sensitive search

☑ Close the inserted element

☑ If it has no matching end tag

☑ Add element content

☐ Add optional content

☐ Add first Choice particle

☑ Insert the required attributes

☐ Insert the fixed attributes

☐ Cursor position between tags

☐ Show all entities

Annotations

☑ Show annotations

☑ Show annotations as tooltip

☐ Use DTD comments as annotations

Recently used entries

☑ Show recently used items

Maximum number of recent items shown: 6

Learn options

☑ Learn attributes values

☑ Learn on open document.

☐ Learn words (Dynamic Abbreviations, available on CTRL-SPACE)

☑ Auto close the last opened tag

Use Content Completion
: This option enables Content Completion feature. When unchecked, all Content Completion features are disabled.

Case sensitive search
: When it is checked the search in the content completion window when you type a character is case sensitive ('a' and 'A' are different characters).

Close the inserted element
: When inserting elements from the Content Completion assistant, both start and end tags are inserted.

If it has no matching tag

When checked, the end tag of the inserted element will be automatically added only if it is not already present in the document.

Auto close the last opened tag

If the Use Content Completion option is not checked and if this option is checked, <oXygen/> will close the last opened tag when </ is typed.

Cursor position between tags

When checked, <oXygen/> will set the cursor automatically between tags. Even if the auto-inserted elements have attributes that are not required, the position of cursor can be forced between tags.

Show all entities

When checked, <oXygen/> will display a list with all the internal and external entities declared in the current document when the user types the start character of an entity reference (i.e. &).

Add element content

When checked, <oXygen/> will insert automatically the required elements from the DTD or XML Schema.

Add optional content

When checked, <oXygen/> will insert automatically the optional elements from the DTD or XML Schema.

Add first Choice particle

When checked, <oXygen/> will insert automatically the first Choice particle from the DTD or XML Schema.

Insert the required attributes

When checked, <oXygen/> will insert automatically the required attributes from the DTD or XML Schema for an element inserted with the help of the Content Completion assistant.

Insert the fixed attributes

When checked, <oXygen/> will insert automatically any *FIXED* attributes from the DTD or XML Schema for an element inserted with the help of the Content Completion assistant.

Show annotations

When checked, <oXygen/> will display the annotations that are present in the used schema for the current element, attribute or attribute value.

Show annotations as tooltip

If checked, it shows the annotations of elements and attributes as tooltips.

Use DTD comments as annotation

When checked, <oXygen/> will use all DTD comments as annotation.

Show recently used items

When checked, <oXygen/> will remember the last inserted items from the Content Completion window. The number of items to be remembered is limited by Maximum number of recent items shown combo box. These most frequently used items are displayed on the top of Content Completion window and are separated from the rest of the suggestions by a thin grey line.

Learn attributes values

When checked, <oXygen/> will display a list with all attributes values learned from the current document.

Learn on open document

When checked, <oXygen/> will automatically learn the document structure when the document is opened.

Learn words (Dynamic Abbreviations, available on CTRL+SPACE)

When checked, <oXygen/> will automatically learn the typed words and will make them available in a Content Completion fashion by pressing CTRL+SPACE.

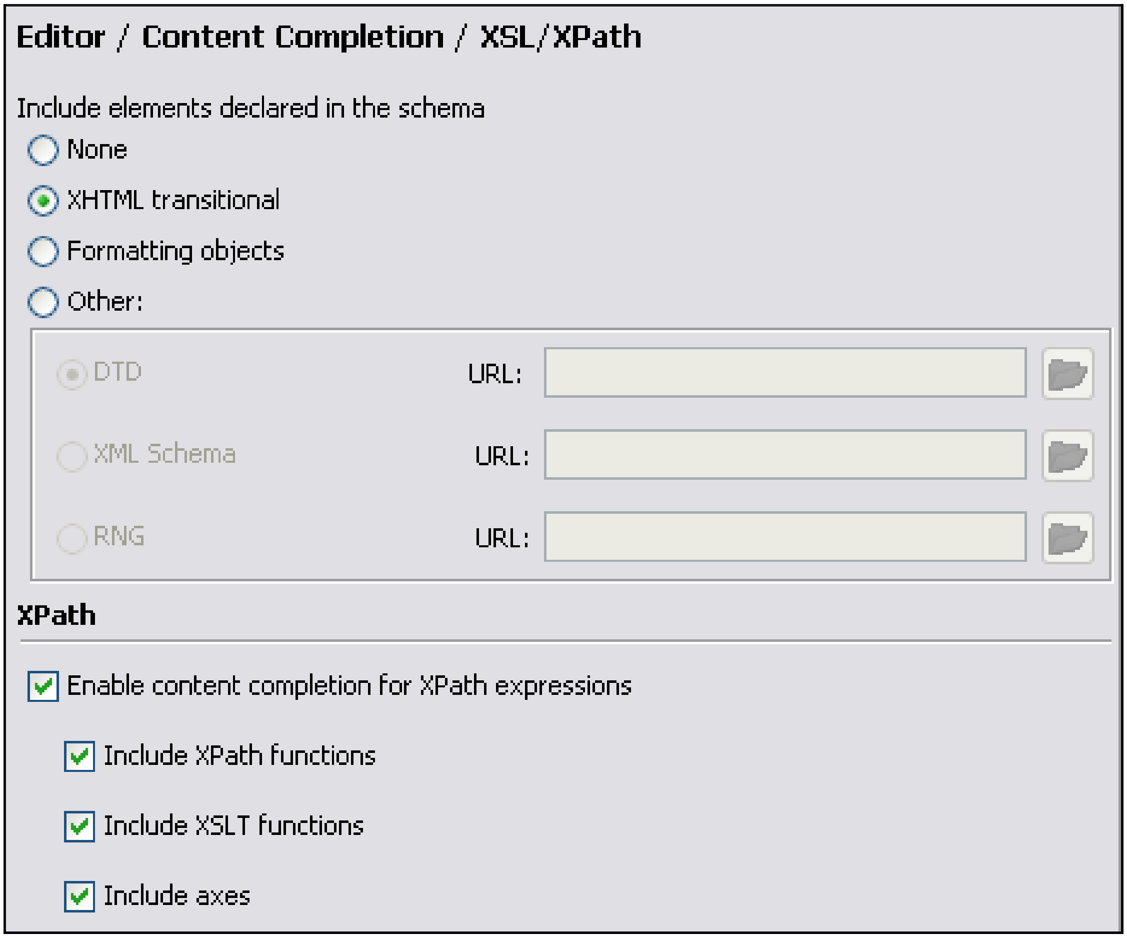
Note

In order to be learned, the words need to be separated by space characters.

XSL/XPath

These settings define what elements are suggested by the content assistant in addition to the XSL ones.

Figure 15.14. The Content Completion XSL/XPath preferences panel



Editor / Content Completion / XSL/XPath

Include elements declared in the schema

○ None

● XHTML transitional

○ Formatting objects

○ Other:

● DTD URL:

○ XML Schema URL:

○ RNG URL:

XPath

☑ Enable content completion for XPath expressions

☑ Include XPath functions

☑ Include XSLT functions

☑ Include axes

None

The Content Completion will offer only the XSL information.

XHTML transitional

Includes XHTML Transitional elements as substitutes for xsl:element.

Formating objects

Includes Formating Objects elements as substitutes for xsl:element.

Other

Includes elements from a DTD file, a XML Schema file or a RNG Schema file specified from a URL as substitutes for xsl:element.

Enable content completion for XPath expressions

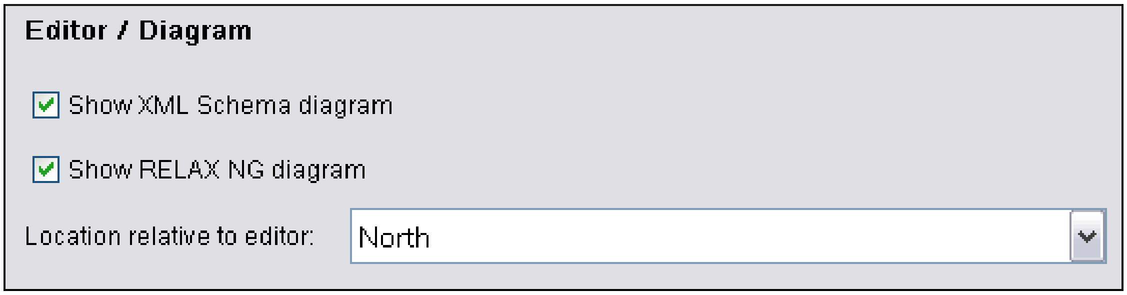
Disables and enables content completion in XPath expressions entered in the XSL attributes *match*, *select* and *test* and also in the XPath toolbar.

Options are available to allow the user to include XPath functions, XSLT functions or axes in the content completion suggestion list.

Diagram

If operation is slow for very large schemas disabling the schema diagram view will improve the speed of navigation through the edited schema.

Figure 15.15. Schema diagram preferences panel



Editor / Diagram

☑ Show XML Schema diagram

☑ Show RELAX NG diagram

Location relative to editor: North

Show XML Schema diagram

If this option is disabled the schema diagram for XML Schemas will not be generated and displayed.

Show Relax NG diagram

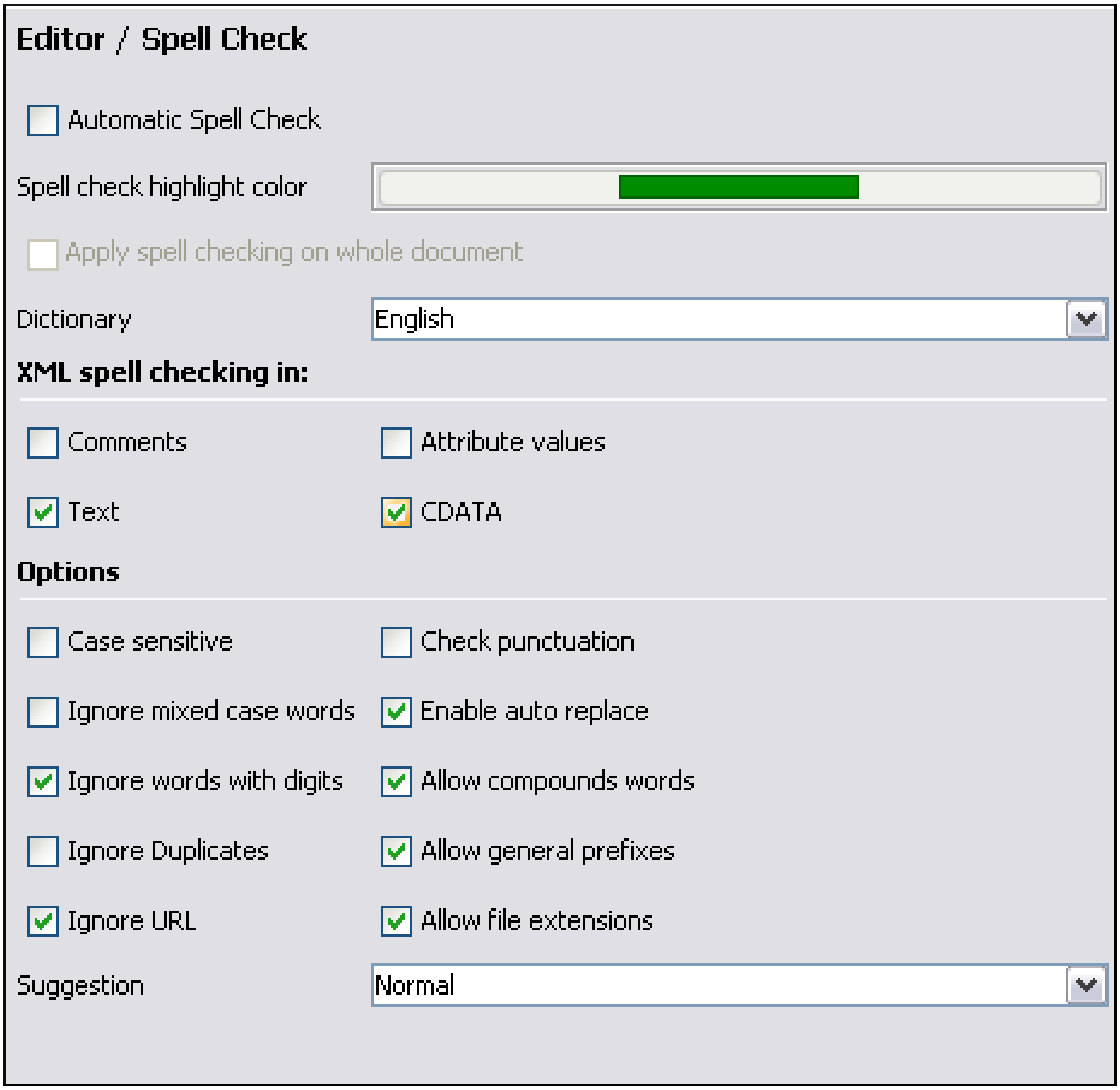
If this option is disabled the schema diagram for Relax NG schemas will not be generated and displayed.

Location relative to editor

The location of the diagram panel in the editing area can be: North, East, South, West. For example North means that the diagram panel takes the North part of the editing area and the text editor panel takes the rest of the editing area.

Spell Check

Figure 15.16. Spell check preferences panel



Editor / Spell Check

□ Automatic Spell Check

Spell check highlight color 🟩

□ Apply spell checking on whole document

Dictionary: English

XML spell checking in:

□ Comments

□ Attribute values

☑ Text

☑ CDATA

Options

□ Case sensitive

□ Check punctuation

□ Ignore mixed case words

☑ Enable auto replace

☑ Ignore words with digits

☑ Allow compounds words

□ Ignore Duplicates

☑ Allow general prefixes

☑ Ignore URL

☑ Allow file extensions

Suggestion: Normal

Automatic Spell Check

When checked, the spell checker is activated. Spell errors will be highlighted as you type.

Spell check highlight color

Use this option to set the color of the spell check errors.

Apply spell checking on whole document

When checked, a spell check action will be performed on entire document, highlighting all encountered errors.

Note

On large documents, spell checking the entire content may take a lot of time.

Dictionary

The dictionary combo allows you to choose the dictionary you need.

XML spell checking in

These options allow the user to specify if the spell checker will be enabled inside Comments, Attribute values, Text and CDATA sections.

Case sensitive
When checked, operations ignore capitalization errors.

Ignore mixed case words
When checked, operations do not check words containing case mixing (e.g. "SpellChecker").

Ignore words with digits
When checked, the Spell Checker does not check words containing digits (e.g. "b2b").

Ignore Duplicates
When checked, the Spell Checker does not signal two successive identical words as an error.

Ignore URL
When checked, ignores words looking like URL or file names (e.g. "www.oxygenxml.com" or "c:\boot.ini") .

Check punctuation
When checked, punctuation checking is enabled: misplaced white space and wrong sequences, like a dot following a comma, are detected.

Enable auto replace
Enables the "Replace Always" feature.

Allow compounds words
When checked, all words formed by concatenating two legal words with an hyphen are accepted. If the language allows it, two words concatenated without hyphen are also accepted.

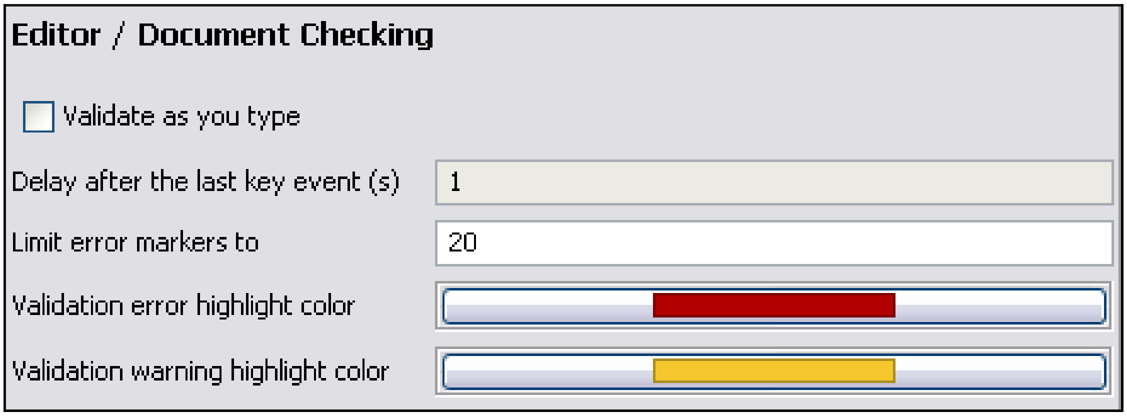
Allow general prefixes
When checked, a word formed by concatenating a registered prefix and a legal word is accepted. For example if "mini-" is a registered prefix, accepts "mini-computer".

Allow file extensions
When checked, accepts any word ending with registered file extensions (e.g. "myfile.txt", "index.html" etc.).

Suggestion
This option indicates the type of spell checker accuracy, which may be: "Favour speed over quality", "Normal" and "Favour quality over speed".

Document Checking

Figure 15.17. Document checking preferences panel



Editor / Document Checking

□ Validate as you type

Delay after the last key event (s)	1
Limit error markers to	20
Validation error highlight color	🟥
Validation warning highlight color	🟨

Validate as you type
: Validation of edited document is executed as the document is modified by editing in <oXygen/>.

Delay after the last key event (s)
: The period of keyboard inactivity which starts a new validation (in seconds).

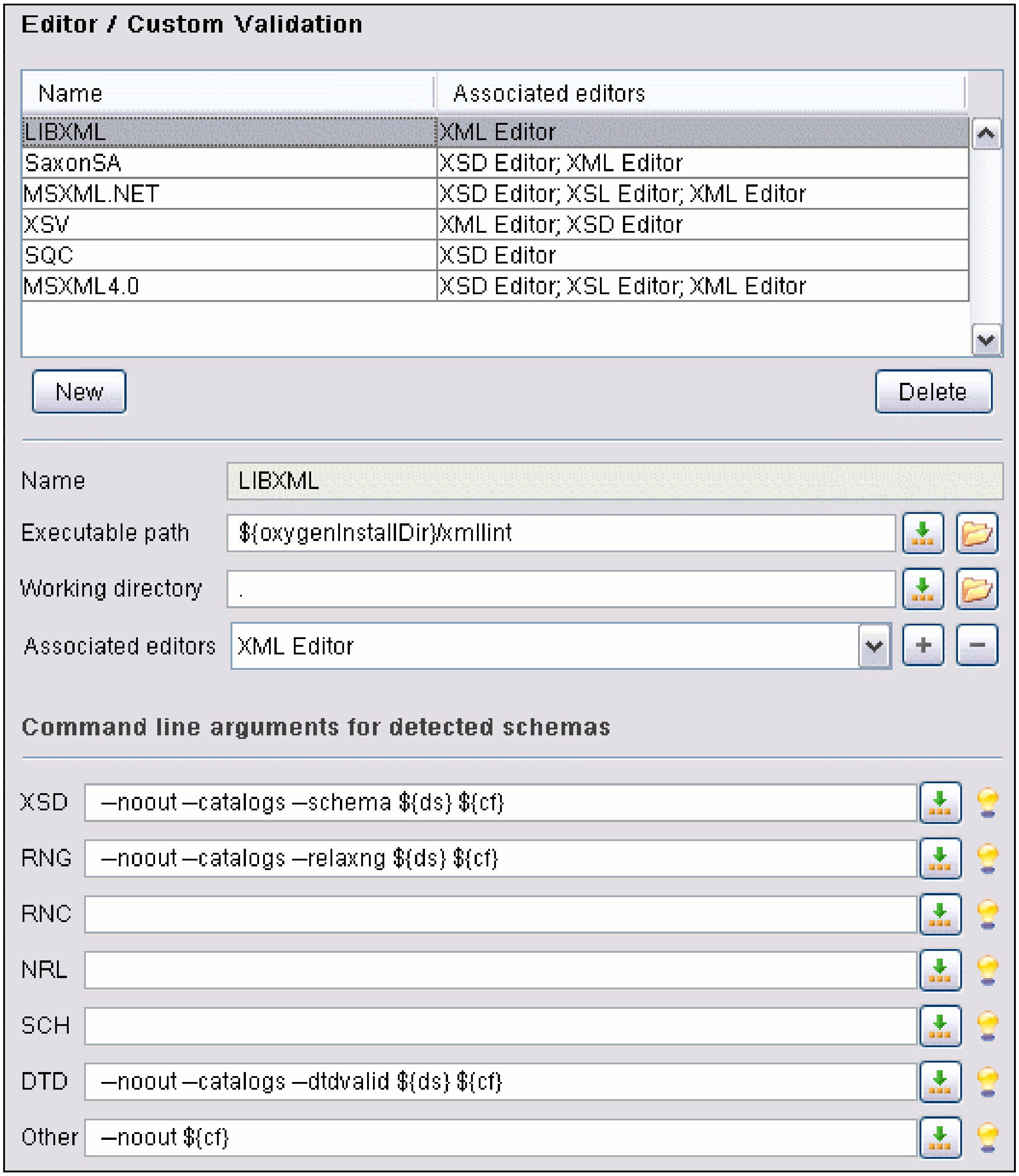
Maximum number of errors reported per document
: If there are many validation errors the process of marking them in the document is long. You should limit the maximum number of reported errors with this setting to keep the time for error marking short

Validation error highlight color
: The color used to mark validation errors in the document.

Validation warning highlight color
: The color used to mark validation warnings in the document.

Custom Validation

Figure 15.18. Custom validation preferences panel



Editor / Custom Validation

Name	Associated editors
LIBXML	XML Editor
SaxonSA	XSD Editor; XML Editor
MSXML.NET	XSD Editor; XSL Editor; XML Editor
XSV	XML Editor; XSD Editor
SQC	XSD Editor
MSXML4.0	XSD Editor; XSL Editor; XML Editor

Name: LIBXML

Executable path: ${oxygenInstallDir}/xmllint

Working directory: .

Associated editors: XML Editor

Command line arguments for detected schemas

XSD: —noout —catalogs —schema ${ds} ${cf}

RNG: —noout —catalogs —relaxng ${ds} ${cf}

RNC:

NRL:

SCH:

DTD: —noout —catalogs —dtdvalid ${ds} ${cf}

Other: —noout ${cf}

Name

The name of the custom validation tool displayed in the External Validation toolbar

Executable path

The path to the executable file of the external validation tool. The following macros can be used:

${home}	The path to user home directory
${pd}	Project directory
${oxygenInstallDir}	Oxygen installation directory

Working directory

The working directory of the external validation tool. The following macros can be used:

${home}	The path to user home directory
${pd}	Project directory
${oxygenInstallDir}	Oxygen installation directory

Associated editors

The editors which can perform validation with the external tool.

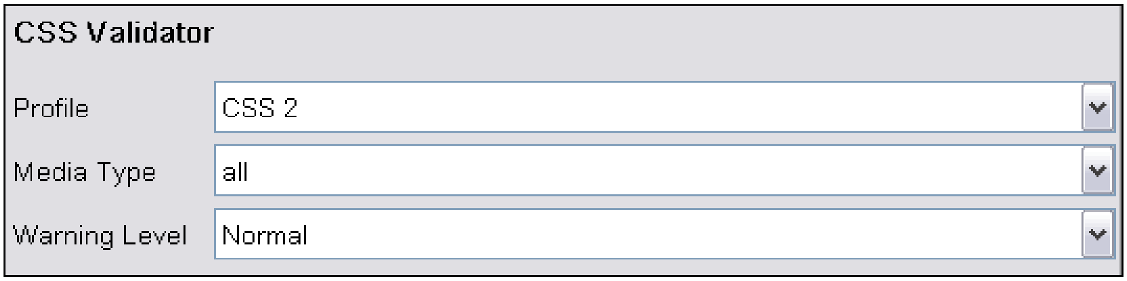
Command line arguments for detected schemas

Command line arguments used to validate the current edited file against different types of schema (W3C XML Schema, Relax NG full syntax, Relax NG compact syntax, Namespace Routing Language, Schematron, DTD, other schema type). The arguments can include any custom switch (like -rng) and the macros:

${cf}	The path of the currently edited file
${cfu}	Path of current file (URL)
${ds}	The path of detected schema file
${dsu}	The path of detected schema file (URL)

CSS Validator

Figure 15.19. CSS Validator preferences panel



CSS Validator

Profile: CSS 2

Media Type: all

Warning Level: Normal

Profile

Choose one of the available validation profiles: CSS 1, CSS 2, CSS 2.1, CSS 3, SVG, SVG Basic, SVG Tiny, Mobile, TV Profile, ATSC TV Profile

Media Type

Choose one of the available mediums: all, aural, braille, embossed, handheld, print, projection, screen

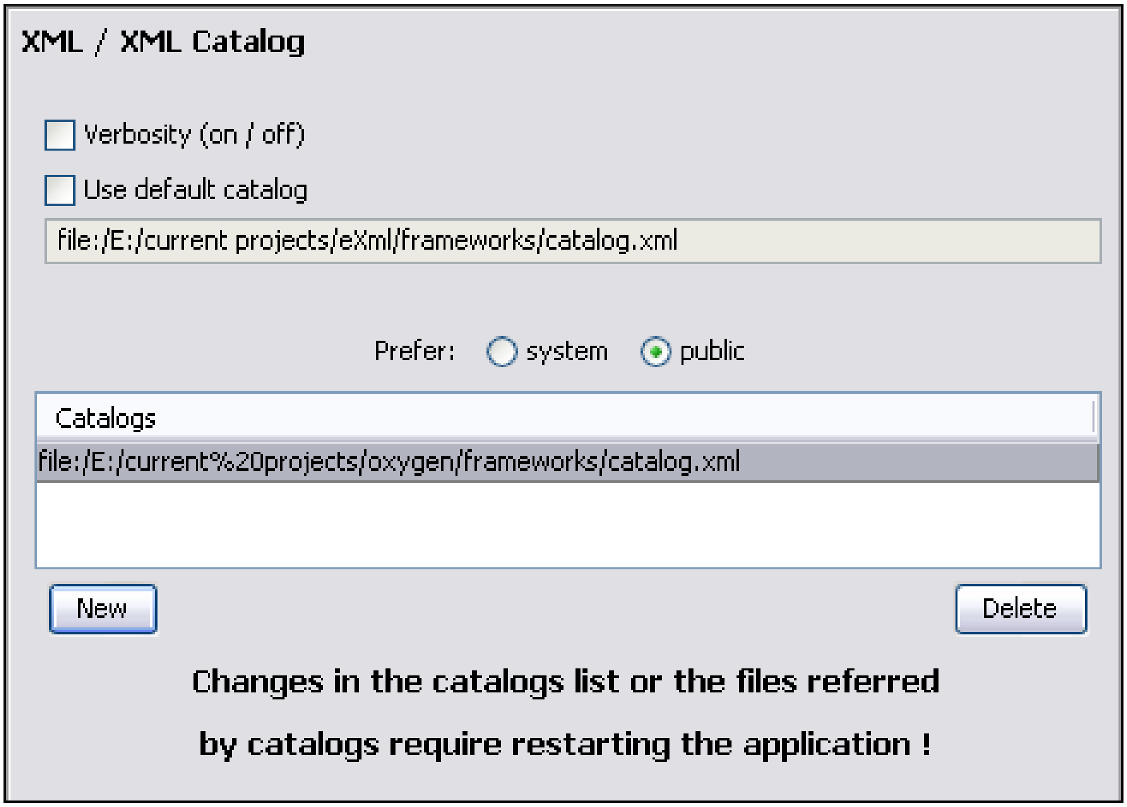
Warning Level

Set the minimum severity level for reported validation warnings. It is one of: all, normal, most important, no warnings.

XML

XML Catalog

Figure 15.20. The XML Catalog preferences panel



XML / XML Catalog

□ Verbosity (on / off)

□ Use default catalog

file:/E:/current projects/eXml/frameworks/catalog.xml

Prefer: ○ system ● public

Catalogs

file:/E:/current%20projects/oxygen/frameworks/catalog.xml

Changes in the catalogs list or the files referred

by catalogs require restarting the application !

When using catalogs it is sometimes useful to see what catalog files are parsed, if they are valid or not, and what identifiers are resolved by the catalogs. The Verbosity option is used to control the output of such messages. By default it is not selected.

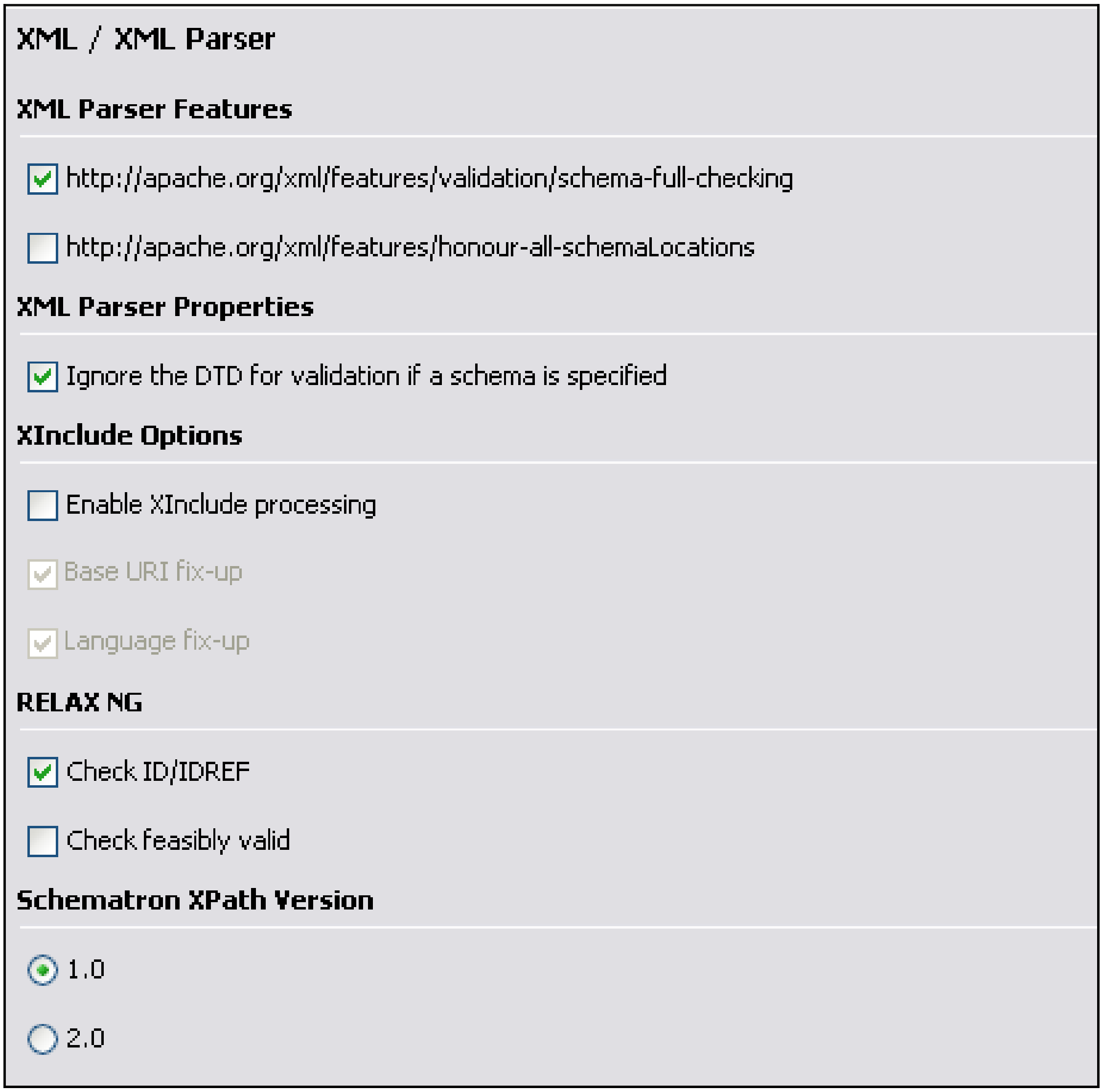
If the Use default catalog option is checked the first XML catalog which <oXygen/> will use to resolve system IDs at document validation and URI references at document transformation will be a default built-in catalog which maps such references to the built-in local copies of the local DocBook and TEI frameworks and the schemas for XHTML, SVG and JSP documents.

The Prefer option is used to specify if <oXygen/> will try to resolve first the PUBLIC or SYSTEM reference using the specified XML catalogs. If a PUBLIC reference is not mapped in any of the catalogs then a SYSTEM reference is looked up.

When you add/delete an XML catalog to/from the list you must restart the application so that the changes take effect.

XML Parser

Figure 15.21. The XML Parser preferences panel



XML / XML Parser

XML Parser Features

☑ http://apache.org/xml/features/validation/schema-full-checking

□ http://apache.org/xml/features/honour-all-schemaLocations

XML Parser Properties

☑ Ignore the DTD for validation if a schema is specified

XInclude Options

□ Enable XInclude processing

☑ Base URI fix-up

☑ Language fix-up

RELAX NG

☑ Check ID/IDREF

□ Check feasibly valid

Schematron XPath Version

● 1.0

○ 2.0

Maximum number of problems reported per file

Limit the number of errors reported at validation or well-formed check. Use this option when the total number of errors is big and the time of displaying is too large.

http://apache.org/xml/features/validation/schema - This option sets the 'schema' feature to true.

http://apache.org/xml/features/validation/schema-full-checking - This option sets the 'schema-full-checking' feature to true.

http://apache.org/xml/features/validation/honour-all-schema-location - This option sets the 'honour-all-schema-location' feature to true. This means all the schemas that are imported for a specific namespace are used to compose the validation model. If this is false, only the first schema import is taken into account.

Ignore the DTD for validation if a schema is specified

This option forces validation against a referred schema (XML Schema, Relax NG schema, Schematron schema) even if the document includes also a DTD declaration. It is useful when the DTD declaration is used to declare entities and the schema reference is used for validation.

Enable XInclude processing

Enable XInclude processing - if checked the XInclude support in <oXygen/> is turned on.

Base URI fix-up

[Xerces XML Parser documentation:] According to the specification for XInclude, processors must add an xml:base attribute to elements included from locations with a different base URI. Without these attributes, the resulting infoset information would be incorrect.

Unfortunately, these attributes make XInclude processing not transparent to Schema validation.

One solution to this is to modify your schema to allow xml:base attributes to appear on elements that might be included from different base URIs.

If the addition of xml:base and/or xml:lang is undesired by your application, you can disable base URI fix-up.

Language fix-up

[Xerces XML Parser documentation:]The processor will preserve language information on a top-level included element by adding an xml:lang attribute if its include parent has a different [language] property.

If the addition of xml:lang is undesired by your application, you can disable the Language fix-up.

Check ID/IDREF

Checks the ID/IDREF matches when the Relax NG document is validated.

Check feasibly valid

Checks the Relax NG to be feasibly valid when this document is validated.

Schematron XPath Version

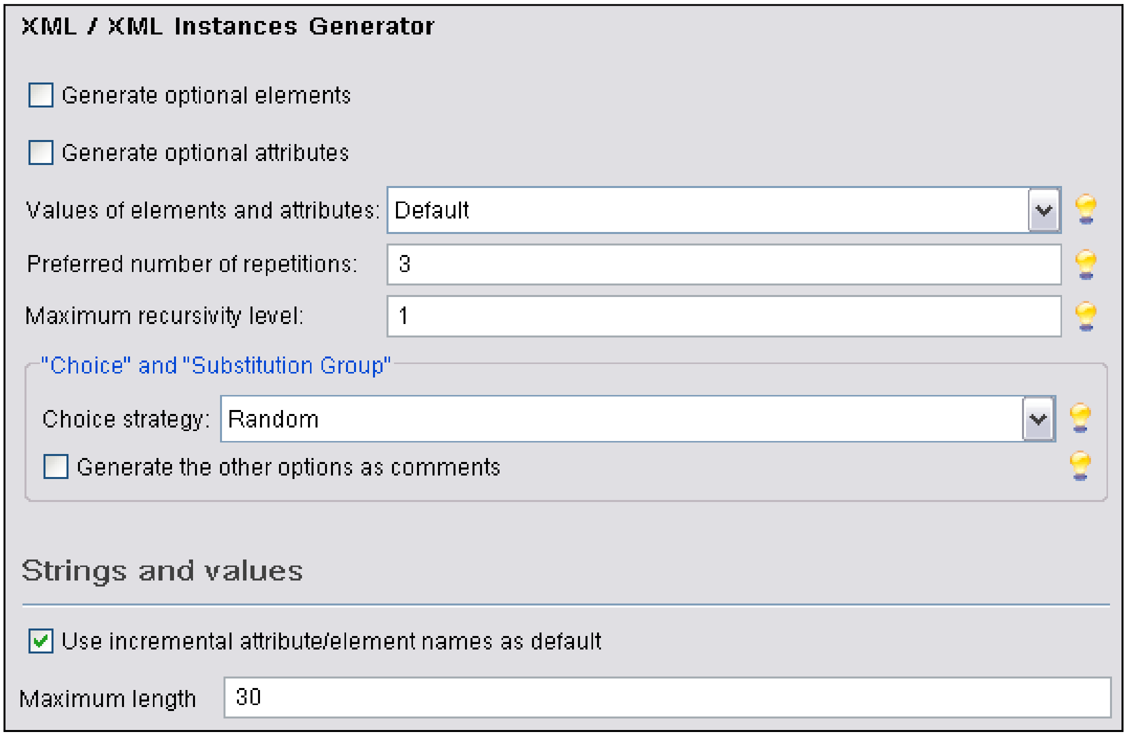
1.0 - Allows XSLT 1.0 expressions for Schematron assertion tests.

2.0 - Allows XSLT 2.0 expressions for Schematron assertion tests.

2.0 - Allows XSLT 2.0 expressions for Schematron assertion tests.

XML Instances Generator

Figure 15.22. The XML Instances Generator preferences panel



XML / XML Instances Generator

□ Generate optional elements

□ Generate optional attributes

Values of elements and attributes: Default

Preferred number of repetitions: 3

Maximum recursivity level: 1

"Choice" and "Substitution Group"

Choice strategy: Random

□ Generate the other options as comments

Strings and values

☑ Use incremental attribute/element names as default

Maximum length 30

Generate optional elements

If checked the elements declared optional in the schema will be generated in the XML instance

Generate optional attributes

If checked the attributes declared optional in the schema will be generated in the XML instance

Values of elements and attributes

Specifies what values are generated in elements and attributes of the XML instance. It can have one of the values: None (no values for elements and attributes), Default (the value is like the element name or attribute name), Random (a random value).

Preferred number of repetitions

The number of repetitions for an element that has a big value of the maxOccurs attribute.

Maximum recursivity level

For recursive type definitions this parameter specifies the number of levels of recursive elements inserted in the parent element with the same name.

Choice strategy

For choice element models specifies what choice will be generated in the XML instance. It can be First (the first choice is generated) or Random (a random choice is generated).

Generate the other options as comments

If checked the other options of the choice element model which are not selected will be generated inside a comment in the XML instance.

Use incremental attribute/element names as default

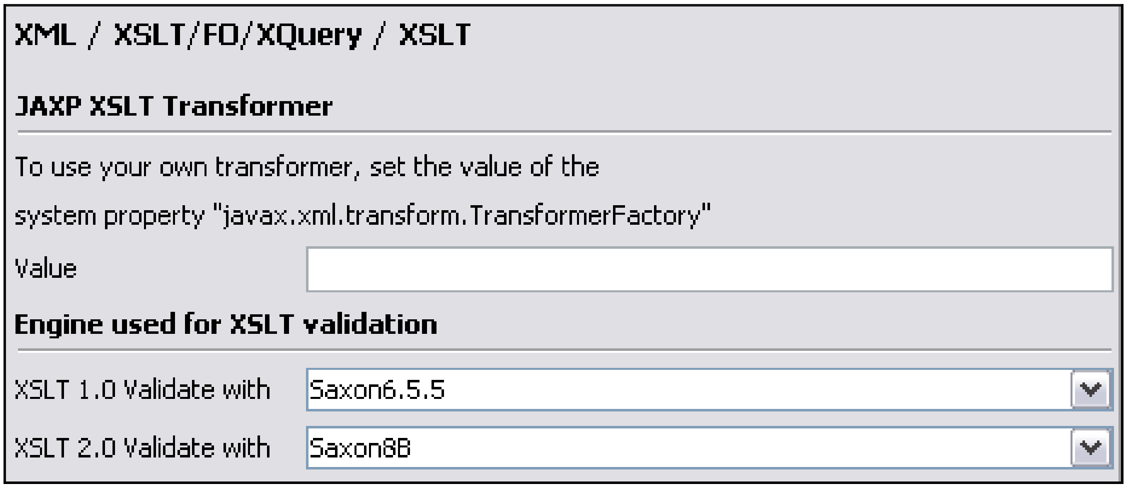
If checked the value of an element/attribute is like the name of that element/attribute. For example the values of a elements are a1, a2, a3, etc. If not checked the value is the name of the type of that element /attribute, for example string, decimal, etc.

Maximum length — The maximum length of string values generated for elements and attributes.

XSLT/FO/XQuery

XSLT

Figure 15.23. The XSLT preferences panel



XML / XSLT/FO/XQuery / XSLT

JAXP XSLT Transformer

To use your own transformer, set the value of the system property "javax.xml.transform.TransformerFactory"

Value

Engine used for XSLT validation

XSLT 1.0 Validate with: Saxon6.5.5

XSLT 2.0 Validate with: Saxon8B

If you want to use an XSLT transformer different than the ones that ship with <oXygen/> namely Apache Xalan and Saxon all you have to do is to specify the name of the transformer's factory class which <oXygen/> will set as the value of the Java property "javax.xml.transform.TransformerFactory". To perform an XSLT transformation with Saxon 7 for instance you have to place the Saxon 7 jar file in the <oXygen/> libraries directory (the *lib* subdirectory of the installation directory), set "net.sf.saxon.TransformerFactoryImpl" as the property value and select JAXP as the XSLT processor in the transformation scenario associated to the transformed XML document.

Value — Allows the user to enter the name of the transformer factory Java class.

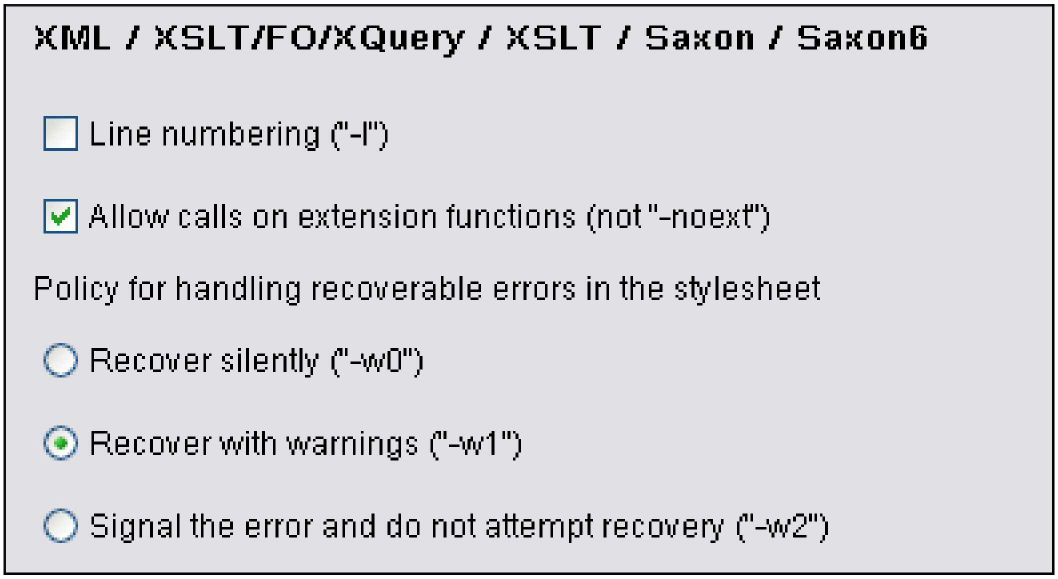
XSLT 1.0 Validate with — Allows the user to set the XSLT Engine used for validation of XSL 1.0 documents.

XSLT 2.0 Validate with — Allows the user to set the XSLT Engine used for validation of XSL 2.0 documents.

Saxon6

The XSLT options which can be configured for the Saxon 6 transformer are:

Figure 15.24. The Saxon 6 XSLT preferences panel



XML / XSLT/FO/XQuery / XSLT / Saxon / Saxon6

☐ Line numbering ("-l")

☑ Allow calls on extension functions (not "-noext")

Policy for handling recoverable errors in the stylesheet

○ Recover silently ("-w0")

● Recover with warnings ("-w1")

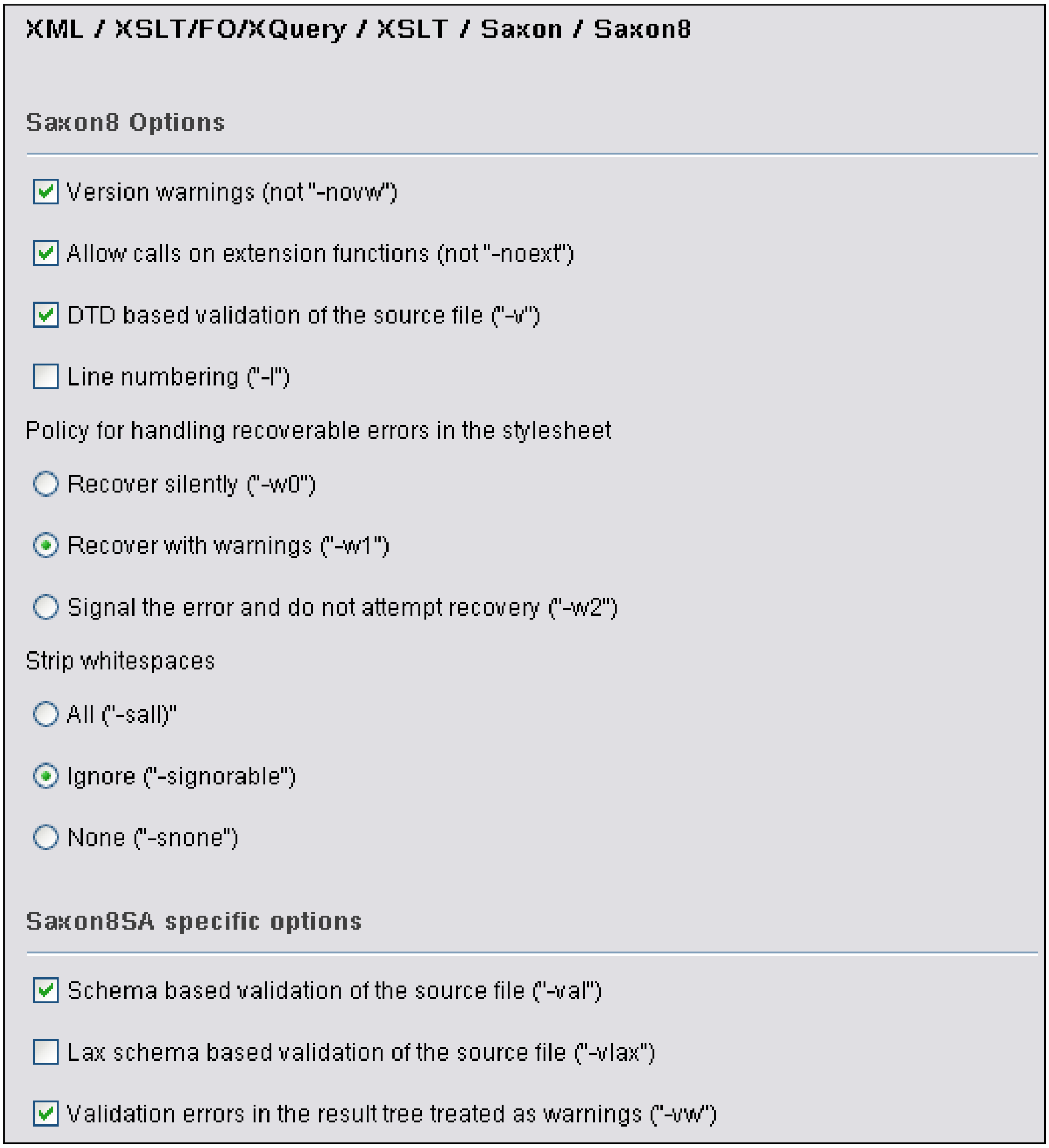
○ Signal the error and do not attempt recovery ("-w2")

- Line numbering: If checked line numbers are maintained for the source document.
- Allow calls on extension functions: If checked external functions called is allowed. Not checking this is recommended in an environment where untrusted stylesheets may be executed. Also disables user-defined extension elements, together with the writing of multiple output files, all of which carry similar security risks.
- Policy for handling recoverable errors in the stylesheet: Allows the user to choose how dynamic errors will be handled. Either one of the following options can be selected: recover silently, recover with warnings or signal the error and do not attempt recovery.

Saxon8

The XSLT options which can be configured for the Saxon 8 transformer (both the Basic and the Schema Aware versions) are:

Figure 15.25. The Saxon 8 XSLT preferences panel



XML / XSLT/FO/XQuery / XSLT / Saxon / Saxon8

Saxon8 Options

☑ Version warnings (not "-noww")

☑ Allow calls on extension functions (not "-noext")

☑ DTD based validation of the source file ("-v")

☐ Line numbering ("-l")

Policy for handling recoverable errors in the stylesheet

○ Recover silently ("-w0")

● Recover with warnings ("-w1")

○ Signal the error and do not attempt recovery ("-w2")

Strip whitespaces

○ All ("-sall)"

● Ignore ("-signorable")

○ None ("-snone")

Saxon8SA specific options

☑ Schema based validation of the source file ("-val")

☐ Lax schema based validation of the source file ("-vlax")

☑ Validation errors in the result tree treated as warnings ("-vw")

- Version warnings: If checked a warning will be output when running an XSLT 2.0 processor against an XSLT 1.0 stylesheet. The XSLT specification requires this to be done by default.
- Allow calls on extension functions: If checked external functions called is allowed. Not checking this is recommended in an environment where untrusted stylesheets may be executed. Also disables user-defined extension elements, together with the writing of multiple output files, all of which carry similar security risks.
- DTD based validation of the source file: If checked XML source documents are validated against their DTD.
- Line numbering: If checked line numbers are maintained for the source document.
- Policy for handling recoverable errors in the stylesheet: Allows the user to choose how dynamic er-

rors will be handled. Either one of the following options can be selected: recover silently, recover with warnings or signal the error and do not attempt recovery.

- Strip whitespaces feature can be one of the three options: All, Ignorable, None.

  All — strips all whitespace text nodes from source documents before any further processing, regardless of any xsl:strip-space declarations in the stylesheet, or any xml:space attributes in the source document.

  Ignorable — strips all ignorable whitespace text nodes from source documents before any further processing, regardless of any xsl:strip-space declarations in the stylesheet, or any xml:space attributes in the source document. Whitespace text nodes are ignorable if they appear in elements defined in the DTD or schema as having element-only content.

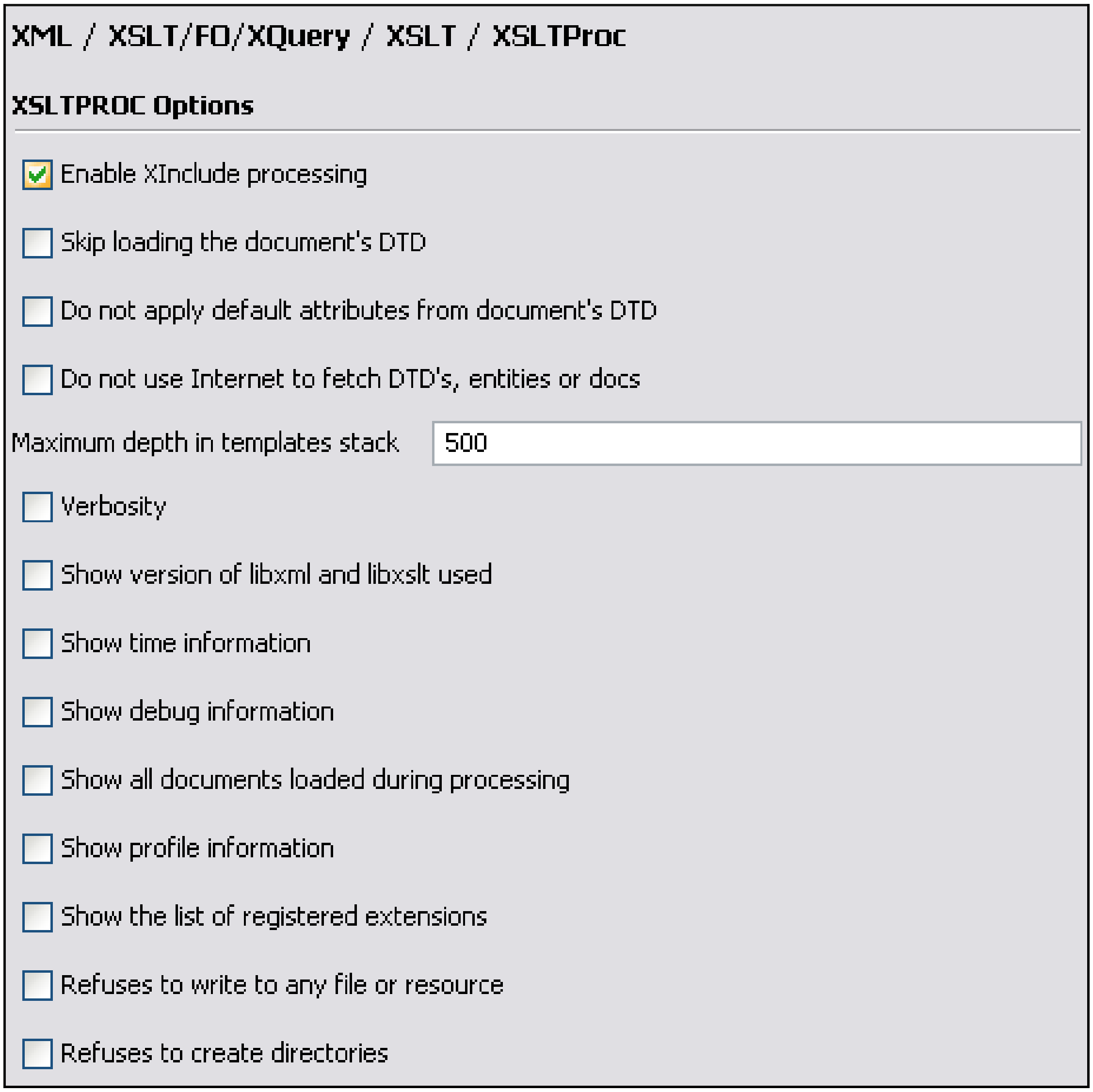
  None — strips no whitespace before further processing. (However, whitespace will still be stripped if this is specified in the stylesheet using xsl:strip-space).

Saxon8SA specific options

- Schema based validation of the source file: This determines whether source documents should be parsed with schema-validation enabled.
- Lax schema based validation of the source file: This determines whether source documents should be parsed with schema-validation enabled.
- Validation errors in the result tree treated as warnings: If checked, all validation errors are treated as warnings, otherwise they are treated as fatal.

XSLTProc

Figure 15.26. The XSLTProc preferences panel



XML / XSLT/FO/XQuery / XSLT / XSLTProc

XSLTPROC Options

☑ Enable XInclude processing

□ Skip loading the document's DTD

□ Do not apply default attributes from document's DTD

□ Do not use Internet to fetch DTD's, entities or docs

Maximum depth in templates stack 500

□ Verbosity

□ Show version of libxml and libxslt used

□ Show time information

□ Show debug information

□ Show all documents loaded during processing

□ Show profile information

□ Show the list of registered extensions

□ Refuses to write to any file or resource

□ Refuses to create directories

The options of the XSLTProc processor are the same as the ones available in the command line for the XSLTProc processor:

Enable XInclude processing
: If checked XInclude references will be resolved when XSLTProc is used as transformer in the transformation scenario.

Skip loading the document's DTD
: If checked the DTD specified in the DOCTYPE declaration will not be loaded.

Do not apply default attributes from document's DTD
: If checked the default attributes declared in the DTD and not specified in the document are not included in the transformed document.

Do not use Internet to fetch DTD's, entities or docs
: If checked the remote references to DTD's and entities are not followed.

Maximum depth in templates stack
: If the limit of maximum templates is reached the transformation ends with an error.

Verbosity

If checked the transformation will output detailed status messages about the transformation process in the Warnings view.

Show version of libxml and libxslt used

If checked <oXygen/> will display in the Warnings view the version of the libxml and libxslt libraries invoked by XSLTProc.

Show time information

If checked the Warnings view will display the time necessary for running the transformation.

Show debug information

If checked the Warnings view will display debug information about what templates are matched, parameter values, etc.

Show all documents loaded during processing

If checked <oXygen/> will display in the Warnings view the URL of all the files loaded during transformation.

Show profile information

If checked <oXygen/> will display in the Warnings view a table with all the matched templates, and for each template: the match XPath expression, template name, number of template modes, number of calls, execution time.

Show the list of registered extensions

If checked <oXygen/> will display in the Warnings view a list with all the registered extension funtions, extension elements and extension modules.

Refuses to write to any file or resource

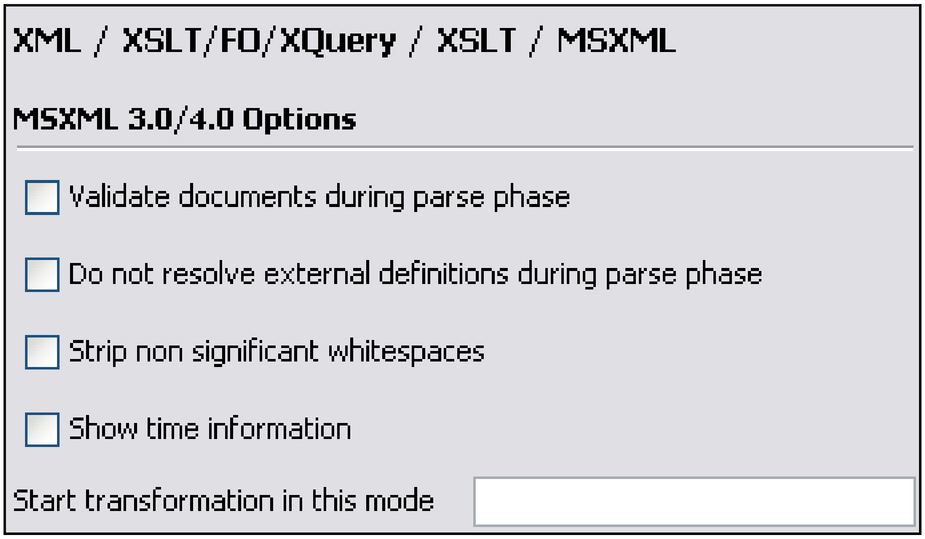
If checked the XSLTProc processor will not write any part of the transformation result to an external file on disk. If such an operation is requested by the processed XSLT stylesheet the transformation ends with a runtime error.

Refuses to create directories

If checked the XSLTProc processor will not create any directory during the transformation process. If such an operation is requested by the processed XSLT stylesheet the transformation ends with a runtime error.

MSXML

Figure 15.27. The MSXML preferences panel



XML / XSLT/FO/XQuery / XSLT / MSXML

MSXML 3.0/4.0 Options

□ Validate documents during parse phase

□ Do not resolve external definitions during parse phase

□ Strip non significant whitespaces

□ Show time information

Start transformation in this mode

The options of the MSXML 3.0 and 4.0 processors are the same as the ones available in the command line for the MSXML processors: [http://msdn.microsoft.com/library/default.asp?url=/library/en-us/dnxml/html/msxsl.asp]

Validate documents during parse phase

If checked and either the source or style sheet document has a DTD or schema against which its content should be checked, validation is performed.

Do not resolve external definitions during parse phase

By default, MSXSL instructs the parser to resolve external definitions such as document type definition (DTD), external subsets or external entity references when parsing the source and style sheet documents. If this option is checked the resolution is disabled.

Strip non-significant whitespaces

If checked strip non-significant white space from the input XML document during the load phase. Enabling this option can lower memory usage and improve transformation performance while, in most cases, creating equivalent output.

Show time information

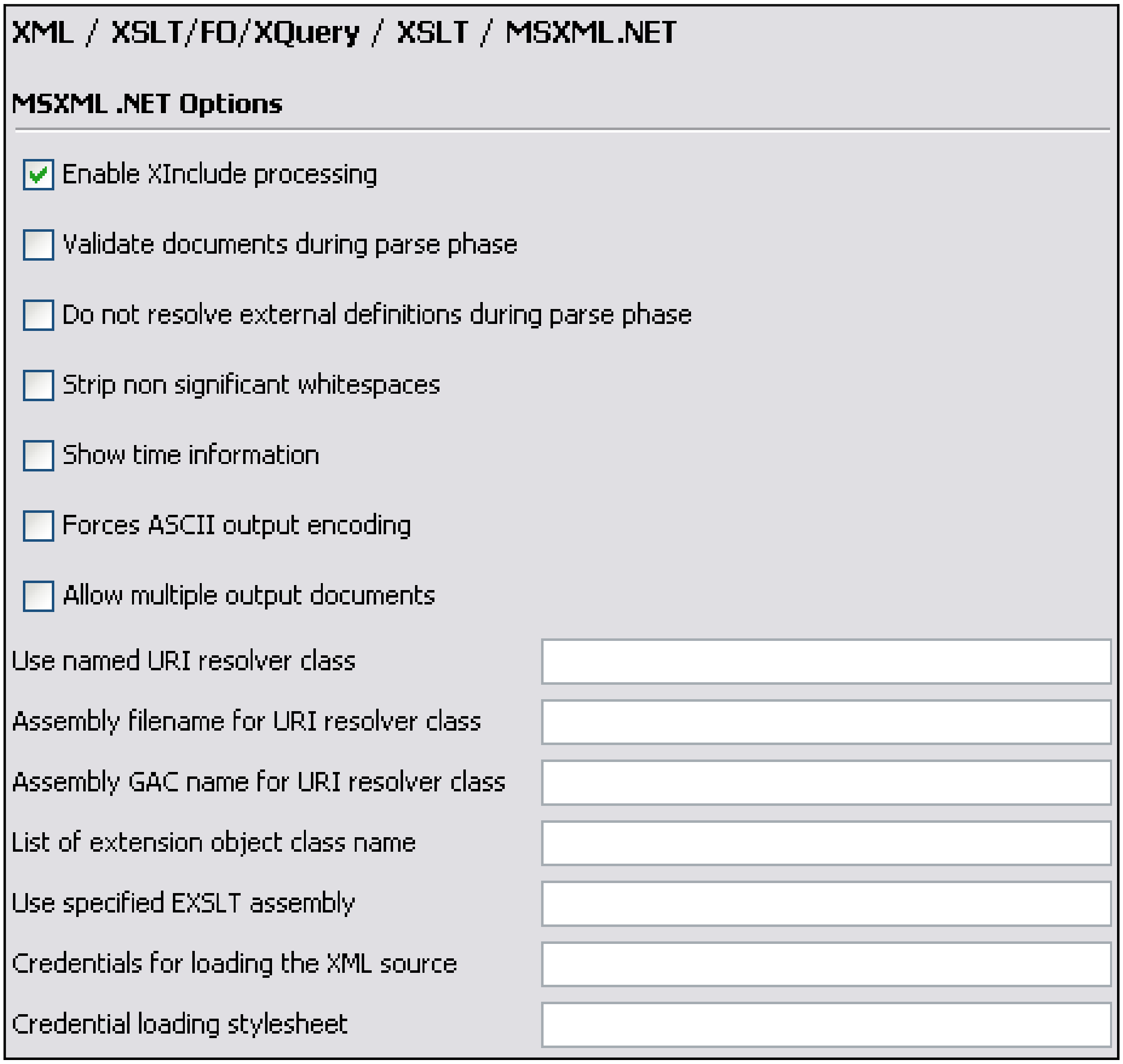
If checked the relative speed of various transformation steps can be measured: time to load, parse, and build the input document; time to load, parse, and build the style sheet document; time to compile the style sheet in preparation for the transformation; time to execute the style sheet.

Start transformation in this mode

Although style sheet execution usually begins in the empty mode, this default may be changed by specifying another mode. Changing the start mode allows execution to jump directly to an alternate group of templates.

MSXML.NET

Figure 15.28. The MSXML.NET preferences panel



XML / XSLT/FO/XQuery / XSLT / MSXML.NET

MSXML .NET Options

☑ Enable XInclude processing

☐ Validate documents during parse phase

☐ Do not resolve external definitions during parse phase

☐ Strip non significant whitespaces

☐ Show time information

☐ Forces ASCII output encoding

☐ Allow multiple output documents

Use named URI resolver class

Assembly filename for URI resolver class

Assembly GAC name for URI resolver class

List of extension object class name

Use specified EXSLT assembly

Credentials for loading the XML source

Credential loading stylesheet

The options of the MSXML.NET processor are the same as the ones available in the command line for the MSXML.NET processor: [http://www.xmllab.net/Products/nxslt/tabid/62/Default.aspx]

Enable XInclude processing

If checked XInclude references will be resolved when XSLTProc is used as transformer in the transformation scenario.

Validate documents during parse phase

If checked and either the source or style sheet document has a DTD or schema against which its content should be checked, validation is performed.

Do not resolve external definitions during parse phase

By default MSXML.NET resolves external definitions such as DTD external subsets or external entity references when parsing source XML document and stylesheet document. Using this option you can disable this behaviour. (Note, that it may affect also the validation process.)

Strip non-significant whitespaces

If checked strip non-significant white space from the input XML document during the load phase. Enabling this option can lower memory usage and improve transformation performance while, in most cases, creating equivalent output.

Show time information

If checked the relative speed of various transformation steps can be measured: time to load, parse, and build the input document; time to load, parse, and build the style sheet document; time to compile the style sheet in preparation for the transformation; time to execute the style sheet.

Forces ASCII output encoding

There is a known problem with .NET 1.X XSLT processor (System.Xml.Xsl.XslTransform class) - it doesn't support escaping of characters as XML character references when they cannot be represented in the output encoding. That means that when you output a character that cannot be represented in output encoding, it will be outputted as '?'. Usually this happens when output encoding is set to ASCII. With this option checked the output is forced to be ASCII encoded and all non-ASCII characters get escaped as XML character references (&#nnnn; form).

Allow multiple output documents

This option allows to create multiple result documents using the exsl:document extension element. [http://www.exslt.org/exsl/elements/document/index.html]

Use named URI resolver class

This option allows to specify a custom URI resolver class to resolve URI references in xsl:import/xsl:include instructions (during XSLT stylesheet loading phase) and in document() function (during XSL transformation phase).

Assembly file name for URI resolver class

The previous option specifies partially or fully qualified URI resolver class name, e.g. Acme.Resolvers.CacheResolver. Such name requires additional assembly specification using this option or the next option, but fully qualified class name (which always includes an assembly specifier) is all-sufficient. See MSDN for more info about fully qualified class names. [http://msdn.microsoft.com/library/default.asp?url=/library/en-us/cpguide/html/cpconspecifyingfullyqualifiedtypenames.asp] This option specifies a file name of the assembly, where the specified resolver class can be found.

Assembly GAC name for URI resolver class

This option specifies partially or fully qualified name of the assembly in the global assembly cache [http://msdn.microsoft.com/library/default.asp?url=/library/en-us/cpguide/html/cpconglobalassemblycache.asp] (GAC), where the specified resolver class can be found. See MSDN for more info about partial assembly names. [http://msdn.microsoft.com/library/default.asp?url=/library/en-us/cpguide/html/cpconpartialassemblyreferences.asp] Also see the previous option.

List of extension object class names

This option allows to specify extension object [http://msdn.microsoft.com/library/default.asp?url=/library/en-us/cpguide/html/cpconxsltargumentlistforstylesheetparametersextensionobjects.asp] classes, whose public methods then can be used as extension functions in an XSLT stylesheet. It is a comma-separated list of namespace-qualified extension object class names. Each class name must be bound to a namespace URI using prefixes as when providing XSLT parameters. [http://www.xmllab.net/Products/nxslt/tabid/62/Default.aspx#parameters]

Use specified EXSLT assembly

MSXML.NET supports rich library of the EXSLT [http://www.exslt.org/] and EXSLT.NET [http://www.xmllab.net/exslt] extension functions via embedded or plugged in EXSLT.NET [http://workspaces.gotdotnet.com/exslt] library. EXSLT support is enabled by default and cannot be disabled in this version. If you want to use an external EXSLT.NET implementation instead of a built-in one use this option.

Credential loading source xml

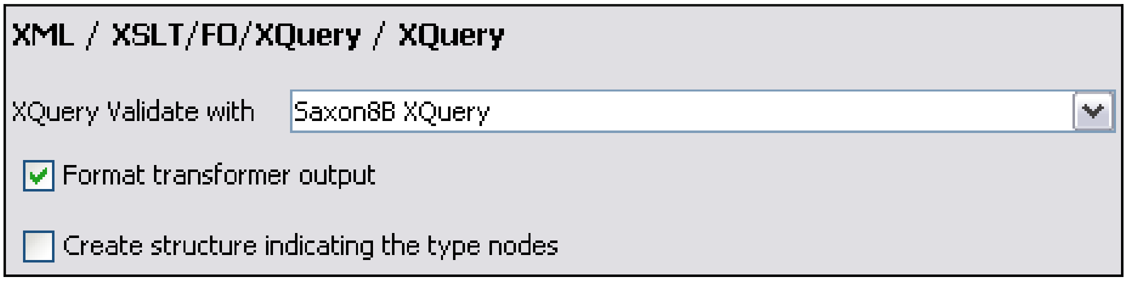
This option allows to specify user credentials to be used when loading XML source documents. The credentials should be provided in the "username:password@domain" format (all parts are optional).

Credential loading stylesheet

This option allows to specify user credentials to be used when loading XSLT stylesheet documents. The credentials should be provided in the "username:password@domain" format (all parts are optional).

XQuery

Figure 15.29. The XQuery preferences panel



XML / XSLT/FO/XQuery / XQuery

XQuery Validate with: Saxon8B XQuery

☑ Format transformer output

☐ Create structure indicating the type nodes

XQuery validate with

Allows you to select the XSLT Processor to validate the XQuery

Format transformer output

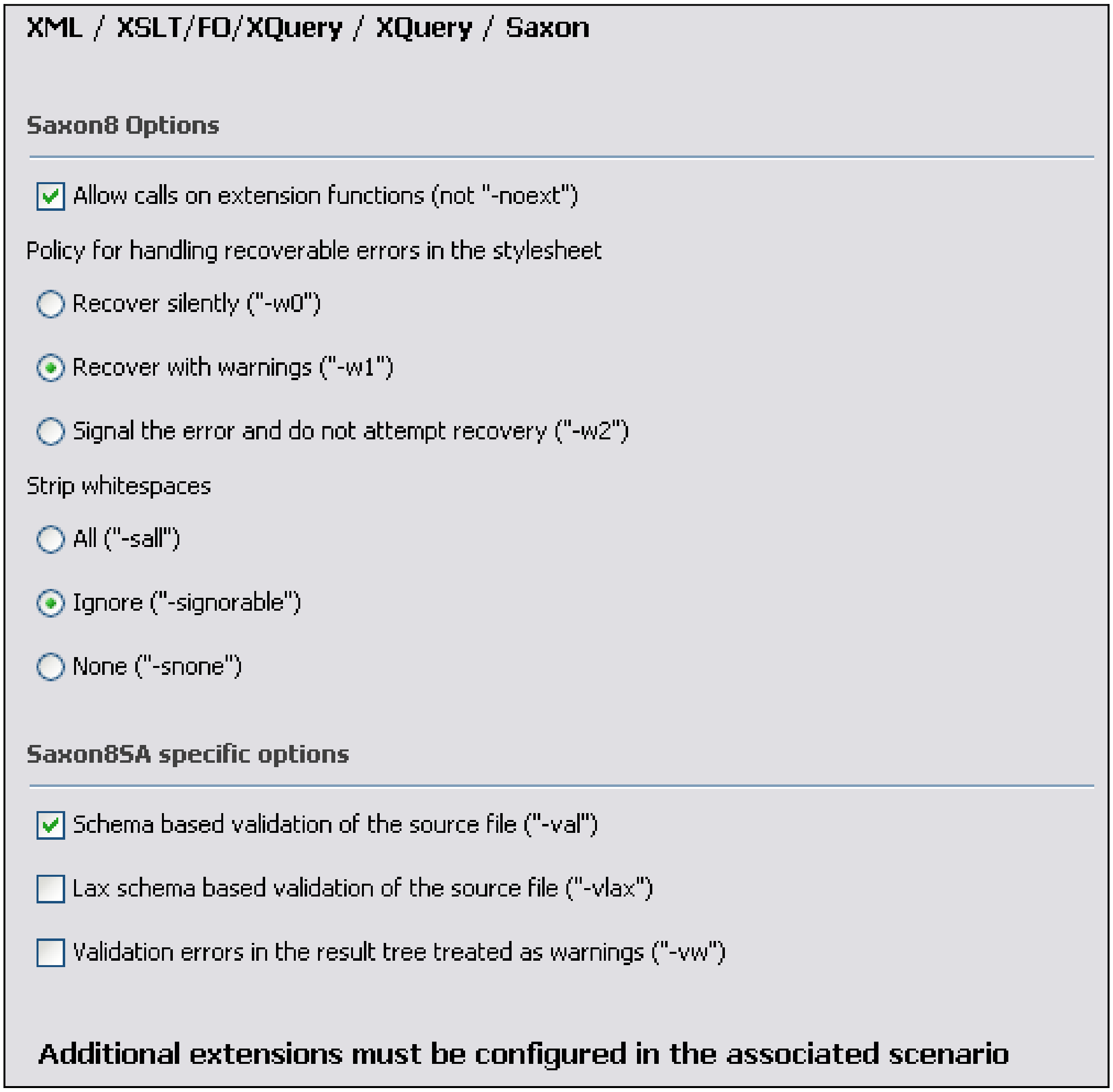
When checked the transformer's output is formatted and indented (pretty printed).

Create structure indicating the type nodes

If checked, <oXygen/> takes the results of a query and creates an XML document containing copies of all items in the sequence, suitably wrapped.

Saxon

Figure 15.30. The Saxon XQuery preferences panel



XML / XSLT/FO/XQuery / XQuery / Saxon

Saxon8 Options

☑ Allow calls on extension functions (not "-noext")

Policy for handling recoverable errors in the stylesheet

○ Recover silently ("-w0")

● Recover with warnings ("-w1")

○ Signal the error and do not attempt recovery ("-w2")

Strip whitespaces

○ All ("-sall")

● Ignore ("-signorable")

○ None ("-snone")

Saxon8SA specific options

☑ Schema based validation of the source file ("-val")

□ Lax schema based validation of the source file ("-vlax")

□ Validation errors in the result tree treated as warnings ("-vw")

Additional extensions must be configured in the associated scenario

Saxon8 options:

Allow calls on extension functions

If checked external functions called is allowed. Not checking this is recommended in an environment where untrusted stylesheets may be executed. Also disables user-defined extension elements, together with the writing of multiple output files, all of which carry similar security risks.

Policy for handling recoverable errors in the stylesheet

Allows the user to choose how dynamic errors will be handled. Either one of the following options can be selected: recover silently, recover with warnings or signal the error and do not attempt recovery.

Strip whitespaces

Can have one of the three values: All, Ignore, None. *All* - strips all whitespace text nodes from source documents before any further processing, regardless of any xml:space attributes in the source document. *Ignore* - strips all ignorable whitespace text nodes from source documents before any further processing, regardless of any xml:space attributes in the source document. Whitespace text nodes are ignorable if they appear in elements defined in the DTD or schema as having element-only content. *None* - strips no whitespace before further processing.

Saxon8SA specific options:

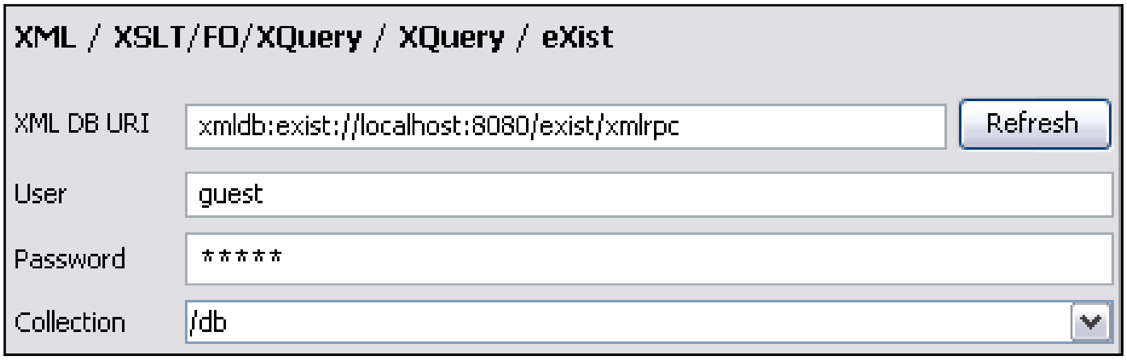
Schema based validation of the source
: This determines whether source documents should be parsed with schema-validation enabled.

Lax schema based validation of the source
: This determines whether source documents should be parsed with schema-validation enabled.

Validation errors in the result tree treated as warnings
: If checked, all validation errors are treated as warnings, otherwise they are treated as fatal.

eXist

Figure 15.31. The eXist preferences panel



XML / XSLT/FO/XQuery / XQuery / eXist

XML DB URI xmldb:exist://localhost:8080/exist/xmlrpc

User guest

Password *****

Collection /db

eXist options:

XML DB URI
: URI to the installed eXist engine. If you like to set a default collection you have to first press the Refresh button in order for the Collection list to be populated.

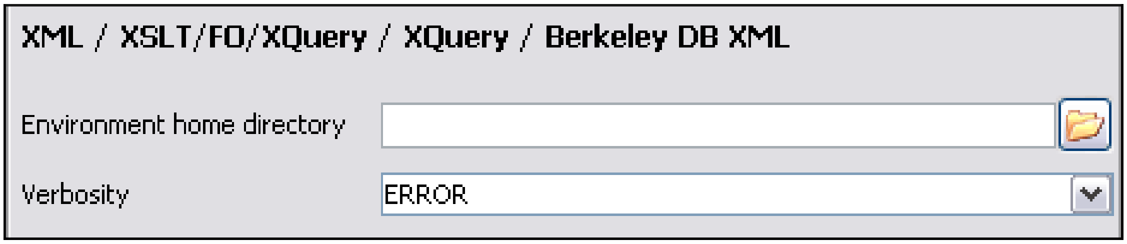
User
: User name to access the eXist database engine

Password
: Password to access the eXist database engine

Collection
: eXist organizes all documents in hierarchical collections. Collections are like directories. They are used to group related documents together. This combo box is populated after pressing the Refresh button and allows the user to set the default collection name.

Berkeley DB XML

Figure 15.32. The Berkeley DB XML preferences panel


XML / XSLT/FO/XQuery / XQuery / Berkeley DB XML

Environment home directory

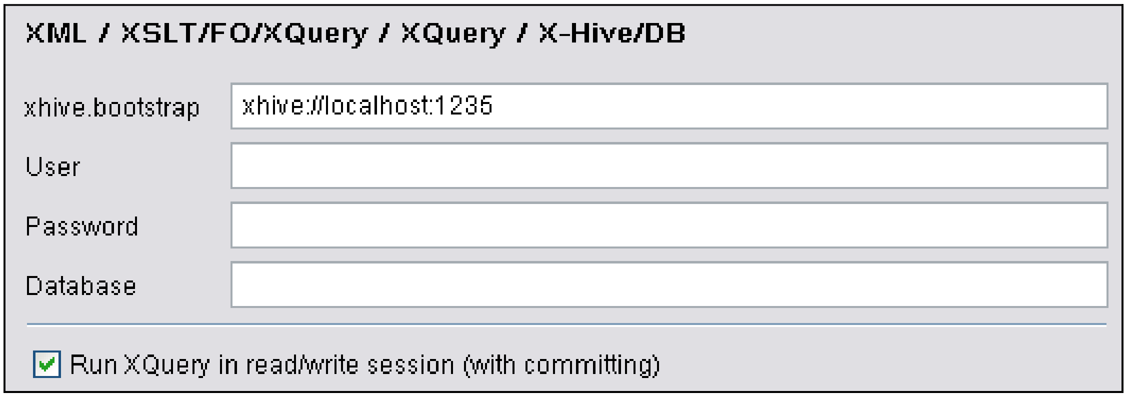
Verbosity ERROR

Berkeley DB XML options:

Environment home directory	Path to the Berkeley DB XML's home directory.
Verbosity	The user can choose between four levels of verbosity: DEBUG, INFO, WARNING, ERROR.

X-Hive/DB

Figure 15.33. The X-Hive/DB preferences panel


XML / XSLT/FO/XQuery / XQuery / X-Hive/DB

xhive.bootstrap xhive://localhost:1235

User

Password

Database

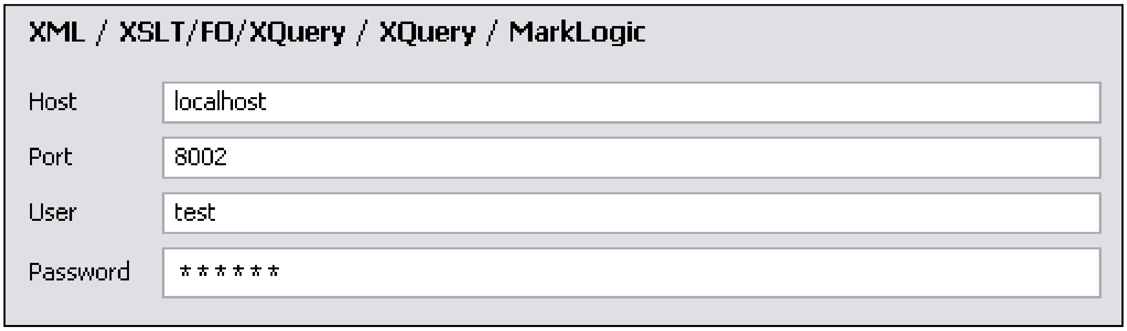
☑ Run XQuery in read/write session (with committing)

X-Hive/DB options:

xhive.bootstrap	URI to the installed X-Hive/DB engine.
User	User name to access the X-Hive/DB database engine.
Password	Password to access the X-Hive/DB database engine.
Database	The name of the database to access from the X-Hive/DB database engine.
Run XQuery in read/write session (with committing)	If checked the X-Hive session ends with a commit, otherwise it ends with a rollback.

MarkLogic

Figure 15.34. The MarkLogic preferences panel



XML / XSLT/FO/XQuery / XQuery / MarkLogic

Host	localhost
Port	8002
User	test
Password	******

MarkLogic options:

Host The hostname or ip address of the installed MarkLogic engine.

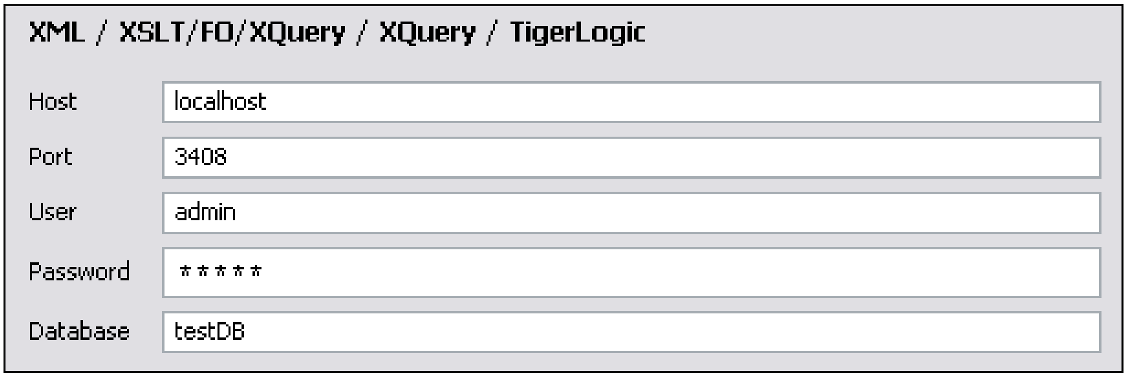
Port The port number of the MarkLogic engine.

User User name to access the MarkLogic engine.

Password Password to access the MarkLogic engine.

TigerLogic

Figure 15.35. The TigerLogic preferences panel



XML / XSLT/FO/XQuery / XQuery / TigerLogic

Host	localhost
Port	3408
User	admin
Password	*****
Database	testDB

TigerLogic options:

Host The hostname or ip address of the installed TigerLogic engine.

Port The port number of the TigerLogic engine.

User User name to access the TigerLogic engine.

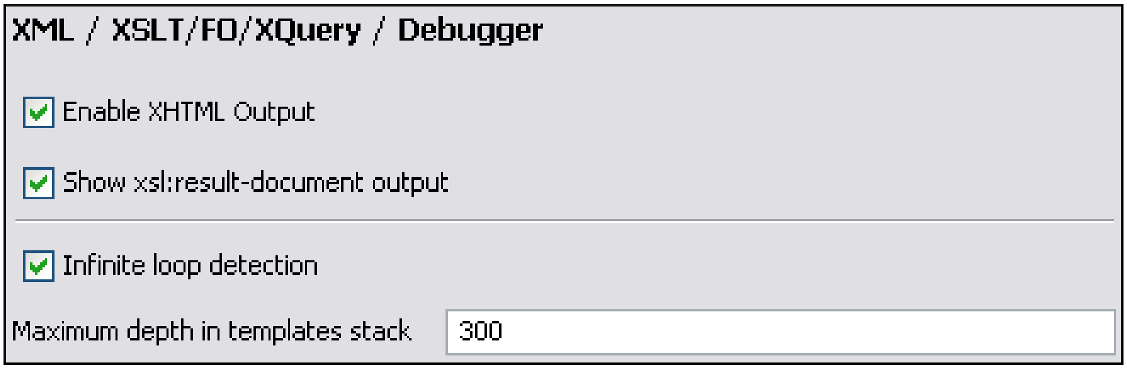
Password Password to access the TigerLogic engine.

Database The name of the database to access from the TigerLogic engine.

Debugger

This section explains the settings available for Debugger mode. To display settings select Options → Preferences → XSLT/FO+Debugger Options (see the section called “Debugger”).

Figure 15.36. The Debugger preferences panel



XML / XSLT/FO/XQuery / Debugger

☑ Enable XHTML Output

☑ Show xsl:result-document output

☑ Infinite loop detection

Maximum depth in templates stack: 300

The following settings are available:

Enable XHTML output
: Enable or disable rendering of output to the XHTML Output document View during the transformation process. For performance issues, it is advisable to disable XHTML output for large jobs. Also, the XHTML area is only able to render XHTML documents. In order to view the output result of other formats, such as HTML, save the Text output area to a file and use the required external browser for viewing.

Show xsl:result-document output
: If checked, the debugger presents the output of xsl: result-document instruction into the debugger output view.

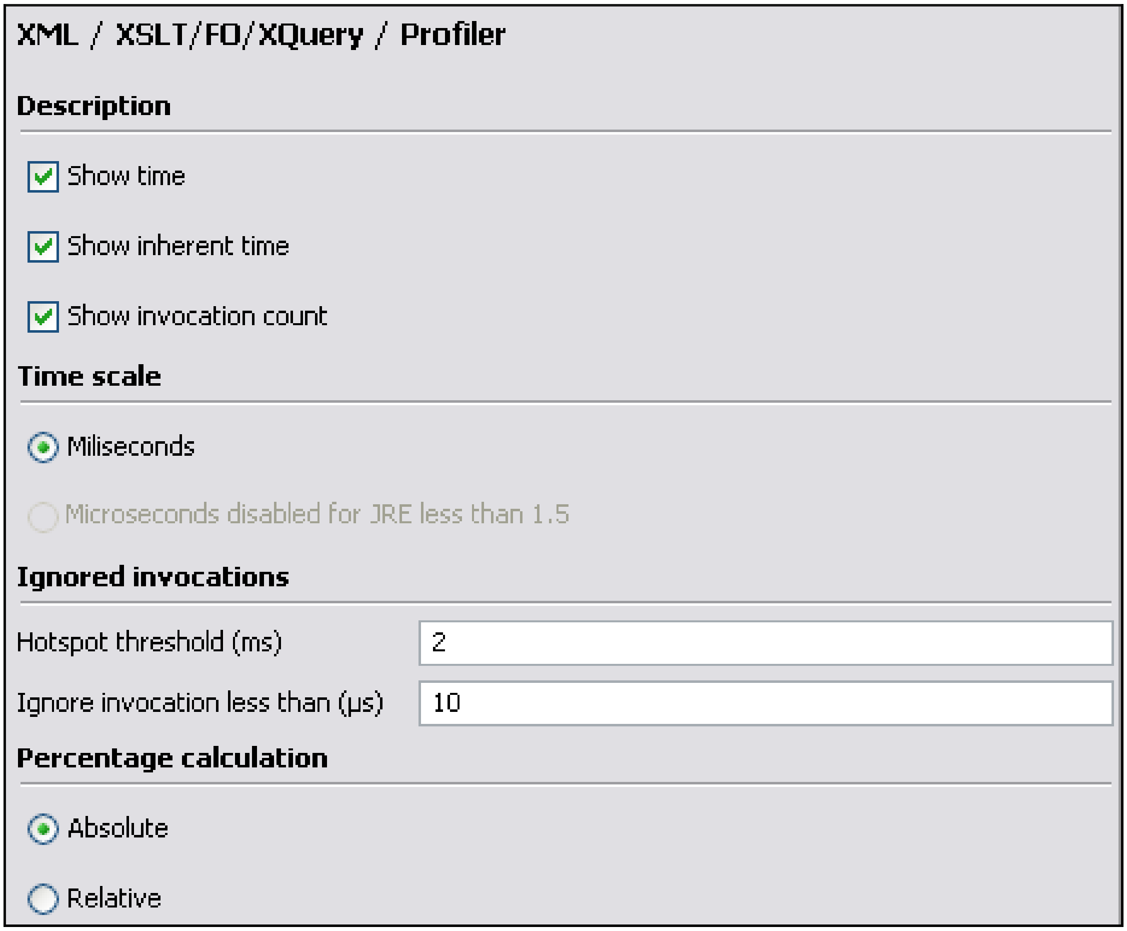
Infinite loop detection
: Set this option to receive notifications when an infinite loop occurs during transformation.

Maximum depth in templates stack
: How many templates (`<xsl:templates>`) instructions can appear on the current stack. This setting is used by the infinite loop detection.

Profiler

This section explains the settings available for XSLT Profiler mode. To display settings select Options → Preferences → XML → XSLT/FO+Profiler (see the section called “Debugger”).

Figure 15.37. The Profiler preferences panel



XML / XSLT/FO/XQuery / Profiler

Description

☑ Show time

☑ Show inherent time

☑ Show invocation count

Time scale

● Miliseconds

○ Microseconds disabled for JRE less than 1.5

Ignored invocations

Hotspot threshold (ms): 2

Ignore invocation less than (µs): 10

Percentage calculation

● Absolute

○ Relative

The following settings are available:

Show time
: Show the total time that was spent in the node.

Show inherent time
: Show the inherent time that was spent in the node.

Show invocation count
: Show how many times the node was called in this particular call sequence.

Time scale
: The time scale options determine the unit of time measurement, which may be milliseconds (ms) or microseconds (µs).

Hotspot threshold
: The threshold below which hot spots are ignored is entered in milliseconds (ms).

Ignore invocation less than
: The threshold below which invocations are ignored is entered in microseconds (µs).

Percentage calculation
: The percentage base determines against what time span percentages are calculated.

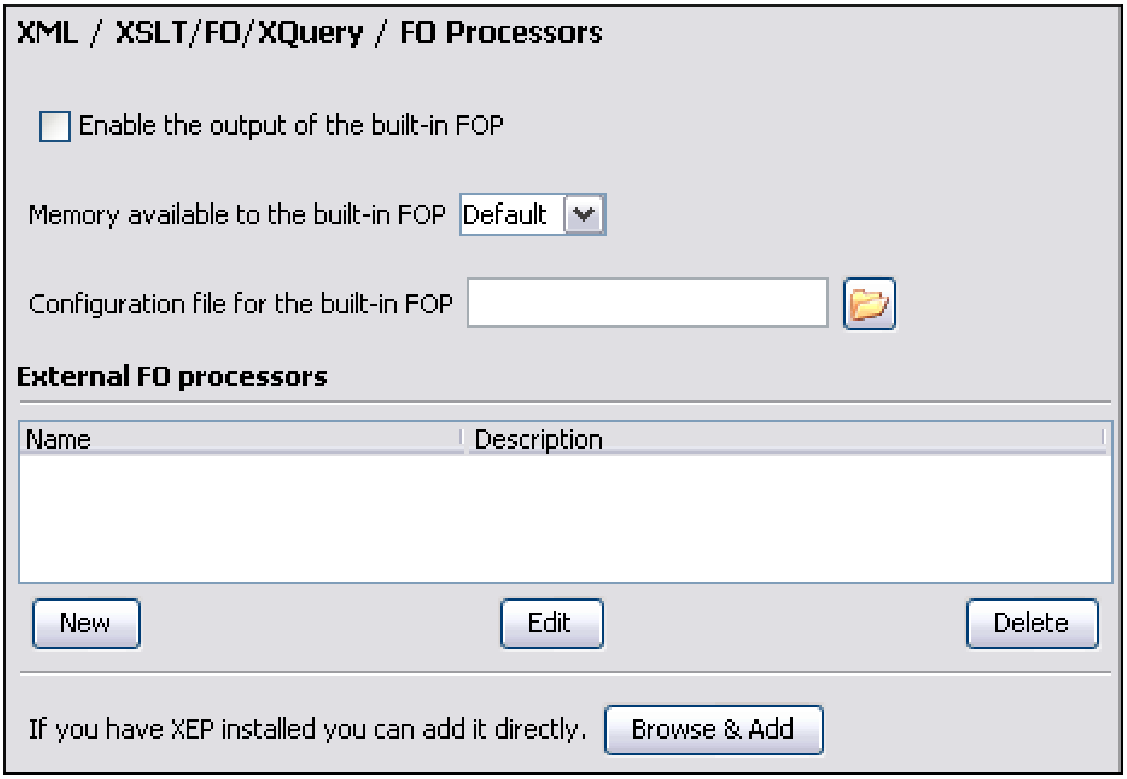
- Absolute: Percentage values show the contribution to the total time.
- Relative: Percentage values show the contribution to the calling

node.

FO Processors

Besides the built-in formatting objects processor (Apache FOP) the user can use other external processors. <oXygen/> has implemented an easy way to add RenderX XEP as external FO processor if the user has the XEP installed.

Figure 15.38. The FO Processors preferences panel



XML / XSLT/FO/XQuery / FO Processors

□ Enable the output of the built-in FOP

Memory available to the built-in FOP: Default

Configuration file for the built-in FOP:

External FO processors

Name	Description

If you have XEP installed you can add it directly.

Enable the output of the built-in FOP

When checked all FOP output will be displayed in a results pane at the bottom of the editor window including warning messages about FO instructions not supported by FOP.

Memory available to the built-in FOP

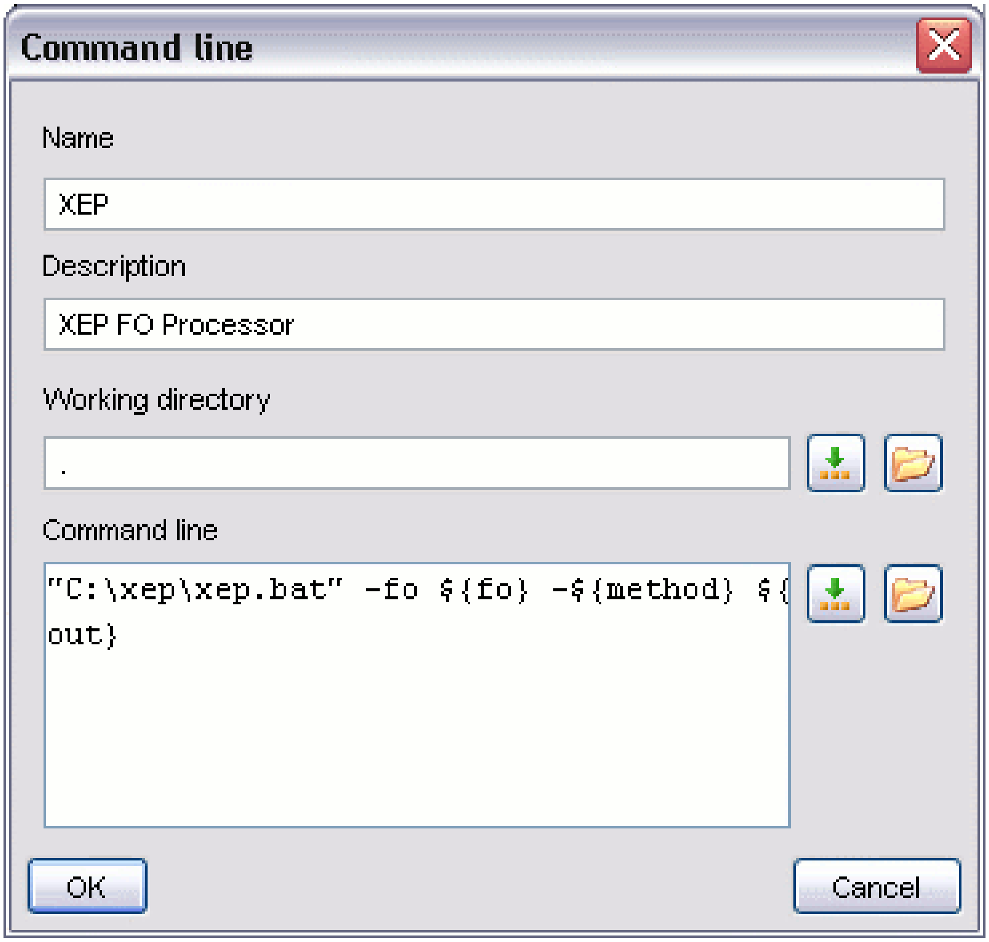
If your FOP transformations fail with an "Out of Memory" error select from this combo box a larger value for the amount of memory reserved for FOP transformations.

Configuration file for the built-in FOP

You should specify here the path to a FOP configuration file, necessary for example to render to PDF using a special true type font a document containing Unicode content.

The users can configure the external processors for use with <oXygen/> in the following dialog.

Figure 15.39. The external FO processor configuration dialog



Name

XEP

Description

XEP FO Processor

Working directory

.

Command line

```
"C:\xep\xep.bat" -fo ${fo} -${method} ${out}
```

Name

The name that will be displayed in the list of available FOP processors on the FOP tab of the Transforming Configuration dialog.

Description

The description of the FO processor displayed in the Preferences->FO Processors option.

Working directory

The directory in which the intermediate and final results of the processing will be stored. Here you can use one of the following macros:

${home}	The path to user home directory.
${cfd}	The path of current file directory.
${pd}	The project directory.

Command line

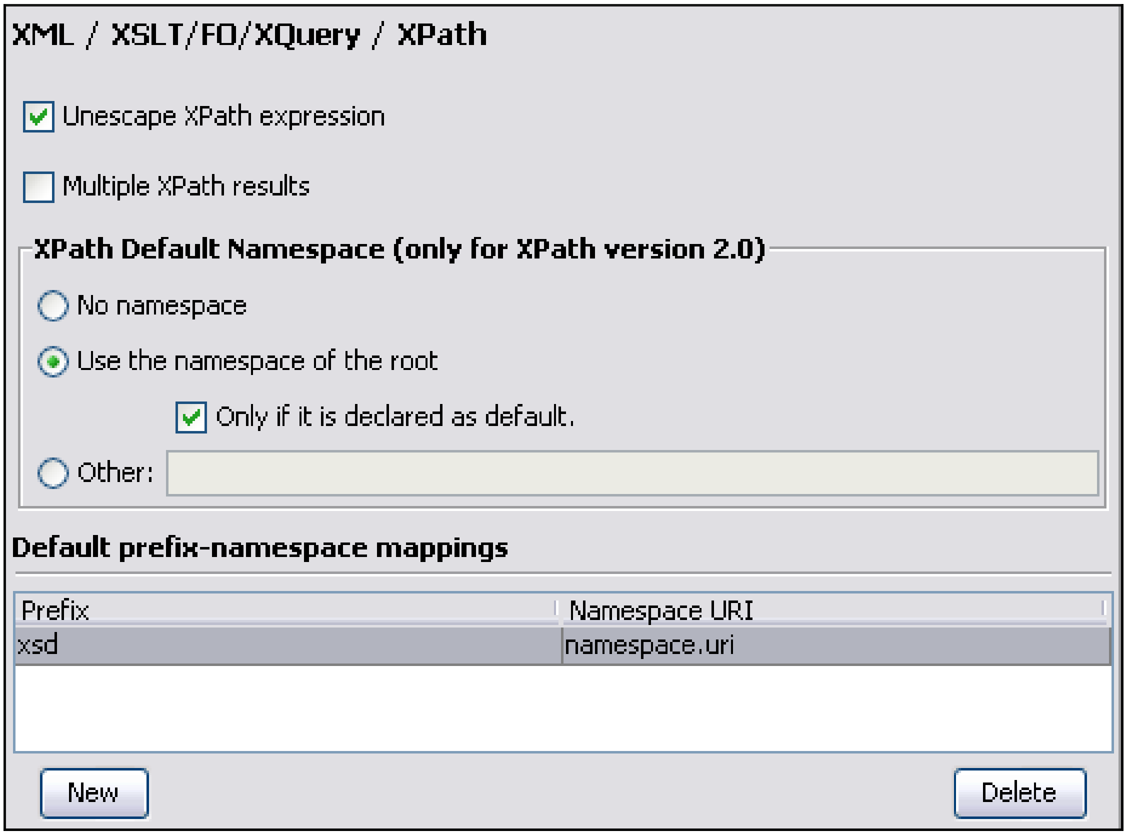
The command line that will start the FO processor, specific to each processor. Here you can use one of the following macros:

${method}	The FOP transformation method (pdf, ps, txt).

${fo}	The input FO file.
${out}	The output file.

XPath

Figure 15.40. The XPath preferences panel



XML / XSLT/FO/XQuery / XPath

☑ Unescape XPath expression

□ Multiple XPath results

XPath Default Namespace (only for XPath version 2.0)

○ No namespace

● Use the namespace of the root

☑ Only if it is declared as default.

○ Other:

Default prefix-namespace mappings

Prefix	Namespace URI
xsd	namespace.uri

Unescape XPath expression

When checked, unescapes the entities found in the XPath expression. For example the expression

```
//varlistentry[starts-with(@os,'&#x73;')]
```

is equivalent with

```
//varlistentry[starts-with(@os,'s')]
```

.

Multiple XPath results

When checked, results of different XPath expressions executed on the same file are written in separate result set tabs.

No namespace

If checked <oXygen/> will consider unprefixed element names in XPath expressions evaluated in the XPath console as belonging to no namespace.

Use the namespace of the root

If checked <oXygen/> will consider unprefixed element names in XPath expressions evaluated in the XPath console as belonging to the same namespace as the root element of the document.

Only if it is declared as default

If checked the namespace of the root element will be applied to the unprefixed elements in the XPath console only if it is set as default namespace on the root element.

Other

The user has the possibility to enter here the namespace of the unprefixed elements used in the XPath console

Default prefix-namespace mappings

Associates prefixes to namespaces. These mappings are useful when applying an XPath in XPath console and you don't have to define these mappings for each document separately.

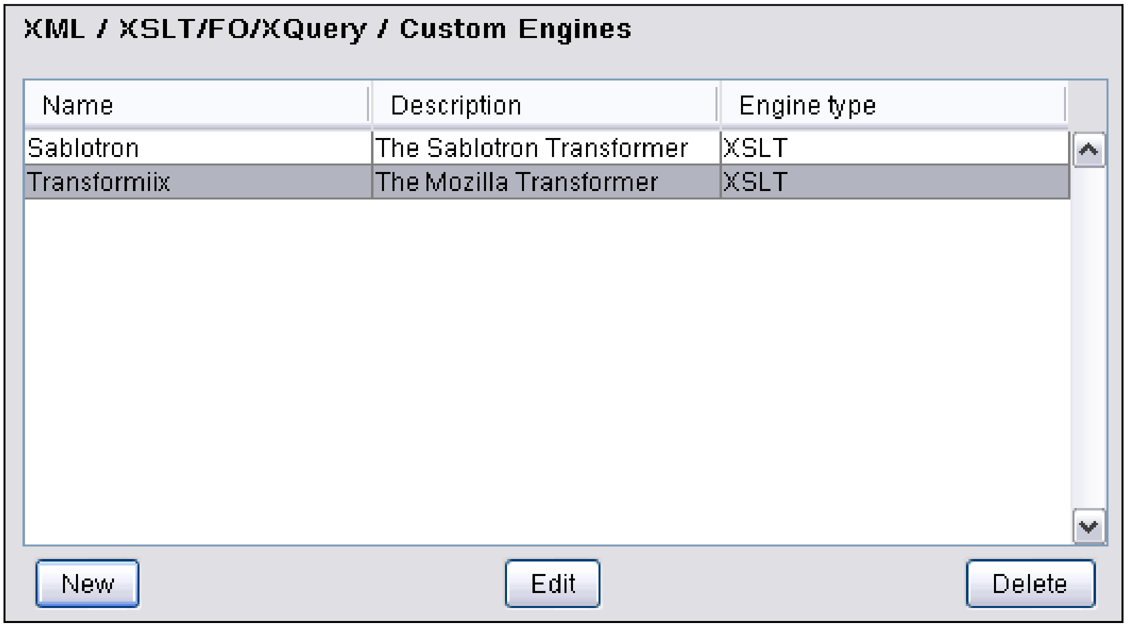
The New button creates an editable prefix-namespace mapping.

The Delete button deletes the selected mapping.

Custom engines

One can configure other transformation engines than the ones which come with the <oXygen/> distribution. Such an external engine can be used for XSLT / XQuery transformations within <oXygen/>, in the Editor perspective, and is available in the list of engines in the dialog for editing transformation scenarios. However it cannot be used in the Debugger perspective.

Figure 15.41. Configuration of custom transformation engines

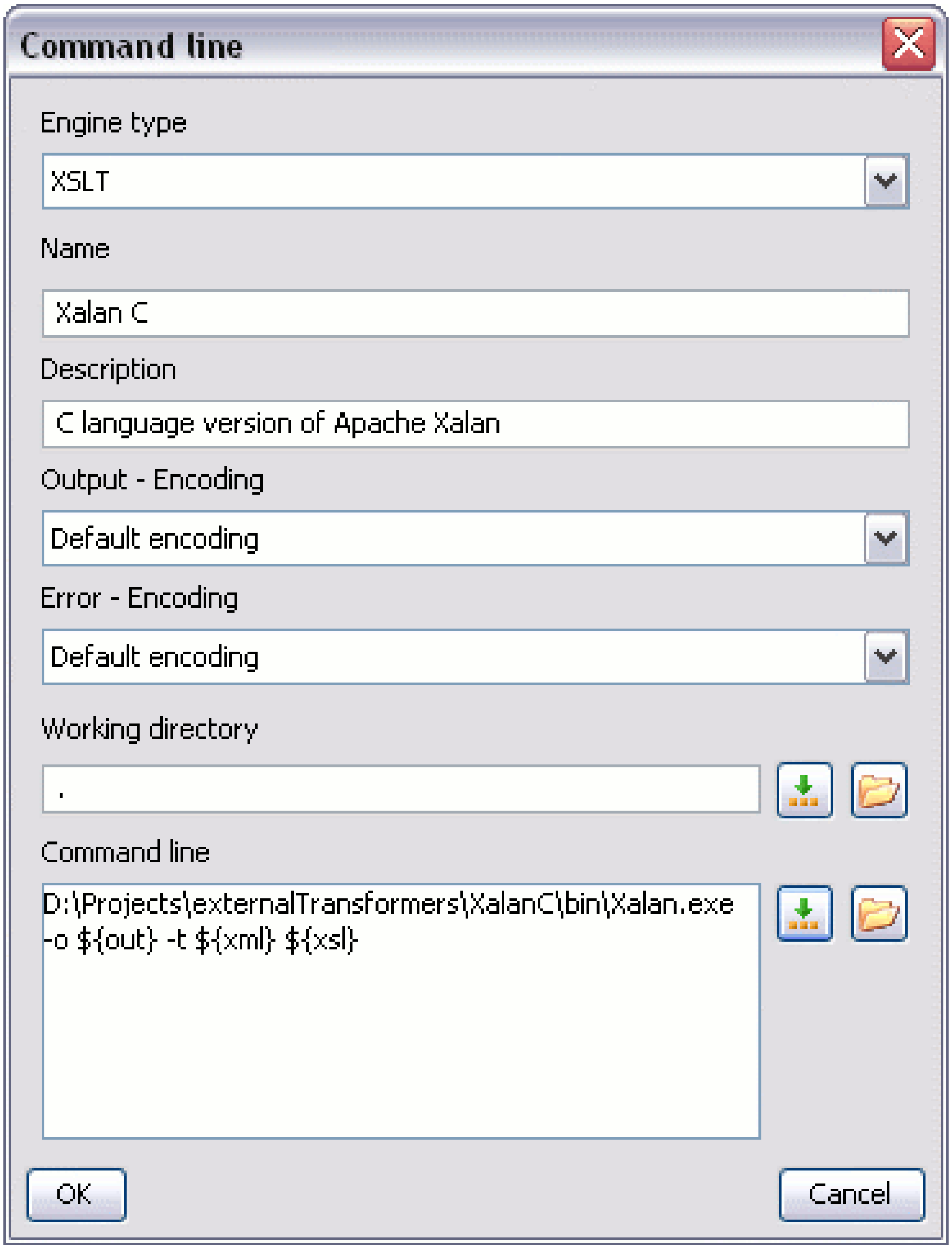


XML / XSLT/FO/XQuery / Custom Engines

Name	Description	Engine type
Sablotron	The Sablotron Transformer	XSLT
Transformiix	The Mozilla Transformer	XSLT

The following parameters can be configured for a custom engine:

Figure 15.42. Parameters of a custom transformation engine



Command line

Engine type

XSLT

Name

Xalan C

Description

C language version of Apache Xalan

Output - Encoding

Default encoding

Error - Encoding

Default encoding

Working directory

.

Command line

```
D:\Projects\externalTransformers\XalanC\bin\Xalan.exe
-o ${out} -t ${xml} ${xsl}
```

Engine type

Combo box allowing you to choose the transformer type. There are two options: XSLT engines and XQuery engines.

Name

The name of the transformer displayed in the dialog for editing transformation scenarios

Description

Text description of the transformer

Output encoding — The encoding of the characters sent to the output stream of the transformer

Error encoding — The encoding of the characters sent to the error stream of the transformer

Working directory — The start directory of the transformer executable program. The following macros are available for making the path to the working directory independent of the input XML file:

- ${home} - the user home directory in the operating system
- ${cfd} - the path to the directory of the current file
- ${pd} - the path to the directory of the current project
- ${oxygenInstallDir} - the <oXygen/> install directory

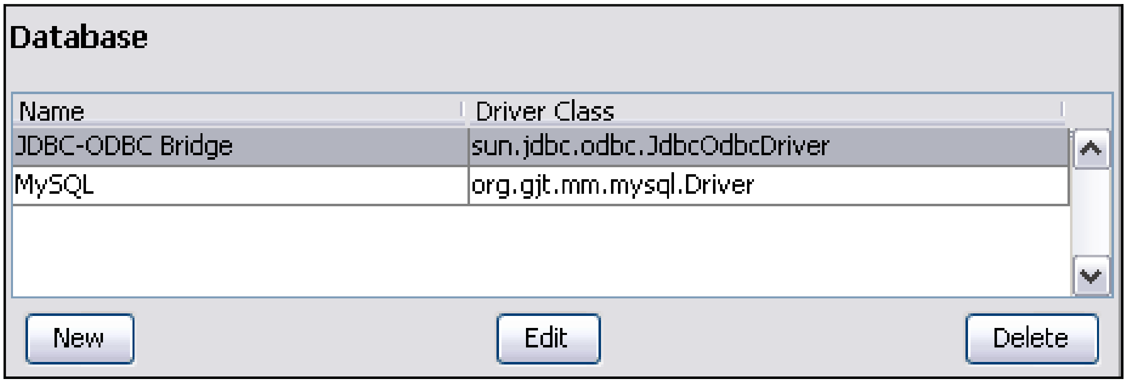
Command line — The command line that must be executed by <oXygen/> to perform a transformation with the engine. The following macros are available for making the items of the command line (the transformer executable, the input files) independent of the input XML file:

- ${xml} - the XML input document as a file path
- ${xmlu} - the XML input document as a URL
- ${xsl} - the XSL / XQuery input document as a file path
- ${xslu} - the XSL / XQuery input document as a URL
- ${out} - the output document as a file path
- ${outu} - the output document as a URL

Database

Here you can configure the JDBC Drivers for the Import from Database action. Any database server that supports JDBC connectivity can be configured. You can check the list of JDBC drivers (http://www.oxygenxml.com/database_drivers.html) available for the major database servers.

Figure 15.43. The JDBC Drivers preferences panel

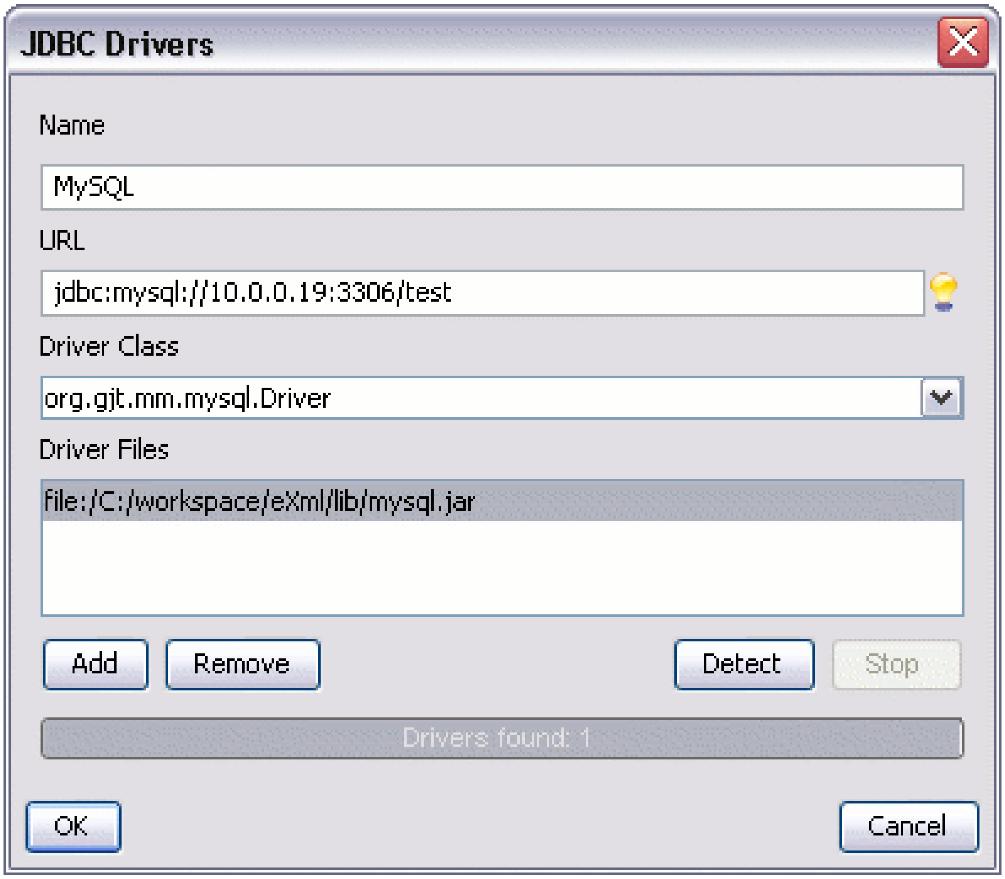


Database

Name	Driver Class
JDBC-ODBC Bridge	sun.jdbc.odbc.JdbcOdbcDriver
MySQL	org.gjt.mm.mysql.Driver

New Opens the JDBC Drivers dialog, allowing you to configure a new driver that will appear in in the list from "Select database table" dialog.

Figure 15.44. The JDBC Drivers dialog



JDBC Drivers

Name

MySQL

URL

jdbc:mysql://10.0.0.19:3306/test

Driver Class

org.gjt.mm.mysql.Driver

Driver Files

file:/C:/workspace/eXml/lib/mysql.jar

Drivers found: 1

Name Provide the name for the JDBC Driver

URL: Provide the URL for the JDBC Driver

Driver Class Provide the Driver Class for the JDBC Driver

Add Adds the JDBC driver class library.

Remove Removes driver class library from the list.

Detect Detects JDBC driver candidates.

Stop Stops the detection of the JDBC driver candidates.

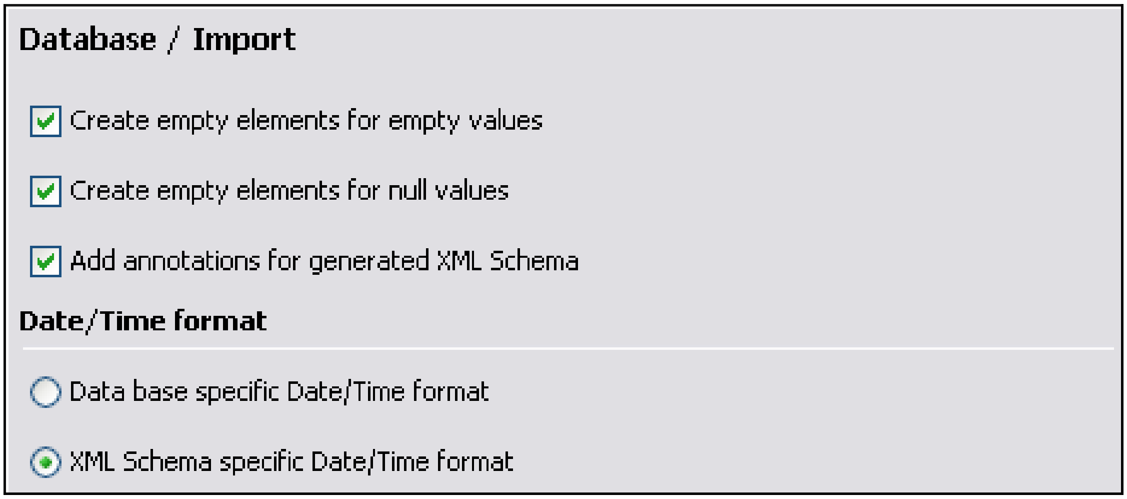
Edit Opens the JDBC Drivers dialog, allowing you to edit the selected driver. See above the specifications for the JDBC Drivers dialog.

Delete Deletes the selected JDBC Driver.

Import

Here it is configured how empty values and null values are handled when they are encountered in an import operation.

Figure 15.45. The Database import preferences panel



Database / Import

☑ Create empty elements for empty values

☑ Create empty elements for null values

☑ Add annotations for generated XML Schema

Date/Time format

○ Data base specific Date/Time format

● XML Schema specific Date/Time format

Create empty elements for empty values

If this option is enabled an empty value from a database column will be imported as an empty element.

Create empty elements for null values

If this option is enabled a null value from a database column will be imported as an empty element.

Add annotations for generated XML Schema

If checked, the generated XML Schema will contain an annotation for each of the imported table's columns. The documentation inside the annotation tag will contain the remarks of the database columns (if available) and also information about the conversion between the column type and the generated XML Schema type.

Date/Time format

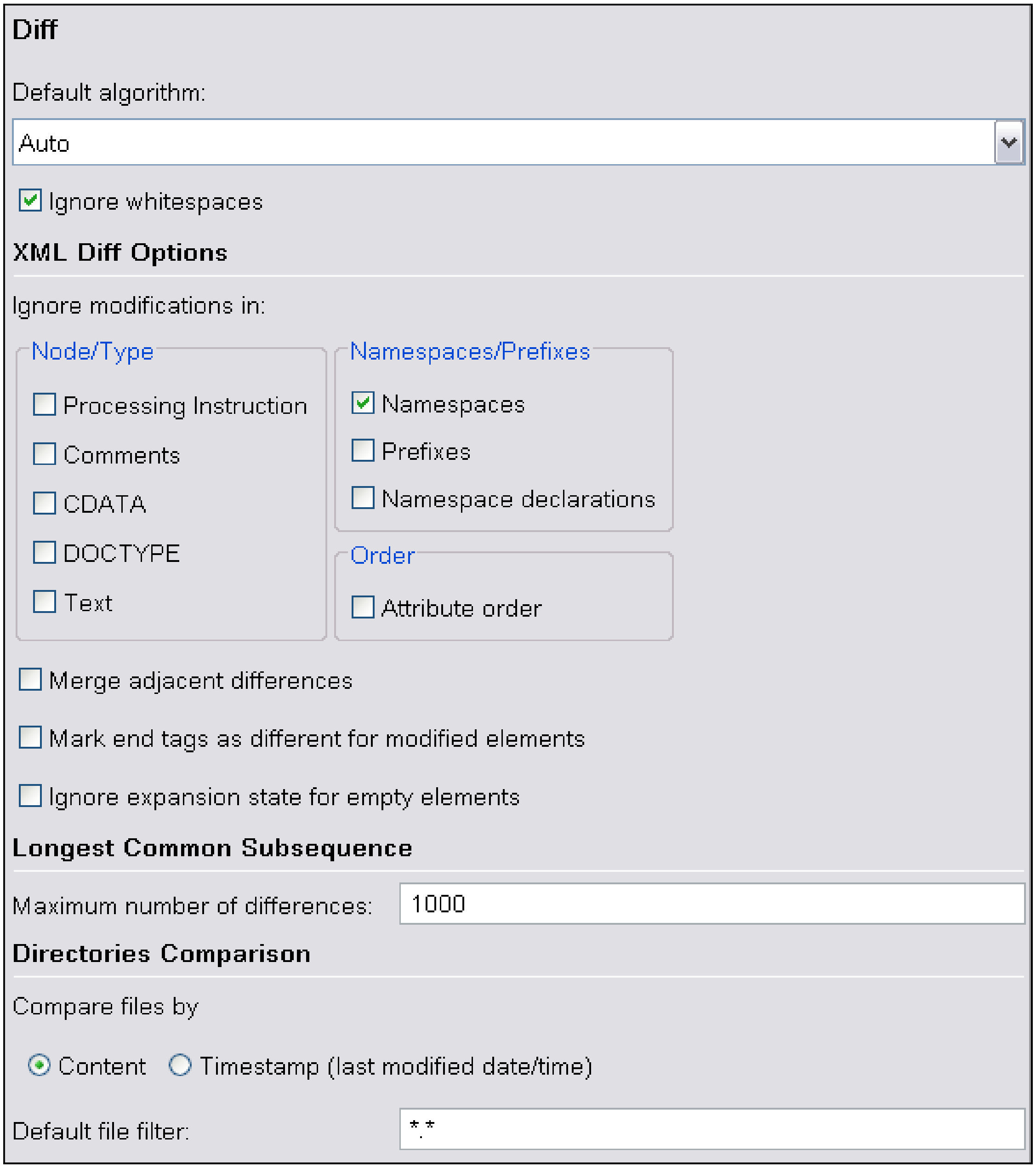
If Data base specific Date/Time format is checked, the date and time formats specific to the database will be used for import. The type used in the generated XML Schema will be xs:string.
If XSL Schema specific Date/Time format is checked, the ISO8601 format (yyyy-MM-ddTHH:mm:ss) will be used for imported date/time data. The types used in the generated XML Schema will be xs:datetime, xs:date and xs:time.

Diff

<oXygen/> offers both directory and file comparison, six different diff algorithms to choose from for file comparison and multiple levels of comparison.

The complete diff solution includes two XML diff algorithms (*XML Fast* and *XML Accurate*), one *Syntax Aware* algorithm that gives very good results on all file types known by <oXygen/> and three all-purpose algorithms: line based, word based and character based. Any algorithm can be used to perform differences on request, but <oXygen/> offers also an automatic selection of the algorithm, selecting the most appropriate one based on the files' content and size.

Figure 15.46. The Diff preferences panel



Diff

Default algorithm: Auto

☑ Ignore whitespaces

XML Diff Options

Ignore modifications in:

Node/Type

□ Processing Instruction

□ Comments

□ CDATA

□ DOCTYPE

□ Text

Namespaces/Prefixes

☑ Namespaces

□ Prefixes

□ Namespace declarations

Order

□ Attribute order

□ Merge adjacent differences

□ Mark end tags as different for modified elements

□ Ignore expansion state for empty elements

Longest Common Subsequence

Maximum number of differences: 1000

Directories Comparison

Compare files by

● Content ○ Timestamp (last modified date/time)

Default file filter: *.*

Perform diff with <oXygen/>
: If enabled <oXygen/>'s Diff tool will be used for all diff operations performed on XML documents. Disabling this option will disable <oXygen/>'s Diff tool

Default algorithm
: Select from the list the algorithm that will be used as default when you open the Compare files dialog

- *Auto* makes an automatic selection of the diff algorithm, based on the files' content and size.
- *Characters* computes the differences at character level.
- *Words* computes the differences at word level..
- *Lines* computes the differences at line level.
- *Syntax aware* : for the file types known by <oXygen/>, this algorithm computes the differences taking into consideration the syntax of the documents.
- *XML Fast* is designed for XML documents. It works better than XML Accurate on large files, but it is less precise.
- *XML Accurate* is designed for XML documents. It works best on smaller XML files and it is most precise.

Note

XML Fast and XML Accurate work for XML documents. If you'll try to use them for other types of files, you'll be prompted with the message "content not allowed in prolog"

Ignore whitespaces

This option, if checked, allows the diff algorithm to ignore the whitespaces.

XML Diff Options

This set of options allows you to specify the types of differences that will be ignored in the XML Fast and XML Accurate algorithms:

- in node / type:
  - Processing instructions
  - Comments
  - CDATA
  - DOCTYPE
  - Text
- in namespaces / prefixes
  - Namespaces
  - Prefixes
  - Namespace declarations
- in the attributes order

Merge adjacent differences

If checked, it considers adjacent differences as one and they are presented in this way in the side-by-side editors. If unchecked, every difference is represented separately.

Mark end tags as different for modified elements
If checked, end tags of modified elements are presented as differences.

Ignore expansion state for empty elements
If checked, empty elements in both expansion states are considered matched.

Maximum number of differences
This option allows you to specify the maximum number of differences between your documents that you might be interested to see. If the number of differences is larger than the one specified here, you'll be notified by the message "Too many differences".

For the directories comparison you can specify the criterion for the component files comparison and a default file filter.

Compare files by:

- Content
- Timestamp (last modified date/time)

Default file filter
specifies the default type of files that will be compared in Diff Directories

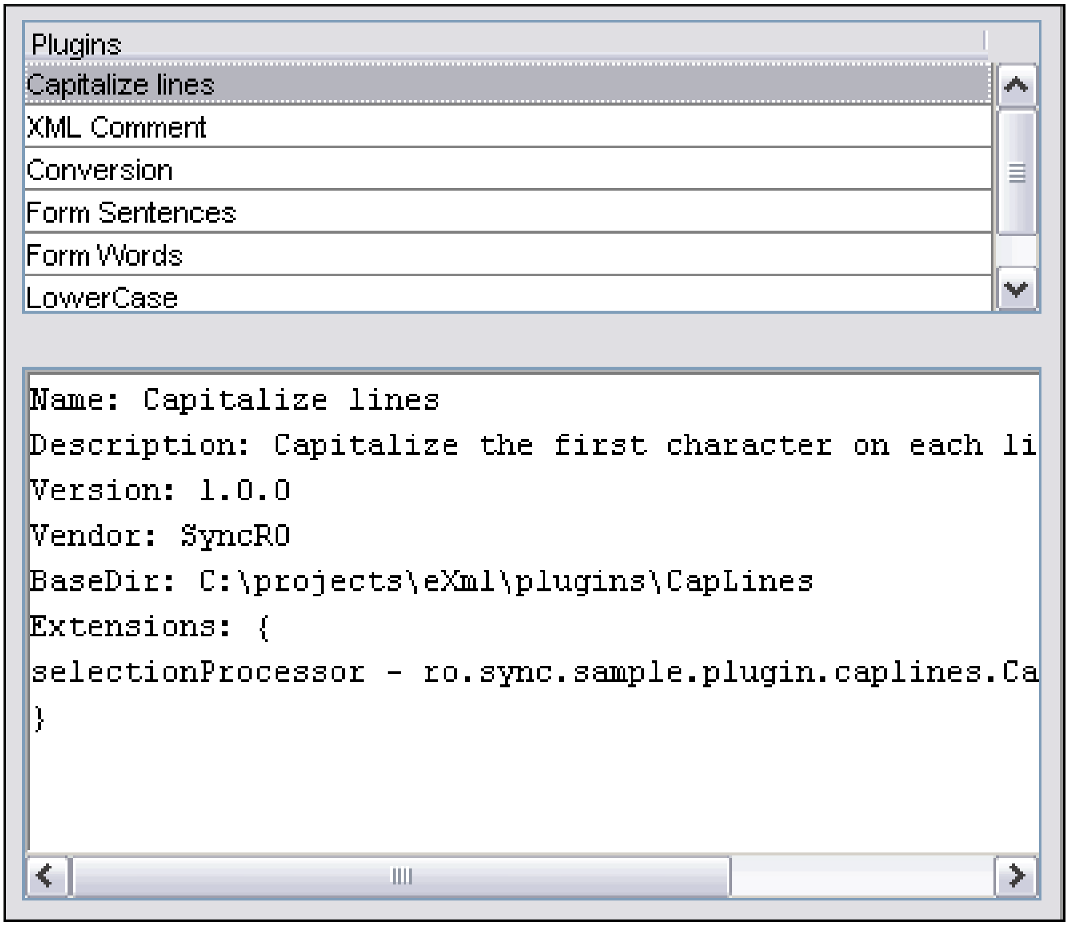
Plugins

<oXygen/> provides the ability to add plugins that extend the functionality of the application. The plugins are shipped as separate packages; check for new plugins on <oXygen/> site: http://www.oxygenxml.com.

One plugin consists of a separate sub-folder in the Plugins folder in the <oXygen/> installation folder. This sub-folder must contain a valid plugin.xml in accordance with the plugin.dtd file from the Plugins folder.

<oXygen/> automatically detects and loads plugins correctly installed in the Plugins folder and displays them in the Plugin option from the Preferences dialog.

Figure 15.47. The Plugins preferences panel



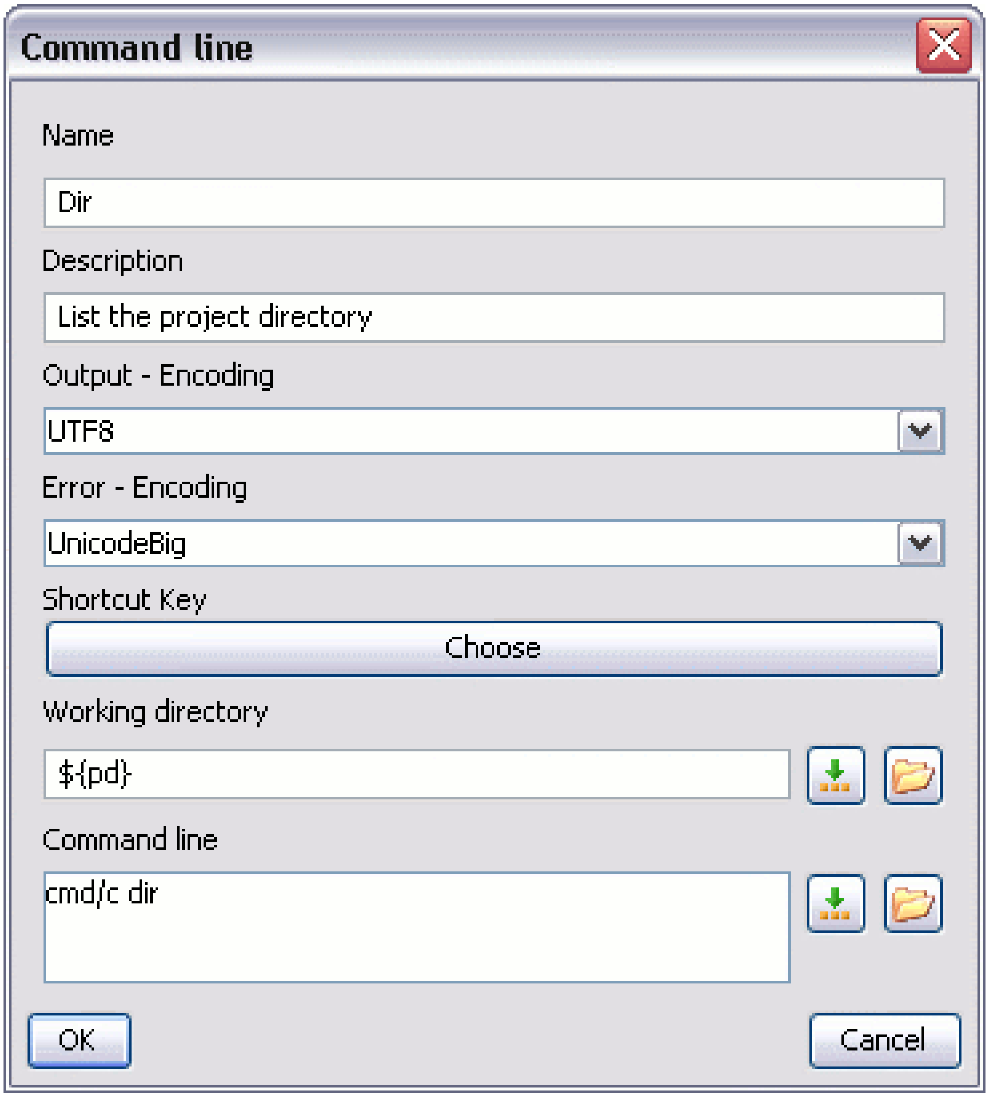
```
Name: Capitalize lines
Description: Capitalize the first character on each li
Version: 1.0.0
Vendor: SyncRO
BaseDir: C:\projects\eXml\plugins\CapLines
Extensions: {
selectionProcessor - ro.sync.sample.plugin.caplines.Ca
}
```

A short description of the plugin can be obtained with a click on the plugin name.

External Tools

The user can run within <oXygen/> other tools as if from the command line of the operating system shell. The configuration of such a tool is done in the following dialog.

Figure 15.48. The external tools configuration dialog



Name: Dir

Description: List the project directory

Output - Encoding: UTF8

Error - Encoding: UnicodeBig

Shortcut Key

Working directory: ${pd}

Command line: cmd/c dir

Name

The name of the menu entry corresponding to this tool that will be displayed in the External Tools menu and in the external tools combo box on the toolbar.

Description

The description of the tool displayed in the Preferences->External Tools option.

Output Encoding

The encoding that <oXygen/> uses to read the output stream data of the external tool.

Error Encoding

The encoding that <oXygen/> uses to read the error stream data of the external tool.

Shortcut key

The keyboard shortcut that launches the external tool.

Working directory

The directory the external tool will use to store intermediate and final results. Here you can use one of the following macros:

${home}	The path to user home directory.

${cfd}	The path of current file directory.
${pd}	The project directory.

Command line

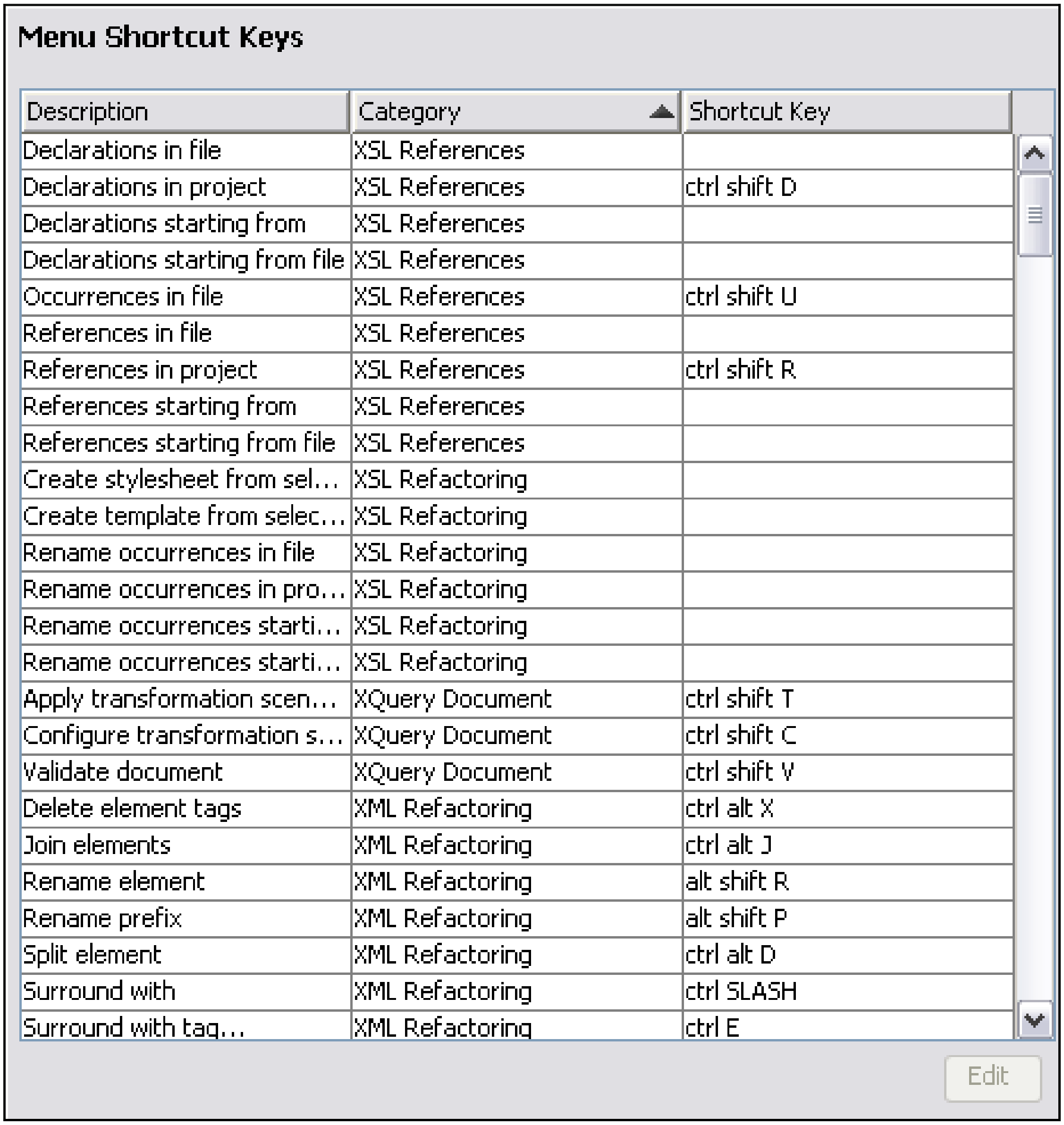
The command line that will start the external tool. Here you can use one of the following macros:

${dbgXML}	The path to the current Debugger source selection.
${dbgXSL}	The path to the current Debugger stylesheet selection.
${home}	The path to user home directory.
${cfn}	The current file name without extension.
${cfne}	The current file name with extension.
${cf}	The path of the currently edited file.
${cfd}	The path of current file directory.
${tsf}	Transformation result file.
${pd}	The project directory.

Menu Shortcut Keys

The user can configure in one place all the keyboard shortcuts of the menu items available in <oXygen/>. The current shortcuts assigned to menu items are displayed in the following table.

Figure 15.49. The Menu Shortcut Keys preferences panel



Menu Shortcut Keys

Description	Category	Shortcut Key
Declarations in file	XSL References	
Declarations in project	XSL References	ctrl shift D
Declarations starting from	XSL References	
Declarations starting from file	XSL References	
Occurrences in file	XSL References	ctrl shift U
References in file	XSL References	
References in project	XSL References	ctrl shift R
References starting from	XSL References	
References starting from file	XSL References	
Create stylesheet from sel...	XSL Refactoring	
Create template from selec...	XSL Refactoring	
Rename occurrences in file	XSL Refactoring	
Rename occurrences in pro...	XSL Refactoring	
Rename occurrences starti...	XSL Refactoring	
Rename occurrences starti...	XSL Refactoring	
Apply transformation scen...	XQuery Document	ctrl shift T
Configure transformation s...	XQuery Document	ctrl shift C
Validate document	XQuery Document	ctrl shift V
Delete element tags	XML Refactoring	ctrl alt X
Join elements	XML Refactoring	ctrl alt J
Rename element	XML Refactoring	alt shift R
Rename prefix	XML Refactoring	alt shift P
Split element	XML Refactoring	ctrl alt D
Surround with	XML Refactoring	ctrl SLASH
Surround with tag...	XML Refactoring	ctrl E

Description A short description of the menu item operation.

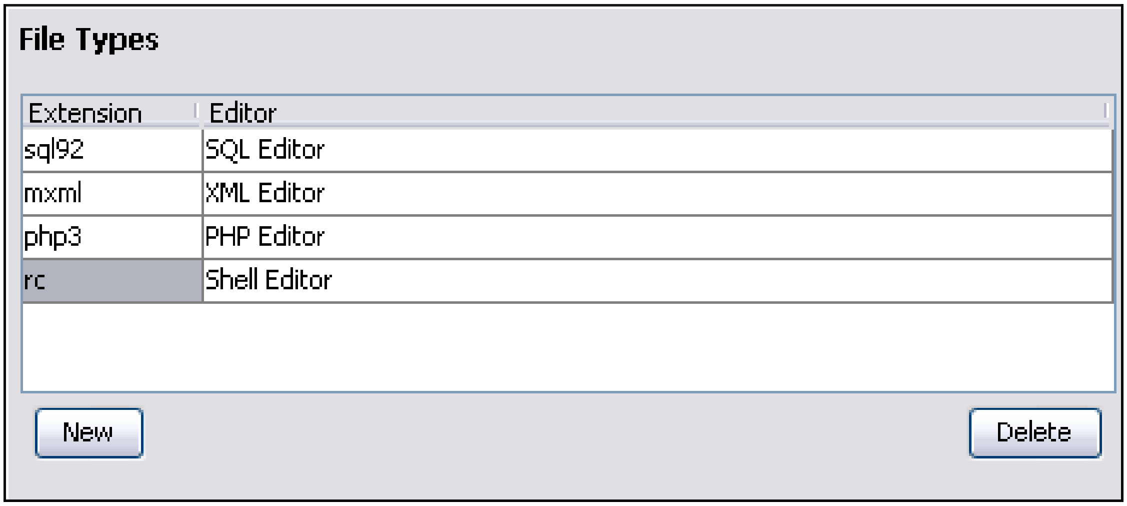
Category The shortcuts are classified in categories for easier management. For example the "Cut" operation for the source view is distinguished from the tree view one by assigning it to a separate category.

Shortcut key The keyboard shortcut that launches the operation. Double-clicking on a table row or pressing the "Edit" button allows the user to register a new shortcut for the operation displayed on that row.

File Types

<oXygen/> offers support for a wide variety of file types, but users are free to add new file types specified by extension and associate them with the editor type which fits better.

Figure 15.50. The File Types preferences panel



File Types

Extension	Editor
sql92	SQL Editor
mxml	XML Editor
php3	PHP Editor
rc	Shell Editor

Extension — The new file types.

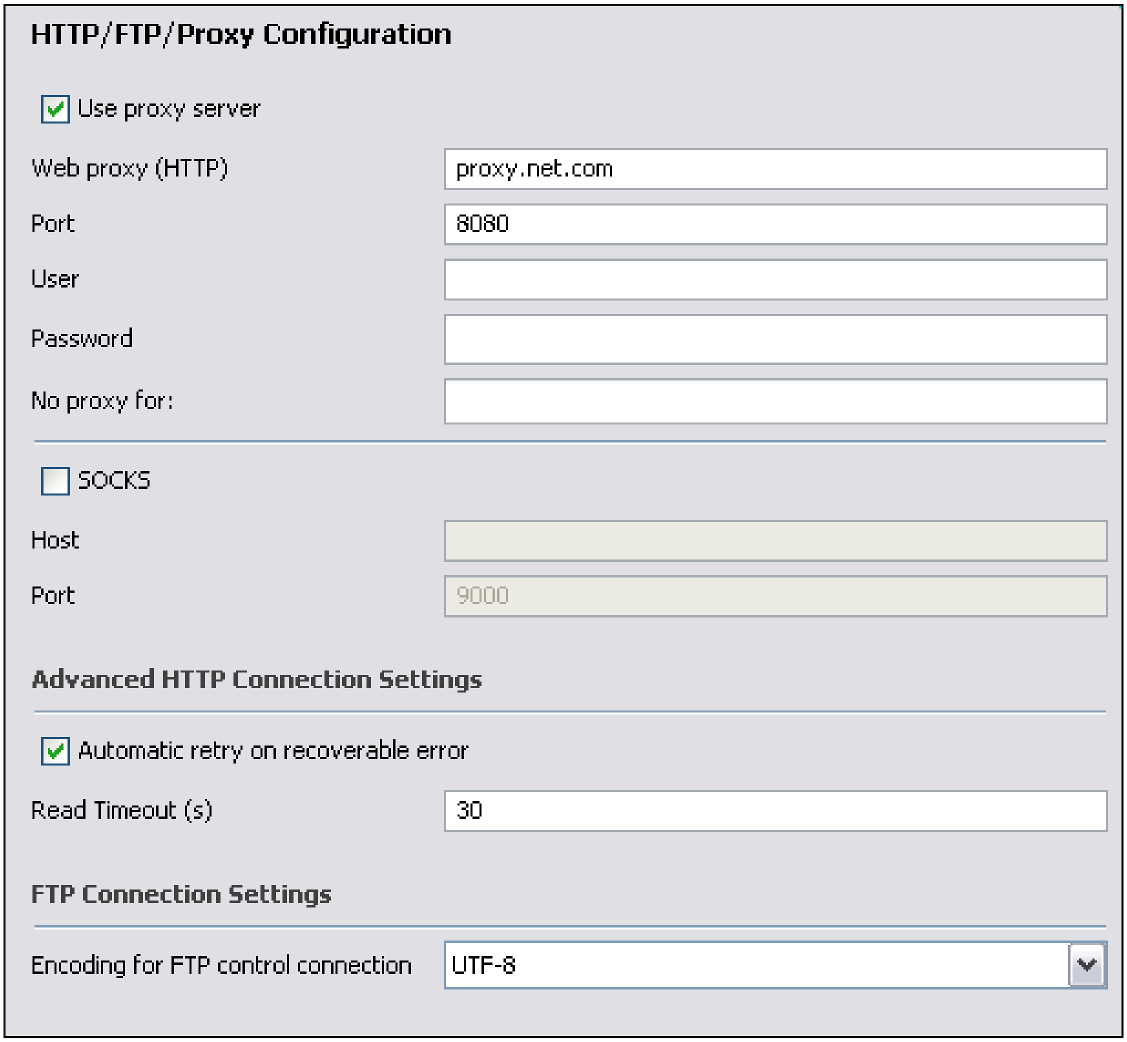
Editor — The type of editor which the extensions will be associated with. Some editors provide easy access to frequent operations via toolbars (e.g. XML editor, XSL editor, DTD editor) while other provide just a syntax highlight scheme (e.g. Java editor, SQL editor, Shell editor, etc.)

HTTP / FTP / Proxy Configuration

Some networks use Proxy servers to provide Internet Services to LAN Clients. Clients behind the Proxy may therefore, only connect to the Internet via the Proxy Service. The Proxy Configuration dialog enables this configuration. If you are not sure whether your computer is required to use a Proxy server to connect to the Internet or the values required by the Proxy Configuration dialog, please consult your Network Administrator.

Open the Proxy Configuration dialog by selecting Options → Preferences → HTTP / Proxy Configuration.

Figure 15.51. The Proxy Configuration preferences panel



HTTP/FTP/Proxy Configuration

☑ Use proxy server

Web proxy (HTTP): proxy.net.com

Port: 8080

User

Password

No proxy for:

□ SOCKS

Host:

Port: 9000

Advanced HTTP Connection Settings

☑ Automatic retry on recoverable error

Read Timeout (s): 30

FTP Connection Settings

Encoding for FTP control connection: UTF-8

Complete the dialog as follows:

Use proxy server

When checked enables <oXygen/> to use the specified Proxy Server. When unchecked, Proxy Server is disabled.

Web Proxy (HTTP)

The IP address or Fully Qualified Domain Name (FQDN) of the Proxy Server.

Port

The TCP Port Number, normally set to 80 or 8080.

User

The Name of the user if required. Can be empty.

Password

The Password for authentication. Can be empty.

No proxy for

Specify domains for which no proxy should be used.

SOCKS

When checked enables SOCKS using the specified host and port for the server. When unchecked, SOCKS is disabled.

Host

The SOCKS host you wish to connect to.

Port

The SOCKS port you wish to connect to.

Automatic retry on recoverable error

If enabled, if a HTTP error occurs when <oXygen/> communicates with a server via HTTP, for example sending/receiving a SOAP request/response to/from a Web services server, and the error is recoverable, <oXygen/> tries to send again the request to the server.

Read Timeout (s)

The period in seconds after which <oXygen/> will consider a HTTP server is unreachable if it does not receive any response to a request sent to that server.

Encoding for FTP control connection

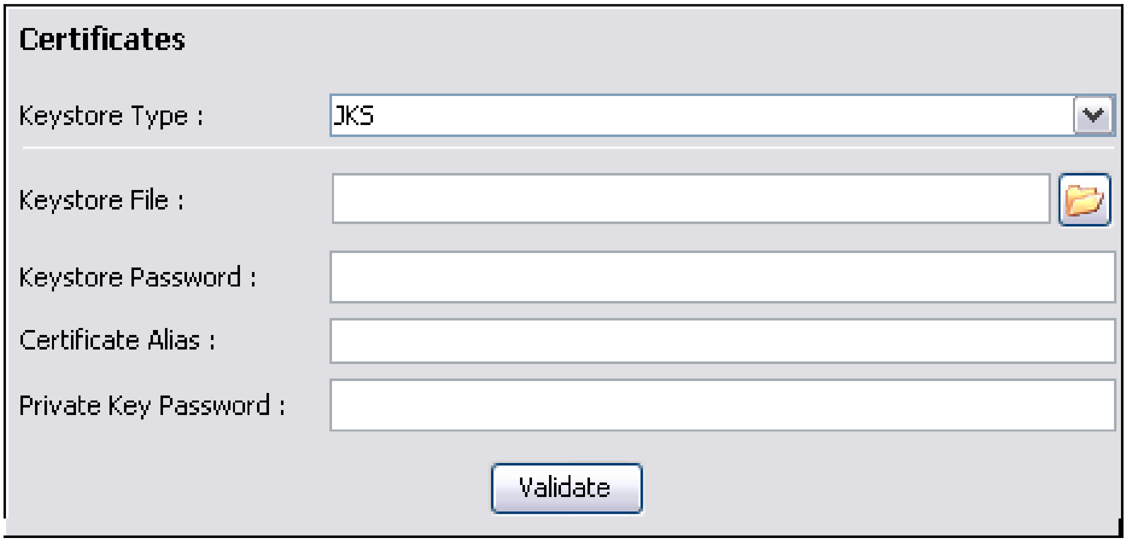
The encoding used to communicate with FTP servers. It is one of ISO-8859-1 and UTF-8. If the server supports the UTF-8 encoding <oXygen/> will use it for communication. Otherwise it will use ISO-8859-1.

The Proxy settings are first looked up in the options. If there were no previous options set then the settings are loaded from the *"servers"* file located in the *"%HOME%\Application Data\Subversion\"* folder on Windows and *%HOME%\.subversion* folder on Linux and Mac OS X.

Certificates

In <oXygen/> there are provided two types of Keystores: Java KeyStore (JKS) and Public-Key Cryptography Standards version 12 (PKCS-12). A keystore file is protected by a password.

Figure 15.52. The Certificates preferences panel



Certificates

Keystore Type : JKS

Keystore type

Represents the type of keystore to be used.

Keystore file

Represents the location of the file to be imported.

Keystore password

The password which is used to protect the privacy of the stored keys.

Certificate alias

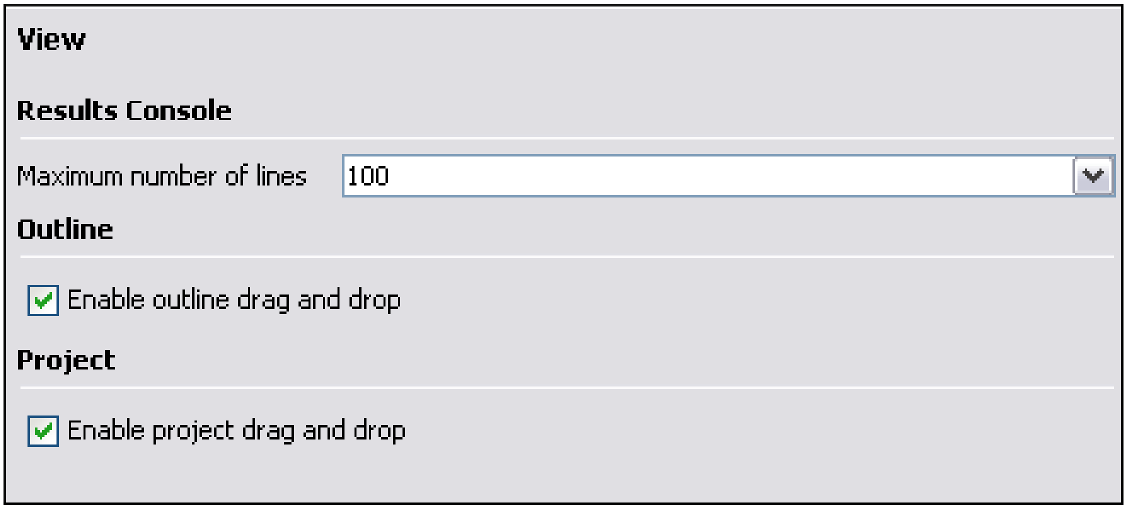
The alias to be used to store the key entry (the certificate and /or the private key) inside the keystore.

Private key password — It is only necessary in case of JKS keystore. It represents the certificate's private key password.

Validate — Verifies the entries from the fields; assures that the certificate is valid.

View

Figure 15.53. The View preferences panel



View

Results Console

Maximum number of lines: 100

Outline

☑ Enable outline drag and drop

Project

☑ Enable project drag and drop

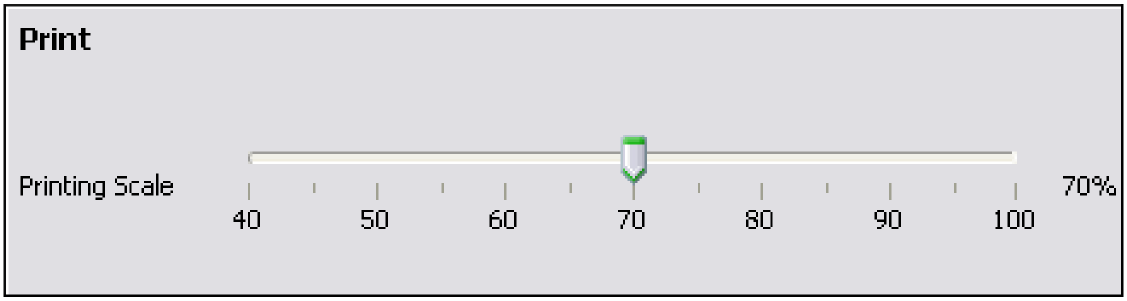
Maximum number of lines — This option sets the maximum number of lines of the output console where the external tools place their output.

Enable outline drag and drop — When drag and drop is disabled for the tree displayed by the outline view there is no possibility to accidentally change the structure of the document.

Enable project drag and drop — This option enables the drag and drop support in Project view. When it is disabled there is no possibility to accidentally change the structure of the project.

Print

Figure 15.54. The Printing Scale preferences panel



Print

Printing Scale 70%

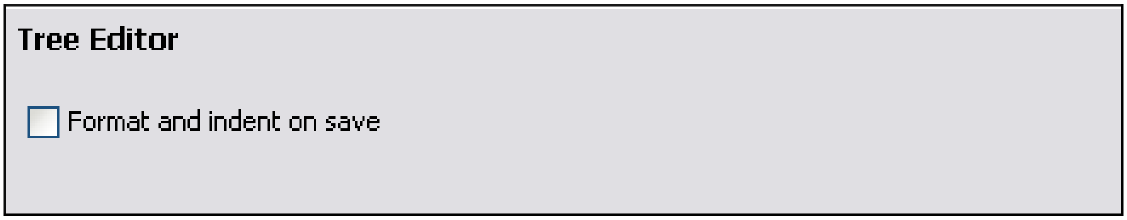
It is sometimes useful to print out the contents of a document on paper. <oXygen/> allows you to adjust the scale of the print output to make it easier to read on a page.

Printing Scale

Displays a slide allowing the user to adjust the printing scale between 40% and 100%.

Tree editor

Figure 15.55. The Tree Editor preferences panel



Tree Editor

□ Format and indent on save

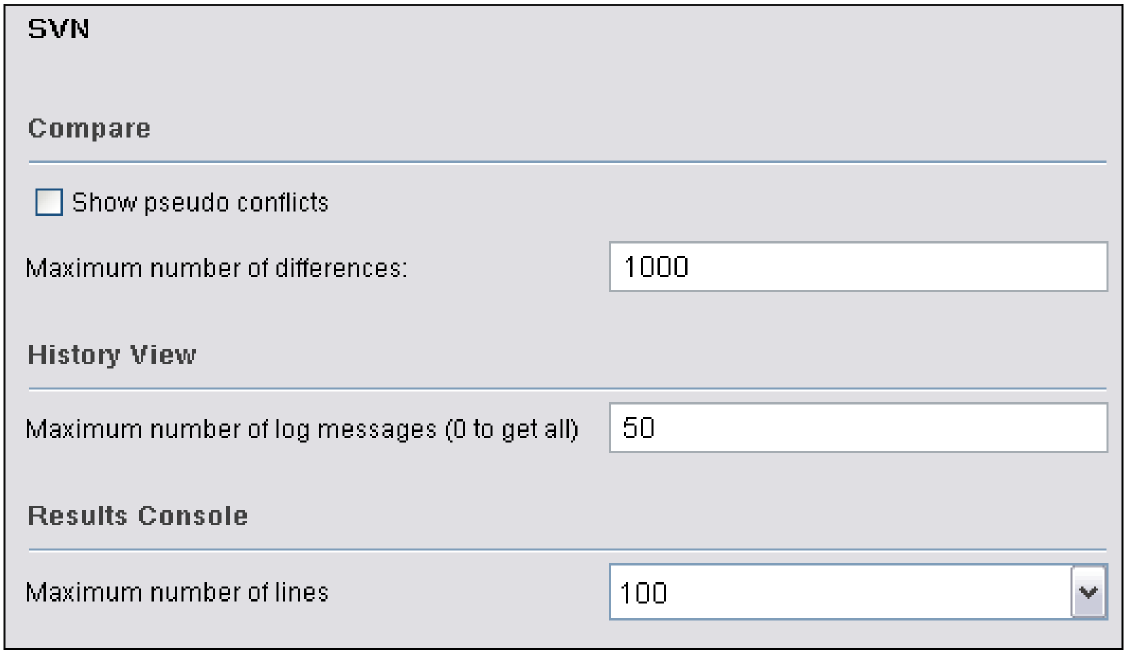
Format and indent on save

Check if the document should be formatted and indented (pretty-print) on save.

SVN

The SVN client preferences are:

Figure 15.56. The SVN preferences panel



SVN

Compare

□ Show pseudo conflicts

Maximum number of differences: 1000

History View

Maximum number of log messages (0 to get all) 50

Results Console

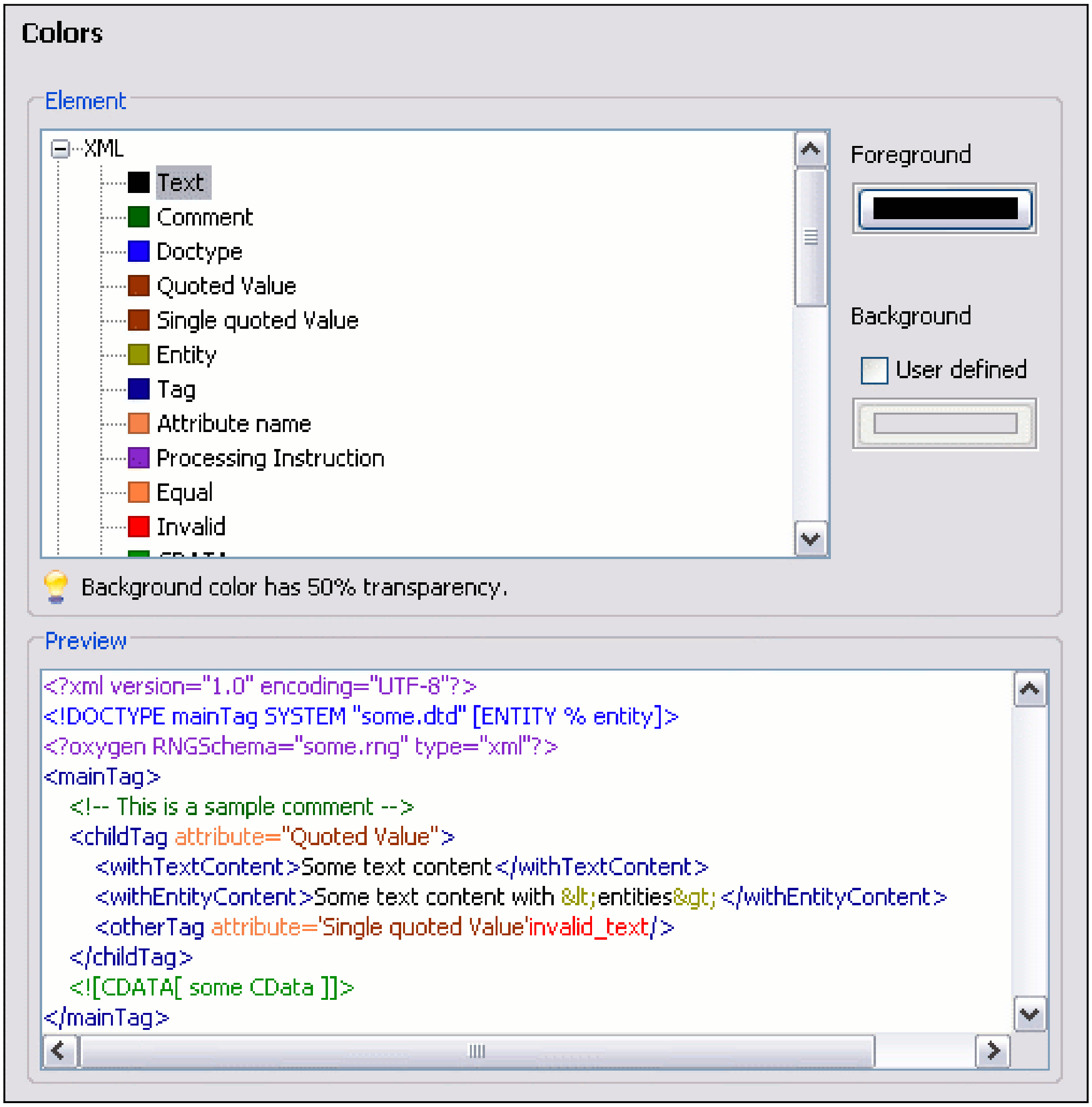
Maximum number of lines 100

- Compare - allows you to specify if you want to see *pseudo-conflicts* in the Compare view. You can also change the maximum number of differences allowed in the view.
- History View - you can set the maximum number of messages retrieved from the log history.
- Results Console - here you can specify the maximum number of lines displayed in the *Console View*.

Colors

<oXygen/> supports Syntax Highlight for XML, DTD, Relax NG (XML and Compact Syntax), Java, JavaScript, XQuery, C++, C, PHP,CSS, Perl, Properties, SQL, Shell and Batch documents. While <oXygen/> provides a default color configuration for highlighting the tokens, you may choose to customize, as required, using the Colors dialog.

Figure 15.57. The Colors preferences panel



Background color has 50% transparency.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE mainTag SYSTEM "some.dtd" [ENTITY % entity]>
<?oxygen RNGSchema="some.rng" type="xml"?>
<mainTag>
  <!-- This is a sample comment -->
  <childTag attribute="Quoted Value">
    <withTextContent>Some text content</withTextContent>
    <withEntityContent>Some text content with &lt;entities&gt;</withEntityContent>
    <otherTag attribute='Single quoted Value'invalid_text/>
  </childTag>
  <![CDATA[ some CData ]]>
</mainTag>
```

Open the Colors dialog by selecting Options->Preferences->Colors and choose one of the supported Document Types. Each document type contains a set of Tokens. When a Document Type node is expanded, the associated tokens are listed. Selecting a token displays the current color properties and enables you to modify them. You can also select a token by clicking directly in the preview area on that type of token.

Use Swatches, HSB or RGB models from the Color dialog to define the color properties.

Modifications are saved when the OK button is clicked. Cancel discards changes. Reset button changes the color to the default value.

Swatches — Displays a color palette containing a variety of colors from across the color spectrum and shades thereof. Select a color.

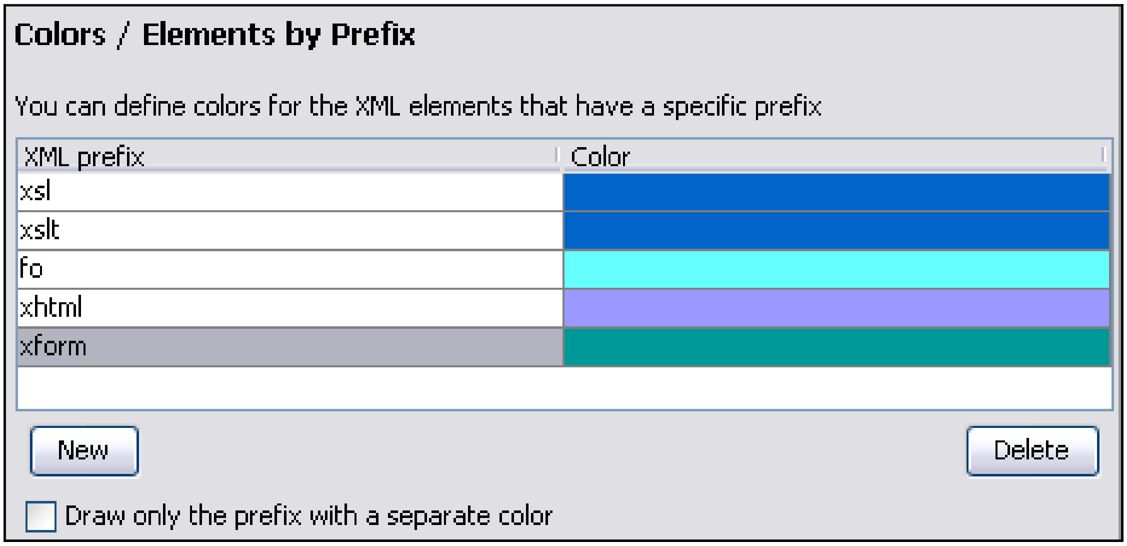
HSB — Hue, Saturation and Brightness (HSB) enables you to specify a color by describing it using hue, saturation and brightness.

RGB Red, Green and Blue (RGB) enables you to specify a color using triplets of red, green and blue numbers.

Preview Displays the color properties of the current token and results of customization.

Elements by Prefix

Figure 15.58. The Elements by Prefix preferences panel



Colors / Elements by Prefix

You can define colors for the XML elements that have a specific prefix

XML prefix	Color
xsl	🟦
xslt	🟦
fo	🟦
xhtml	🟪
xform	🟩

□ Draw only the prefix with a separate color

One row of the table contains the association between a namespace prefix and the color used to mark start tags and end tags in that prefix. Note that the marking mechanism does not look at the namespace bound to that prefix. If the prefix is bound to different namespaces in different XML elements of the same file all the tags with the prefix will be marked with the same color.

One can choose that only the prefix to be displayed in the chosen color by checking the *Draw only the prefix with a separate color* option.

Automatically importing the preferences from the other distribution

If you want to use the settings from “standalone” in the Eclipse plugin just delete the file with the Eclipse plugin settings `[user-home-dir]/Application Data/com.oxygenxml/optionsEc7.2.xml` on Windows / `[user-home-dir]/.com.oxygenxml/optionsEc7.2.xml` on Linux, start Eclipse and the “standalone” settings will be automatically imported in Eclipse. The same for importing the Eclipse plugin settings in “standalone”: delete the file `[user-home-dir]/com.oxygenxml/optionsSa7.2.xml`, start the <oXygen/> “standalone” distribution and the Eclipse settings will be automatically imported.

Importing/Exporting <oXygen/> preferences

In the <oXygen/> Options menu you can find the Import/Export preferences operations which allow you to move your preferences in XML format from one computer to another.

Chapter 16. Common problems

16.1. <oXygen/> opens a XML document after a long time. Why does it happen ? 357
16.2. On my Mac OS X machine when I double-click on the <oXygen/> icon the application doesn't start / gives a *Segmentation fault* error. 357
16.3. <oXygen/> crashed the JVM, what happened ? 357
16.4. After upgrading my OS X version to 10.4.x / my <oXygen/> version to 6.x <oXygen/> is not associated to the file types XML, XSL, XSD, etc. This worked in the previous version of <oXygen/>. 357
16.5. After upgrading my Mac OS X to version 10.4.1 Tiger I am not able to set all XML files to open with <oXygen/> when I click Change All in the Get Info dialog. This worked in OS X 10.3.x. 358
16.6. My file was created with other application and and it contains special characters like é, ©, ®, etc. Why does <oXygen/> display a square for these characters ? 358
16.7. How do I set the version X of the Java virtual machine for <oXygen/> on Mac OS X ? . 359
16.8. When I run a transformation in the XSLT Debugger perspective it is very slow. Can I increase the speed ? 359

16.1.

<oXygen/> opens a XML document after a long time. Why does it happen ?

All the content of your document is on a single line or the document is very large. If the content is on a single line please enable the *Format and indent the document on open* preference from Options → Preferences+Editor / Format before opening the document. If the document is very large (above 10 MB) you should increase the memory available to <oXygen/>.

16.2.

On my Mac OS X machine when I double-click on the <oXygen/> icon the application doesn't start / gives a *Segmentation fault* error.

Install the latest Java update from the Apple website. If that doesn't solve the problem copy the file `JavaApplicationStub` from the `/System/Frameworks` folder to the `oxygen.app/Contents/MacOS` folder. For browsing the folder `oxygen.app` Meta + click on the <oXygen/> icon and select Show Package Contents

16.3.

<oXygen/> crashed the JVM, what happened ?

Java applications can't do this. The problem is a bug in the JVM. Depending of your platform, there is information logged about what caused the crash. For Unix type systems you will get an error in the console (and for Mac OS X you may also get a report in ~/Library/Logs/CrashReporter/JavaApplicationStub.crash.log). Some problems with Java 1.4.x and Windows were the result of a bug in the JVM and certain graphics card drivers.

16.4.

After upgrading my OS X version to 10.4.x / my <oXygen/> version to 6.x <oXygen/> is not associated to the file types XML, XSL, XSD, etc. This worked in the previous version of <oXygen/>.

The upgrade damaged the file associations registry on your Mac OS X machine. Please rebuild the registry with the following procedure. This will reset all file associations and will rescan the entire file system searching for applications that declare file associations and collecting them in a database used by Finder.

Procedure 16.1. Rebuild file associations registry

1. Find all the <oXygen/> installations on your hard drive.
2. Delete them by dragging them to the Trash.
3. Clear the Trash.
4. Unarchive the installation kit on your desktop.
5. Copy the contents of the archive into the folder /Applications/Oxygen.
6. Run the command

   /System/Library/Frameworks/ApplicationServices.framework/Frameworks/ LaunchServices.framework/Support/lsregister -kill -r -domain local -domain system -domain user -dump

   from the Terminal.
7. Restart Finder with

   killall Finder

   from the Terminal.
8. Create a XML or XSD file on your desktop. It should take the <oXygen/> icon.
9. Double click it. After accepting the confirmation dialog <oXygen/> will be start up.

16.5.
After upgrading my Mac OS X to version 10.4.1 Tiger I am not able to set all XML files to open with <oXygen/> when I click Change All in the Get Info dialog. This worked in OS X 10.3.x.

On Mac OS X Tiger you must add an entry to the `Info.plist` file. Tiger was released after <oXygen/> version 6.0 so we could not include the change in the release. Please close <oXygen/>, press Meta + click on the <oXygen/> icon, select Show package contents, go to Contents, edit the `Info.plist` file, add the entry

```
<key>CFBundleIdentifier</key>
<string>ro.sync.exml.Oxygen</string>
```

and restart <oXygen/>. Select Change All in the Get Info dialog to make the association.

16.6.
My file was created with other application and and it contains special characters like é, ©, ®, etc. Why does <oXygen/> display a square for these characters ?

You must set a font able to render the special characters from Font preferences. If it is a text file you must set also the encoding used for non XML files. If a TrueType font installed on the computer is not accessible in the Font preferences the Java virtual machine is not able to load the system fonts. It is a problem of the Java virtual machine and a possible solution is to copy the files of the font in the `[JVM-home-folder]/lib/fonts` folder.

16.7.

How do I set the version X of the Java virtual machine for <oXygen/> on Mac OS X ?

<oXygen/> uses the first JVM from the list of preferred JVM versions set on your Mac computer that has the version number not less than 1.4.0. You can move your desired JVM version up in the preferred list by dragging it with the mouse on a higher position in the list of JVMs available from Applications -> Utilities -> Java -> Java Preferences.

16.8.

When I run a transformation in the XSLT Debugger perspective it is very slow. Can I increase the speed ?

Disable rendering of output to the XHTML Output view during the transformation process if the transformation produces HTML or XHTML output. In order to view the output result run the transformation in the Editor perspective with the option "Open in browser" or run it in the Debugger perspective, save the Text output area to a file and use an external browser for viewing.

Appendix A. Appendix

Table of Contents

Accelerator Shortcut Keys 360

The Main Editor 360

The Tree View Editor 361

Unicode Character Encoding 362

References 363

Accelerator Shortcut Keys

The Main Editor

File → New (**Ctrl+N**) : Displays the New dialog from which to select the document file type.

File → Open (**Ctrl+O**) : Displays the Open dialog used to discover, select and open one or more files.

File → Save (**Ctrl+S**) : Saves the current document. If the document does not have a file, displays the Save As dialog.

File → Save Results (**Ctrl+R**) : Displays the Save Results dialog, used to save the result-list of the, currently in focus, message tab.

File → Open Project (**Ctrl+F2**) : Displays the Open Project dialog used to discover, select and open a project file.

File → Save Project (**Ctrl+F3 (Cmd+G on Mac)**) : Saves the current project. If the project does not have a file, displays the Save Project As dialog.

File → Print (**Ctrl+P**) : Displays the Page Setup dialog used to define the page size and orientation properties for printing.

File → Close (**Ctrl+W**) : Closes only the selected tab. All other tab instances remain.

File → Exit (**Ctrl+Q**) : Terminates the <oXygen/> XML Editor. Session information such as the current Project, open Documents and Option settings is made persistent. When the <oXygen/> editor is reopened, the persistence information returns to the last saved state.

Edit → Undo (**Ctrl+Z**) : Reverses, a maximum of 100, editing actions to return to the preceding state.

Edit → Redo (**Ctrl+Shift+Z**) : Recreates, a maximum of 100, editing actions that where undone by the Undo function.

Edit → Cut (**Ctrl+X**) : Removes the current selected node from the document and places it in the clipboard.

Edit → Copy (**Ctrl+C**) : Places a duplicate copy of the current selection in the clipboard.

Edit → Paste (**Ctrl+V**) : Places the current clipboard content into the document at the cursor position.

Edit → Select All (**Ctrl+A**) : Selects the entire body of the current document, including whitespace preceding the first and following the last character.

Edit → Check Spelling (**F4**) : Checks the spelling in your document.

Find → Find/Replace... (**Ctrl+F**) : Displays the Find/Replace dialog, used to define "search for" or "search for and replace" operations on the current document. The replace operation can bind Perl 5-like regexp group variables ($1, $2, etc.) from the find match.

Find → Go to Line (**Ctrl+G (Cmd+L on Mac)**) : Displays the Go to Line dialog used to move the cursor directly to the position specified.

Find → Search again (**F3**) : Performs another search using the last search configuration.

Tree Editor → Show... (**Ctrl+T**) : Opens the window for editing a document displayed as a structured tree.

Help → Help (**F1**) : Opens the <oXygen/> XML Editor Online Help System.

Document → Validate document (**Ctrl+Shift+V**) : Executes the Validation operation on the current document using a validating parser. Returns an error result-list in the Message panel. Mark-up of current document is checked to conform with the specified DTD rules.

Document → Check document form (**Ctrl+Shift+W**) : Executes the XML Form check operation on the current document using a non-validating parser. Returns an error result-list in the Message panel.

Document → Apply transformation scenario (**Ctrl+Shift+T**) : Executes the transformation process using the configuration properties defined in the Configure Transformation dialog.

Document+ XML Document → Configure transformation scenario (**Ctrl+Shift+C**) : Displays the Configure Transformation dialog, used to define properties for conversion of documents to multiple output targets. Also enables saving of "Scenarios". Each scenario, can store a unique configuration ready to be used in the future.

Document → Format and Indent (**Ctrl+Shift+P**) : Also referred to as "Pretty Print", Format and Indent performs layout functions to make mark-up easier to read on screen and in print output.

Document → Learn Structure (**Ctrl+Shift+L**) : Reads the mark-up structure of the current document so that it can be saved as a template using the Save Structure option.

Document → Save Structure (**Ctrl+Shift+S**) : Displays the Save Structure dialog, used to name and create DTD documents learnt by the Learn Structure function.

Document → Find All (**Ctrl+Shift+F**) : Finds all occurrences of selected word in current file.

The Tree View Editor

File → New (**Ctrl+N**) : Creates a new empty document and displays it in the Tree View Editor.

File → Open (**Ctrl+O**) : Displays the Open dialog used to discover, select and open a file to be edited.

File → Save (**Ctrl+S**) : Saves the current document. If the document does not have a file, displays the Save As dialog.

File → Close (**Ctrl+W**) : Closes the Tree View Editor.

Edit → Copy (**Ctrl+C**) : Places a duplicate copy of the current node in the clipboard.

Edit → Cut (**Ctrl+X**) : Removes the current selected node from the document and places it in the clipboard.

Edit → Paste (**Ctrl+V**) : Places the node from clipboard as a child of the selected node.

Edit → Delete (**Delete**) : Delete the selected node from the document.

Edit → Start Editing (**F5**) : Starts editing the selected node from the document.

Edit → End Editing (**F6**) : Ends editing the selected node.

Edit → Undo (**Ctrl+Z**) : Reverses, a maximum of 100, editing actions to return to the preceding state.

Edit → Redo (**Ctrl+Shift+Z**) : Recreates, a maximum of 100, editing actions that where undone by the Undo function.

Insert → Insert (**F9**) : Insert a new node of the same type like the selected one as its sibling.

Move → Move Up (**Ctrl+Up**) : Move up the selected node with one position.

Move → Move Down (**Ctrl+Down**) : Move down the selected node with one position.

Unicode Character Encoding

The table below provides a matrix from which to match Unicode names with the names shown by the Java Encoder when it cannot identify encoding.

Table A.1. Unicode to Java Name Matrix

Common Name	Name in XML files	Name Type	Java Encoder Name
8 bit Unicode	UTF-8	IANA	UTF8
16 bit Unicode	UTF-16	IANA	Unicode
16 bit Unicode little endian	UTF-16LE	IANA	UnicodeLittle
16 bit Unicode big endian	UTF-16BE	IANA	UnicodeBig
ISO Latin 1	ISO-8859-1	MIME	ISO-8859-1
ISO Latin 2	ISO-8859-2	MIME	ISO-8859-2
ISO Latin 3	ISO-8859-3	MIME	ISO-8859-3
ISO Latin 4	ISO-8859-4	MIME	ISO-8859-4
ISO Latin Cyrillic	ISO-8859-5	MIME	ISO-8859-5
ISO Latin Arabic	ISO-8859-6	MIME	ISO-8859-6
ISO Latin Greek	ISO-8859-7	MIME	ISO-8859-7
ISO Latin Hebrew	ISO-8859-8	MIME	ISO-8859-8
ISO Latin 5	ISO-8859-9	MIME	ISO-8859-9
EBCDIC: US	ebcdic-cp-us	IANA	cp037
EBCDIC: Canada	ebcdic-cp-ca	IANA	cp037
EBCDIC: Netherlands	ebcdic-cp-nl	IANA	cp037
EBCDIC: Denmark	ebcdic-cp-dk	IANA	cp277
EBCDIC: Norway	ebcdic-cp-no	IANA	cp277
EBCDIC: Finland	ebcdic-cp-fi	IANA	cp278
EBCDIC: Sweden	ebcdic-cp-se	IANA	cp278

Common Name	Name in XML files	Name Type	Java Encoder Name
EBCDIC: Italy	ebcdic-cp-it	IANA	cp280
EBCDIC: Spain, Latin America	ebcdic-cp-es	IANA	cp284
EBCDIC: Great Britain	ebcdic-cp-gb	IANA	cp285
EBCDIC: France	ebcdic-cp-fr	IANA	cp297
EBCDIC: Arabic	ebcdic-cp-ar1	IANA	cp420
EBCDIC: Hebrew	ebcdic-cp-he	IANA	cp424
EBCDIC: Switzerland	ebcdic-cp-ch	IANA	cp500
EBCDIC: Roece	ebcdic-cp-roece	IANA	cp870
EBCDIC: Yugoslavia	ebcdic-cp-yu	IANA	cp870
EBCDIC: Iceland	ebcdic-cp-is	IANA	cp871
EBCDIC: Urdu	ebcdic-cp-ar2	IANA	cp918
Chinese for PRC, mixed 1/2 byte	gb2312	MIME	GB2312
Extended Unix Code, packed for Japanese	euc-jp	MIME	eucjis
Japanese: iso-2022-jp	iso-2020-jp	MIME	JIS
Japanese: Shift JIS	Shift_JIS	MIME	SJIS
Chinese: Big5	Big5	MIME	Big5
Extended Unix Code, packed for Korean	euc-kr	MIME	iso2022kr
Cyrillic	koi8-r	MIME	koi8-r

References

Organization for the Advancement of Structured Information Standards (OASIS) [http://www.oasis.org/]

OASIS is a not-for-profit, global consortium that drives the development, convergence and adoption of e-business standards. Members themselves set the OASIS technical agenda, using a lightweight, open process expressly designed to promote industry consensus and unite disparate efforts. OASIS produces worldwide standards for security, Web services, XML conformance, business transactions, electronic publishing, topic maps and interoperability within and between marketplaces.

World Wide Web Consortium (W3C) XML Specifications [http://www.w3.org/]

The World Wide Web Consortium (W3C) develops inter operable technologies (specifications, guidelines, software, and tools) to lead the Web to its full potential. W3C is a forum for information, commerce, communication, and collective understanding.

DocBook [http://www.docbook.org/]

DocBook is an XML/SGML vocabulary particularly well suited to books and papers about computer hardware and software (though it is by no means limited to these applications). DocBook is officially available as a Document Type Definition (DTD) for both XML and SGML and enjoys the support of a broad user base throughout 100's of organizations around the world.

IBM Developer Works XML Zone [http://www-106.ibm.com/developerworks/xml/]

A gateway to all things XML and home of the Darwin Information Typing Architecture (DITA) [http://www-106.ibm.com/developerworks/xml/library/x-dita1/] is an XML-based, end-to-end architecture for authoring, producing, and delivering technical information. This architecture consists of a set of design principles for creating "information-typed" modules at a topic level and for using that content in delivery modes such as online help and product support portals on the Web.

The Unicode Consortium [http://www.unicode.org]

The Unicode Consortium is responsible for defining the behavior and relationships between Unicode characters, and providing technical information to implementers. The Consortium cooperates with ISO in refining the specification and expanding the character set. It has liaison status "C" with ISO/IEC/JTC 1/SC2/WG2, which is responsible for ISO/IEC 10646.